PDXpert PLM Software User Guide

Current information about PDXpert software is always available at `www.BuyPLM.com`

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Thank you for selecting PDXpert as your product lifecycle management software. PDXpert provides your company with a simple, flexible and secure tool for managing your product data.

Product lifecycle management (or simply "PLM") is a methodology, as well as a tool, that should be tailored to meet your particular situation. Specifying PLM procedures depends as much on your company's culture and customer or regulatory requirements as on the technical contents of design documentation and product content management.

Since PDXpert offers you a great deal of flexibility, this help guide gives general PLM ideas and specific ways that you can change PDXpert to fit your company's needs.

> This help file documents all important features of PDXpert. Some software features may not be available depending upon how your administrator has configured your particular installation of PDXpert.

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On the ⟨ Contents ⟩ list of this help guide, you'll see icons that represent:

◆ A group of related topics (a "chapter"). Click on the ⊞ to expand the group and show the topics.

❓ A help topic. Click on the title to show the topic in the right panel.

In describing this application, a help topic may show these styles:

⟨ Key ⟩ is a key that you press on your computer's keyboard.

⟨ System data ⟩ is shown by the application or operating system. For example, it's used in the main window's *status bar*.

⟨ Item ⟩ contains a complete item, collection member or tool. It's shown in the *workspace*.

⟨ Page ⟩ selects one page of information, typically on a form as a *page selector* ("tab"). A ⟨ Topic ⟩ page that contains a ⟨ Related ⟩ page may be shown in this guide as ⟨ Topic: Related ⟩

⟨ Explorer ⟩ selects the Collection Explorer or Item Explorer. It's shown in the *Explorer selectors*.

Group Node ◢ Node shows a "navigation tree" group node to expand, and a node to select.

Default collection member in the Collection Explorer.

Inactive collection member in the Collection Explorer.

Data label shows the name of a data entry field or selection, or is instruction text.

⟨ Data entry ⟩ is the data that you type or otherwise provide.

Menu ➜ Command shows the menu to click, and the command to select.

⟨ Selected value ⌄ ⟩ shows a selection from a list of choices in a dropdown list.

☑ This is a checkbox It may be marked (*true* or *yes*) or not (*false* or *no*).

◉ This is a radio button It shows one selection from a limited set of options.

⟨ Button ⟩ causes an action when it's clicked with your computer mouse. The action may also be caused by a keyboard key, such as ⟨ Enter ⟩ or ⟨ Esc ⟩.

Notes provide special information:

> A warning identifies areas that require extra caution to prevent damaging your data.
> Understand the effects of your action. If you need to explore possible results, use a separate test environment.
> Some actions cannot be reversed or undone, so back up your data before you begin.

> A note directs your attention to important issues and PDXpert business rules.

> A tip may make your PDXpert use more productive, but it's not essential to successful operation.

Item iteration release state

▶ ⟨ Pending ⟩
✓ ⟨ Released ⟩
✗ ⟨ Canceled ⟩

Document class with release state

📄 Document
📄 ⟨ Pending ⟩
📄 ⟨ Released ⟩
📄 ⟨ Canceled ⟩

Part class with release state

Part

Pending

Released

Canceled

Change form class with lifecycle status

Change form

Summary status:

In-work status

Released or completed status

Canceled or rejected status

In work:

Originated

Submitted to analyst

Routed for approval

Held awaiting more information

Stopped after disapproval, wait for an analyst to select the next step

Accepted, and waiting for analyst final review

Success:

Released. All reviewers approved the change. The analyst completes the change.

Completed. The affected items are dispositioned.

Failure:

Canceled, after a reviewer disapproved. The analyst deletes the change.

Rejected, after a reviewer disapproved. The change form is kept permanently.

Change form reviewer response

Approve

Disapprove

Hold

Change affected items and dispositioning

Change releases iteration

Change cancels iteration

Iteration disposition row

Show/hide home items

Show/hide partner items

Show/hide parts

Show/hide documents

Collapse list to hide details

Expand list to show details

Add disposition button.

Delete disposition button

Releasing affected item

Releasing and canceling affected item

Canceling affected item

Advisory and executing changes

Executing

Advisory

Change and task priorities

High

Normal

Low

Email queue status

Email ready

Email blocked

Email failed

Other icons show actions and status

≡ Page has data

Error, such as missing or duplicate record

Warning, such as duplicate collection abbreviation

RELATED TOPICS

[Arrange the Explorer windows](#)

[Item menu](#)

[Edit menu](#)

[Tools menu](#)

[Process menu](#)

[Window menu](#)

[Help menu](#)

The PDXpert® Application Server shows an administrator interface window (the "console") for configuring the system and for managing your product database and library. It works with the PDXpert Server service that communicates with PDXpert client applications and the Microsoft® SQL Server™ database engine.

> In the PDXpert Application Server help topics, pay special attention to warnings like this to avoid data damage or loss.

> The PDXpert Application Server requires complete and exclusive control of its database. Do not add your own table, view, stored procedure, or other resource in the PDXpertDB database. Do not alter PDXpert tables, views or other objects. During an upgrade, PDXpert may add, alter or drop tables, and make other changes. An upgrade drops **all** stored procedures, functions, triggers, and views (with the Views collection), and then rebuilds. Make a separate database to hold your own objects.

> Do not rename the database logical name, `PDXpertDB`, or physical file names, `PDXpertDB.mdf` / `PDXpertDB_Log.ldf`. Do not move the physical files out of the `\Data\Database` folder.

> Do not add files to the server's `\Data\` folder or its subfolders. Unrecognized files may interfere with proper operation or may be deleted without warning.

The PDXpert Server console:
- Supports database backup, restore, relocation, reset and instance assignment functions.
- Saves the set of server console and service log files.
- Resets the super administrator's log-in account password.
- Provides a web browser link that points to the PDXpert client installer, and a button to save the client installer.
- Resets the PDXpert super administrator account password.
- Shows information about PDXpert, Windows and SQL Server, and copies technical details to the Windows clipboard.

The PDXpert Server service:
- Confirms that the user logging into the PDXpert client application is authorized to access your system.
- Verifies that the PDXpert client application is compatible with the PDXpert service and database schema.
- Manages data transfer between the PDXpert client application and the database.
- Manages the file library for the PDXpert client application.
- Manages the PDXpert Filter service (a child process), which submits file attachment indexing requests to the Windows Search service.
- Validates the software license that your organization has been given.
- Downloads new installation software to out-of-date clients.

Before using the PDXpert Server console, or making changes to the service settings, review the appropriate sections of this help file. The *How to...* topics provide detailed instructions.

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You should back up your database and library (file attachments) frequently to insure against data loss.

Do not attach copied database MDF/LDF files to another PDXpert Server. Each database has a unique database identifier to ensure client cache coherence. The PDXpert Server service automatically assigns the new identifier is when it restores the database backup (`.PDXZ` or `.BAK`) file. Attaching the database by other means – such as SQL Server Management Studio, PowerShell or Windows command line – will damage your data unless the database identifier `dbo.PDXpertInfo.DatabaseId` is also updated and the PDXpert Server service is restarted.

Microsoft recommends backing up a SQL Server database to an **internal fixed drive**. The operation may fail – possibly without any warning – if you select a compressed, network-mapped, or external volume. Confirm that a backup that's saved to the selected device can be restored.

The selected backup location must have sufficient free disk space for the backup file. The server disk also must have free disk space to build the temporary backup file.

Do not add files to the server's `\Data` folder or its subfolders. Unrecognized files may interfere with proper operation or may be deleted without warning. If the folder has been moved, the actual name may not be `\Data` but perhaps `\PLM-Data` , `\PDXpert` , or something else.

PDXpert releases are not backward compatible. A backup made by a specific PDXpert Server release can only be restored into the same, or higher, PDXpert Server. If it's restored into a higher release, the backup file is automatically upgraded to the PDXpert Server's release.

Microsoft SQL Server databases are not backward compatible.
- A database backup can only be restored into the same, or higher, SQL Server instance. For example, SQL Server 2017 (version 14.0) can accept a 14.0 database, as well as an older SQL Server 2016 (13.0) database.
- SQL Server can't "downgrade" a higher-level database backup. For example, restoring a backup file from SQL Server 2019 (version 15.0) into an earlier SQL Server 2017 (14.0) will fail.

The backup file name includes information about the server machine name, backup date, PDXpert release, and SQL Server version: `{machine}-{date}-{release}-`*`{version}`*`.pdxz` When restoring the backup database, the file name's SQL Server version is compared to the installed instance to warn of incompatibility.

When restoring a database into a more recent SQL Server version, the restored database stays at the older SQL Server compatibility level. For example, if the backup file was created using SQL 2014 (level `120`) and restored to SQL 2019 (level `150`), the restored database stays at `120` until upgraded using the `ALTER DATABASE` command. Upgrading the compatibility level gives improved T-SQL language features. Always check the Microsoft and PDXpert release notes, and test your **Transforms** collection members. For details, search the web: `view or alter database compatibility level`

Using the manual backup tool

On the PDXpert Application Server window:

1. Select the Manage page.
2. In the Maintenance area, click the Backup… button to open the ☑ Save Backup As dialog.
3. There are two backup formats available:
    - The default backup format is Database with Library (*.pdxz) ⌄ . This is a simple way to save your database and all library files into a single compressed ("zip") file. The file contains the SQL Server backup (`.BAK`) file, an XML manifest file, and the library file attachments.

        Files that are downloaded from the internet or compressed in other operating systems (like Linux or MacOS) may not work well in Windows. Before saving a compressed file attachment in PDXpert, always expand and then re-compress these files using Windows File Explorer or another Windows compression tool. See the File tab help topic. Or, use only the Database without Library (*.bak) ⌄ backup format.

> The PDXZ format is convenient as you're starting out, but it's intended only to support smaller systems. Use a commercial backup solution before the `\Database` and `\Library` subfolders reach 1GB. See Automating your backup , below.

- The alternative backup format is `Database without Library (*.bak)` ⌄ . This saves the "raw" SQL Server database without including the library files. This is a much faster backup, and is useful for maintenance, but is incomplete without the file attachments.

> To have a complete backup, you must use Windows or a backup tool to copy all of your library files that are stored in the `\Library` subfolder.
> Copy the `\Library` folder contents **after** the database backup is done.

> If more than 2GB of files are in the `\Database` and `\Library` subfolders, you can only save the SQL Server database without the library files. This will be shown by the `DATABASE ONLY - NO LIBRARY (*.bak)` ⌄ format type.

4. Choose the location where you want your backup file to be saved, and click the `Save` button.

> Secure your backups to prevent unauthorized access to archival data. The backup database file does not carry any access restrictions, and includes your software license key. It may be loaded into a different PDXpert instance, and the database element can be extracted and loaded into any SQL Server database engine.

> The PDXZ file is constructed in the `\Temp` folder. Temporary files are normally deleted after the PDXZ file is transferred to the selected location. If a backup error (such as disk full) prevents automatic deletion, all temporary files can be manually deleted after all users exit the PDXpert client application.

To restore the backup, see the Restore data from a backup help topic.

Automating your backup

> **Your server backup software must be compatible with SQL Server. Consumer-grade backup utilities may not be capable of correctly backing up a SQL Server database, and can even damage or delete your original database.**
> Search the web for `sql server backup software` . Some less-capable tools may back up the SQL Server database only, and you may need a separate utility for backing up the files contained in the library folder.

It's very important to have a scheduled backup procedure that automatically saves the database and the library to a safe archive. As your database and file library grow, the compressed `.PDXZ` backup file will take longer to finish, consume more system resources, and be increasingly vulnerable to file system errors.

Data that must be backed up

There are two essential PDXpert data elements that you must protect:

1. The SQL Server database in which all of the product data is maintained (for example, files like `PDXpertDB.mdf` and `PDXpertDB_log.ldf`), and
2. A Windows folder, called the `\Library` folder, that contains all files that have been attached to PDXpert's items.

Both of these data elements work together. Therefore, they must be backed up as a set.

Finding the data to be backed up

The options are:

- Back up the entire server computer.
- Back up the entire disk drive that contains the PDXpert `\Data` folder.
- Within the disk drive, back up the entire content of the `\Data` folder.
- Within the `\Data` folder, back up only the content of these two folders:
  - SQL Server database files: `\Database`
  - PDXpert library files: `\Library`

The disk drive and the location of the data folder are shown on `Manage` .
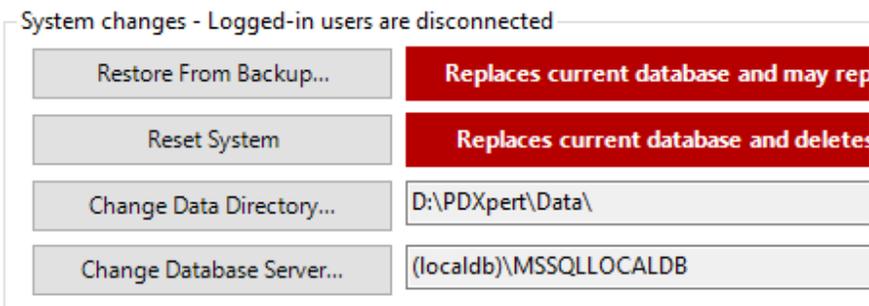
Automation practices

> Regularly assess your backup & recovery risks, procedures and technologies. Develop and maintain a robust data backup and disaster recovery plan in consultation with your IT specialist. Always validate the results of a new or revised backup procedure.

Your Windows operating system may have the necessary software utilities to make a reliable backup procedure. There are also many commercial tools available to perform this important task.

When developing your data backup and disaster recovery plan, consider these practices:
- Schedule backups during quiet periods: backup jobs consume a lot of I/O resources.
- Ensure that the backup interval reflects how quickly your data ages, and balance this interval with users' time to reproduce lost data after the most recent backup's been restored.
- Avoid propagating viruses by scanning file attachments before saving them into the library.
- Some antivirus software can interfere with the PDXpert Application Server, and should be tested for problems while users perform normal database and library file tasks.
- Do not use your production database/library disk as the primary backup device. Use a separate physical disk and not simply a partition on the same disk.
- After a backup is complete, copy the backup file(s) from the primary backup drive to a secondary device. This secondary device should be secured, and logically and physically separate from the production network. Use disk-to-disk or disk-to-cloud technology for secondary backups. Avoid tape.
- If you don't control your off-site storage location, consider encrypting your saved data.
- To minimize downtime, ensure that off-site backups can be retrieved quickly.
- Don't be too aggressive in purging old backups. In a very large historical file library, a monthly snapshot going back a few years may provide that one crucial file that was corrupted long ago but only recently discovered.
- Periodically make sure that your hardware, particularly disk subsystem, is functioning properly.
- Test the data integrity of your backup procedure by restoring the backup file(s) into a fresh configuration. Regularly validate that the backup procedure is making correct backup files.

Restoring a VSS backup

When restoring an automated backup that uses the Volume Shadow Copy Service (VSS), stop the PDXpert Server service before copying the data into the data folders.

In this example, the VSS backup consists of all folders and files within a `\Data\` folder.

1. Ensure all users are logged out of the PDXpert client application.
2. Restore the VSS backup data to a local temporary folder ("source location"). For example: `E:\Temp\Data\`
3. On the server computer, open the PDXpert Application Server window. (See image above.)
   - A. The VSS backup data will be copied to the data directory (the "target location"). Note the target location shown next to the `Change Data Directory` button. For example: `D:\PDXpert\Data\`
   - B. Find the SQL Server instance name, as shown next to the `Change Database Server` button. This instance is typically named PDXPERT, and usually shown like `.\PDXPERT` .
     If your system uses a SQL Server Express LocalDB database instance, it'll be shown as `(localdb)\MSSQLLOCALDB` .
     This can be confirmed on the PDXpert Application Server's `Information` page, where the `SQL Server` information box will

include `LocalDB` in the name.

    C. Close the PDXpert Application Server window.

4. In the Windows `Administrator Tools` > `Services` window:

    A. Find and <u>Stop</u> the `PDXpert Server` service. If asked by the system, allow the `PDXpert Filter Service` to stop.

    B. Find and <u>Stop</u> the `SQL Server (instance)` service, where *instance* is the name of the PDXpert instance that you found in Step 2; for example, `SQL Server (PDXPERT)` . *Skip this step if your system is using SQL Server Express LocalDB.*

5. Copy the content of the VSS backup `\Data\` folders from the source location to the target location.

6. In the `Administrator Tools` > `Services` window: <u>Start</u> the `PDXpert Server` service.
Do not start the PDXpert Filter service; it is started by the PDXpert Server service only when needed.

7. Use the PDXpert client to show that the system is working as expected.

If the VSS backup doesn't contain all `…\Data\` folders (for example, it contains only the essential `…\Data\Database\` and `…\Data\Library\` content), then use the `Tools menu` ➜ `Index Status…` command to re-index the restored data.

3002

You can restore a database and related library files from a previous backup. You may need to do this if you're moving PDXpert to a new server or recovering from a computer failure. You may also want to restore a previous database if you're experimenting with configuration options or using the [Batch Importer tool](#) , and want to return to a previous configuration.

> The restored backup data **completely and permanently overwrites** the current database in the `\Database` folder.
> - Restoring a `.PDXZ` backup file **completely and permanently deletes** all library files before copying its contents into the `\Library` folder.
> - Restoring a `.BAK` backup file doesn't delete, change or replace any files contained in the `\Library` folder.
>
> Consider whether you should back up the current database and library before restoring your backup file.

> **Do not use SQL Server commands to attach database MDF/LDF files copied from another PDXpert system. This can damage your data.** To ensure client cache coherence, each database must have a unique database identifier (`dbo.PDXpertInfo.DatabaseId`). The PDXpert Server assigns a new identifier when it the restores the database, and the SQL Server ATTACH command does not.

> Microsoft recommends restoring a SQL Server database from an **internal fixed drive**. The operation may fail – possibly without any warning – if you select a compressed, network-mapped, or external volume.

> Microsoft SQL Server databases are not backward compatible.
> - A database backup can only be restored into the same, or higher, SQL Server instance. For example, SQL Server 2017 (version 14.0) can accept a 14.0 database, as well as an older SQL Server 2016 (13.0) database.
> - SQL Server can't "downgrade" a higher-level database backup. For example, a backup file from SQL Server 2019 (version 15.0) cannot be restored into an earlier SQL Server 2017 (14.0) instance.

> Do not restore a higher backup file into an older PDXpert Server release. A backup can be restored only into the same, or higher, PDXpert release.
> For example, a PDXpert server 14.0.2700.5 can restore a 14.0.2700.5 backup file, and can upgrade an older 12.2.1000.4 backup file. A PDXpert server 14.0.2700.5 doesn't accept backups from higher releases, say, 15.0.3000.5. Refer to PDXpert's release notes for further compatibility details.

> Do not add files to the server's `\Data` folder or its subfolders. Unrecognized files may interfere with proper operation or may be deleted without warning. If the folder has been moved, the actual name may not be `\Data` but perhaps `\PLM-Data` , `\PDXpert` , or something else.

> When first opening a PDXpert client, you may need to import your current software license key file. The software license key must allow the current PDXpert release.
> - A software license purchased as a subscription must be current.
> - A perpetual license must show an expiration date after the PDXpert software release date.

> All PDXpert client connections are closed when the backup file is restored. Users must restart their client application.

> The backup file name normally includes information about the server machine name, backup date, PDXpert release, and SQL Server version: `{machine}-{date}-{release}-{version}.pdxz` When restoring the backup database, the file name's SQL Server version is compared to the installed instance to warn of incompatibility. If the file has been renamed, file compatibility may be uncertain.

On the PDXpert Application Server window:

1. Select the Manage page.
2. If the database and file attachments were saved using the default backup format Database with Library (*.pdxz) ⌄ , then skip this step and go to the next step.
   If the database and file attachments were saved separately using the alternative backup format Database without Library (*.bak) ⌄ , then:

A. On the PDXpert Server, click the Reset System button to clear the previous database and all files contained in the \Library subfolder. See the Reset the database and library help topic.

B. Copy your saved library files into the empty data directory path's \Library subfolder.

> Ensure that these files are related to (and were copied immediately after) the database backup .BAK file that you'll restore in the next step.

3. In the System changes area, click the Restore From Backup... button to open the ☑ Restore From Backup dialog. Navigate to the location where your backup file is saved, select the correct backup file, and click the Open button to immediately load the backup file into the server. The system makes a new database index. A large database may take a while to re-index.

> If the database was saved by an older release of PDXpert, then the database is automatically upgraded to the current schema. After upgrading, the database cannot be used with the older release.

4. Make sure that the restored system is accurate, consistent, and correct.

   - Accurate: The restored system – parts, documents, change forms, collections, etc. – contains exactly what you expect and is not, for example, an older backup.
   - Consistent: The database items refer to the matching set of library file attachments.
   - Correct: The right software license key is loaded, users can log into the client, and items can be searched, found and opened.

A. Log into the PDXpert client application.

> Your PDXpert client may request a valid software license key that lets the installed PDXpert release use the restored data.

B. Wait until all items are indexed (Tools ➜ Index Status...).

C. Search for an item with a file attachment that was saved just before the backup. View or copy the attachment to confirm its content.

If you can open the item record, but can't confirm its file attachment, then the library files have not been restored to the correct location or are inconsistent with the database.

Reset the super administrator account password when all other administrator accounts or passwords have been lost. The super administrator can then log into the PDXpert client and update user accounts in the PDXpert client's User Management tool.

> Anyone with access to the PDXpert Application Server console can reset the super administrator account. A reset provides full administrative access to your system configuration and product data via the PDXpert client application. Ensure that access to your server computer is limited to authorized users.

> The super administrator account is set within the Collection Explorer's **PERSONS** collection. See the Setting a user as the super administrator help topic.

On the PDXpert Application Server window:

1. Select the Manage page.
2. In the Maintenance area, click the Reset Admin button. The status text shows the super administrator account name and confirms that the password has been cleared.

   > By default, the new super administrator account name is set to Admin . If the super administrator's account is authenticated to an Active Directory domain, then the user name is reset to exclude the domain; for example, engineering\lee is reset to Admin . If a different user has the default name *Admin*, then the system will append and, if necessary, increment the super administrator's user name as Admin1 , Admin2 , etc.

You can now log into the PDXpert client application. At the client log-in window, type the super administrator's user name into the Enter your account name textbox, leave the Enter your account password blank, and click the OK button.

3014

The Reset System button overwrites the current database with fresh starting values, and deletes all file attachments in the library. This is useful when you're first evaluating PDXpert and, after finishing with your test data, you want to return to an "empty" database.

> **Your data and library files are completely and permanently deleted, and the system is restored to its default settings**. If you need the existing data, back up the database and library files before you reset the system.

> All users must close their PDXpert client application before the system is reset.

> The PDXpert Application Server requires full control over its database. Do not add your own table, view, stored procedure, or other resource in the PDXpertDB database. Do not alter PDXpert tables, views or other objects. During an upgrade, PDXpert may drop or update tables, change stored procedures, or make other changes; it then clears and rebuilds all views and members of the VIEWS collection. Make a separate database to hold your own objects.

> Do not add files to the server's `\Data\` folder or its subfolders. Unrecognized files may interfere with proper operation or may be deleted without warning.

> If your system has been issued a software license key, confirm you have a copy before you reset the system.

On the PDXpert Application Server window:

1. Select the Manage page.
2. In the System changes area, click the Reset System button. When the warning is shown, clicking the Yes button will confirm that you want to overwrite the current database with new starting values, and clear the file library folder.

3012

The PDXpert Application Server manages different types of data in several subfolders under a single "data directory" Windows folder. Together, these subfolders contain your complete PLM data: database, file library, search index and related settings. When the PDXpert Application Server is first installed, the data subfolders are made within the default data directory. Changing the base path copies the data subfolders and their contents into the new data directory.

> Before changing the data directory:
> - All users must be logged out of the PDXpert client application.
> - Back up your database and library.

> The selected data directory must be on a **local uncompressed internal drive**. The operation may fail – possibly without any error message – if you select a compressed, network-mapped, or external (e.g., USB) volume.

> The selected destination folder must be empty, or must be a previously-used PDXpert data directory.
> - If the selected folder is empty, then the source data is copied into the empty folder.
> - If the selected folder is a valid PDXpert data directory that contains the `pdxpertdata` signature file, then **data in the destination folder is not deleted**. The PDXpert Server begins using the data in the destination folder.
> - If the selected folder contains data that PDXpert does not recognize, a warning is shown. If you click the `Yes` button, **data in the destination folder is deleted** and the source data is copied into the empty folder.

> Do not add files to the server's data folder (usually `\Data\`) or its subfolders. Unrecognized files may interfere with proper operation or may be deleted without warning.

> Application performance relies on good data disk performance. Consider using a solid-state drive (SSD) or other fast technology.

On the PDXpert Application Server window:

1. Select the `Manage` page.
2. Within the `System changes` area:

   - The `Change Data Directory...` button opens the ☑ Browse for Folder dialog. Choose or make the folder *on the local computer* where you want your product data and library files to be saved, and click the `OK` button. For example, if you want the `\Database` , `\Library` and other folders within `D:\PDXpert\Data` , then select or create the `PDXpert` and `Data` folders for this path.

     > Moving the data may take a while: the PDXpert Application Server must copy the database, index, and each library file.

     > The data contained in the source directory is not deleted.

   - The `Copy` button copies the current folder path to the Windows clipboard.
   - The `Open...` button opens the data directory in Windows File Explorer.

By default, the PDXpert Application Server installs its own Microsoft SQL Server database instance. If you wish, you can specify a different SQL Server instance.

> Back up your database before changing the SQL Server instance.

> The SQL Server instance you select must be compatible with your existing SQL Server database files. For example, if your database is using a SQL Server 2019 instance, then you must select SQL Server 2019 or newer for the replacement instance. You may not select an older instance, such as SQL Server 2017.

> The selected SQL Server instance must exist on the current computer. Do not select a SQL Server instance on a different computer.

> The PDXpert service expects it has full control of the instance, which may include restarting it. This can affect other applications that share the same instance.

> Do not make new objects within the PDXpertDB database, since unrecognized objects may interfere with proper operation or be deleted.

> All users must be logged out of the PDXpert client application.

On the PDXpert Application Server window:

1. Select the Manage page.
2. In the System changes area, click on the Change Database Server... button to open the ☑ SQL Server Selector dialog.
3. Select or enter a Database engine (instance) name , and click the OK button to save your selection. The connection uses the form .\instancename , like .\PDXPERT .

   > This change simply specifies which SQL Server instance manages your database. The database and library files are not moved; they remain in the original data directory. You can move the database and library files using the Change Data Directory... button.

   > When you need technical support for your system, include details about your database instance as shown on Information .

4. Reset service connections by doing one of these:
   - Restart the Windows server computer; or
   - In the Administrator Tools > Services window: Restart the PDXpert Server service. If you are asked, allow the PDXpert Filter service to restart.

Downgrading the database server

> **This procedure deletes your database and library files. Before using this procedure, back up the database <u>and</u> the library files.**

> Downgrading does not convert a higher-level SQL Server database to the lower-level SQL Server version. The database that you restore in the last step must be compatible with the lower-level SQL Server engine.

If you must change to a lower-version SQL Server (for example, because an incorrect SQL Server instance was selected above):

1. Back up both database and library. See the Reset the database and library help topic.
2. In the System changes area, click on the Change Database Server... button to open the ☑ SQL Server Selector dialog.
3. Select or enter the original SQL Server instance, and click the OK button to save your selection.

   > The system normally shows an error message that the current database is incompatible. You can ignore errors like The database 'PDXpertDB' cannot be opened... and A downgrade path is not supported. These will be fixed in the next step.

4. Click the Reset System button. This loads a new starting database that is compatible with the selected SQL Server version, and verifies the database connection.

5. Restore the database and the library files. See the Restore data from a backup help topic.

PDXpert backs up your system's SQL Server database and library files into a single compressed file with a `.PDXZ` file extension ("PDXpert Data eXport, Zipped").

> The `.PDXZ` backup file is different from an IPC-2570 file with a `.PDX` file type (a [PDX package](#)).

This topic tells how to extract data from the `.PDXZ` backup file.

Opening the PDXZ file

The database and library files are compressed by the PDXpert Application Server into a PDXZ file using the Zip64 compression format. Older versions of Windows can open a Zip64 file only with the assistance of a third-party utility, while Windows File Explorer in current versions of Microsoft Windows can open a Zip64 file directly.

1. In Windows File Explorer, change the file extension on your PDXpert backup file from `.PDXZ` to `.ZIP` (e.g., `MyBackup.pdxz` to `MyBackup.zip`)
2. Open your renamed PDXpert backup file (e.g., `MyBackup.zip`) by right-clicking the file within Windows File Explorer, and selecting `Open` from the context menu.

You can extract the database backup file (`PDXpertDB.bak`), or the library folder and its contents, by dragging it to a location on your computer.

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On the PDXpert Application Server, the [Manage] page contains controls for maintaining and modifying your PLM database.

> **To avoid damaging or losing your data**: Refer to each PDXpert Application Server help topic for important operating procedures.

> Do not rename the database logical name, `PDXpertDB`, or physical file names, `PDXpertDB.mdf` / `PDXpertDB_Log.ldf`. Do not move the physical files out of the `\Data\Database` folder.

> Do not add files to the server's `\Data\` folder or its subfolders. Unrecognized files may interfere with proper operation or may be deleted without warning.

Maintenance

While clients are using the system, you can back up your database and library, reset the super administrator's password, and save log files for technical support.

Backup...
> The [Backup] button makes a database backup, which may include (`.pdxz`) or exclude (`.bak`) the file library. See the [Back up the database and library](#) help topic.

Reset Admin
> The [Reset Admin] button resets the current super administrator account to use a blank password. Clicking the button shows the super administrator's log-in account name which you can use, with a blank password, to log into the PDXpert client. See the [Reset the administrator password](#) help topic.

Save Log Files...
> The [Save Log Files...] button saves the set of PDXpert Application Server's diagnostic files into a single compressed (`.zip`) file.
>
>> The log files are managed in `%ProgramFiles%\PDXpert\PDXpert PLM\Logs` Open this folder by pressing the [Alt] key while clicking the button.

System changes

> When you perform a function within this group of controls, the PDXpert client communication service is stopped. Users are forced out of the database without warning.

Restore From Backup...
> The [Restore From Backup] button lets you browse for a backup file to restore, which can have either a `.PDXZ` or `.BAK` file extension. See the [Restore data from a backup](#) help topic.

Reset System
> The [Reset System] button overwrites the current database with the starting values of an empty database, and deletes all files in the library. See the [Reset the database and library](#) help topic.

Change Data Directory...
> This defines the folder base location for storing library files, the product database, and other data. Separate subfolders are added automatically within the selected location. See the [Change the data directory](#) help topic.
> The [Copy] button copies the folder path to the Windows Clipboard. The [Open...] button opens the folder in File Explorer.

Change Database Server...
> Select the SQL Server database instance from the dropdown list; for example, [.\PDXPERT ⌄]. See the [Change the database server](#) help topic.

Client installation

The PDXpert Application Server has an `http:` service that can deliver the PDXpert client installer to other computers on local or public networks.

To download the client installer, open a web browser to the link shown. The link is of the format `http://`*servername*`:`*port*`/client/setup` where *servername* is the server computer's machine name (or IP address), and the *port* value is usually `48084` .

Copy Installer Link
    Click this button to copy the browser link to the Windows clipboard, which can then be pasted into (for example) an email.

Save Client Installer...
    Click this button to save a copy the PDXpert client installer (`.EXE` file) to a convenient location.

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The Information page shows the software release and server operating environment.

Copy

Copies information about the PDXpert application and its environment to the Windows clipboard.

View Services…

Opens the Windows Services application to show information about the PDXpert Server service.

> Be careful when using the Services window. For example, stopping or restarting the PDXpert Server service immediately disconnects all users currently logged into the system. Consider closing the PDXpert Application Server and all PDXpert clients before making changes.

The About page provides quick access to the software licenses. See:

[PDXpert License Agreement](#)
[PDXpert End User License Terms](#)
[Other software licenses](#)
[Legal notices](#)

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Your security account determines your permissions to system functions and database records within the context of a PDXpert database (server). Your account has two elements: a user account name and a password.

1. From the Windows `Start` menu, select the `PDXpert` program folder, and then the `PDXpert PLM` program. (Or, double-click the `PDXpert PLM` desktop icon.)

2. When the ☑ `Welcome to PDXpert PLM` dialog shows, enter your account name.

   > If no user accounts have been set up, use the default account name `Admin`.

   > If your user account is configured to use domain authentication, then include the domain (and perhaps port number) with your user name `domain:port\username`, such as `engineering\lee`. See the Add a new user account help topic for details.

3. Enter your account password.

   > The password is case-sensitive, so enter the password *exactly*.

   > If no user accounts have been set up, use the default account password [   ] (blank).

4. Enter the computer name or IP address of your PDXpert application server into the `Server computer's machine name` control. If the PDXpert Application Server is installed on your local workstation, use the default value `localhost`.

5. You may select `Options`:

   - Mark ☑ `Encrypt my connection to this server` when using an untrusted connection, such as the public internet or a Wi-Fi network. Encryption affects data transfers only; the server's database remains unencrypted. If your PC is connected to the server using a VPN or wired LAN, encryption may not be needed.

     > PDXpert implements a Transport Layer Security (TLS) application-specific VPN using forward secrecy. The PDXpert server and each client generate a unique public key security certificate. These are used to negotiate a shared symmetric security key that has a relatively short lifespan, and is then replaced. Transfer rate is similar to, and data security is often better than, using a normal VPN.

   - Mark ☑ `Reset my account settings` to clear the client local cache. This resets your window locations, search terms, previously-opened items list and the client cache. It does not affect the `User Settings…` tool settings.

     > The client local cache contains summary data from each system you use. A reset forces the client to delete and rebuild the cache. This may take a few extra seconds to several minutes, depending on the cache size and your network speed. If you use more than one system, each cache is rebuilt when you next connect to that system.

   - Click the `Save Log Files` button to save the PDXpert client's diagnostic file to a convenient location.

6. Click the `OK` button.

   > If this dialog opens again after clicking the `OK` button, refer to the help topic Solve client log-in problems.

   > There's a normal start-up delay the first time you log into PDXpert, and whenever you connect to a different or upgraded server. The client must build its local cache, and may need to download new code compatible with the server.

PDXpert Server and the PDXpert client

Server computer (localhost) clients

The PDXpert Server installer automatically installs its own PDXpert client into the **All Users** (machine) profile on the server computer. This client is called the localhost client because you log into PDXpert using the `localhost` value in the `Server computer's machine name` control (step 4, above).

The client is updated by the `PDXpertSystemSetup` installer, not by the PDXpert Server.

> Do not connect one server's localhost client to another other server unless both servers have the exact same PDXpert release.

Network-attached (remote) clients

Any other PDXpert client on the network is called a network client (or "remote client"), because it must connect to a PDXpert Server using the server's machine name or IP address.

Network clients can connect to any server on the network. A PDXpert Server with a different software release sends its own client code to the network computer. The network client keeps each server's code for future use.

> Do not install the PDXpert network client software on the server computer.

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Administrators open this window using Tools menu ➜ Software License Key… The menu command is shown when the user's role has ☑
 Collections/Rules administrator marked.

The software license identifies your copy of PDXpert and determines its capabilities, such as the number of users allowed and the period for which the software can be used or updated.

> Carefully read the *Software licenses & legal notices* reference topics, with special attention to the [Program license & warranty agreement](#) . By using the software license key, you agree to be bound by this agreement.

> About 30 days before a subscription period expires, administrators are shown a reminder in the client application's status bar. For a perpetual license, this MSU subscription reminder is also shown for 30 days after the subscription ends. **To avoid a gap in the service, purchase a new subscription before the expiration date.**

> If there are more user accounts than the license allows, then only the [super administrator account](#) can log into PDXpert and remove extra log-in accounts. Other users are blocked until the extra user accounts are deleted.
>
> If you receive a new license that reduces the number of licensed users, and if the old license is still valid, [set the extra user accounts as inactive](#) before importing the new license.

> See the [Managing user accounts](#) help topic for more information.

If you have a license file

A PDXpert license file (file type `.pdxl`) contains your company registration information and license key.

> Save a backup of the most recent license file in a secure place. It may be needed if the software is re-installed.

> The license file authorizes all user accounts, and needs to be imported only once for all users.

> The PDXpert license key file is cryptographically signed to verify the license and to support security actions on PDX packages. These actions confirm a signed PDX package's data integrity, authenticate the sender, and allow AES-256 password encryption. License key file validation requires frequent access to the Certification Authority's certificates, which are hosted on the web. A computer without an internet connection must have the Certification Authority's root and intermediate security certificates (the "CA certificate chain") installed.
> - Do not edit the license file; signature validation requires an exact match.
> - The PDXpert Server must have an internet connection, or the CA certificate chain must be installed on the server machine.
> - The PDXpert client that imports the license file must access the CA certificate chain: (1) use the server machine's `localhost` PDXpert client to import the software license key; or (2) install the certificate chain on the PDXpert client computer.
>
> Without access to the CA certificate chain, the ☑ Software License Key dialog's OK button may be disabled or, if enabled, cryptographic features may not be available to users.
>
> Where an internet connection is not allowed, the PDXpert website's *Install Guide* has simple instructions to add local CA certificates – search the web for `PDXpert install CA certificate chain`

1. Open the PDXpert client application to import the license file.
   - If the license is expired, the ☑ Software License Key window is shown immediately.
   - If the license is not expired, select the Tools ➜ Software License Key… menu command to open the Software License Key tool.

2. Click the Import License File (.pdxl) button to show the ☑ Open License dialog.
3. Navigate to the license file and click the Open button to import the file.

The file name includes the year, month and day `xxxxx-xx-`*`YYYYMMDD`*`-L-00-00-xxx-xxx.pdxl` when the subscription ends. If you have more than one license key file that expires in the future, select the license file that expires first. If both keys expire on the same date, import the subscription license (with `-S-` setting, shown immediately after the date: `xxxxx-xx-YYYYMMDD-`*`S`*`-00-00-xxx-xxx.pdxl`). Just before the first key's `ends` date, remove extra user accounts and then import the next key.

4. Click the `OK` button to accept your changes. The license data is copied to the server for all other users.

> If the `OK` button is not enabled after the license is imported, then confirm that you're using the correct new license file. The button is not enabled if imported license file contains the same values as the displayed license.
>
> If the end date (`Subscription ends` or `Support/upgrades end`) has passed, or your current release was published after the end date, your PDXpert release may require a more current license.
>
> The license must begin today, or earlier. A license that begins in the future cannot be used.

If you don't have a license file

You can create a temporary license for testing PDXpert software.

> After you import a license file, these data fields are locked.

1. Open the PDXpert client application to enter the temporary license data.
   - If the test license is expired, the ☑ `Software License Key` window is shown immediately. You must get a license key file, or reset the system using the PDXpert Server window.
   - If the license is not expired, select the `Tools` ➜ `Software License Key...` menu item to open the `Software License Key` tool.

2. Enter the
   - `Organization name` is **required** to identify the system owner of the PDXpert system: rules, users, and items (like documents, parts and change forms). The organization name is copied into the default member of the **ORGANIZATIONS** collection, which is the home organization.
   - `Postal code` where the organization is located.
   - `Country` where the organization is located.
   - `Full-function users` that can perform any task, limited only by the user's assigned role (from 1 to 999 users).
   - `Read-only users` that can view data, but can't create, approve or change data (from 0 to 999 users).

3. Click on the `OK` button to proceed with a limited-time test.

> If the temporary license is expired, or any element has been modified or entered incorrectly, then the `OK` button is disabled.

Reference

The software license is defined using this information:

Evaluation license | Registered license
> The ☑ `Evaluation license` option is used to test the software. During the evaluation period, the software is fully functional and supports all features up to a few thousand parts and documents. You can create as many full-function and read-only user accounts as you need.
>
> Obtain a trial license key after the period has expired, or if you want to test with more than a few thousand parts.
>
> The ☑ `Registered license` option is automatically selected when you import a software license key file. You cannot operate PDXpert if the imported key is invalid, has not yet started or has expired, or is issued to a different organization.

Organization name
> This is the exact name of the licensed organization. It's automatically shown as the default member of the **ORGANIZATIONS** collection .

Postal code
> The postal code reflects the licensed organization's region within the country.

Country

This is the country where the licensed organization is located. The **COUNTRIES** collection member should be set as active.

User accounts: Full-function

The number of full-function users authorized by license. Each full-function account lets a user manage items, approve change forms, or edit system settings according to their assigned role. The system requires at least one full-function account to act as the super administrator.

During the evaluation period, this can be set from 1 to 999.

User accounts: Read-only

Number of read-only users authorized by license. Each read-only account lets a user view, report and export data, but not to add, edit or approve data.

During the evaluation period, this can be set from 0 to 999.

Registration key

Unique identification code for the license issued to the organization.

Options

This value is used for license management and feature configuration.

License type

A Subscription ∨ license allows software to be used for the limited period starting at the License begins date and ending on the Subscription ends date. It permits the software to be installed on one server, for use by the licensed number of full-function and read-only named user accounts.

A Perpetual ∨ license allows software to be used for as long as the license organization complies with the software license agreement. It permits the software to be installed on one server, for use by the licensed full-function and read-only named user accounts. A perpetual license supports any software release published before the Support/upgrades end date. You can also request technical help and other support benefits until the Support/upgrades end date.

License begins

This is the date that the current subscription or perpetual license started. The date is highlighted when the license start date is earlier than the current date, and the license can't be used.

Subscription ends | Support/upgrades end

For a subscription license, this is when the subscription ends. The software cannot be used after this date, and technical support and software upgrades are not available. A new subscription license must be purchased to continue using the software after the date shown.

For a perpetual license, this is when the perpetual license's maintenance, support and upgrades ("MSU") subscription ends. The end date is highlighted on and after the subscription's expiration. You may continue using the software after this date, but MSU subscription benefits are not available.

> **Do not upgrade your PDXpert software to a release that was published after the end date.** You will be locked out of the system until you purchase and import a current license.

> Some product features, such as PDX package verification, rely on a current cryptographically-signed license key, and are not available after the subscription expires. For a description of MSU subscription benefits, search the web for PDXpert MSU scope

Log-in problems

Using the account name and password

The PDXpert client must provide the PDXpert Application Server with a valid user account name and password.

If the PDXpert client's ☑ Welcome to PDXpert PLM window is shown repeatedly, this may be caused by an incorrect user account name or password.

1. Enter the correct user name, as given to you by your application administrator.

   > If no user accounts have been set up, use the default account name `Admin` .

   > If you've been given a domain user account, include the domain with your user name, such as `domain\username` .

2. Enter your correct account password.

   > The password is case-sensitive. Ensure that your keyboard's `Caps Lock` is correctly set.

   > If no user accounts have been set up, use the default account password [   ] (blank).

3. Enter the server's machine name or IP address.

   > If the PDXpert client is on the same computer as the PDXpert Server (that is, it was installed as part of the PDXpert system setup), use `localhost` .

Client connection diagnostics

> The PDXpert website includes the latest client log-in solutions. Search the web for `PDXpert client diagnostics` .

The PDXpert client application communicates with the PDXpert server. The PDXpert server responds to requests from each PDXpert client, and exchanges product data with the SQL Server database.

If the main ☑ PDXpert PLM window or the ☑ Software License Key dialog is shown, then the PDXpert client can communicate with the PDXpert Application Server.

If the ☑ Welcome to PDXpert PLM log-in dialog is shown more than once, then the PDXpert client connection to the PDXpert Application Server has an error.

Log-in errors

User-provided log-in data includes the log-in account name, account password, server machine name or IP address, and an encryption option.

A refusal to connect may be the result of one of these problems:

- The user log-in account name or account password is invalid: Try logging into the client with a known good user account. If the log-in succeeds, the user account has an error (usually a misspelled account name or incorrect password). Ask your administrator to make sure that your account name is correct or to clear your password (PDXpert client ➜ Tools menu ➜ User Management... command: `X` button).

  > If none of the user accounts are known, then clear the super administrator account password using the `Reset Admin` button on the PDXpert Application Server console. The super administrator can then log in to clear all account passwords using the Tools menu User Management... command.

- The server machine name is incorrect, or the server's DNS machine name is not recognized, or the server's original IP address has changed: Your server's machine name (like `MYSERVER`) must exist, and be mapped into a useful IP address (like `192.168.1.47`). If you're having trouble connecting to a named server computer, try entering the server machine's IP address into the Server computer's machine name text box. If this is successful, then your DNS server isn't reliably resolving the machine name to IP address.

- The server machine is not on the network: The PDXpert client must communicate with a reachable server. Ping the server to ensure it's visible to the client.
- The PDXpert Application Server software has not yet been installed: Run the PDXpert system setup program on a computer on your network.
- A network router is misconfigured: Router settings must allow communication between the PDXpert Application Server computer and the PDXpert client workstation.

System security setting errors

When the PDXpert client connection is blocked by firewall or anti-virus software, you may see `The server could not be contacted`.

Both client and server computers' firewall and anti-virus (FW/AV) must allow communications on HTTP port 48084, and TCP port 48085 (☑ Encrypt my connection option disabled) and/or the preferred TCP port 48086 (☑ Encrypt my connection option enabled). Ensure that your AV doesn't override your FW settings (for example, it doesn't change the firewall's Inbound connections: `Allow` setting). Search the web for more information about firewall port settings: `PDXpert firewall`

To test the firewall and antivirus, temporarily disable both FW/AV on the *server and client* computers.

If the client can now connect to the server, then:

1. Exit the PDXpert client and re-enable the antivirus software. Log into the PDXpert client. If the client log-in fails, then set each computer's antivirus to allow communications between the PDXpert server and client applications.
2. Exit the PDXpert client and re-enable the firewall. Log into the PDXpert client. If the client log-in fails, then set each computer's firewall to allow communications between the PDXpert server and client applications.

Client stops working at log-in

If too many item records are opened, the PDXpert client application may run out of Windows resources and stop working. On restarting the client, PDXpert uses the previous workspace settings and, in re-opening the item records, again stops working.

1. On the PDXpert client log-in screen, open the Options and mark the ☑ Reset my account settings checkbox.
2. Enter your user account information as usual.

The next section contains technical background and recommendations.

Windows resources

Microsoft Windows uses one or more code pointers to manage each image and control (called, respectively, *GDI Object handles* and *User Object handles*).

Windows limits the handle resources that any one application can use, as well as the total handles available for all applications. These limits are not increased by adding system memory (RAM).

PDXpert must display many user controls in every window: one part with BOM and file attachments may need hundreds of handles. If only a few unused handles remain in the pool, PDXpert is more likely to reach its limit than applications with fewer controls per window.

PDXpert shows a `Low Resources` warning in the status bar (lower left corner) if the allowed GDI or user handles are more than 90% consumed. The warning is removed after resources have been reduced below 85%.
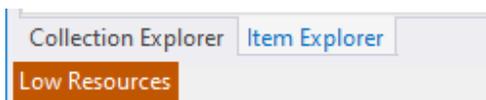
PDXpert can only warn about its own handle pool, it cannot warn that the shared handle pool is low.

To avoid Windows closing PDXpert without notice, release resources that can be used for new windows.

- Keep open only the windows you need. Close unused items, datagrids and reports, collection members and other windows.
- Other applications compete for the limited number of handles. Close what you don't need when using large, complex applications. Look at applications with many graphic elements (CAD), windows (email clients), and tabs (browsers).

- After you've been working a while, restart the PDXpert client so Windows can reset the handle pool, possibly assigning handles freed by other applications.
- Resources are consumed faster than they return to the pool. There is often a delay between an application releasing resources and Windows collecting them for re-use.
- Some applications may never fully release unused handles until you restart the application or Windows.

> If you're comfortable evaluating technical issues in Windows, you may consider changing the handle limits through Windows Registry settings. Search the web for `increasing user and GDI handle limits`

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When your system administrator adds your account, you'll receive a temporary password that you can use to enter the program. However, the system administrator doesn't control your password—you do. You can modify your password at any time by providing a new password in the ☑ Set Password dialog. When you change your password, only you know what it is. The system administrator can never view a password that you've made. However, if you forget your password, the system administrator can provide a different temporary password.

The administrator may let you have a blank password. That is, when you sign into the program you only need to provide your user name. This may be OK if the program is installed on your local computer, and if your company does not require user security. As a general rule, though, you should make a user password to ensure that unauthorized people do not get into your system, and so that other authorized users do not accidentally use your logon account for their own activities.

At the top of the window, the checkmarks show required password properties.

1. Open the Tools menu and select Passwords...
2. In the ☑ Set Password dialog, enter your old password in the Previous account (log-in) password textbox. (If your old password is blank, do not type anything into this textbox).
3. In the New account password section, type your new password into the New account (log-in) password textbox.

   > Passwords are case-sensitive, so "SecretWord", "secretword" and "SECRETWORD" are all different.

   > If your administrator allows a blank password, and you want to clear your current password, then enter a space character to confirm your intent. This enables the OK button.

4. Confirm your new password by again typing it into the Confirm new account (log-in) password textbox. Remember to type it exactly the same as you typed it in the previous step, including the same upper- and lower-case letters.
5. If your system administrator requires a different password for change form approvals, enter that password in the New approval password textboxes. You cannot use the same password as you entered for the log-in password. If your administrator lets you use your log-in password for approvals, then these textboxes are unavailable.
6. Click on the OK button.

   > The OK button is disabled until you have entered the minimum number and type of characters specified by your system administrator.

PDXpert *product lifecycle management* identifies, documents and controls the functional and physical characteristics of an item. PDXpert PLM saves a history of the decisions that affected the product design.

PDXpert PLM manages:

- Products and parts, including those which are used for tooling, inspection, calibration, training, operation and maintenance.
- Documents (usually as computer files) that define an item's (1) functional and physical attributes; and (2) procedures for training, operating and maintaining the item.

PLM procedures are contained in rules, procedures, and resources so that:

- The product can be reliably and consistently produced.
- Changes are useful and can be done without harmful results.

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Organizations that manufacture products must also create information that show how to produce, inspect, use and service the products.

Each product is modeled using part records, and the parts and produces are described using documents. The organization organizes part and document records by giving each one its own number.

Class

Items are system records that contain information about your products. PDXpert has three classes of items:

- A *document* record describes a part or procedure, or gives information to assist with procurement, manufacture, test, inspection, or maintenance and repair.
- A *part* record represents a physical object that is fabricated, purchased, assembled or consumed to produce other parts and, ultimately, final products. The record gives physical properties (such as unit of measure, mass, components) as well as non-physical attributes (regulatory requirements, test procedures or other references).
- A *change form* identifies a group of part and document records and
  - changes their release status; or
  - identifies future document or part changes, or identifies a temporary change to a part or product.

Regardless of its purpose, an item always has an owning organization, an item type, an identifier number and a description.

Item owner

Organizations design and manage items; their intellectual and financial investment establishes their ownership in the item.

The *home organization* is the organization that licenses and operates PDXpert. This organization owns all proprietary information that is develops: requirements, procedures, and specifications; part fabrication, assembly and sourcing data; and design files and records. The home organization decides when parts and documents are released, revised and canceled in PDXpert, and thus owns all change forms.

Each *partner organization* – such as supplier, regulatory agency, or customer – develops and manages its proprietary documents and parts, and gives these to the home organization. PDXpert doesn't allow partners to be change form owners.

Item number

The item *number* is a string of characters that the owning organization gives to an item to uniquely identify it.

An item type may subscribe to an identifier sequence, which represents the set of rules for how an item number format is constructed. A sequence can be used by one or more item types.

Item type

An item's *type* defines its properties and behavior—in other words, the rules that the item follows. Once you've selected the type, the specified rules are permanently applied to the item.

Name (parts) / Title (documents) / Description (change forms)

The *item description* field gives the item's purpose and characteristics, and typically uses an agreed-upon descriptive format.

> The description doesn't uniquely identify the item; other items can have the same description. However, the description contains the item's key search text and is exported to downstream manufacturing and support systems. It's good practice to keep the original description after the item's first release.

An item is identified by its owner and the number that the owner gives to it. As the organization makes changes to the item, each change is given a new iteration.

An *iteration* is technical content (the *revision*) that's approved for a specified business purpose (the *lifecycle*). Each part or document record has one or more iterations.

An item iteration has its own release status, with three distinct *release states*: pending, released and canceled.

- A *pending* iteration shows that the technical content is being prepared for release. You can edit this as needed to prepare it for use. If it's not referenced by another item, you can delete it.
- A *released* iteration approves the technical content for its selected business purpose. You can never delete a released iteration or its iteration-level relationships; you can only create, then edit, a new pending iteration.
- A *canceled* iteration has been replaced or is obsolete, and cannot be used for any purpose. You cannot delete a canceled iteration or its current iteration-level relationships; you can only create, then edit, a new pending iteration.

A change form has a lifecycle that shows where it is in its approval process, but does not have revisions.

Revision (technical content)

A revision represents a single design iteration or technical data record of a part or document.

Revision values

Somewhat like item numbers, revision sequences define the format and rules by which new revisions are given. Unlike item numbers, a revision value isn't unique to one item; many items can have the same revision value.

> Because multiple revisions of a part number can freely mix in the same inventory bin, best practice dictates that physical parts aren't identified by revision. When we discuss "part revisions", we're really identifying a part *data record*, not a physical part.

PDXpert can give the next revision value in a sequence.

The business rules used to give revisions come from (1) the item's lifecycle phase, which defines the item's relative maturity, and (2) the part type's or document type's revision sequences. Revision sequence formats are specified in the **Sequences: Revisions** collection.

Revision sequences

You can specify one or two revision formats in an item type, and items based on the type will follow the specification. The *initial revision sequence* is first used when a new item is made. The *subsequent revision sequence* may also be specified, which is applied to items after they've reached a production lifecycle phase.

If no subsequent revision sequence is specified, the initial revision sequence continues to be used. (This is preferred practice.)

Although no longer considered good practice, PDXpert can also switch revision sequences—say, from numeric to alphabetic—depending on the item's pre-production phase or a production lifecycle phase.

Lifecycle (business use)

For each technical revision, an item is given a level of confidence. In early design phases, you may not have a lot of confidence simply because the item hasn't been tested and verified as useful. As the item is developed, the confidence increases. When an item is ready for full production, the manufacturing department is allowed to purchase in any quantity necessary to meet sales demands.

Lifecycle phase (or lifecycle state)

A *lifecycle phase* represents one step as an item evolves from initial concept, through qualification, and on to production. The point of identifying and managing various lifecycle phases is to control organizational behavior. If your organization's needs are simple, the

business rules may not even need to distinguish between preproduction and production.

A purchased screw or resistor will have a very simple lifecycle: since some other organization fully defines its characteristics, it's either qualified (released) or disqualified (canceled) for **Production**. A more complex item, such as an automobile, will have a very sophisticated lifecycle.

A lifecycle state is most useful when it defines a unique set of business rules. For instance, you may decide that when an item is at the **Prototype** phase, Manufacturing can only build 10 units and Sales cannot put any into the field; if the item's phase is **Field Test**, Manufacturing can build up to 250 units and Sales can place half of the items at selected customers' sites.

Item lifecycle phase's relative maturity

The item lifecycle phase's *relative maturity* is a numeric value that can specify the lifecycle relative to a *production* or *qualified* value of zero. Negative values for relative maturity show pre-production states (such as *design*, *prototype* or *unqualified*), and values greater than zero show a post-production maturity (e.g., *service only*), if needed.

Normally, a production-level product shouldn't be built from pre-production parts. A *parent item* at production level should use *child items* that are also at production. You can define detailed lifecycles to ensure that, say, *preliminary*-level parts aren't used on *beta*-level assemblies.

> PDXpert identifies a lifecycle mismatch between a parent and its child item on the *markup list*, and not on its released *current list*.

First pending iteration of an item

As you make the first pending iteration of a part record or document, you specify the iteration's lifecycle phase:

- If the lifecycle phase has a negative relative maturity (RM < 0), then the item type's initial revision sequence determines the correct revision sequence. That sequence's starting revision value is given to the item's revision.
- If the lifecycle phase has a non-negative relative maturity (RM ≥ 0), then the type's subsequent revision sequence determines the correct revision sequence, and that sequence's starting revision value is given to the revision. If no subsequent revision sequence has been specified, the item uses the initial revision sequence's starting value.

Later pending iterations of an item

After the first iteration of a part record or document is released, the revision is suggested based on the lifecycle selected for the next iteration:

- If the next pending iteration's lifecycle phase has a negative RM, then the last released revision value is incremented.
- If the next pending iteration's lifecycle phase
    - has a non-negative relative maturity (RM ≥ 0), and
    - there's never been a released revision with RM ≥ 0, and
    - the Part Type or Document Type shows a Subsequent revision sequence selection.
  then the starting revision value of the revision sequence shown in the subsequent revision sequence is used.
- If the later pending iteration's lifecycle phase has a non-negative relative maturity (RM ≥ 0), then the immediately-preceding released revision value is incremented.

PDXpert expects that an item's technical content changes more frequently than its lifecycle; therefore, a new iteration automatically increments the revision identifier (from, say, revision B to C) while retaining the previous lifecycle value (say, Production ⌄). This is simply a matter of convenience, and you can easily edit the revision and lifecycle values to suit your needs.

> Ideally, an item's revision value and lifecycle phase selection are independent of each other. An initial revision and subsequent revision can only distinguish between two lifecycle phases, while most businesses have many; some common phases are *design, prototype, production, NFND (not for new design)*. It's better to show a *data change* using the revision, and to show *how that data is used* with the lifecycle phase. For this reason (and because it's a lot easier to train for and to manage), specify only an initial revision sequence and leave the subsequent revision sequence empty.

> Each new revision value should be the same or greater than any previous revision.

- The revision value always moves to the next value when the technical content changes.
- The revision value may use the same revision value only when the lifecycle changes and the technical content does not.

Versions

An item *version* is an optional label for data created in a different configuration management tool. This data can be copied into PDXpert, and attached to an iteration.

Versions are commonly used for computer program files to identify (a) a known set of features, (b) a set of bug fixes, and/or (c) a particular build number. For example, a version "3.2.1203" may identify the marketing feature set "3.2" plus the compiler build "1203". While you have a very good feel for how many releases are represented in going from revision "A" to "D", you'd have little idea whether there were a few releases, or several hundred, between versions "2.0.103" and "3.2.1203".

Versions are typically enabled for a small number of document or part types, such as a **Software** document or **Programmed** part.

RELATED TOPICS

[Sequences: Revision collection](#)
[Item Lifecycle Phases collection](#)

Product documents show the physical attributes and structure of a product, and give the standards for examining whether the product is correctly made. The purpose of product documentation is to break complex assemblies into individual parts, each of which can be specified, examined and managed separately.

ISO 9004 takes a broad view of product documentation, and requires that "sufficient documentation be available to follow the achievement of the required product quality and the effective operation of the quality management system."

Document elements are

- Document and iteration data, including administrator-specified custom properties
- Document classifications, such as type, lifecycle phase, legal limitations, etc.
- Controlling organizations, access right declarations, and media type or physical storage location

A document record is often used for managing one or more electronic file attachments. Such a document record can then be referenced by several part records. Separating the design file from the part allows simple design re-use and may reduce the number of items that must be changed when the design file is updated.

RELATED TOPICS

Document record
How to work with documents
Document Types collection

1104

A part record contains information for modeling a physical part's structure. Part records include common item elements for identification and iteration control, custom attributes, references, file attachments, tasks and other common elements.

The part class also has:

- Attributes such as unit of measure, unit cost, mass, lead time, etc. that are useful when exporting your product data to computer systems like MRP/ERP.
- Materials content and end-of-life recycling data.
- A single-level parts list that, when used with other parts, can show a multi-level bill of materials.
- A list of approved manufacturers for purchased parts.

Materials

The Materials list shows the chemical substances that are used to make the part. Each line item consists of

- a substance name or identification,
- the quantity and its unit of measure,
- a calculated proportion (based on the part mass), and
- the location or application of hazardous or controlled material.

The constituents of a part, as well as a complete product, can be summed and reported.

Bill of materials (BOM)

A *bill of materials* ("BOM") is a list of the physical parts required to build a manufactured assembly. (It may also be a list of chemicals in a formula or ingredients in a recipe.) Each row on the BOM is uniquely identified by its find number; the row identifies a physical part with quantity, unit of measure and possibly application notes, procedure instructions or reference designators.

An indented BOM report shows all of the direct parts, and those parts' lower-level components, that are required to construct an assembly. All items that directly report to the assembly are considered as one level deep; items that directly report to first-level items are two levels deep; and so on. (The top assembly has a depth of zero.) Complex products can have as many as 10 levels, although simpler BOMs are much easier and less expensive to manage, particularly in modern continuous-flow production environments.

To protect the product, child items should be added and removed only after careful review and approval. An item must be released on an executing change, and a child item must also be added on or taken off an item BOM. The BOM: Markup list tracks these changes. Once you've added or deleted the appropriate child items, releasing the item iteration also implements those markup items. The final BOM is shown on the BOM: Current list.

Find-item numbers

A find-item number is a child item's location on the BOM and provides:

- A point of reference between iterations (and specifically technical revisions), or between similar parent items.
- A way to identify items depicted on a drawing without including the actual item number on the drawing, thereby abstracting the item's purpose from its identification.

To show the differences between two consecutive revisions of a parent item, BOM markups refer to a particular find number, and reference that find number in removing one item and adding a different item. To ensure traceability between revisions, find numbers cannot be modified after the parent item's initial revision has been released.

Sources

Rather than designing every part that your products use, your organization may purchase parts from one or more approved vendor source. The source list is sometimes called an Approved Manufacturer List ("AML") or Approved Vendor List ("AVL").

Only a part record can be the source for a part. You can't drop a document record onto the Sources: Markup list.

The rank number shows the designer's preference of one supplier over a different supplier.

> Your own organization can be the source for an item. This is useful if you are switching to a different numbering system, or have discovered multiple inventory numbers for the identical item, or are merging two different companies' identification schemes.

RELATED TOPICS

[Part record](#)

[How to work with parts](#)

[Part Types collection](#)

A change form identifies a set of part and document records and changes their current release status; proposes a future change; or approves a temporary change to business rules.

You can specify related information such as:

- Whether a change affects the actual release or cancellation of an item
- Affected items
- Reviewing groups and observer lists with configurable workflow
- Cross-references to related changes

Change results are permanent

Change forms that have been rejected, released, or completed can't be removed or reversed. A canceled change form can (and should) be removed.

Items listed on a `Released` or `Completed` change can't be returned to their pre-release state. Parts and documents listed on a `Rejected`, `Released`, or `Completed` change cannot be deleted from the change form's `Affected` list or removed from the system. These actions are allowed only when a change form is at `Originated` or `Submitted` states.

Iteration-related data and relationships — such as BOM parts, Source parts, References and Revision Files — cannot be deleted from a released or canceled parent item. Selected item-level data (mostly on the `Attributes` and `Custom` pages) can be changed after an item has been released; see the list of attributes described in the **PRODUCT FAMILIES** collection's Product Team topic.

Changes don't have revisions

A change is a unit of information that can't be revised. Any released change that has an error is corrected by issuing another change.

Some change attributes can be modified by the analyst after release but prior to completion. A completed or rejected change cannot be modified, except when the administrator uses the Tools menu: Administrator Override command .

Executing and advisory changes

Under legacy paper-based PLM systems, change forms were documents that described the change, listed the items that were affected by the change, and provided for authorized people to approve the change. In an automated PLM system, a change form does these same functions. The PLM system also releases or cancels items as directed by the change's contents.

An *executing change form* releases and/or cancels a list of one or more affected items.

An *advisory change form* simply announces a particular fact about the affected items. A "fact" may be, for instance, that a product needs upgrading ("change request"), or product shipments must be stopped until a defect is corrected ("stop ship"), or a different part can be used as a temporary substitution ("deviation").

An executing change form acts upon the items shown on its `Affected` list: pending items are released, and released items are canceled. In contrast, an advisory change form doesn't release or cancel anything.

To release and cancel items, your PLM design must include at least one executing change in its collection of change forms. All other change forms are optional.

Common change forms

Executing change forms

The *change notice* (or *change order*) is an executing change form that defines a set of items being released and/or canceled. That is, a signed-off CN documents that the items listed on it have been updated and may be used in accordance with the effectivity dates listed. The CN may also show the cost of the change: for example, the expenses related to scrapping or reworking old parts, and retooling and supporting new ones.

An engineering change notice, or ECN, typically affects design documentation and part release. A manufacturing change notice (MCN) may be used to control process documentation and approved vendor parts. Other change notices can manage quality, service, training, or marketing documents.

Advisory change forms

A *change request* proposes a future action to a part or document, without changing its current release status. The CR identifies the deficiency in enough detail so that the responsible designer can understand the problem. While a proposed solution is usually required, this solution may not be what is ultimately modified. Change requests do not identify specific iterations, since these could change by the time the CR is transformed into a change notice.

A deviation or waiver specifies a temporary change to an approved physical configuration, usually because a part is unavailable or not correctly manufactured. A *deviation* proposes to accept parts before they've been produced, while a *waiver* proposes to accept produced parts that do not conform to the design documentation, but are serviceable (or will be serviceable after approved rework is performed). In most engineering groups, deviations and waivers are treated the same, and are combined into a single advisory change form. Deviations and waivers are typically limited in quantity or time. Deviations and waivers are used for parts; a document needed for a temporary part change is issued its own document number, and released on an executing change.

You'd use a *stop ship* to temporarily halt shipments of products that may not conform to design requirements. A stop ship will typically provide a fixed time, after which it expires or is replaced with a new stop ship or other change (e.g., deviation or CN). A stop ship is an advisory change form, and is limited to parts.

A *problem report* identifies a product problem that requires study and possible changes. Since the PR may be initiated by a customer, regulator, or employee who does not know the product in detail, it may not always identify an affected item. Since all iterations of a part are interchangeable, the PR identifies a part number, not a specific iteration. Document problems are reported on a change request.

RELATED TOPICS

Change form

Processing a change

Change Forms collection

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> To manage how others view a file, see the [User roles & permissions](#) help topic.

A file (called an *attachment*) is a CAD drawing, text specification, cost spreadsheet or other electronic file that's related to a document, part or change.

PDXpert's file management enables

- File identification and type management
- File check out and check in
- Application/viewer launch

Library and external files

Files are either managed within the data library or are links to files outside the data library.

When you want to capture the file at a point in time, you copy it into the data library by attaching to an item or an unreleased iteration.

When you want to always refer to the latest version of a file, regardless of its current content, then use an external link. Since external files are, by definition, not under the direct control of PDXpert, there's no guarantee that the file will always contain what you expect or even that the file will be available when you need it. You'll typically refer to external files whose contents are managed and updated by other organizations, such as a web page that contains vendor prices or purchasing lead times.

Item and revision files

A revision file typically contains technical design information, and is always related to one iteration of an item. A revision file is stored in the library; you cannot have an external revision file. A revision file is added to a pending document or part iteration. It can be checked-out for editing; while it's checked-out, other users can view or copy the current copy, but not edit it. When the item is released, the revision file is permanently locked, and cannot be modified or deleted.

An item file contains background information like quotes, emails, sketches or other information that's not used for actual production. These files are related to the item, not one iteration. Any user with correct permissions can add, change, or remove an item file, regardless of the item's release state. You can designate whether the item file is in the library or is an external resource. Item files can be attached to parts, documents, change forms and **ORGANIZATIONS** collection members. Item files are identified, but not included, in a PDX package.

File-specific attributes

A file's properties include the file's original name, extension, size, an optional note, and view/copy/modify/delete permissions.

File viewing

If you have a related file viewing application installed and have correct permissions, you can view the file. PDXpert launches the installed application that's related to the file extension (such as `.dwg` , `.xlsx` , `.sch`).

It's often useful to attach the original design file (a CAD or word-processing file) to maintain control over the design data, and include one or more equivalent files (`.pdf` , `.jpg` , `.txt`) that can be viewed by people who do not have access to the original authoring application.

File formats

PDXpert manages files made by any Windows application. When you attach the file, the system saves selected file system metadata, such as creation date, and whatever text is indexed by Windows Search Service.

> Microsoft Windows provides good cross-platform file support. However, archive files – `.zip` , `.7z` , `.rar` , and similar general purpose lossless compression formats – should be made only on a Windows machine. See the [File tab](#) help topic.

RELATED TOPICS

[Files](#)

[Item Explorer: Files](#)

Each PDXpert license has one or more user accounts.

> Each user account is given to one person for their exclusive use. User accounts are personal, and cannot be shared.

Full-function and read-only user accounts

A *full-function user account* lets a user make and edit item records, review and approve change forms, and manage collections based on the role given to the user.

A *read-only user account* does not let the user make or edit items, add file attachments, or approve change forms. A read-only user can search for and view items, run reports, view and copy file attachments, and export data. Viewing permissions are regulated in accordance with the user's role.

User account management

A person record (that is, a member of the **PERSONS** collection with a `Name` and `Email address`) lets that person receive task and workflow emails. When the person is given a user account, they can view and manage items, and perhaps manage the software settings as an administrator.

A person can interact with the PDXpert client application only after an administrator adds a named user account that combines:

- An available full-function or read-only user account; and
- A **PERSONS** collection record (say, **Pat Lee**); and
- A named set of permissions as specified by a **ROLES** collection member (like **Analyst**); and
- An account or "log-in" name (`patlee`); and
- An optional account password (`mypa$$w0rd`).

The *named user account* has two elements: an account (or "log-in") *name* and a *password*:

- Account names can be any string of characters, such as a mix of the user's first and/or last names or employee number. An account user name is not case-sensitive.
- Passwords are case-sensitive, and are managed by the account user. A temporary password is usually given when a log-in account is first added, and users are expected to change their passwords immediately. After the account is added, system administrators can never view a user's password; if a password is forgotten, a system administrator can only clear it or give a new one.

A named user account is given to **one person for their exclusive use**. When you delete a person's user account, the user's personal settings and search history are deleted. The **PERSONS** collection member for that user is normally made inactive (not deleted), so that the person's history as trustee, task worker, analyst, or change reviewer is always available. After the user account is deleted, you can give the available user account to a different person.

Roles

PDXpert is installed with a standard set of security roles that allow users to view information related to their job. Access can be changed on existing roles, and new roles can be specified with their own set of permissions.

Administrator

Administrators can add and delete user accounts, authorize group reviewers, manage collections, set system options and workflows, and make other changes to the system environment.

A role has administrator permissions when ☑ Collections/Rules: Manage is marked in the related member of the **ROLES** collection.

An administrator can also modify selected item attributes if the role allows access to those items and when the Tools menu: Administrator Override command is marked.

Analyst

Analysts have overall responsibility for managing changes while they're being processed. An analyst shown on a change can – depending on the current workflow state and system rules – edit fields, add and remove file attachments, modify any of the trustees' work, and process the change to another workflow lifecycle. Analysts who are not shown on the change form can move it to another lifecycle.

Analysts also can edit documents and parts with the item trustee's permissions, and are automatically members of all product teams.

- **Document analyst:** This role allows managing any document as its trustee.
- **Part analyst:** This role allows managing any part as its trustee.

A *system analyst* has been assigned a role where the ☑ Is an analyst permission is marked for both documents and parts.

Normal user

Normal users have free access to make new items, as well as make and edit change forms that can then be submitted for approval.

If a normal user is an item trustee or an authorized reviewer, more permissions may be available.

- **Trustee:** The user who makes the item is given this role automatically. Trustees have certain rights to modify, release or delete items that they have made. A user who can create new items can also create a new iteration, and replaces the previous item trustee.
- **Reviewer:** A group's member examines and approves change forms and their related items.

Guest

Guests can view any item for which they have appropriate permission, but cannot make any database additions, changes, or deletions. Guests do not have permissions to view collection members.

A guest role is specified by clearing all ☑ Create new and ☑ Manage checkboxes on the **ROLES** collection member window.

Group reviewers

A *group* identifies a specific responsibility in your change review procedure, and the users who are assigned that responsibility. One reviewer from each required group must approve a change form before it can be released; any reviewer who disapproves the change prevents it from being released.

Each reviewer in a group must have a full-function user account. To fully represent a group, a reviewer must have full access to the items affected by the change form. Therefore, reviewers typically will have broad permissions to view pending, released and canceled items, and must not be denied access by product family. Even so, a person in a change form's reviewing group has permission to view the change and its affected items, even if the person's role doesn't have viewing permissions (see the **GROUPS** collection: Group reviewer permission help topic).

Product Families

While roles define broad categories of access, the **PRODUCT FAMILIES** collection denies, or allows more, access to selected users.

Product Team

Users identified on a **PRODUCT FAMILIES** collection member's Product Team list can have:
- trustee permissions to modify selected groups of item attributes; and
- originator permissions to modify selected groups of change form attributes.

When several product families are assigned to an item, a user assigned to multiple product teams has the teams' combined permissions. A change form acquires the combined product families of its Affected items.

Denied Access

You can exclude a person, group, or organization from viewing items belonging to a particular product family, even if a role generally allows the user to view or manage items. You can override this exclusion by explicitly adding the user to the Product Team. For

instance, you can exclude the entire marketing team from viewing a new product design by listing that group on the Denied Access list, but then let the project's marketing manager work on the project by adding that user to the Product Team list.

File access permissions

Access summary

To summarize user file access rights:

- An item trustee, and product team members with ☑ Revision Files permission, may attach a revision file before the item is released.
- An item attachment or external link is managed by the trustee and, with the ☑ Item Files permission, by members of the product team.

As noted above, system, document and part analysts have trustee permissions for specified items.

File users

In the descriptions following, different users have various access permissions:

- An *analyst* has been given a role with ☑ Is an analyst permission.
- The *product team* are shown on Product Family's Product Team list, as given above.
- All *other users* are those who are not excluded by the Product Family's Denied list.

RELATED TOPICS

Starting out

Setting up PDXpert is straightforward:

- Install the PDXpert Server, which installs your first PDXpert client
- Install PDXpert clients on other workstations as needed
- Review and, if necessary, configure PDXpert's settings

The installation details are given in the *PDXpert PLM Software Installation Guide* section of the PDXpert website.

Configuration

After you install PDXpert, it's immediately ready to run. A standard configuration—such as countries, user roles, units of measure, part types, materials, change forms and other information—has been loaded into the database for you.

However, you'll probably want to review and change these default settings to accurately reflect your organization's own product data management preferences.

1. Review the system rules , which control a handful of global application settings.
2. Review and modify the collections, which define what attributes are available for your documents, parts and change forms.

   - Places/Organizations/Persons: identify regional information, your own and other organizations, people and their roles and responsibilities.
   - General: item numbering and revision formats, units of measure and data import/export formats
   - Documents: classify document types and their attributes
   - Parts: define properties of physical items such as make/buy categories, materials used, and recovery methods
   - Changes: review change form attributes like priorities, reasons, workflow and change form templates

3. Set the outbound email account to send workflow notices to your users. See the Email management help topic.

Some steps build on the tasks that you've previously completed, and the sequence we provide will minimize jumping around.

Initializing your database using the Batch Importer

Many companies have legacy data from a variety of engineering and manufacturing sources. These can be consolidated and imported into the PDXpert system.

 Use the Batch Importer (on the `Tools` menu) to import part and document records, bills of materials, and approved supplier sources. You can also automatically attach design drawing files and specifications to their items, and import the files into the system library.

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The system rules start with the most useful values.

However, examine each rule to understand its impact on your organization's PLM procedures. One of the most important is the [General: Item uniqueness specified by...](#) system rule.

1. From the `Tools` menu, select `System Rules...`
2. On the `System Rules` tool, select the appropriate page to view the rule setting.
3. Save any changes that you make: `Item` ➜ `Save` or `Ctrl` + `S`

RELATED TOPICS

[System Rules tool](#)

1201

Collections define how your company works: its people, partner organizations, part number formats, change workflows, and other information.

PDXpert includes pre-populated collections that should simplify your configuration tasks. Most collection members have default values that provide a good starting point for your own procedures. However, given the enormous range of possible PLM options, you will need to ensure that each collection has members appropriate for your own organization, and that each collection member accurately reflects your requirements.

Read the set-up information here and on the following topic pages. When you're done, you'll be prepared to discuss your plans with your colleagues and then review, modify or make new collection members.

New company, simple configuration

If you are starting a new system at a start-up company, and don't have to worry about legacy data or conform to a particular procedure, you can simply start using PDXpert exactly as it is installed. All of the design decisions have been made, and the system will let your company grow for many years with little additional thought.

However, there are a few areas that you'll need to review and update:

- If your company regularly works with foreign **CURRENCIES** and **LANGUAGES**, you'll want to make sure the appropriate members of these collections are active. After setting the default currency, update the exchange rates from the `Tools` menu.
- You must add all PDXpert users into the **PERSONS** collection, and add their log-in account credentials.
- The default configuration has been set with a minimal set of **GROUPS** and their reviewers, and these are used in the predefined **CHANGE FORMS** members. If your change approval procedure requires participation by more people, you'll add new groups, their authorized reviewers, and the change forms they review.
- The **ORGANIZATIONS** collection should include your suppliers, regulatory agencies and other partners.
- By default, the most common metric and U.S. **UNITS OF MEASURE** are active. If you don't use these units, you may wish to make them inactive.

Of course, even if you are starting a new system, you can extensively modify the existing collection members (as well as add new members) as given in the accompanying help topics.

Tailoring PDXpert to an existing procedure

If, like most companies, you have existing documents and parts, and have to conform to an existing data management procedure, PDXpert's collections will require editing or new members.

1. Review the PDXpert collections, read about their functions, and get a "big picture" feel for how the collections are used by documents, parts and changes.
2. Understand and, where necessary, clarify just how your change procedure works.
3. Map the functions you require to the available collections.
4. Test your complete procedure end to end with a small number of documents, parts and changes. Tweak as necessary.

Match values between software systems

Whether it's employee names, supplier organizations or units of measure, data exchanged between systems must be recognized across those systems. Successful import/export often fails for small differences: the unit `each` in one system, while another system expects to see `EA`. Be sure you know what data will be exchanged, and then ensure that the transferred values are the same.

The Places/Organizations/Persons collections define the human environment and how it's organized.

The *Collections reference* help topics give more details about the following collections. Read these configuration guidelines, and then decide how you'll configure the collection properties and its members.

- **LANGUAGES**: Unless you need to adjust the languages that you use for product labeling, you can probably leave the list alone.
- **CURRENCIES**: You'll need to review the members to ensure that the currencies you'll use in your supply chain are represented, and the exchange rates are up to date. Refresh the active currencies by selecting Tools ➜ Update Currencies...
- **COUNTRIES**: Over 200 countries are included in the starting database, but the most won't be needed to support your supply chain. You can choose to delete unused countries or simply make them inactive, which retains them for future reactivation.
- **PARTNER CLASSIFICATIONS**: This collection classifies the different types of organizations in your supply chain.
- **ROLES**: Each role usually represents a unique set of permissions. You can choose the simple approach of keeping the number of roles small (read-only, guest, normal, analyst, administrator). Although it's possible to make a unique role for each user (e.g., **John's role**), this becomes difficult to manage when the number of users is large and you decide to change the permissions for a group of users.
- **PERSONS**: You can add each person who has interest in your PLM data. A person doesn't need a PDXpert log-in account and, if you're entering contact information for partner organizations, often won't be given one. However, you must first add a person to this collection if you're giving them a user account.
    - Rename the default **PERSONS** member, *Admin*, with the application administrator's actual name. This does not change the default user account log-in name (admin), it only affects the person's name that's shown in data windows and reports.
    - If you have licensed more than one full-function user account, you can replace the default admin user account with a different log-in name.

    To create and change user accounts, see the Manage user accounts help topic.

    > The Batch Importer tool can import new **PERSONS** collection members and create user accounts .

- **GROUPS**: Groups identify one or more persons who have a special responsibility or authority in your organization. To learn about designing groups for your change workflow, see the How to use groups help topic.

    The default person is assigned to the default group.
    - If the group's name doesn't show the correct reviewing responsibility, change the group's name.
    - Review and, if needed, update the group's Persons list.

    > The Batch Importer tool can import new **GROUPS** collection members and persons .

- **ORGANIZATIONS**: There are two basic types of organization within PDXpert: the home organization and partner organizations.

    Home organization

    The home organization:
    - owns the PDXpert software license
    - controls the final product designs that are managed within PDXpert
    - issues proprietary identifiers to identify purchased parts and documents in PDXpert
    - always issues the change forms used to manage items within PDXpert
    - manages the users who have access to PDXpert

    Since the home organization information is used extensively within PDXpert, and may be exported to other computer systems and supply-chain partners, ensure that this information is complete.
    - The Name is determined by your software license key (Tools ➜ Software License Key...).
    - The Display name is used throughout the application. The default, *Home*, should be updated to what your company prefers to use as a short name, acronym, or abbreviation.
    - Add the URL/website and the Address page, as these are included in PDX packages that you share with supply chain partners.

    Partner organizations

    Partner organizations are the home organization's suppliers, contract manufacturers, customers, regulatory agencies and other entities that affect your product data and procedures. A partner record can be as brief as a company name and display name. The level of detail you provide is usually related to the user interaction with that organization.

> The Batch Importer tool can [import new **ORGANIZATIONS** collection members](#) .

User access setup

Simple is best.

There are a lot of interesting capabilities relating to user access:

- **ROLES** let you limit whether users can view pending and/or released and/or canceled documents, parts and changes. They also let you decide whether users can make documents, parts and changes, and whether they can add or work with changes.
- **PRODUCT FAMILIES** can be used to determine who can view items relating to a design feature, and who is excluded. They can separately have team members who have special rights to change certain item attributes (such as part cost) regardless of the item's release state.
- The system gives the author of a new item iteration the trustee role for that iteration, and has special permissions for managing that record.
- Pending, released and canceled items may have different behaviors and visibility.
- Viewing, copying and modifying file attachments can be limited by guest role, product family exclusion, or product team membership.
- Administrators have rights to modify items, even previously-released items, using the [Tools menu: Administrator override command](#) .

These access permissions and limits are all a standard part of PDXpert, and automatically take care of many security issues.

So, start out simple. As you discover the need for tighter control over certain items or procedures, you can probably apply that control using PDXpert's built-in security.

1204

The General collections define properties that are typically applicable to multiple items.

- **ITEM LIFECYCLE PHASES**: PDXpert defines all document and part lifecycle phases into this collection. Lifecycle phases should reflect a set of well-specified business rules and practices based on an item's maturity. For instance, a lifecycle phase may represent the number of units that can be built based on the risk of design changes: few units during prototyping, unlimited numbers during full production. Small organizations require only a few lifecycle phases because the business rules can be simply specified; larger organizations may have more phases (e.g., preliminary, prototype, field test, production, service-only, obsolete) to meet sophisticated needs.
- **PRODUCT FAMILIES**: Since this collection controls user access to items, avoid making any changes unless you must address important security issues. If you must limit users from even generic parts or general-purpose documents, then make a **General** member that can be given to any item, and define that member's Denied Access list to reflect your desired limits.
- **SEQUENCES: IDENTIFIER**: These collection members will define the numbering system for your parts, documents, and changes. Each specified sequence is a counter from which users can pull the next number in a sequence. While most companies should strive for simplicity, your company may require very detailed numbering formats based on part category, document type, and change form. If your numbering system is driven by many complex rules, your users may need to manually give each number, and you won't need to define any members of this collection.
- **SEQUENCES: REVISION**: These collection members will define your part record and document revision formats. Typically, there are only one or two document revision formats, and perhaps a distinct part record revision format. However, it's simplest to have a single revision format for all items.
- **UNITS OF MEASURE**: The default collection members include categories covering time, mass, count, length, area, volume, etc. The default **UNITS OF MEASURE** (UoM) lists are pretty extensive, but you may need to match some names to existing CAD or MRP values.
- You won't need to change the contents of the **TRANSFORMS** or **VIEWS** collections immediately.

1203

The Documents collections define attribute lists that reflect your documents.

- **MEDIA/LOCATIONS**: If all of your documents are electronic, and stored within the PDXpert library, then you won't need to identify either the media or the location, since these are handled automatically. Organizations with a lot of legacy paper may need this collection to keep track of their physical data.
- **DOCUMENT TYPES**: The number of document types is practically unlimited, and your actual list will depend on your industry and the types of data you manage. Many lists are available, but the majority (like MIL-STD-100, which is freely available on the web) may be overkill for most commercial organizations. Keep in mind that a document type is a basic attribute of your document, and cannot be changed over its lifetime. Therefore, your users should immediately understand the difference between various types you define, and shouldn't puzzle over whether they want to make a "fabrication" or "construction" document. You can define custom attributes for document types.

1205

The Parts collections define the physical items that your organization designs, produces and services.

- **BOM Type Codes**: This collection classifies production usage, and typically isn't modified.
- **Handling/Storage Categories**: You can classify the safety or environmental hazards of parts, or identify special handling requirements.
- **Make/Buy Categories**: This collection specifies how to get the item, and typically isn't modified.
- **Material Categories**: Broadly classifies the materials that go into the parts that you buy and build.
- **Material Constraints**: You can define the handling, storage, recovery, or legally-imposed constraints on the chemicals and substances that are used in your parts.
- **Materials**: This collection is primarily intended for WEEE/RoHS and other environmental materials reporting. However, you can add whatever materials you need.

  > The Batch Importer tool can import new **Materials** collection members .

- **Recovery Methods**: Defines part end-of-life dispositioning goals. Although the default members of this collection are reasonably comprehensive, any industry-specific recovery and disposal methods can be added. You may also choose to make some members inactive if, for example, you produce items that aren't capable of disassembly.
- **Part Types**: Classifies parts according to their application, and defines their rules and custom properties.

1206

The Changes collections define the attributes and workflow for changes that affect your parts and documents.

- **CHANGE CLASSIFICATIONS**: You can use this collection to specify the impact of a change and which business rules are affected. A typical choice might show a "non-interchangeable" versus "interchangeable" (backward compatible) change. In a contract-driven or custom-products company, you may prefer to specify whether a change that affects performance, cost and/or schedule requires customer approval.

- **CHANGE PRIORITIES**: A change can have important cost impact. Change costs are often determined by how fast the change must be executed. By setting a change priority, users can control the urgency of implementation, and propose that the change be synchronized to a date or serial number.

- **CHANGE REASONS**: You can classify the reasons why you decided to make a change. For instance, if you're frequently making changes because your production team has trouble finding specified parts or is constantly discovering lower-cost suppliers, perhaps this shows a problem in how your designers are choosing vendors.

- **DISPOSITION ACTIONS**: Item dispositioning activities, which identify what needs to be done to support the release or cancellation of an item, can be classified beyond what is provided in the default collection.

- **DISPOSITION LOCATIONS**: You can classify item disposition locations or expenses incurred during the release or cancellation of an item.

- **PROBLEM SOURCES**: A problem source classifies who or what brought an issue to your attention. This can help identify the point at which repeated design, production, and customer issues are occurring.

- **CHANGE FORMS**: Smaller companies typically need very few change types: perhaps just a change notice. Larger organizations, or those who work within a regulatory environment, may require adding pre-production releases, purchased part releases, change requests, stop ships, corrective and preventative actions, etc. You may also make change forms based on group responsibilities (production engineering change order, purchased part release, supplier request and others).
The ideal is to use as few change forms as possible, each having as few reviewers as possible, coupled to the simplest satisfactory workflow.

1207

The Item Explorer is the principal tool for working with documents, parts and change forms in your PLM system.

The Item Explorer lets you:

- Make new items: New
- See items that you've recently worked with: Recent
- Find items in the database: Search
- See the revision files that you've checked out, and open the items to check them back in: Files
- See your open tasks, and open the items they're on: Tasks

You can arrange the Item Explorer by docking it, making it a floating window, or grouping it with the Collection Explorer.

1014

If the Item Explorer is not displayed, select the Item Explorer menu item from the Window menu.

1. Click on the Item Explorer's New tab.
2. Scroll through the Documents list, Parts list or Changes list. Click on the appropriate item type to open a new window based on your selection.

> You can adjust the height of the grids by dragging the splitter bar that appears between the lists.
>
>
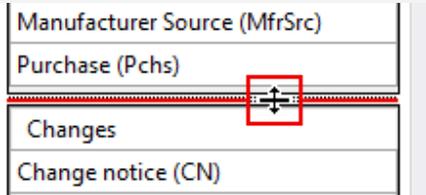
3. Enter as much information as required to complete the item. At a minimum, a valid item includes the owner, number, description, revision and lifecycle.

> The owner for a change form is always the home organization. Change forms do not have revisions.

See also:

- [Create a new document](#)
- [Create a new part](#)
- [Originate a new change form](#)

1157

The Item Explorer's search works very similar to your favorite web search engine: enter what you want, and PDXpert will show records ranked with most likely results higher in the list. When you provide more information in your query, the top results are more accurate.

Searching for items

> If the Item Explorer is not shown, select the Item Explorer menu item from the Window menu.

1. Click on Search .
2. Enter the search terms most likely to uniquely identify an item, just like a web search. For instance, you can use an item number, words in the item's description, the item's type, the owning organization, release status, or custom attribute values. You can improve results by including special commands, filters and operators. See the Use search commands help topic.
3. Click on the search 🔍 button to start the search.

   > If your results do not include the items that you want, try using different terms.

4. An item in the results can be opened, or used for drag-and-drop. You can select more than one item.

Results are ranked according to their relevance to the search terms. Matching item numbers, descriptions and other data shown on an item's General list usually rank higher in the results. Some returned items that match fewer search terms are listed lower on the results list. Items with the same rank are shown in the order they're found.

> To optimize workstation and network performance, search results are limited to about two thousand records. If your search is very general — say, part or 1* — then the results may not contain your item. When a search finds only items with low rank, the system can't choose the most useful, and shows nothing. By using better search terms, you'll get more useful results, and faster.

The column abbreviations are managed in these collections:

Owner: **ORGANIZATIONS** collection
Type: **DOCUMENT TYPES**, **PART TYPES**, **CHANGE FORMS** collections
Release: **ITEM LIFECYCLE PHASES** collection

Hiding results

Use the buttons above the search textbox to reduce the number of rows returned in the search results. An unselected button 📦 hides the matching items, and a selected button 📦 shows the matching items.

For example, these settings hide canceled parts and canceled documents in the search results.

Hide results buttons:

📦 Pending parts
📦 Released parts
📦 Canceled parts
📄 Pending documents
📄 Released documents
📄 Canceled documents
🏷 In-work change forms
🏷 Released and completed change forms
🏷 Canceled and rejected change forms
🏠 Items owned by the home organization
🏭 Items owned by partner organizations

Permissions

The results show items that meet your search criteria, but *you can open an item only when you have the correct security permissions*. These permissions are determined by the system administrator, who specifies:

- your **Role**, which grants access to specified item classes and release status; and
- whether you've been denied access in the **Product Family**, which is added to some items.

Indexing time

It takes a few moments for a saved item to be indexed and included in search results. Items with custom attributes need more time to index.

File contents are indexed using Windows Search file system plug-ins that have been installed on the server computer. Based on system load and file size, there may be a noticeable delay before a file's content is included in search results. If a file attachment doesn't have a matching filter, then its content isn't included in your search results.

See the Tools menu ➜ Index Status help topic.

If you want your search results to be more precise, then you can modify your query with tagged terms, wildcards and Boolean operators.

In this help topic, search examples are shown as $\boxed{\text{search text}}$.

Search terms

- A search term can include both <u>alphanumeric</u> and non-alphanumeric <u>symbol</u> characters.
- Except as noted below (like Boolean <u>operators</u> and <u>filter categories</u>), searches do not distinguish between upper- and lower-case letters. Your terms are converted to maximize the search results, regardless of capitalization: $\boxed{\text{gear}}$ and $\boxed{\text{GEAR}}$ will return the same results.
- Multiple search terms are separated by a space: specifying $\boxed{\text{film resistor}}$ searches all items with the terms *film* or *resistor* or both.
- If you want to search for a particular sequence of words, enclose it in quotes. For example, $\boxed{\text{"plated machine screw"}}$ only returns items with that exact sequence of terms in a single data field.
- Spaces and punctuation within quotes are ignored: $\boxed{\text{"screw, pan head"}}$ will return the same results as $\boxed{\text{"screw pan head"}}$.
- An embedded symbol character is equivalent to a space character, and the search term is converted to a quoted phrase. For example, $\boxed{\text{123-456}}$ is equivalent to $\boxed{\text{"123 456"}}$. Exceptions are made for:
  - Abbreviation: A series of single alphanumeric characters followed by $\boxed{.}$ (this is simply removed). For example, $\boxed{\text{I.S.O.}}$ is equivalent to $\boxed{\text{iso}}$.
  - Date: When the search term is in the form $\boxed{\text{YYYY-M-D}}$ (or local short date) then the search is limited to date fields: $\boxed{\text{2012-10-30}}$. A quoted date, however, is a string like any other, and $\boxed{\text{"2012-10-30"}}$ is searched as $\boxed{\text{"2012 10 30"}}$ within text (not date) fields.
- A blank search (that is, there are no search terms specified) doesn't return any results.

> An empty list shows that there are no matching records, or that the search term is so general that the search engine cannot select useful results. In both cases, refine your search by adding new or different terms.

Operators

- You can specify a single-character wildcard with the <u>? operator</u>. For example, $\boxed{\text{t?re}}$ would return items with words like *tire* and *tyre* but not *there*.
- You can specify a multi-character wildcard with the <u>* operator</u>. For example, $\boxed{\text{document*}}$ would return items with words like *document* and *documentation*.
- To search for terms nearby, enclose the terms in quotes and specify the maximum distance using the <u>~ operator</u>. The criteria $\boxed{\text{"10pF ceramic"~3}}$ will return all items with up to 3 other tokens between *10uF* and *ceramic*.
- To ensure a term is included in your results, use the <u>+ operator</u>. The criteria $\boxed{\text{flat +washer}}$ will return items with *washer* and may or may not include *flat*.
- To reduce the number of items returned, you can put a <u>- operator</u> immediately in front of a term that you want to exclude: $\boxed{\text{hardware -rivet}}$ returns all hardware items that don't include the term *rivet*. You can also use uppercase *NOT*: $\boxed{\text{hardware NOT rivet}}$

  > It's not necessary to include a space following the - operator, as $\boxed{\text{hardware - rivet}}$ and $\boxed{\text{hardware -rivet}}$ show similar results. However, you must use a space to separate the *NOT* operator from a search term: $\boxed{\text{hardware NOT rivet}}$

  > The - operator is most effective when used with tokens that, by themselves, create a ranked set. Using only a negative token – for example $\boxed{\text{-change}}$ – assigns the same rank to all "not a change" items. In a database with many items, the search will show nothing unless the negative token by itself defines a small result set.

- You can enter logical expressions using *AND* (or *&&*) and *OR* (or ||) between terms. The <u>&& operator</u> will return items when all terms are present, while the <u>|| operator</u> will return items that have one or more of the terms.

> Use a space to separate *AND* and *OR* operators from search terms: `flat AND washer` or `flat && washer` and not `flatANDwasher`

> By default, the *OR* (or ||) operator is applied between all terms of your search, and need not be explicitly used except when including other operators (see next example).

- Logical expressions contained within parentheses are evaluated before those outside. The expression `wire && (copper || steel)` will return items with either copper wire or steel wire or both; `(wire && copper) || steel` will return copper wire or anything steel or both.
- Use the `[ TO ]` operator to search for a range of up to 100 item numbers. The criteria `[10011 TO 10034]` will show up to 24 items, including the two end terms.

  > To ensure you get items with these numbers, and not unrelated items that simply include the numbers (like in change descriptions), use the [filter category](#) like: `number:[10011 TO 10034]`

System tags

System-level tags are automatically added as items are indexed. Tags follow the same search and operator rules as other item text, such as `part washer` and `file && *.pdf`.

Tag	Added to
home	Items where the home organization is the owner
partner	Items where a partner organization is the owner
document	Document records
part	Part records
change	Change forms
pending	Pending documents and parts
released	Released documents and parts
canceled	Canceled documents and parts
originated submitted routed held accepted released completed stopped rejected canceled	Change forms at the specified lifecycle state.
file	File attachments and external links

Tags are less accurate than filters because the item may include conflicting tags. For example, a home document record always includes the `home` tag, but its title may contain the word `partner`.

Filter categories

The system adds categories to an item. You can search a category by using `category:parameter`.

You can use any combination of full or short categories and full or short parameters. Category text is always lowercase; a parameter is any combination of uppercase and lowercase text.

Search for...	Category	Parameter	Example
Class	`class:` `c:`	change, chg document, doc part, prt	class:part c:chg
Owner[1]	`owner:` `o:`	**ORGANIZATIONS** Name *or* Display name	owner:3M o:Allied
Type[1]	`type:` `t:`	**DOCUMENT TYPES**, **PART TYPES**, **CHANGE FORMS** Name *or* Abbreviation	type:ECN t:assembly
Number[1]	`number:` `n:`	*Item* Number *or* `isempty`[2]	number:12345 n:56789-*
Description[1]	`description` `d:`	*Document* Title , *part* Name , *change* Description , *or* `isempty`[2]	description:Bolt d:IsEmpty
Release state	`state:` `s:`	*Document or part release state:* pending, pnd released, rel canceled, can *Change workflow state:* originated, org submitted, sub routed, rtd held, hld accepted, acc released, rel completed, cmp stopped, stp rejected, rej canceled, can	state:rel s:Routed
Lifecycle	`lifecycle:` `l:`	**ITEM LIFECYCLES** Name or Display name *as document or part* Lifecycle *value*[3]	lifecycle:Service l:srvc
Trustee	`trustee:`	**PERSONS** Name *as document or part* Trustee *or as change form* Originator *Use double-quotes if you want to include a space*	trustee:"pat lee"
Version	`version:` `v:`	A document or part iteration's Version *value*[3]	version:6a5f91e3 v:"10.2.543.6"
Checkbox true	`is:`	*Parts marked as serialized, certified, compliant*[4]	is:serialized
Checkbox false	`isnot:`	*Parts not marked as serialized, certified, compliant*[4]	isnot:certified

1. On the Item Explorer's search results list, a **bold** column header hints that the name (or first letter) can be used as a filter.
2. The `isempty` parameter enables searching for empty (missing) text.
3. These values are shown on a part or document iteration. A single item may have more than one iteration, and more than one value. A Released iteration's lifecycle ranks higher, and a Canceled lifecycle is lower, than a Pending iteration's lifecycle.
4. If the part type compliance label is Complies , then is:Complies returns parts that have the checkbox marked. Use double quotes if the label contains any spaces. Labels are not case-sensitive: isnot:"Meets RoHS" is the same as isnot:"meets rohs"

Filter categories can exclude items; for example, -class:part excludes all parts from the search results. You can mix parameters; for example, state:(ORG || SUB) returns change forms that are at the Originated or Submitted lifecycle state.

Custom attributes

Where the custom attribute scheme is:

- Boolean: The `is:` and `isnot:` filters are supported.
- Integer: Searches return the exact match only, without any digits after the decimal. For instance, `10` will return only 10, and not 10.01 or -10.
- Float, UOM, Money: All numbers with fractional values are converted to text strings. The indexed values always include the integer and at least one fractional digit. Other fractional values are rounded and saved with up to 7 decimal digits, unless the trailing digits are 0. For example, the custom attribute value `23.00018` is returned in a search for `23` , `23.0` , `23.0002` or `23.00018` , but not `23.000` or `23.000180` .
- UOM, Money: Item values are searched using the numeric value followed (without a space) with a unit of measure or ISO currency; for example, `12kg` or `17.25USD` .
- Date: A date is saved in the form `YYYY-MM-DD` (numeric year-month-day). For example, search for March 21, 2017 as: `2017-03-21` . You can use wildcards, for example: `2017-03-??` .

Invalid queries

> Using operators like `( ) { } [ ] * - " ? : \` in organization names, item numbers, and descriptions make search tokens more difficult to enter and correctly parse. For example, the result 2 `inches` will be found when *both* the description and search token use `2in` rather than `2"` .

- You cannot search for stop words such as `a` , `an` , and `the` .
- You cannot directly include operators `+ - && || ! ( ) { } [ ] ^ " ~ * ? : \` as search terms, unless you use the backslash character, such as `\+` and `\:` For example, search for the text 2" using `2\"`

Parsing rules

- Any symbol that is not an operator is treated as whitespace, except as noted.
- Period (full stop) `.` is treated as an alphanumeric: `3.1415` and `ABC.XYZ` are parsed as single tokens, and not like `3 1415` or `ABC XYZ`
- Implied operators (`OR`) are added and stop words may be removed.

Underscores and hyphens

An underscore `_` and hyphen `-` symbol may be treated as a space character, so that the string is split into separate search tokens. This is intended to split connected words, but not affect numbers with embedded delimiters (like part and document numbers, or dates).

The search token is split when the text segment on each side of the symbol does not contain any number character, and the token is not an email or web address.

Thus, the token `serial_number` is treated as `serial number` (unless it's in an email or web address), and `90816-01` remains a single token.

> In the search token `ABC_xyz_Q123-456` , the value is split into two tokens: `ABC` and `xyz_Q123-456` . The value `xyz_Q123-456` is not split as `xyz Q123 456` because `Q123` contains number characters. Thus, these criteria are possible:
> `ABC`
> `xyz_Q123-456`
> `xyz*456`
> `abc && *q123-*`
> `"abc xyz_q123-456"`

File & link searches

PDXpert uses a private search engine for database text and the server computer's Windows Search service for file attachments. These engines look at different data, and follow different rules.

File paths and URIs are parsed as identifiers with a mix of symbols and alphanumerics. An search for a web link may have different item record results, shown in the upper part of the Item Explorer's `Search` list, than Windows Search results shown in the lower

section.

For example, a database record with `http://example.com/W275Q` as a custom attribute finds the record using `W275Q`. Item parsing treats the `/` as a space, the `:` as a reserved operator, and the other characters as separate tokens: `http` `example.com` `W275Q`. However, Windows Search needs `*W275Q` to find the external link; it appears to drop the `http://` and treats the remaining characters `example.com/W275Q` as an unbroken text string.

Definitions

alphanumeric
Letters A-Z, a-z and their Unicode equivalents, and the numbers 0-9.

criteria
The set of all terms and operators used to define the search.

date
Number characters and delimiters as YYYY-MM-DD [ISO8601] or MM/DD/YYYY [US].

letter character
Any valid character in ranges A to Z, a to z or its local language Unicode equivalent.

number
One or more characters in the range 0 to 9.

operator
A symbol that signals special treatment for the immediately-following term.

search term
Valid characters in quotes, or a token, but not including any operator that acts on the term.

search token
A sequence of one or more valid characters.

stop word
A common word that won't add value to searches, and is not indexed.

symbol
A character that is not an alphanumeric (A-Z,0-9) character.

valid character
Any user-entered alphanumeric or symbol character, except non-display control characters.

Operators acting on a single term

* operator
Search wildcard that can be replaced by zero or more characters.

? operator
Search wildcard that can be replaced by exactly one character.

+ operator
Term is required as part of search results.

- operator
Term is excluded from search results.

Operators between two terms

&& operator
Logical AND search operator that requires both terms in the results.

|| operator
Logical OR search operator that requires at least one of the terms in the results.

[TO]

A range from one item numbers to another, including the range end points.

~ operator

Requires two terms to be within a specified distance: ~3 allows gap of up to 3 words.

Grouping operators

( ) group

Makes a logical group of terms for Boolean (AND / && or OR / ||) functions.

" " group

Groups one or more valid characters and spaces to make a search term.

Stop words

Very common words are always excluded from indexing, and are ignored in search criteria. These include:

a
an
and
are
as
at
be
but
by
for
if
in
into
is
it
no
not
of
on
or
s
such
t
that
the
their
then
there
these
they
this
to
was
will
with

The Item Explorer's `Recent` list shows items that you've recently opened.

The number of items that can be shown is changed by selecting `Tools` ➔ `User Settings...` and then adjusting the `Item Explorer: Recent items tracking limit` value.

Using the Recent list

> If the Item Explorer is not shown, select the `Item Explorer` menu item from the `Window` menu.

1. Click on `Recent` .
2. Do one of the following:
   - Right-click on the item to open the context menu, and select the `Open Item(s)` command. You can select more than one row, and open them.
   - Double-click the item to open it.
   - Drag the item from the grid and drop it onto any list that can accept it, such as dragging a part from the grid and dropping it onto an assembly's `BOM: Markup` list.

The column abbreviations are managed in members of these collections:

Owner shows the **ORGANIZATIONS** collection's `Display name`

Type shows the **DOCUMENT TYPES**, **PART TYPES**, **CHANGE FORMS** collections' `Abbreviation`

Release shows the **ITEM LIFECYCLE PHASES** collection's `Abbreviation`

Sorting

The list has three types of sorting:

- The normal sort order shows favorite ("pinned") items, followed by other recently-opened ("unpinned") items.
- A column is sorted from low to high: for example, from A to Z.
- A column is sorted from high to low: for example, from Z to A.

When you click on a column header, the normal sort order is changed to ascending, then to descending, and then returns to normal order. Favorite items are included in the ascending and descending sort order.

Setting and clearing favorites

You can keep a list of favorite items at the top of the `Recent` list. Up to half of the total items tracked in your `Item Explorer: Recent items tracking limit` user setting can be set as favorite items.

To set a recent item as a favorite:

- Select the item, open the context menu, and select the `Set/Clear As Favorite` command to pin or unpin the item.

Setting the item as a favorite moves it to the last row in the pinned list, and sets the text style as *italic*. Clearing the item as a favorite moves the item to the first row of the unpinned items, and sets the text style to normal. If more than one item is selected, the primary selected item is moved.

To the rearrange the favorite list:

1. Clear (unpin) any items that you want to arrange.
2. Set (pin) each item as a favorite in the order that you want the item displayed.

If you reduce the number of tracked items in your `User Settings`, extra favorites are moved to the unpinned list when you close the PDXpert client.

When you check out a revision file for editing, the related item is shown on the Item Explorer's `Files` list.

Open the item to check the file into the library, or to release the file lock so others can check out the file.

> If the Item Explorer is not shown, select the `Item Explorer` menu item from the `Window` menu.

1. Click on `Files` .
2. To open an item shown, do one of the following:
   - Double-click on the row; or
   - Open the context menu, and select the `Open Item(s)` command.

3. After the item opens, select the item's pending iteration, select the `Files` page, and then then `Revision Files` list.

1009

When you're given a task on an item's │ Tasks │ list, the related item is shown on the Item Explorer's │ Tasks │ list.

> If the Item Explorer is not shown, select the │ Item Explorer │ menu item from the │ Window │ menu.

Task priorities

Priorities are shown as:

- *High*
- *Normal*
- *Low*

The task list is shown by highest priority, then by soonest due, and finally by most-recently modified.

Tasks added by the system are always given *Normal* priority.

Opening a task

To open the item that's related to the shown task, use one of these steps:

- Right-click the list row, and select │ Open Item │ from the context menu.
- Double-click the item on the list.

The normal view shows only tasks that are given to you. To view tasks that you've given to other users, select │ Tasks assigned by me ∨ │ from the dropdown list.

RELATED TOPICS
　　　[Start and update tasks](#)
　　　[Tasks (item)](#)

1013

There may be times when you're not sure how to locate an item, but know about a related item.

For instance, you may need to locate a part that's used on a known assembly. Or, you may want to view all parent assemblies that use a specific part.

If the Item Explorer is not displayed, select the `Item Explorer` menu item from the `Window` menu.

1. Using the Item Explorer, locate and open the item that you know about.
2. Click on the item's appropriate `BOM` , `Sources` , `References` , `Appears On` , or `Affected` tab, and select the item you want from the list.
3. Select the `Open Item` command from the item's context menu. In many cases, you can also double-click the item to open it, or drag it onto an empty area of the workspace.

1032

If the Collection Explorer is not shown, select the Collection Explorer menu item from the Window menu.

1. If necessary, click on Collection Explorer to bring the Collection Explorer to the front.
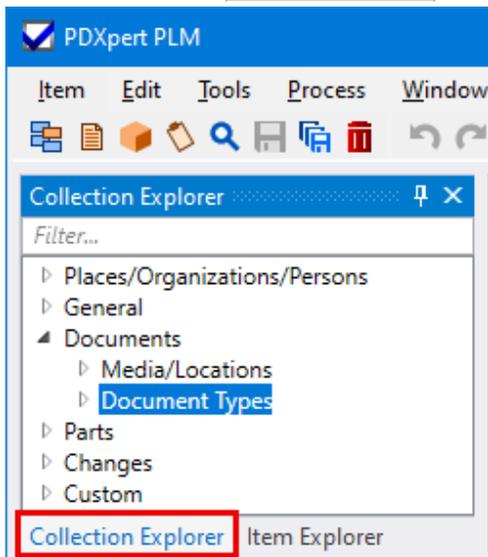
2. Navigate to the collection of interest. If necessary, expand a collection section (for example, the Documents section) by clicking on the group's ▷ expansion arrow.
3. Select a collection within the section by clicking on it (for example, the Document Types collection).
   - You can show members of the collection by clicking on the collection's expansion icon.
     The default member is shown as **bold** , and is often used as the starting member on new items.
     An inactive member is shown as dimmed .
     If the collection allows member abbreviations, they're shown in parentheses: Member name (Abbrev) .
   - Use the context menu to add new members and refresh the list from the database.

4. Select an individual collection member, and right-click to open the context menu. With appropriate permissions, you may:
   - Set the member as the default member.
   - Delete the member, if it's not in use by a different collection member or an item record.

   To quickly find a collection member, enter its name into the Filter… box. Matching members are shown in the tree. A collection member can also be filtered by its abbreviation, display name or material CAS, which is shown in parentheses, like Assembly (Assy) .

2063

> Some collections have special instructions to protect your system. Read the collection help topic before you begin.

> Other users should — and in some cases, must — exit the system while you're working. Close all item records in your workspace before you begin. Close the PDXpert client and start it again when you've finished.

1. Add a new member using one of these options:

   - Using the `Create Member` form:
     - On the `Item` menu, select the `Create Member` command; or
     - Click on the 🗗 toolbar button; or
     - On your keyboard, press the `F8` key.

     When the `Create Member` form opens:
     A. Select the collection.
     B. Enter the new member's `Name`.
     C. Click the `OK` button.

   - Within the Collection Explorer:
     A. In the Collection Explorer, find and select the collection.
     B. Open (right-click) the collection's context menu and select `Add Member`.

   - Create a new collection member by copying the default (**bold**) collection member. You can set the collection's default member before copying, and restore it after you're done copying. This option is only available for selected collections.
     A. In the Collection Explorer, select the collection node (for example, the `Parts Types` node).
     B. Open (right-click) the collection's context menu and select `Copy Default To Add New Member`.

2. When the saved member opens, enter appropriate information for the new member.

   > The member's `Name` is required. It must be unique within the collection.

3. Save any changes by saving or closing the member form.

2060

> Other users should not be using the system while you're working. Close all item records in your workspace before you begin. Close the PDXpert client and start it again when you've finished.

Edit a selected member

1. Open the collection and locate the existing member.
2. Open the member by double-clicking, or select `Open Member` from the context menu.
3. You may be permitted to change certain properties of a collection member. To modify a member's properties, press your keyboard's `F2` key, or select the `Unlock` icon in the status bar at the lower left corner of the window, or select the `Edit ➜ Unlock Object` main menu.

4. Edit the member attributes.
5. Do one of these to save your changes:

   - Menu: `Item ➜ Save`
   - Keyboard: `Ctrl` + `S`
   - Selecting the `Lock` icon in the status bar (or the `F2` key)
   - Menu: `Item ➜ Close`

Set one member as the collection's default

Every collection requires one default member. The default member must be active.

If you want to make the current default member inactive, first set another active member as the collection's default.

To set a member of the collection as the default member:

1. Close all members of the collection.
2. In the Collection Explorer, select a collection member that you want to set as the default.
3. Right-click to open the context menu, and select `Set as Default`. The member name becomes **bold**.

> Setting the default member of the **PERSONS** collection is the same as setting the Super Administrator .

> The default member of the **ORGANIZATIONS** collection cannot be set here. It is set by importing the software license key .

You cannot undo your deletion. The collection member is deleted immediately, without further confirmation.

Other users should not be using the system while you're working. Close all item records in your workspace before you begin.

If the collection member is included in any **TRANSFORMS** or **VIEWS** collection members, update the SQL query to remove the reference.

PERSONS collection: If a person has reviewed change forms or been given tasks, it's a good idea to keep a permanent record of the person's work. Instead of deleting or renaming the **PERSONS** collection member, set the person's record inactive .

Collection members in use cannot be deleted. Before removing a member from a custom collection, delete the collection member from every document, part, and change form where it's used. If the member is the default value on a type's custom attribute definition, select a different collection member as the default value.

1. Open the collection and select (click on) the existing member. The member becomes highlighted.

   Before deleting the collection's default member (shown in **bold**), select a different collection member as the default. You cannot change the default member of the **ORGANIZATIONS** collection.

2. Right-click to open the member's context menu and select the Delete Member command.

   You can also delete a collection member by opening it and selecting Remove Object from the Item menu.

Deleting a custom collection

Deleting a custom collection automatically deletes its label and selected member from each item (document, part, change form) that refers to it.

A custom collection may be deleted only if the collection and its members are not used anywhere in the application.

1. Delete the custom collection from each **DOCUMENT TYPES**, **PART TYPES** and **CHANGE FORMS** collection member's Custom list.
   To delete the Custom: {collection name} row, see the Custom attributes: Deleting a custom attribute help topic.
2. If the custom collection is used by any members of the **TRANSFORMS** or **VIEWS** collections, modify these to remove the custom collection references.
3. Delete each member of the custom collection.
   If the member is the collection's default, then do this:
   A. Open the Tools menu and select the Administrator Override command.
   B. Open the collection's default member, clear the ☑ Default member of collection checkbox, and save.

      If you decide not to delete the custom collection, ensure that one of the collection members is selected as the default member.

   C. Delete the collection member.
   D. On the Tools menu, select the ✓ Administrator Override command to clear the checkmark.

4. When all members of the custom collection are deleted, delete the collection name. Select the collection in the Collection Explorer list, open the context menu, and select the Delete Collection command.

Documents show the design, construction, service and support information of a product or procedure.

When you add a new document to PDXpert, you're making a document record that is an "index card" or container for one or more related electronic files. These are added to the document record's `Files` lists and stored in the PDXpert file library.

A document record can also identify a real physical object, such as a paper drawing or photographic film.

A document always has at least one iteration and, as your design changes, many more may be added:
- Zero or one pending iteration.
- Zero or one released iteration.
- Zero or more canceled iterations.

Making a new document

Starting the new document

Make the new document by

> [Creating the document](#) , or
> [Copying another document](#)

In both of these, you'll permanently identify the document by its type, owning organization, and number.

Finishing the new document record

The document record opens with its first pending iteration. Each record iteration can reflect the document's name, revision, and lifecycle phase, such as `Preliminary ▾` or `Production ▾`.

Item-level attributes

Some attributes are associated with the item, and shared across all revisions of the item.

- General information includes the `document name` and data on the `Attributes` , `Custom` , and `Notes` pages.
  > [Fill in the new document](#)
- The `Files: Item Files` list has background files and external links for history, manufacturing records, websites and other information that's not managed by revision.
  > [Attach an item file](#)
  > [Attach an external link](#)

Revision-level attributes

Revision-level data is related to a specific iteration, and changes are tracked using an executing change form.

You may add relationships between the document and other items. You establish these relationships by dragging items from the Item Explorer's `Search` or `Recent` lists, and dropping them onto the correct markup list

- Add documents to the `References: Markup` list, such as customer source drawings, industry specifications and regulatory requirements. You can also identify physical parts such as tools and equipment used in a test or calibration procedure.
  > [Manage document references](#)
- Add one or more design files to the `Revision Files` list. These files can be original technical drawings (like CAD or Word files), information derived from drawings (like CNC code or PDFs), or both.
  > [Attach a revision file](#)
- Add an informal reminder to the `Tasks` list to prepare the iteration for release.
  > [Start and update a task](#)

After you add new information, [save your document](#) .

Releasing the document for the first time

When you've completed adding information, the pending document record is released by (1) adding it to an executing change form `Affected` list and (2) routing, approving, and releasing the change form.

Until you submit the change form for approval, the document record remains pending and can be changed in whatever way that you want.

After the change form is approved and released, the document record is released, and the final child relationships are shown on the `Current` list.

- Many of the released document record's attributes are locked and can never be modified;
- Some attributes can be modified by the item trustee and members of the product team; and
- Some document attributes (such as revision files) can be modified only by making a new pending iteration of the document record.

See the Release your document help topic.

Revising a released document

Revise a released document record by making a new iteration.

On the new iteration, you can markup the BOM, Sources and References lists. You can also add, edit and remove revision files.

The new iteration remains pending until you release it on an executing change form. At that time, you'll also cancel the preceding iteration by adding it to the same change.

See the Revise a released document help topic.

Canceling a released document

When a released document is obsolete and no new iterations are needed, it's canceled without a new iteration.

Cancel a released iteration by adding it to a new executing change form's `Affected` list, and releasing that change form.

> Do not create a new iteration. All references and files stay on a canceled document, so no changes are needed.

To show that a document is no longer useful, you can choose to cancel the released iteration, or to release a new iteration with lifecycle of (say) **Obsolete**. A lifecycle change can show the document is obsolete, but doesn't block its use. *Canceling is better.* Canceling the document makes sure that:
- All pending and released parent items are revised to remove the document before it's canceled.
- After the document is canceled, it can't be accidentally added to a markup list.
- Users can't open the canceled document unless they have the correct role permissions.
The document can be used again by releasing a new iteration, even with the same revision and lifecycle.

See the Cancel a released document help topic.

Deleting a document

You can remove (delete) a pending document iteration from the database if it's not used by another document, part or change form.

See the Remove your document help topic.

Printing and exporting document data

View and share document information using:

Context menu printed reports
PDX package export file
Custom views in the DataGrid

[Report/Export Wizard custom export files and reports](#)

Any user who is assigned a role with appropriate permissions can create a new document record and its first <u>iteration</u>.

There are two methods for creating a new document record.

- On the Item Explorer's `New` tab, scroll through the list of available document types. Click on the appropriate row to create a new document of the specified type.
- From the `Item` menu, select the `Create Document` line. (Or, press your keyboard's `F9` key.) A wizard will open, and walk you through the steps necessary to create the basic attributes for your new document.
    - Select the new document's `Type` . This determines the attributes of the new document, such as document numbering, revision format, and starting lifecycle.
    - Select the document's `Owner` value. Although the <u>home organization</u> is the default, you can choose a <u>partner organization</u>.

        > The content of a home document is controlled by your organization: you specify the document number and title, technical revision, business lifecycle, information it contains, when it's released, when it gets revised and when it becomes obsolete. A partner organization document is where these elements are designed and controlled by a different organization, and your organization simply references that document for your own purposes.

        > If you begin typing an organization's name into the control, the list is filtered.

    - If you select the home organization as the `Owner` , then the system may give the new document number for you, or you may enter a document number. When you select a partner organization, you must enter the number that the partner gave to the document.

Complete your new document:

- <u>Fill in the new document</u>
- <u>Add a reference item</u>
- <u>Attach a revision file</u> , <u>attach an item file</u> , or <u>attach an external link</u>

1069

Sometimes there's already a document similar to one that you need to create. It's simple to "take a snapshot" of the source document and then edit the snapshot to reflect your new requirements.

1. Take a snapshot

Snapshot Duplicate

This copies the active document's data into a new record using the same **DOCUMENT TYPE** collection member.

1. Locate the document that you want to copy using the Item Explorer.
2. Select the document and open it so that it is the active (front-most) document window in your item workspace.

   > If you don't want to copy the current iteration, select the preferred iteration.

3. Select the `Snapshot Duplicate` command from the `Edit` menu or press `Ctrl` + `D` on your keyboard.

When the new document window opens, fill out the necessary information as outlined in Filling in the new document.

Snapshot Convert

This copies the active document's data into a new record, converting data as needed into the selected **DOCUMENT TYPE** or **PART TYPE** collection member.

1. Search for the document that you want to copy using the Item Explorer.
2. Select the document and open it so that it is the active (front-most) document window in your item workspace.

   > If you don't want to copy the current iteration, select the preferred iteration.

3. Select the `Snapshot Convert` command from the `Edit` menu.
4. Select the desired **DOCUMENT TYPE** or **PART TYPE** collection member, and then click the `OK` button.

   > The source and target may have very different attributes, and only data that's supported in both source and target types is copied. For example, a part has a default unit of measure that cannot be copied to a document record. Custom attributes will only be copied if they share the same name and scheme.

2. Edit the record

Fully describe your new [document iteration](#) .

1074

1. On the General page, specify
   - The document's Revision and Lifecycle phase . You can modify the proposed revision or lifecycle values. For example, if you're making a new <u>iteration</u> simply to move the document to a new lifecycle (say, from Preliminary ⌄ to Production ⌄), then you can change the lifecycle and use the previous revision to show that the technical content hasn't changed.
   - The Document name (title) . The starting value is copied from the document type's Text template value. See the [Document types: Document title template](#) help topic.
   The Name{a} button inserts the values on the Custom page into the part type's Text template . The button is visible only when custom attributes have been specified on the part type. To make a new document name, first enter the custom attribute values, and then click the Name{a} button to make the name. The new name completely replaces the previous name. You can edit the new name after the custom attributes have been inserted.

     > Keep in mind any naming constraints of downstream computer systems. For example, some MRP/ERP systems can accept only 30 characters, or are limited to <u>ANSI Basic alphanumeric</u> characters. Export queries can, for example, convert the name to uppercase, but converting Unicode to ANSI or correctly shortening a long description is more difficult. Some data fields show a character counter in the upper right of the box that show the current text length.

2. Provide more information or keywords in the Release description and Revision area that can be used to help users search for this document.
   - The Revision area may be used to identify where the change occurs (say, drawing Zone A2 or Requirements 2.1 & 4.3).
   - The Release description briefly summarizes how the technical content has been changed (for example, Increased hole diameter). This is shown on the change form Affected list as a note to reviewers.

3. If you need to apply security access settings related to a **PRODUCT FAMILIES** collection member, drag the member from the Collection Explorer and drop it on the Product families list box.
4. Use the data on Attributes to identify people and organizations that affect the document's contents, and identify and access rights that control document distribution or usage.

The ⌐References⌐ list shows items that are useful for making or validating the document. For instance, an assembly procedure can refer to other documents that specify calibration or inspection procedures.

> If both part and document records are blocked as references, then the ⌐References⌐ lists aren't shown. Your administrator must enable the **References Tabs** system rule .

To change the references list on a document, it must have a pending iteration. While the document iteration remains pending, all of your work is managed on the ⌐References: Markup⌐ list. After the document record is released using an executing change form (such as a Change Notice), your reference items show on the iteration's ⌐References: Current⌐ list.

> To minimize possible database conflicts, save or close all edited items that you'll be adding to the ⌐References: Markup⌐ list.

- *To add a reference item* onto the pending iteration of the document's ⌐References: Markup⌐ list:

    - Click on the ⌐References: Markup⌐ list. Scroll, if necessary, to expose an empty area.
    - Using the Item Explorer, locate the reference document or part that you want to add to this record.
    - Drag the item from the Item Explorer and drop it onto an empty area of the ⌐References: Markup⌐ list. The icon in the Add/Remove column is ⊕ .

        > If you change your mind, you can remove the added row: select the row, and press your keyboard's ⌐Delete⌐ key or select the context menu ⌐Remove Item from List⌐ command.

    - Add notes or adjust the row number on the ⌐References: Markup⌐ row if desired.

- *To remove an existing reference item* (one that was added and released on a previous iteration of the parent document) from the pending iteration's ⌐References: Markup⌐ list: Select the row, and press the ⌐Delete⌐ key, or select the context menu ⌐Remove Item from List⌐ command. The reference item isn't immediately deleted; instead, the "keep" icon ✔ in the Add/Remove column becomes a red "take off" icon ⊖ , signaling that the reference will be removed from the list when the parent document is released on a change form.

    > If you change your mind, you can restore a row that's to be removed from the list: select ⌐Keep Item on List⌐ from the context menu.

1065

The ⌈ Tasks ⌉ list lets you give yourself or others an informal reminder about preparing the item for release. Whether you want to confirm a design parameter or call your supplier, you can enter the task and update it.

> Tasks are requests or reminders, not requirements. Incomplete tasks do not prevent an item from being released. After release, the task is no longer relevant and is locked at its current status.

Starting a task

To start a new task, the item window must be unlocked:

1. Open the Collection Explorer.
2. Open the **Persons** collection or enter the person's name into the *Filter...* box.
3. Select the person, and drag the record onto an empty area of the Tasks list.
4. Enter the ⌈ Assigned to ⌉, ⌈ Due date ⌉, ⌈ Status ⌉, ⌈ Priority ⌉ and ⌈ Task description ⌉ values.
5. Save the item. An email notice is sent to the person who assigned the task.

The task is shown in the assigned person's Item Explorer ⌈ Tasks ⌉ list.

Changing and ending a task

You can edit a task while the item is not released.

To end a task, the item window must be unlocked:

1. Enter the final ⌈ Status ⌉ as *Completed*, *Deferred*, or *Canceled*.
2. Save the item. An email notice is sent to the person who assigned the task.

The task is removed from the Item Explorer ⌈ Tasks ⌉ list when:

- The status is *Completed*, *Deferred* to a later time, or *Canceled*; or,
- The item is released.

Related topics
　　　Tasks (item)
　　　Item Explorer: Tasks

1158

Saving a document clears all of the undo history; you can't undo any steps before the save operation.

- Select `Save` (or `Save All`) from the `Item` menu; or,
- Select `Lock Object` from the `Edit` menu (or press your keyboard's `F2` key); or,
- Lock the document form using the `Lock` selection in the form's status bar; or,

- Close the document window, which saves all changes automatically.

> PDXpert may show `Cannot save` or similar message when there is a conflict between the current database record and an earlier version. This conflict is often the result of assigning duplicate item identifiers or editing related records in parallel. For example, if you add a reference document to an item, the system must update both item records; the update is blocked when both records are unlocked.
>
> When you see `Cannot save`, close all item forms and then open the item that you want to edit.
>
> To avoid this problem, edit only one item at a time. When you're done editing the record, save or close the item before working on a different item. This avoids database conflicts, and lets PDXpert understand how to save your changes.

1073

You can remove (delete) a pending document iteration from the database if it's not used by another document, part or change form. You can never remove a released or canceled iteration.

- If there's only one iteration of the document, then removing the iteration deletes the entire document record from the database.
- If there's more than one iteration of the document, then only the pending iteration is removed. Any released or canceled iteration remains in the database.

If you are the document iteration's trustee or a document analyst , then you can remove the document iteration only while it's at the Pending release state.

If a document has no released iteration, and it's on a pending item's References: Markup list, then it's blocked from deletion. You can remove the document from the system only after you edit the list to remove the document. Pending iterations on a change form's Affected list must always be deleted from the change form before they can be removed from the system.

To remove a pending document record:

1. Open the document. If it's open, select it to that you can view it.
2. On the Item menu, select the Remove Object command.

> The Remove Object command is applied to the document. Do not select any other window. You cannot undo this command.

All change forms provide control information about documents, but only an executing change form (for example, a *Change Notice* or *CN*) has a permanent effect on the document record. This executing change form, when it is approved, updates all pending items according to the rules of the change form.

In other words, you released or cancel document iterations by specifying the affected items on the executing change form. Then, after all groups have approved the change, PDXpert updates the items on the | Affected | list.

An advisory change form, like a *Change Request* (*CR*), does not update a document iteration's release state. It tells why the document should change in a later executing change.

To release an unreleased document iteration, use the following general procedure.

1. Start a new executing change form, such as a Change Notice. Or, use an existing change form that's at | Originated | state.
2. Drag the document that you want to release from the Item Explorer | Search | or | Recent | list to the change form's | Affected | list. The pending iteration is shown with ▶☑ (*change releases iteration*). If the item has a released iteration, then it's usually canceled on the same change form, and is shown with ▶☒ (*change cancels iteration*). Pending child items on the document's | References: Markup | list – if not on another change form – are automatically added to the change form's | Affected | list.

   > If the document record has been edited, save or close it before adding it to the | Affected | list.

3. Submit or route the change form for review, approval, and release. See the Processing a change help topic.

Once the document iteration has been released, you'll notice that much of the data that you could previously modify is now locked. In particular, the information that gives the document its unique identity (the owner, document type, number, revision and lifecycle) is now permanently established.

A document iteration is released only once, and can be a used until canceled. A released document can be listed on any number of advisory change forms (such as a change proposal) as necessary.

- If any product families are shown on the item, then members of the product team can edit some attributes even after the item has been released. Your administrator decides who is a product team member in the **PRODUCT FAMILIES** collection .
- If the released the document has major changes that affect its application or purpose, then copy the document to make a replacement. Select the Snapshot to Document command from the Edit menu, and edit the new copy.
- If the changes are minor, such as editing document attributes or references, or attaching an updated file to the Files: Revision Files list, then you typically make a new iteration of that document.

  > For details, see the Revise a released document topic.

- Finally, if you discover a clerical error that requires a small "off the books" correction, your administrator can edit certain fields specified by the Tools menu: Administrator Override command .

1071

The document record's iteration must be released or canceled before you can make a new pending iteration.

Any user who has permission to view a document (and whose role has appropriate permissions) can make a new iteration for that document, regardless of the previous iteration's trustee.

- Click on the iteration dropdown list on the document window's status bar, and select the <..New..> ⌄ line.

> You don't need to unlock the existing record iteration to create a new iteration. The record is unlocked automatically.
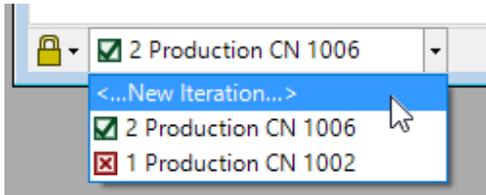
Complete your new document iteration:

> Some data — such as Type, Owner and Number — is locked on the first iteration, and cannot be revised.

- [Fill in the new document iteration](#)
- [Add a reference item](#)
- [Attach a revision file](#) , [attach an item file](#) , or [attach an external link](#)

When you've completed the new iteration, [release your document](#) on a change form.

1070

You cancel an obsolete document when it's no longer relevant to your product or procedure, and you want to ensure no one uses it in the future.

Cancel a released document by adding it to an executing change form's Affected list, and then approve and release the change form.

> If the document iteration is pending, then you can't cancel it; instead, remove the pending document iteration .

> A canceled document cannot be used on any pending or released parent item. Before canceling the document, examine its Appears On: References list. If it's a child item on any pending or released parent item, then remove it from the parent. If the parent item is released, then the parent must be revised to remove the document, and the parent revision must be released with (or before) the child document's canceling change form.

> Canceling, instead of revising, a document ends its internal history timeline at the canceled iteration. If you later create a new iteration, a new history timeline begins. Markups show all previous rows as added (blue "add on" icon 🔵) because they're copied from the canceled iteration onto the new history.

> You don't need to change the iteration's lifecycle when you cancel it. Keeping the current lifecycle indicates its technical status when it was canceled, and simplifies re-releasing later if it's needed for servicing or a new application.

> No reference child items are affected by canceling the parent document.

Canceling a released document iteration is very similar to releasing it.

1. Start a new executing change form, such as a Change Notice. Or, use an existing change form that's at Originated state.
2. Drag the released document that you want to cancel from the Item Explorer's Search or Recent lists to the change form's Affected list. The released iteration is shown with ▶☒ (*change cancels iteration*).
3. Process the change form for review, approval, and release. See the Processing a change help topic.

Un-cancel a document

After a document is canceled, you can return it to a released state by creating and releasing a new iteration.

- If the document does not have any new technical content, edit the pending Revision and Lifecycle values to match the canceled iteration values.
- If the technical content has changed, edit the new pending iteration as described in the Revise a released document help topic.

When you've finished editing the new iteration, release your document on a change form. When it's added to the change Affected list, the pending iteration is shown with ▶☑ (*change releases iteration*); the canceled iteration is not shown.

Part records identify a physical item installed or consumed in the construction of a product.

A part always has at least one iteration and, as your design changes, many more may be added:
- Zero or one pending iteration.
- Zero or one released iteration.
- Zero or more canceled iterations.

Making a new part

Starting the new part

Make the new part by

Creating the part , or
Copying another part

In both of these, you'll permanently identify the part by its type, owning organization, and number.

Finishing the new part record

The part record opens with its first pending iteration. Each record iteration can reflect the part's name, revision, and lifecycle phase, such as Preliminary ⌄ or Production ⌄ .

Item-level attributes

Some attributes are associated with the item, and shared across all revisions of the item.

- General information includes the Part name and data on the Attributes , Custom , and Notes pages.
  Fill in the new part
- The Item Files list has background files and external links for history, manufacturing records, websites and other information that's not managed by revision.
  Attach an item file
  Attach an external link
- If you track the chemical substances that affect environmental compliance, add data to the Materials list.
  Add or remove materials

Revision-level attributes

Revision-level data is related to a specific iteration, and changes are tracked using an executing change form.

You may add relationships between the part and other items. You establish these relationships by dragging items from the Item Explorer's Search or Recent lists, and dropping them onto the correct markup list

- Add to the BOM page Markup list parts that are used or consumed to produce the parent part.
  Add parts from the Item Explorer, or drag parts from other parts
  Import a BOM file from CAD
- Add to the Sources page Markup list parts from supply chain partners.
  Manage approved sources
- Add to the References page Markup list specifications, assembly and test instructions, drawings and other documents. You can also add parts, such as tooling or fixtures, that are related to the part's construction.
  Manage part references
- Design files describe how to fabricate, assemble or prepare the part. Add these to the Revision Files list.
  Attach a revision file
- Add an informal reminder to the Tasks list to prepare the iteration for release.
  Start and update a task

After you add new information, save your part .

Releasing the part for the first time

When you've completed adding information, the pending part record is released by (1) adding it to an executing change form `Affected` list and (2) routing, approving, and releasing the change form.

Until you submit the change form for approval, the part record remains pending and can be changed in whatever way that you want.

After the change form is approved and released, the part record is released, and the final child relationships are shown on the BOM, Sources and References `Current` lists.

- Many of the released part record's attributes are locked and can never be modified;
- Some attributes can be modified by the item trustee and members of the product team; and
- Some part attributes (such as the BOM) can be modified only by making a new pending iteration of the part record.

See the Release your part help topic.

Revising a released part

Revise a released part record by making a new iteration.

On the new iteration, you can markup the BOM, Sources and References lists. You can also add, edit and remove revision files.

The new iteration remains pending until you release it on an executing change form. At that time, you'll also cancel the preceding iteration by adding it to the same change.

See the Revise a released part help topic.

Canceling a released part

When a released part is obsolete and no new iterations are needed, it's canceled without a new iteration.

Cancel a released iteration by adding it to a new executing change form's `Affected` list, and releasing that change form.

> Do not create a new iteration. BOM parts, source parts, references and files stay on a canceled part, so no changes are needed.

To show that a part is no longer useful, you can choose to cancel the released iteration, or to release a new iteration with lifecycle of (say) **Obsolete**. A lifecycle change can show the part is obsolete, but doesn't block its use. *Canceling is better.* Canceling the part makes sure that:

- All pending and released parent items are revised to remove the part before it's canceled.
- After the part is canceled, it can't be accidentally added to a markup list.
- Users can't open the canceled part unless they have the correct role permissions.

The part can be used again by releasing a new iteration, even with the same revision and lifecycle.

See the Cancel a released part help topic.

Deleting a part

You can remove (delete) a pending part iteration from the database if it's not used by another document, part or change form.

See the Remove your part help topic.

Printing and exporting part data

View and share part information using:

Context menu printed reports
PDX package export file
Custom views in the DataGrid
Report/Export Wizard custom export files and reports

Any user who is given a role with appropriate permissions can make a new part record and its first iteration.

There are two options for creating a new part record.

- On the Item Explorer's `New` tab, scroll through the list of available part types. Click on the appropriate row to create a new part record of the specified type.
- From the `Item` menu, select the `Create Part` line. (Or, press your keyboard's `F10` key.) A wizard will open, and walk you through the steps necessary to create the basic attributes for your new part record. Although the home organization is the default, you can choose a partner organization.

  > The content of a home part is controlled by your organization: you specify the part number, the item description, the technical specifications, when it's released and when it's revised. A partner part is where these elements are designed and controlled by a different organization, and your organization simply references that part for your own purposes.

  > If you begin typing an organization's name into the control, the list is filtered.

Complete your new part:

- [Fill in the new part](#)
- [Add, modify or remove BOM items](#) or [import a CAD BOM](#)
- [Add approved source parts](#)
- [Add a reference item](#)
- [Attach a revision file](#) , [attach an item file](#) , or [attach an external link](#)

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If an existing part record is similar to one that you need, copy ("snapshot") that part into a new item iteration. Edit the new part to reflect your requirements.

1. Take a snapshot

Snapshot Duplicate

This copies the active part's data into a new record using the same **PART TYPE** collection member.

1. Search for the part that you want to copy using the Item Explorer.
2. Select the part and open it so that it is the active (front-most) part window in your item workspace.

   > If you don't want to copy the current iteration, select the preferred iteration.

3. Select the `Snapshot Duplicate` command from the `Edit` menu or press `Ctrl` + `D` on your keyboard.

Snapshot Convert

This copies the active part's data into a new record, converting data as needed into the selected **DOCUMENT TYPE** or **PART TYPE** collection member.

1. Search for the part that you want to copy using the Item Explorer.
2. Select the part and open it so that it is the active (front-most) part window in your item workspace.

   > If you don't want to copy the current iteration, select the preferred iteration.

3. Select the `Snapshot Convert` command from the `Edit` menu.
4. Select the desired **DOCUMENT TYPE** or **PART TYPE** collection member, and then click the `OK` button.

   > The source and target may have very different attributes, and only data that's supported in both source and target types is copied. For example, a part has a default unit of measure that cannot be copied to a document record. Custom attributes will only be copied if they share the same scheme.

2. Edit the record

Fully describe your new part iteration .

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1. On the ⬚General⬚ page, specify
   - The part record's ⬚Data revision⬚ and ⬚Lifecycle phase⬚. You can modify the proposed revision or lifecycle values. For example, if you're making a new <u>iteration</u> simply to promote a record to a new lifecycle (say, from ⬚Preliminary ⌄⬚ to ⬚Production ⌄⬚), then you can change the lifecycle and use the previous revision to show that the technical content hasn't changed.
   - The ⬚Part name⬚. The starting value is copied from the part type's ⬚Text template⬚ value. See the <u>Part types: Part name template</u> help topic.
     The ⬚Name{a}⬚ button inserts the values on the ⬚Custom⬚ page into the part type's ⬚Text template⬚. The button is visible only when custom attributes have been specified on the part type. To make a new part name, first enter the custom attribute values, and then click the ⬚Name{a}⬚ button to make the name. The new name completely replaces the previous name. You can edit the new name after the custom attributes have been inserted.

     > Keep in mind any naming constraints of downstream computer systems. For example, some MRP/ERP systems can accept only 30 characters, or are limited to <u>ANSI Basic alphanumeric</u> characters. Export queries can, for example, convert the name to uppercase, but converting Unicode to ANSI or correctly shortening a long description is more difficult. Some data fields show a character counter in the upper right of the box that show the current text length.

2. Enter information or keywords in the ⬚Revision area⬚ and ⬚Release description⬚ to help users search for this revision.
   - The ⬚Revision area⬚ may be used to identify where the change occurs (say, ⬚Mounting flange⬚).
   - The ⬚Release description⬚ summarizes how the technical content has been changed (for example, ⬚Removed interfering material⬚). This is shown on the change form ⬚Affected⬚ list as a brief note to reviewers.

3. If you need to apply security access settings related to a **PRODUCT FAMILIES** collection member, drag the member from the Collection Explorer and drop it on the ⬚Product families⬚ list box.

4. Use the data on the ⬚Attributes⬚ list to identify information required by your engineering procedure and manufacturing system, such as ⬚Default unit of measure⬚ and ⬚Make/buy code⬚.

   > If a <u>BOM part can have a unit of measure different than its default</u> and the part's default is later changed, then make sure that the unit of measure originally used on the BOM is correct.

1134

A parent assembly is constructed from subassemblies and physical components. These are often known as *parent-child* (also *indented*, *hierarchical*, or *structured*) relationships.

The BOM identifies the child parts that are added or consumed when making the parent assembly. Documents, as well as supporting parts (such as tooling), are added to the assembly's References list.

> Relationships must be a strict hierarchy; lower-level items must never use higher-level items. A higher item that's on the BOM of a lower item causes a recursion error — an infinite loop — in multi-level reports/exports.

> The `BOM` lists are visible only if the **PART TYPES** collection member has ☑ Markup will accept parts marked.

You must be working with a pending iteration to modify the `BOM` list. While the parent part iteration remains pending, all of your work is managed on the `BOM: Markup` list. After the parent part record is released using an executing change form (such as a Change Notice), your child parts are shown on the iteration's `BOM: Current` list.

> To minimize possible database conflicts, save or close all items that you'll be adding to the `BOM: Markup` list.

Add a component row

To add a child part onto a pending iteration of the parent part's `BOM: Markup` list:

1. Click on the `BOM: Markup` list. Scroll the list, if necessary, to expose an empty area.
2. Using the Item Explorer, locate the part or document that you want to add to the parent part.
3. Drag the item from the Item Explorer and drop it onto an empty area of the `BOM: Markup` list. The icon in the `Add/Remove` column is ⊕ and the child item is given a new BOM `Find` number.
4. If needed, edit the attributes on the added row.

> If you change your mind, you can remove the added row: select the row, and press your keyboard's `Delete` key or select the context menu `Remove Item from List` command.

Modify a released row

You can replace the child part on a row and keep the quantity and other data; or keep the part but edit the other data; or both replace the part and edit the data.

You don't edit the old row, but work on a new copy. The values in the old row and new row can be compared during the change review.

To modify a previously-released child row from the pending iteration of a parent part's `BOM: Markup` list:

1. Drag an item from the Item Explorer and drop it onto a released row (as shown by a "keep" icon ✔). The released row is marked as removed (red "take off" icon ⊖) and a new row is added (blue "add on" icon ⊕). The `Find` number, quantity and units, reference designators, and notes are copied to the added item.

   > If you're keeping the same part and only modifying the quantity, notes or RefDes, then you can select the row, open the context menu, and select `Change Row with Same Item`.

2. Edit the added ⊕ row's quantity, RefDes, notes or other editable fields. Don't change the `Find` value.

> If you change your mind, you can undo your row replacement: select the added row, and press your keyboard's `Delete` key or select the context menu `Remove Item from List` command.

Remove a released row

To remove a BOM row that is on the previous released iteration of the parent part:

- On the pending iteration's `BOM: Markup` list, select the row.

- Press the keyboard Delete key, or select the context menu Remove Item from List command.

The child item isn't immediately deleted; instead, the "keep" icon ✅ in the Add/Remove column becomes a red "remove" icon ⛔ . This shows that the item will be removed from the BOM when the parent part is released on a change form.

> If you change your mind, you can undo a child row that's marked to take off ⛔ : Select Keep Item on List from the context menu.

Import CAD BOM file

To import a parts list from a CAD file, see the [Import a CAD BOM](#) help topic.

Adjust Find numbers

Each row on the BOM has a Find number that's used to track how the BOM changes from one revision to the next. To adjust the Find numbers:

- When working with the first iteration of an assembly, the Find can be edited to adjust the rows as needed. Right-click a row to Insert a Find Number Gap or to Renumber From Selection . Edit the Find number to a new value (which cannot be the same as any other Find number of the list).
- After the assembly is released, new BOM revisions allow editing the Find number on new rows, but you can't adjust the Find of released rows.

    > BOM changes are easier to understand when the Find matches a removed row with its functional replacement. A gap between existing rows should be filled only by a part that's functionally related to the row that was previously removed.

Most CAD applications export a bill of materials (BOM) in a convenient plain text format called "comma-separated values" (CSV). PDXpert defines a standard set of column headers for importing the BOM into a PDXpert assembly record.

> Use CSV when your CAD tool gives you the choice between exporting CSV and other formats like Excel. Editing the file in Excel may damage the CSV file if it contains text that Excel considers numbers and dates. For example, Excel may convert part number `00123` to *123,* or `2021-01` to *January 2021*. Some versions of Excel can also have problems reading and saving ANSI Extended and Unicode characters.

> If you want to import many BOMs from a data source like an ERP/MRP, use the Batch Importer tool .

The import file doesn't make any new parts; it makes relationships between an assembly and its immediate child parts (a single-level BOM).

> All items must exist in the database, and are matched using the same **Item uniqueness** system rule that detects duplicate parts.

To import a BOM Markup from a file

A BOM import can be performed only within the Markup list, and only before the assembly's pending iteration is released. The imported BOM can include pending or released parts, but not canceled parts.

1. When you have your BOM file ready to be imported, make a new part record or open an existing pending iteration. Select the part's BOM page.
   Within the Markup workspace, open the context menu, select the Import Markup from File command.
   The ☑ Import Markup from File dialog opens.
2. Browse to your import file, and then click the Open button. Your file is imported into the Markup list.

   > Your import file must conform to PDXpert's standard import format as specified below .

   > Always manually edit the BOM **after** importing a new file. Whenever a new file is imported, the BOM list is first reset to its starting contents.
   >
   > If you discover an error after you accept the import, you can manually edit the records that you've imported, or import a new file to replace all edited rows on the markup.

Import file format

Configure your CAD software to export its BOM using the following import format. The format can accept BOM files with very little information. Most columns are optional; if the column is omitted or the row's value is empty, the system uses default values as shown.

> A column name — which your exporting software may call the column *header* or *label* — is recognized only if it exactly matches the column name shown. All non-matching column names are ignored.

> Import files must have data in every row. Empty rows may cause an import to fail.

Column definitions for importing BOM markup files			
Column name	**Data type**	**Value if empty**	**Description**
ChildClass	*string* `Part` *or* `Document`	`Part`	If not specified, then the child item's `Class` is a part. Only parts can be added to the BOM list; a document row is ignored. Unless your BOM data source includes documents in the file, this column can be omitted.

ChildOwner	**ORGANIZATIONS** member name	default member (always the **Home** organization)	Identifies the organization that is primarily responsible for the child item's specification and which issues the item `Number`. Unless the **Allow partner parts on BOM** system rule is marked, this should be omitted.
ChildType	**PART TYPES** member name	default member	If not specified, then the appropriate type collection is determined by the child item's `Class`, and the default member of the resulting type collection is used to match the record's `Type` selection. Only parts can be added to the BOM list; a row with `ChildClass` of `Document` is ignored.
ChildNumber	*string*	row is skipped	**REQUIRED**: If the value is empty, the row is not imported. If the `Find` column is not included in the markup file, the `ChildNumber` value is used to identify differences between the previous BOM and the new import rows.
Find	*integer ≥ 1*	last find-item + 1 when importing first iteration	This value is given to the `Find` row identifier. A parent assembly cannot have two rows with the same `Find` number. The import file's `Find` value provides an anchor for comparing the imported BOM revision to the previous BOM. If you include a `Find` column, do not leave any row's `Find` value empty.
Quantity	*double ≥ 0*	1.0	This value is given to the row's `Quantity` value, and represents the number of child parts required to produce a parent.
Unit	**UNIT OF MEASURE**	default member	Include this column only when the **Lock part default unit of measure on BOM** system rule is cleared (not enabled). In this case, if the value is empty, then the part's `Default unit of measure` is applied.
RefDes	*string: length ≤ 32000 characters*	no value	This value is the child part's `RefDes` ("reference designator") area, and should follow the rules for reference designators.
Notes	*string: length ≤ 32000 characters*	no value	This value is the child part's `Notes` area.
Per	*string*	**Per Assembly**	Must be assigned as **Per Assembly**, **Per Setup**, **As Needed** or remain empty.

A minimal CSV import file can be quite simple if your system's **Item uniqueness specified by:** system rule has only the ☑ Number and ☑ Organization checkboxes marked. For example:

```
ChildNumber,Quantity
101012,1
100315,6
100917,1
110019,4
```

When an assembly is first released, its rows are established as anchors for tracking row changes in later revisions of the assembly. As a BOM file is imported into a pending iteration, each imported row to be compared to the previous iteration's content. Any changes in the row are marked as *Add* or *Remove*, as appropriate.

As noted in the table above, differences between from the released BOM iteration to its new iteration can be identified by `ChildNumber` or by `Find` values.

- If the import file includes the `Find` column, the system compares the previous row and the imported row at that `Find` value. Mechanical BOMs often use the Find number to identify the part's location in the assembly, regardless of its part number.

  > To minimize the number of irrelevant changes on a new assembly revision, do not arbitrarily change the Find value on revisions to an imported BOM file. For example, new BOM components should not be inserted into the middle of the import list (which may change Find values in later rows), but added at the end.

- If the import file does not include the `Find` column, the system uses the `ChildNumber` value to match the previous row and the imported row. Changes to a part number's quantity or other attributes are identified, and the Find value is ignored. This is used primarily in electronic assemblies, where the reference designators provide location information.

The `Sources` lists show each partner organization part that is approved as a source. The list of sources is sometimes called an Approved Manufacturer List (AML) or Approved Vendor List (AVL).

Only a part record can be the source for a different part. You can't drop a document record onto the `Markup` list.

The source rank shows the designer's technical preference of some source parts over others.

> You must first make a partner part record before you can add it to the `Markup` list. A partner part record is just like your home organization's part record, but shows the partner organization as the record `Owner`, and uses the partner-issued ordering number in the record's `Number` field.

To modify the `Sources: Markup` list, the part must have a pending iteration. While the part iteration remains pending, all of your work is managed on the `Sources: Markup` list. After the part record is released using an executing change form (such as a Change Notice), your source items show on the iteration's `Sources: Current` list.

> To minimize possible database conflicts, save or close all items that you'll be adding to the `Markup` list.

Add a source part

To add a source part onto a pending iteration of the part's `Markup` list:

1. Click on the `Markup` list and, if necessary, scroll it to expose an empty area.
2. Using the Item Explorer, locate the source part that you want to add to the part record.

   > Although a partner usually supplies the source part, it's sometimes useful to use a home organization part as a source.

3. Drag the part from the Item Explorer and drop it onto an empty area of the `Markup` list. The icon in the `Add/Remove` column is ⊕ and the child part is given a rank number.

   > If you change your mind, you can remove the added row: select the row, and press your keyboard's `Delete` key or select the context menu `Remove Item from List` command.

4. Modify the attributes on the `Markup` row as appropriate.

Remove a released source part

> Each approved source part is independent of all others. When a source part is no longer approved, it's simply removed and any newly-qualified sources are added.

To remove an existing child part (one that was added and released on a previous iteration of the parent part) from the pending iteration's `Markup` list:

- Select the part, and press the keyboard `Delete` key, or select the context menu `Remove Item from List` command. The child part isn't actually deleted; instead, the "keep" icon ✔ in the `Add/Remove` column becomes a red "take off" icon ⊖, signaling that the part will be removed from the list when the parent part is released on a change form.

  > If you change your mind, you can restore a row that's to be removed from the list: select `Keep Item on List` from the context menu.

The ⸢References⸣ list shows documents and parts that are useful for making or validating the part. For instance, the list can refer to documents that specify fabrication and inspection procedures, or a fixture needed for assembly.

> If both part and document records are blocked as references, then the ⸢References⸣ lists aren't shown. Your administrator must enable the **References Tabs** system rule.

To change the references list on a part, it must have a pending iteration. While the part iteration remains pending, all of your work is managed on the ⸢References: Markup⸣ list. After the part record is released using an executing change form (such as a Change Notice), your reference items are on the iteration's ⸢References: Current⸣ list.

> To minimize possible database conflicts, save or close all edited items that you'll be adding to the ⸢Markup⸣ list.

- *To add a reference item* onto the pending iteration of the part's ⸢Markup⸣ list:

  - Click on the ⸢Markup⸣ list. Scroll, if necessary, to expose an empty area.
  - Using the Item Explorer, locate the reference document or part that you want to add to this record.
  - Drag the item from the Item Explorer and drop it onto an empty area of the ⸢Markup⸣ list. The icon in the ⸢Add/Remove⸣ column is ⊕.

    > If you change your mind, you can remove the added row: select the row, and press your keyboard's ⸢Delete⸣ key or select the context menu ⸢Remove Item from List⸣ command.

  - Add notes or adjust the row number on the ⸢Markup⸣ row if desired.

- *To remove an existing reference item* (one that was added and released on a previous iteration of the parent part) from the pending iteration's ⸢Markup⸣ list: Select the row, and press the keyboard ⸢Delete⸣ key, or select the context menu ⸢Remove Item from List⸣ command. The reference item isn't immediately deleted; instead, the "keep" icon ✔ in the ⸢Add/Remove⸣ column becomes a red "take off" icon ⊖, signaling that the reference will be removed from the list when the parent part is released on a change form.

  > If you change your mind, you can restore a row that's to be removed from the list: select ⸢Keep Item on List⸣ from the context menu.

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The ⌞Materials⌟ list shows materials (chemical substances) that are used to produce the part. The list typically contains the substances that are regulated for safety or environmental compliance.

> Materials values can be changed by the part trustee (and analysts) until the part is released. After release:
> - A change to the released materials data is treated as non-interchangeable. This requires a new part number, not a revision to the released part.
> - The materials list is updated by using the Tools menu: Administrator Override command or the Batch Importer tool .

To add a material to the list:

1. Unlock the part (F2 key).
2. Open the Collection Explorer.
3. Open the **MATERIALS** collection or enter the material name into the *Filter...* box.
4. Select the material, and drag the record onto an empty area of the Materials list.
5. Enter the Quantity , Units , and Location values.
6. Save the part.

To remove a material row:

1. Click on the row selector (on the left) so that the selector shows ▶ and the complete row is highlighted.
2. Press the keyboard Delete key.

RELATED TOPICS

> View a collection
> Materials collection

1143

The ⌑Tasks⌑ list lets you give yourself or others an informal reminder about preparing the item for release. Whether you want to confirm a design parameter or call your supplier, you can enter the task and update it.

> Tasks are requests or reminders, not requirements. Incomplete tasks do not prevent an item from being released. After release, the task is no longer relevant and is locked at its current status.

Starting a task

To start a new task, the item window must be unlocked:

1. Open the Collection Explorer.
2. Open the **Persons** collection or enter the person's name into the *Filter...* box.
3. Select the person, and drag the record onto an empty area of the Tasks list.
4. Enter the ⌑Assigned to⌑, ⌑Due date⌑, ⌑Status⌑, ⌑Priority⌑ and ⌑Task description⌑ values.
5. Save the item. An email notice is sent to the person who assigned the task.

The task is shown in the assigned person's Item Explorer ⌑Tasks⌑ list.

Changing and ending a task

You can edit a task while the item is not released.

To end a task, the item window must be unlocked:

1. Enter the final ⌑Status⌑ as *Completed*, *Deferred*, or *Canceled*.
2. Save the item. An email notice is sent to the person who assigned the task.

The task is removed from the Item Explorer ⌑Tasks⌑ list when:

- The status is *Completed*, *Deferred* to a later time, or *Canceled*; or,
- The item is released.

Related topics
> [Tasks (item)](#)
> [Item Explorer: Tasks](#)

Saving a part record clears all of the undo history; you can't undo any steps before the save operation.

- Select Save (or Save All) from the Item menu; or,
- Select Lock Object from the Edit menu (or press your keyboard's F2 key); or,
- Lock the part form using the Lock selection in the form's status bar; or,

- Close the part window, which saves all changes automatically.

> PDXpert may show Cannot save or similar message when there is a conflict between the current database record and an earlier version. This conflict is often the result of assigning duplicate item identifiers or editing related records in parallel. For example, if you add a reference document to an item, the system must update both item records; the update is blocked when both records are unlocked.
>
> When you see Cannot save , close all item forms and then open the item that you want to edit.
>
> To avoid this problem, edit only one item at a time. When you're done editing the record, save or close the item before working on a different item. This avoids database conflicts, and lets PDXpert understand how to save your changes.

1133

You can remove (delete) a pending part iteration from the database if it's not used by another document, part or change form. You can never remove a released or canceled iteration.

- If there's only one iteration of the part, then removing the iteration deletes the entire part record from the database.
- If there's more than one iteration of the part, then only the pending iteration is removed. Any released or canceled iteration remains in the database.

If you are the part iteration's trustee or a part analyst , then you can remove the part iteration only while it's at the Pending release state.

If a part has no released iteration, and it shows on a pending item's References , BOM or Sources list, then it's blocked from deletion. You can remove the part from the system only after you edit these lists to remove the part. Pending iterations on a change form's Affected list must always be deleted from the change form before they can be removed from the system.

To remove a pending part record:

1. Open the part. If it's open, select it to that you can view it.
2. On the Item menu, select the Remove Object command.

> The Remove Object command is applied to the active window. Do not select any other window. You cannot undo this command.

1141

All change forms provide information about part records, but only an executing change form (for example, a *Change Notice* or *CN*) has a permanent effect on the part record. This executing change form, when it is approved, updates all pending items according to the rules of the change form.

In other words, you released or cancel part record iterations by specifying the affected items on the executing change form. Then, after all groups have approved the change, PDXpert updates the items on the Affected list.

An advisory change form, like a *Change Request* (*CR*), does not update a part iteration's release state. It tells why the part record should change in a later executing change, or accepts a temporary change (such as a part *deviation* or *stop ship*).

To release a pending part record iteration, use the following general procedure.

1. Start a new executing change form, such as a Change Notice. Or, use an existing change form that's at Originated state.
2. Drag the part record that you want to release from the Item Explorer Search or Recent list to the change form's Affected list. The pending iteration is shown with ▶☑ (*change releases iteration*). If the item has a released iteration, then it's usually canceled on the same change form, and is shown with ▶☒ (*change cancels iteration*).
   Pending child items on the part record's BOM: Markup , Sources: Markup and References: Markup lists – if not on another change form – are automatically added to the change form's Affected list. For details on which lower-level BOM items are included, see the Affected page: How items are added help topic.

   > If the part record has been edited, save or close it before adding it to the Affected list.

3. Submit or route the change form for review, approval, and release. See the Processing a change help topic.

The part record's iteration must be released or canceled before you can make a new pending record iteration.

Any user who has permission to view a part record (and whose role has appropriate permissions) can make a new iteration for that part record, regardless of the previous record iteration's trustee.

> Best practice says that a *physical part* that's interchangeable with previous iterations shares the same part number and is stored at the same inventory location. If a changed part is not interchangeable with previous iterations, then the new part requires a different part number and a new inventory bin.
> PDXpert always shows the released part iteration on a released assembly's BOM, purchased part's sources list, and as a reference. A part record may be at, say, revision `1` and lifecycle **Prototype** when it's first assigned to a parent assembly. If that part record is later released as revision `2` and lifecycle **Production**, the released assembly automatically shows the new `2 (Production)` iteration. The inventory location contains the physical part made as either revision `1` or revision `2`. It's good practice to **not** mark the revision on the part.

- Click on the iteration dropdown list on the part window's status bar, and select the `<..New..>  ⌄` line.

  > You don't need to unlock the existing record iteration to create a new iteration. The record is unlocked automatically.
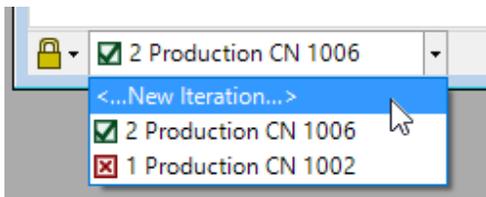
Fully describe your new part iteration:

> Some data — such as Type, Owner, Number and Part name (description) — is locked on the first iteration, and cannot be revised.

- [Fill in the new part iteration](#)
- [Add, modify or remove BOM items](#) or [import a CAD BOM](#)
- [Add approved source parts](#)
- [Add a reference item](#)
- [Attach a revision file](#) , [attach an item file](#) , or [attach an external link](#)

When you've finished editing the new iteration, [release your part](#) on a change form.

1136

Once the part record iteration has been released, you'll notice that much of the data that you could previously modify is now locked. In particular, the information that gives the part record its unique identity (the owner, part type, number, revision and lifecycle) is now permanently established.

A part record iteration is released only once, and can be a used until canceled. A released part record can be listed on any number of advisory change forms (such as a change proposal or stop ship) as necessary.

- If any product families are shown on the item, then members of the product team can edit some attributes even after the item has been released. Your administrator decides who is a product team member in the **PRODUCT FAMILIES** collection .
- If the released part's interchangeability is affected by new information or you want to make a similar part, then copy the part. Open the part record. If it's open, select it to that you can view it. Select the Snapshot to Part command from the Edit menu, and edit the copy.
- If interchangeable changes are made to the part attributes, BOM, sources or references; or an updated file is attached to the Files: Revision Files list, then you should make a new iteration of that part record.

  > For details, see the [Revise a released part](#) topic.

- Finally, if you discover a clerical error that requires a minor "off the books" correction, your administrator can edit certain fields specified by the [Tools menu: Administrator Override command](#) .

1139

You cancel an obsolete part record when it's no longer relevant to your product, and you want to ensure no one uses it in the future.

Cancel a released part record by adding it to an executing change form's Affected list, and then approve and release the change form.

> If the part iteration is pending, then you can't cancel it; instead, remove the pending part iteration .

> A canceled part cannot be used on any pending or released parent item. Before canceling the part, examine its Appears On lists (BOM, References, Sources). If it's a child part on any pending or released parent item, then remove it from the parent. If the parent item is released, then the parent must be revised to remove the part, and the parent revision must be released with (or before) the child part's canceling change form.

> Canceling, instead of revising, a part ends its internal history timeline at the canceled iteration. If you later create a new iteration, a new history timeline begins. Markups show all previous rows as added (blue "add on" icon ➕) because they're copied from the canceled iteration onto the new history.

> You don't need to change the iteration's lifecycle when you cancel it. Keeping the current lifecycle indicates its technical status when it was canceled, and simplifies re-releasing later if it's needed for servicing or a new application.

> BOM, source or reference child items are not affected by canceling the parent part record. They remain released and can be used on other parents until you cancel them.

Canceling a released part record iteration is very similar to releasing it.

1. Start a new executing change form, such as a Change Notice. Or, use an existing change form that's at Originated state.
2. Drag the released part that you want to cancel from the Item Explorer's Search or Recent lists to the change form's Affected list. The released iteration is shown with ▶⊠ (*change cancels iteration*).
3. Process the change form for review, approval, and release. See the Processing a change help topic.

Un-cancel a part

After a part is canceled, you can return it to a released state by creating and releasing a new iteration.

- If the part does not have any new technical content, edit the pending Revision and Lifecycle values to match the canceled iteration values.
- If the technical content has changed, edit the new pending iteration as described in the Revise a released part help topic.

When you've finished editing the new iteration, release your part on a change form. When it's added to the change Affected list, the pending iteration is shown with ▶☑ (*change releases iteration*); the canceled iteration is not shown.

Open the window by selecting Tools ➔ Markup Wizard…

The Markup Wizard provides powerful capabilities for revising one or more BOM or References lists in a single operation.

- Add one or more child items shows a list of child items that you want to add to one or more parent item.
- Replace one child item replaces one child item with a different item across multiple parent items. This is useful for substituting a new part on many assemblies where an old part is used.
- Remove one or more child items shows a list of child items that must be removed from a list of parent items.

After you've specified your new iterations, you can specify an executing change form that releases them.

> To use the Markup Wizard, you must have a **ROLES** collection member that includes both ☑ Documents: Is an analyst and ☑ Parts: Is an analyst marked as *True*.

1038

The Markup Wizard lets you identify a list of one or more child items that are added to a list of parent items.

If the parent item doesn't have a pending iteration available for markup, then a new pending iteration is made automatically. All child items are marked as *Add* ➕ to the end of each parent item's markup list, with the correct find-item number.

> The parent item must accept (in its **DOCUMENT TYPES** or **PART TYPES** collection member) the child items that you want to add. For example, if you're adding a part to a parent **Assembly** part type, that **Assembly** part type must have its ☑ Show BOM tab marked as *True*. Similarly, if you're adding a document to the parent's References list, then the appropriate **References Tabs** system rule must be enabled.

> Use the Markup Wizard only with items that have been saved to the database. First make whatever items you'll need, such as a new parent items and/or child items and/or change form. Then close all items (Item ➔ Close All) before opening the Markup Wizard.

> To use the Markup Wizard, you must have a **ROLE** that includes both ☑ Documents: Is an analyst and ☑ Parts: Is an analyst marked as True.

> Clicking the Cancel button on any panel discards all of your planned changes and closes the Markup Wizard. No new parent iterations are made, no child items are added, and no items are copied to the Affected list of your change form.

> The Markup Wizard can work with child parts that are on part BOM lists, and child documents that are on part or document References lists. It cannot affect parts that are on References lists.

1. Open the Tools menu and select Markup Wizard... When the Markup Wizard tool is shown, select Add one or more child items and then click the Next button.
2. Using the Item Explorer

   A. Locate the parent item(s) that you want to revise. Drag these from the Item Explorer results list and drop them onto the Revise these parent items... list.
   B. Locate the child item(s) that you want to add to these parent items. Add these child items by dragging them from the Item Explorer results list and dropping them onto the second ...to add these child items list. The set of all child items on the list is added to each one of the parent BOMs.

      > You can only drop a pending or released item onto the list. If the most recent iteration of the added item is canceled, you must make a new pending iteration before the Markup Wizard will accept it.

3. Preview the list of parent iterations that will be affected. If you wish, you can de-select a row, which skips adding a child row to a parent item. You can also edit the child's Quantity and reference designators (RefDes).
4. If you wish, you can identify the change form that should be used to release the revised items. You can only use a change form that is Originated or, if you're an analyst, Submitted . The Markup Wizard simply automates the drag and drop of each item onto the change form. Items added to a change form's Affected item list may include related unreleased item iterations and their sources. See the Affected page help topic.

   > An item that's on another change form will remain listed on that change form regardless of what you specify here.

5. When you're done, click the Commit button. This makes any new parent iterations, adds the child items to the markups, and —if you've identified a change form—copies these parent iterations to that change's Affected item list.
6. After the data has been updated, the Markup Wizard tool will show whether your requested iterations were successful or encountered errors. Click the Close button after you've noted the results.

The Markup Wizard lets you replace one child item with a different item across multiple parent items.

Exactly one item can be replaced with exactly one item. If you need to replace multiple items with a single item or vice versa, pick one item to replace; after completing the replacement, use the Markup Wizard again to add or remove the other items. For example, if a rivet will replace a "fastener set" consisting of a bolt, washer, and nut: (a) replace the bolt with the rivet, and then (b) remove the washer and nut items using the Remove one or more child items option.

If the parent item doesn't have a pending iteration available for markup, then a new pending iteration is made automatically. The child item on the parent item is marked as *Remove* 🛑 while the item replacing it is marked as *Add* ➕ at the same find-item row.

The parent item must accept (in its **DOCUMENT TYPES** or **PART TYPES** collection member) the child items that you want to add. For example, if you're adding a part to a parent **Assembly** part type, that **Assembly** part type must have its ☑ Show BOM tab marked as *True*. Similarly, if you're adding a document to the parent's References list, then the appropriate **References Tabs** system rule must be enabled.

Use the Markup Wizard only with items that have been saved to the database. First make whatever items you'll need, such as a new parent items and/or child items and/or change form. Then close all items (Item ➜ Close All) before opening the Markup Wizard.

To use the Markup Wizard, you must have a **ROLE** that includes both ☑ Documents: Is an analyst and ☑ Parts: Is an analyst marked as True.

Clicking the Cancel button on any panel discards all of your planned changes and closes the Markup Wizard. No new parent iterations are made, no child items are replaced, and no items are copied to the Affected list of your change form.

The Markup Wizard can work with child parts that are on part BOM lists, and child documents that are on part or document References lists. It cannot affect parts that are on References lists.

1. Open the Tools menu and select Markup Wizard… When the Markup Wizard tool is shown, select Replace one child item with another item and then click the Next button.
2. Using the Item Explorer

    A. Locate the child item that you want to replace. Drag this replaced item from the Item Explorer results list and drop it onto the Replace this child item… area.

       The child item's Appears On lists shows the parent items that will be affected. If the parent item is canceled, then it won't be affected.

    B. Locate the child item that you want to use instead. Add this child item by dragging it from the Item Explorer results list and dropping it onto the second …with this item at the same Find location area.

       You can only drop a pending or released item. If the most recent iteration of the replacement item is canceled, you must make a new pending iteration before the Markup Wizard will accept it.

3. Preview the list of parent iterations that will be affected. If you wish, you can unselect a row on a parent item, and the cleared child won't be replaced on that parent. You can also edit the child's Quantity and reference designators (RefDes).
4. If you wish, you can identify the change form that should be used to release the revised parent items. You can only use a change form that is at Originated or Submitted . The Markup Wizard simply automates the drag and drop of each item onto the change form. Items added to a change form's Affected item list may include related unreleased item iterations and their sources. See the Affected list help topic.

    An item that's on another change form will remain listed on that change form regardless of what you specify here.

5. When you're done, click the Commit button. This makes any new parent iterations, removes the previous child items, adds the replacement items, and—if you've identified a change form—adds these parent iterations to that change's Affected item list.

6. After the data has been updated, the Markup Wizard tool will show whether your requested iterations were successful or encountered errors. Click the Close button after you've noted the results.

The Markup Wizard lets you identify a list of one or more child items that are removed from their parent items.

If the parent item doesn't have a pending iteration available for markup, then a new pending iteration is made automatically. The child item on the parent item is marked as *Remove* ⛔ .

Use the Markup Wizard only with items that have been saved to the database. First make whatever items you'll need, such as a new change form. Then close all items (Item ➜ Close All) before opening the Markup Wizard.

To use the Markup Wizard, you must have a **ROLE** that includes both ☑ Documents: Is an analyst and ☑ Parts: Is an analyst marked as True.

Clicking the Cancel button on any panel discards all of your planned changes and closes the Markup Wizard. No new parent iterations are made, no child items are removed, and no items are copied to the Affected list of your change form.

The Markup Wizard can work with child parts that are on part BOM lists, and child documents that are on part or document References lists. It cannot affect parts that are on References lists.

1. Open the Tools menu and select Markup Wizard... When the Markup Wizard tool is shown, select Remove one or more child items and then click the Next button.
2. Using the Item Explorer, locate each child item that you want to remove from its parent. Drag each item from the Item Explorer results list and drop it onto the Remove these items: list. When you've identified all items to be removed, click the Next button.

   The child item's Appears On lists shows the parent items that will be affected. If the parent item is canceled, then it won't be affected.

3. Preview the list of parent iterations that will be affected. If you wish, you can unselect a row, which keeps the child item on the parent item.
4. If you wish, you can identify the change form that should be used to release the revised parent items. You can only use a change form that is Originated or, if you're an analyst, Submitted . The Markup Wizard simply automates the drag and drop of each item onto the change form. Items added to a change form's Affected item list may include related unreleased item iterations and their sources. See the Affected list help topic.

   An item that's on another change form will remain listed on that change form regardless of what you specify here.

5. When you're done, click the Commit button. This makes any new parent iterations, removes the previous child items, and—if you've identified a change form—adds these parent iterations to that change's Affected item list.
6. After the data has been updated, the Markup Wizard tool will show whether your requested iterations were successful or encountered errors. Click the Close button after you've noted the results.

1041

To ensure that all affected parties are fully aware of a change, a change form passes through a series of lifecycle states between originating and completing the workflow. Although there are other possible paths, this is the principal workflow.

> Select the change form so that you can see it.

1. The change form is made, or Originated . The originator is typically responsible for the clarity and completeness of the change form's *technical content*. The originator attaches the affected items and provides more information to help the reviewers evaluate the change form's effects. See Originate a new change form .
2. The originator may *submit* the change form to an analyst for review. The analyst checks that the change form's content meets an accepted standard. This typically includes (a) review of the change form's purpose, priority, and costs; (b) validation of the Affected items list; and (c) verification that the appropriate reviewing groups have been included. See Analyze a submitted change .
3. The change form is *routed* to reviewers for their approval. On behalf of their group, each reviewer can *approve* or *disapprove* the change. The reviewer can also *hold* the change form while the originator or analyst answer a question about the change form. Based on their responses, the reviewer can approve or disapprove it. See Review a routed change .
4. At the end of the review:

   - *If **any one** required reviewer disapproves the change form*, then it is Canceled and removed by the analyst. See Remove a canceled change .
   - *If **all** required reviewers approve the change form*, then it is Accepted and forwarded to (a) the analyst for further review or (b) the system to be Released . See Use a released change .

5. After the instructions contained in the change form have been implemented, the status can be set to Completed . See View a completed change .

In most lifecycle states, an analyst can cancel the change form, or return it to Submitted or Originated status.

1099

You *originate* (that is, make) a change form because you want to formally notify interested parties about the release, revision or status of managed items.

1. To originate a new change form, you can make a new change or copy from another change form:

   > In most cases , the change form Number is generated automatically. Otherwise, enter the change form Number .

   - **New (option 1):** On the Item Explorer's New tab, in the Changes list, click on the appropriate row to create a new change form.
   - **New (option 2):** Select the Create Change... from the Item menu (or press the F11 key). This opens a dialog in which you select the appropriate change form from the Type dropdown list. The other tabs are not used because the home organization is always the owner of the change, and every change's lifecycle starts at Originated . Click the Finish button to continue.
   - **Copy:** If you have a released change (for instance, a change request) that provides the basis for a subsequent change (such as a change notice), you can create a duplicate (Tools → Snapshot Duplicate...) and then convert it to the subsequent change form by selecting the appropriate value from the Type dropdown on the General tab.

     > When you create a snapshot duplicate, the next number from the **CHANGE FORMS** member's Identifier sequence is assigned to the duplicate change form. If you convert to another change form that uses a different **SEQUENCE: IDENTIFIER** collection member, then the Number value is replaced by the next value from the new change form's Identifier sequence .

2. The new change form window opens with its lifecycle at Originated . To complete the new change:

   A. On the General page, enter the change description according to your organization's requirement.

      > Workflow emails include this description. Briefly summarize the change in the first sentence to help reviewers quickly scan their email in-box for important changes.

      If visible, specify the Problem source and Change reason from the drop-down list boxes.
   B. Click on the Attributes page, and enter more details to describe the change.
   C. Select the Affected list. On the Item Explorer, locate and then drag each part and document that is affected by the change form onto the list.
      On executing change forms:
      - A part or document row has one of three actions:
        - Release a pending iteration (no released iteration exists), with the item row shown in green. The single ▶☑ row shows the iteration to release. *The change form does not have a released iteration to cancel.*
        - Revise an item, with the item row shown in orange. It has two iteration rows: one row ▶☒ cancels the earlier iteration and the other row ▶☑ releases the revised iteration.
        - Cancel a released iteration (no pending iteration exists), with the item row shown in red. The single ▶☒ row shows the iteration to cancel. *The change form does not have a pending iteration to release.*

          > This canceling iteration must be removed from parent relations (BOM, Sources, References lists) before the change can be routed.

      - PDXpert automatically adds lower-level items to the Affected list. This ensures that each item listed on the BOM: Markup , Sources: Markup and References: Markup lists has at least one released iteration available. For the rules that PDXpert applies, see the Affected page: How items are added help topic.
      - You can add dispositioning information to each affected item's releasing or canceling iteration. Expand the item to expose the iteration, and then select Add Disposition from the iteration's context menu. See the Affected page: Disposition rows help topic

        > If you want to add an item that's open in your workspace, save it or close it before adding it to the change form's Affected list.

> After you've added an item to a change form, if you further modify it (specifically: making a new pending iteration, or changing the BOM, source or reference markups), re-drop the item onto the `Affected` list to refresh its releasing/canceling data.

> Limit the number of items on the `Affected` list. It's easier to make sure that your list is accurate, and reviewers are more careful checking a tightly-focused set of items.

> If you're changing a multi-level structure (for instance, an assembly with subassemblies), it's often easier to work "from the bottom up". Drop the lowest-level items onto the `Affected` list first, then the next-higher items. Always review the list before routing the change for approval.

    D. Add reviewing participants dragging members of the **GROUPS** collection from the Collection Explorer onto the `Reviewers` page. Similarly, drag new observers from the **PERSONS** collection (or the **GROUPS** collection) onto the `Observers` list.

    E. If the `Files` list is shown, you can add computer files or web links to the change form. Refer to the [Attach an item file](#) and [Attach an external link](#) help topics.

3. Save the change form by:

- selecting `Save` from the `Item` menu; or,
- selecting `Lock Object` from the `Edit` menu (or pressing your keyboard's `F2` key); or,
- locking the change using the `Lock` selection in the form's status bar; or,
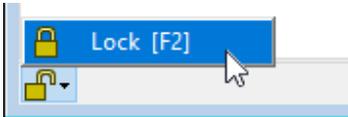
- closing the change form window, which saves all modifications automatically.

> Saving a change form clears all of the undo history; you cannot undo any action that happened before the most recent save operation.

> PDXpert may display `Cannot save` or similar message when there is a conflict between the current database record and a previously-saved version. This conflict is often the result of editing related records in parallel. For example, adding a document to an engineering change updates both records; if the document has unsaved changes, the new affected item relationship conflicts with the unsaved record.
>
> To avoid this error, only one item at a time should be unlocked for editing. When you are done, close or lock the window before working on another item. This avoids database conflicts, and allows PDXpert to understand how to save your changes.

Next steps

After you've originated the change form, you can move it to the next step in the administrator-specified workflow.

> To work with a change form, the record must be open. If it's open, select it to that you can fully view it.

> If any item on the change form's `Affected` list is unlocked in your workspace, **lock or close it now**.

Depending upon the enabled change workflow states, you may:

- Select the `Process` menu command `Submit to Analyst`. The analyst reviews the change form to ensure that it contains all of the information necessary to approve it, and then forwards it to the reviewers for approval.
- Select the `Process` menu command `Route for Approval`. The groups specified on the `Reviewers` list approve your proposed change form, hold it for further consideration, or disapprove it.

  > If you see a `Cannot route` status bar message:
  > - Each released item on the `Affected` list – which the change form will cancel – must have a pending iteration that will be released; or the item must be removed from every pending or released parent item before routing.
  > - At least one reviewing group must be shown in the `Reviewers` list.

  > If you see a ☑ Routing Error window, refer to the help topic *How to work with change forms →* [Fix change routing errors](#) to resolve the error.

After you submit or route the change, you cannot modify it unless it is returned to you.

> When a routed change form is returned to the Submitted or Originated state, it contains information on who approved and disapproved the change. Previous reviewers' name and response will be cleared when the change form is again moved to the Routed state.

Sometimes there's a change form similar to one that you need to make. It's easy to copy a change form (the "source") and then edit the new copy (the "target").

Rules

- Only a saved change form can be a source for a new copy. The source can be at any change lifecycle state.
- The user must have a role that includes making new change forms.
- A value in the source will be copied only when it is enabled in both source and target, and is not empty in the source.

Copied values

The system makes a new target change form, with its normal starting values, then copies the following data from the source change form:

- Primary discussion
- Secondary discussion
- Problem source
- Change reason
- Change classification
- Priority
- Person 1
- Person 2
- Analyst, if the source analyst's **Persons** record is active and the target `Analyst` is empty
- Starting date/serial
- Ending date/serial
- File attachments
- Each custom attribute where its `Name` and `Scheme` match on source and target

To make a new change form as a snapshot

1. Use the Item Explorer to locate the existing change form that you want to copy.
2. Open the change form. If it's open, select it to that you can view it.
3. From the `Edit` menu, select the `Snapshot to Change` command.
4. In the `Create Change` window:
   A. Select a change form `Type` .
   B. The system always identifies the `Owner` as the home organization.
   C. The system selects `Generate Number` option (unless set in the **Change Forms** template).
   D. Click the `OK` button. The source change form's transferrable data is copied to the new change form. Since change form attributes can be quite different, some starting values may be substituted or ignored in the target item.

5. After the new change form is shown, [update your new change form] .

1112

The Tasks list lets you give yourself or others an informal reminder about preparing the item for release. Whether you want to confirm a design parameter or call your supplier, you can enter the task and update it.

> Tasks are requests or reminders, not requirements. Incomplete tasks do not prevent an item from being released. After release, the task is no longer relevant and is locked at its current status.

Starting a task

To start a new task, the item window must be unlocked:

1. Open the Collection Explorer.
2. Open the **Persons** collection or enter the person's name into the Filter... box.
3. Select the person, and drag the record onto an empty area of the Tasks list.
4. Enter the Assigned to , Due date , Status , Priority and Task description values.
5. Save the item. An email notice is sent to the person who assigned the task.

The task is shown in the assigned person's Item Explorer Tasks list.

Changing and ending a task

You can edit a task while the item is not released.

To end a task, the item window must be unlocked:

1. Enter the final Status as *Completed*, *Deferred*, or *Canceled*.
2. Save the item. An email notice is sent to the person who assigned the task.

The task is removed from the Item Explorer Tasks list when:

- The status is *Completed*, *Deferred* to a later time, or *Canceled*; or,
- The item is released.

Related topics
>   Tasks (item)
>   Item Explorer: Tasks

1. As the change analyst, you check the originator's work to ensure that the change conforms to your organization's change procedure.

   - The change form clearly and accurately tells its purpose using the General and Attributes pages.
   - The Custom attributes, if any, are correct.
   - All affected parts and documents are listed on the change's Affected list, and their releasing and canceling states are correct.
   - All responsible groups are listed on the Reviewers list with the correct review selection (Must act ⌄ or Can act ⌄).
   - The appropriate observers are listed on the Observers list.
   - File attachments, if necessary, are listed on the Files list.

2. After your review is complete, do one of the following:

   > If any item on the change form's Affected list is unlocked in your workspace, **lock or close it now**.

   - *If you're satisfied with the change form*, route it to the group reviewer(s): Process ➜ Route for Approval .

       > If you see a Cannot route status bar message:
       > - Each released item on the Affected list – which the change form will cancel – must have a pending iteration that will be released; or the item must be removed from every pending or released parent item before routing.
       > - At least one reviewing group must be shown in the Reviewers list.

       > If you see a ☑ Routing Error window, refer to the help topic *How to work with change forms →* Fix change routing errors to resolve the error.

   - *If the change requires corrections*, then (a) update the change form as needed, or (b) return it to the originator: Process ➜ Return to Originator .
   - *If it's no longer necessary*, cancel the change form: Process ➜ Cancel Change . The change can be deleted by selecting Remove Object from the Item menu.

   When a routed change form is returned to the Submitted or Originated state, it contains information on who approved and disapproved the change. Previous reviewers' name and response will be cleared when the change form is again moved into the Routed state.

Each child item on a parent item's BOM , Sources or References list must be released with (or before) the parent item. A child item can be canceled only when it's not used by a released parent item.

Rules for routing a change form

An executing change form can be routed when its Affected list:
- will release or cancel an item (part or document) that doesn't use, and isn't used by, a different item;

or
- will release a parent item that uses a pending child item, and
- that pending child item is released with (or before) the parent item;

or
- will cancel a released child item that is used by a released parent item, and
- that released parent item is revised to remove the child item, or is canceled with (or before) the released child item.

Fixing routing errors

PDXpert examines the routed change form's Affected list and shows the ☑ Routing Error window if any processing errors are found. If an item is listed more than once, fixing that item may resolve other reported errors.

Remove from change: {child}, used by {parent} on {list}

The ☑ Routing Error window shows released child items that may not belong on the change form's Affected list, or are being canceled without a replacement. For example, the change is canceling a released child part that's used by a released assembly.

        Remove from change: *child item*, used by *parent item* on *relation list*

To solve this error, do **one** of the following options:
1. Remove the released *child item* from the change form's Affected list. The change will not cancel the *child item*, which remains available for the *parent item*.
2. Add a new pending iteration of the *child item* to the change form's Affected list, to replace the previous iteration that's on the *parent item*.

   > If the child item already has a pending revision, but it's not shown on the Affected list, unlock the change form and drag the child onto the list to add the pending revision.

3. If the *parent item* is released, revise the *parent item* to remove/replace the *child item*, and then add the parent to the change form's Affected list.
4. If the *parent item* is pending, remove the released *child item* from the *parent item*'s *relation list* (the BOM , Sources or References list).
5. Add the released *parent item* to the change form's Affected list to cancel both parent and child items.

Add to change: {child}, needed by {parent} on {list}

The ☑ Routing Error window shows pending child items that may be missing from the change form's Affected list. For example, the change is releasing an assembly that needs a pending part.

        Add to change: *child item*, needed by *parent item* on *relation list*

To solve this error, do **one** of the following options:

   > If the child item's most recent iteration is canceled, make a new child pending iteration before following option 1 or option 2.

1. Add the pending *child item* to the change form's Affected list to release it with the *parent item*.
2. If the *child item* is on another change form's Affected list, release the other change before releasing the *parent item* on this change form.

   > Or, remove the child item from the other change form, and then use option 1.

3. Remove the *child item* from the pending *parent item*'s *relation list* (the `BOM` , `Sources` or `References` list).

4. Remove the *parent item* from the change form's `Affected` list.

> If the child item isn't ready for release at a production lifecycle and the parent item must be released, consider releasing parent and child items at a pre-production lifecycle. Follow up with a production release later.

You can remove (delete) a change form from the database if it is **not** at the Released , Completed or Rejected lifecycle state.

You can remove the change form:

- If you are the change form's originator, and the change form is at the Originated lifecycle state.
- If you are the change form's analyst, and the change form is at (or can be moved to) the Originated , Submitted or Canceled lifecycle state.

> If you aren't the change form's analyst but have an analyst role, you can replace the analyst with your name, and then save the record.

To remove a change form record from the database:

1. Open the change form. If it's open, select it to that you can view it.
2. If you are the change form's originator, then the change lifecycle must be at Originated . If it is not, you must ask for the analyst's help.
   If you are the change form analyst, use the Process menu to move the change lifecycle to Originated , Submitted , or Canceled .

   > Some workflow paths may need to be enabled on the change form template to let the change move from its current lifecycle to one of these states.

3. On the Item menu, select the Remove Object command.

   > You cannot undo the Remove Object command.

1113

On behalf of your group, you review the routed change form to ensure that the change:

- is necessary
- appropriately addresses the issue, and
- accurately and completely tells the changes that are proposed.

Based on your assessment, you decide whether to *approve*, *disapprove*, or *hold* the change for further information.

1. Select the change form's ⬚Reviewers page.
2. Enter your comments, if any.

> For ⬚Disapprove change ⌄ and ⬚Hold change ⌄ responses, you should supply a comment. The **Reviewer's comment required** system rule may block your response if the comment is missing.

> The change is always on hold until a ⬚Must act ⌄ reviewer responds. Thus, if your change workflow enables a ⬚Hold change ⌄ response, select this response only if your group is ⬚Can act ⌄.
>
> If you put the change on hold, then the analyst must move the change back to the ⬚Routed state or to the ⬚Submitted or ⬚Canceled state.

3. Select the ⬚Response. The ⬚Reviewer Password window is shown.

   - To confirm your response, enter your password and click the ⬚OK button.
   - To change your response or comments, click the ⬚Cancel button.

   > If you're the last person to approve the change, or you select ⬚Disapprove change ⌄ or ⬚Hold change ⌄, the change form is immediately moved out of ⬚Routed state. You cannot change your response or comments.

   > You can edit your response and comments while the change lifecycle remains in ⬚Routed state (but you can't reset your response to ⬚Pending approval ⌄). Your response can't be changed by a different reviewer in your group.

Next steps

After you've saved your response, the change form moves to the next step in the administrator-specified workflow.

- If you approve the change form, the system notifies the next reviewer or, if none, sets the change lifecycle as ⬚Accepted or ⬚Released (or ⬚Completed).
- If you disapprove the change form, any remaining reviewers are skipped. Depending on the workflow design, the change form is forwarded to one of several possible states: ⬚Stopped, ⬚Canceled, ⬚Rejected, or returned to the analyst as ⬚Submitted.
- If you put the change form on hold while waiting for more information, an email notice may be sent to the change originator, analyst or other interested persons based on the workflow's email notice settings. When you get the information you need, an analyst removes the ⬚Held state and you provide your final response.

As a reviewer, you put the change form "on hold" until you're satisfied that you have all of the information you need for approving or disapproving the proposed change. The change form isn't forwarded to other reviewers until you decide what to do.

> The [Hold change ∨] response is intended for [Can act ∨] reviewing groups, to prevent the [Must act ∨] reviewing groups from releasing the change. For a [Must act ∨] reviewing group, this response isn't useful because the change is always "on hold" until a response is provided.

If you decide that the change requires further work by the originator, you can request the change form's analyst to return it to the [Submitted] state.

If you're the reviewer who has [Held] the change form, you may

- Reset the change status to pending (Response : [Pending approval ∨]), which lets any other authorized reviewers in your group offer their review;
- Approve the change (Response : [Approve change ∨]), which automatically forwards it to the next reviewer; or
- Disapprove the change (Response : [Disapprove change ∨]). Depending on your administrator's workflow design, this response may immediately forward the change to an analyst for assessment, or may automatically cancel or reject it.

If you're an analyst working with a reviewer, you can

- Return the change form to submitted status (Process ➜ Submit to Analyst) for further work (which also resets any approvals obtained), or
- Return the change form to routed status (Response : [Pending approval ∨]) to start the current group's review again (which retains any approvals obtained), or
- Cancel the change form (Process ➜ Cancel Change)

1125

An accepted change form must be reviewed by an analyst prior to it being released for general use. After approval by all reviewers, the system sets the change's state to Accepted and notifies the designated analyst or other persons.

Although the change workflow may specify that a change form is automatically released upon all reviewers' approval, this can't happen if the change has a routing error. For example, an affected item relies on a reference item that was canceled by a different change form. Since the system can't release the change form, its lifecycle is set to Accepted , and the analyst must resolve the error.

As an analyst, you review the accepted change:

- Select the Process menu command Submit to Analyst to delete all reviewers' approvals, and return the change for further work and a new review cycle. While in the Submitted state, the change form may be edited or returned to the originator.
- Select the Process menu command Release Change to release the accepted change form.

   > When you select Route for Approval , you may see a ☑ Routing Error window. See the Fix change routing errors help topic.
   >
   > If you can resolve the error by releasing the invalid child item on a different change form, then you can use the Release Change menu command again without resubmitting the change to obtain new approvals.

1117

A `Released` change form often includes dispositioning instructions to your organization for managing the affected product data. For example, the change form may require documents to be distributed, parts to be purchased or reworked, serial numbers to be recorded, and procedures to be changed.

If you have appropriate permissions, you can update this dispositioning information to confirm that these steps have been performed.

When the released change's disposition steps are complete, or temporary changes—such as deviations or stop ships—expire, then the change may be promoted to completed state.

A completed change form ensures that its dispositioning information is locked. Completing the change form (Process ➜ Complete Change) removes the change from the analyst's Item Explorer `Tasks` list.

> A released change form can't be returned to a pre-released state. If you need to fix a released item (for example, adding a forgotten revision file), then make a new pending iteration and update the incorrect information. If appropriate, copy the previous iteration's revision and lifecycle values to the pending iteration. Release the pending iteration using a new change form, which cancels the incorrect iteration.

1118

If you're viewing a | Completed | change form, the change's disposition activities are finished, or any temporary impact—such as those described in a deviation or stop ship—has expired.

A completed change form ensures that the change's dispositioning information is locked.

An analyst can no longer modify any of the change's contents, and cannot move the change to any other lifecycle state. In short, the change is now simply a historical record.

1119

A change form may be set to Stopped when a reviewer disapproves of its contents or intent.

As an analyst, you determine why the change form was disapproved and, in consultation with the disapproving person and the change originator, move the change form to the next appropriate lifecycle state.

Based on the reasons for the change's disapproval, you choose one of the following paths:

- Cancel the change form (Process ➜ Cancel Change), which then lets you delete it from your system's history.
- Reset the change form to Submitted status (Process ➜ Submit to Analyst), where you or a different analyst can either (a) rework the change or (b) return it to the originator.
- Reject the change form (Process ➜ Reject Change), which stops further work and provides a permanent record of the original change as proposed.

1122

The Rejected change form is a permanent record of a proposal that failed, and may be useful to review when similar changes are proposed or the need for the change once again surfaces.

A rejected change form cannot be modified, moved to a different state, or deleted. Any items listed on the Affected list are not, and can never be, affected by the rejected change.

The rejected change form's lifecycle state cannot be moved to any other lifecycle state.

1124

The change form's contents are locked, and listed items have not been changed.

As an analyst, you can no longer modify any of the change's contents, or move the change to any other lifecycle state. You can, however, delete the change entirely from the system.

To delete a canceled change form:

1. Open the change form. If it's open, select it to that you can view it.
2. Select the Item ➜ Remove Object menu command.

1123

An analyst may return a submitted change form to the originator for further work.

If a change form's status is not at Submitted , select Process ➔ Submit to Analyst . Then, to return the change form to the originator, select Process ➔ Return to Originator .

The originator examines the change and the reason that it was returned. The originator can

- delete the change (Item ➔ Remove Object),
- cancel it (Process ➔ Cancel Change), or
- modify and resubmit it to the analyst (Process ➔ Submit to Analyst).

1121

> To attach a file, the iteration must be pending, and cannot be on a working (for example, a Routed) change form. To manage a revision file, see the User roles & permissions help topic.

> Revision files are included (`isFileIn="Yes"`) in a PDX package.

Revision (iteration) files typically contain specific design and production data that you want to tightly control. Revision files are permanently locked to a particular document or part record iteration during the release process. You may want to include both the original design files (like mechanical or electronic CAD files, or Word documents), as well as more general-purpose equivalents (such as Adobe PDF or JPG images).

After the item iteration has been released, the attached files cannot be added, modified or deleted. To add, revise or remove revision files, you must create a new item iteration.

1. Select the item window's Files tab, then select the Revision Files tab.
2. Unlock the item window by pressing your keyboard's F2 key.
3. Use the context menu to add each file individually, or use Windows Explorer to drag-and-drop one or more files.

> The file cannot be copied to the library unless PDXpert can have exclusive access to the file. If the file is open in another application, you may receive a warning. Close the file in the other application and retry the attachment.

> The file isn't copied into the library until you save or lock the item record. After the file is saved, any changes made to your local copy won't affect the file that you attached to the Revision Files list.

> Do not attach a Windows link (`.lnk`) file. The real data file is not saved, and the link file doesn't contain information that's useful to other computers.

> Windows has a practical `device:\path\filename.ext` length limit of 260 characters. To avoid problems when users view or copy revision files from PDXpert to their computers, keep filenames under about 80 characters.

> Windows may block downloaded files, which should be unblocked before attaching to an item record. See the File tab help topic.

> Compressed archive files – `.zip`, `.7z`, `.rar`, and similar files – should be made only on a Windows PC. See the File tab help topic.

> PDXpert does not move, change or delete the source file on your computer.

- Right-click within the Revision Files list to open the context menu. Select the Add New File… command and then use the ☑ Add File to Library dialog to browse to your file. Select the file and click the Open button.
- Open Windows Explorer and select one or more files to drop. You can multi-select files by using shift-click, control-click or by dragging a selection rectangle to highlight the files. Drag one of the highlighted files from Windows Explorer and drop it onto the Files list (all selected files will follow).

  > Ensure that at least some part of PDXpert's file list area is visible before you start the drag.

4. Select Add Notes… from the context menu to open the ☑ Add Notes dialog. Enter a comment, and click the OK button. The note is attached to the file, and is shared across all iterations that use the file.
5. Save your work to the server: Item ➔ Save (Ctrl + S) or lock the window (F2 key).

Delete a revision file

To delete an attached file:

1. Select the revision file.
2. Press your keyboard's Delete key, or select Remove File from the context menu.

To manage an item file, see the [User roles & permissions] help topic.

Item files are identified but not included (`isFileIn="No"`) in a PDX package.

An item file contains background information like quotes, emails, sketches or other information that is not useful for actual production. These files are related to the item, not an iteration. Item files are not as tightly controlled as iteration files; any item file can be added, modified or deleted regardless of the release state of the item's iteration(s).

1. Select the item's ` Files ` page, then the ` Item Files ` list.
2. Unlock the item window by pressing your keyboard's ` F2 ` key.
3. Within the files list area, right-click to open the context menu.

> The file is not copied to the library unless PDXpert has exclusive access to the file. If the file is open in a different application, you may receive a warning. Close the file in the other application and retry the attachment.

> The file is not copied into the library until you save the item record. After the file is saved, any changes made to your local copy won't affect the file that you attached to the ` Item Files ` list.

> Do not attach a Windows link (`.lnk`) file. The real data file is not saved, and the link file doesn't contain information that's useful to other computers.

> Windows has a practical `device:\path\filename.ext` length limit of 260 characters. To avoid problems when users view or copy item files from PDXpert to their computers, keep filenames under about 80 characters.

> Windows may block downloaded files, which should be unblocked before attaching to an item record. See the [File tab] help topic.

> Compressed archive files – `.zip`, `.7z`, `.rar`, and similar files – should be made only on a Windows PC. See the [File tab] help topic.

> PDXpert does not move, change or delete the source file on your computer.

- Right-click within the ` Item Files ` list to open the context menu. Select the ` Add New File… ` command and then use the ☑ ` Add File to Library ` dialog to browse to your file. Select the file and click the ` Open ` button.
- Open Windows Explorer and select one or more files to drop. You can multi-select files by using shift-click, control-click or by dragging a selection rectangle to highlight the files. Drag one of the highlighted files from Windows Explorer and drop it onto the Files list (all selected files will follow).

  > Ensure that at least some part of PDXpert's file list area is visible before you start the drag.

4. Save your work to the server: ` Item ` ➜ ` Save ` (` Ctrl ` + ` S `) or lock the window (` F2 ` key).

Delete an item file

To delete an attached file:

1. Select the item file.
2. Press your keyboard's ` Delete ` key, or select ` Delete File ` from the context menu.

> To manage an external link, see the <u>User roles & permissions</u> help topic.

> Links to external resources are included in a PDX package. PDX package users outside your local network may not see local network links.

An external link points to information that's not copied into the PDXpert library, and isn't managed by PDXpert. The link may point to a supply chain partner's website, regulatory agency homepage, or a file on your local network server. Since an external file or webpage is outside PDXpert's direct control, the resource may not remain the same (or even exist) when a user clicks the link.

1. Select the item's Files page, then the Item Files list.
2. Unlock the item window by pressing your keyboard's F2 key.

   - Within the files list area:
       A. Open the context menu, and select Add New External Link…
       B. In the ☑ Add New External Link window:
           A. Type the internet URL or a network resource location, or
           B. Click the Network… button to browse for a network resource.

           > You must include the correct URI protocol prefix, such as `http://` or `https://` .

   - Or, drag a link from the address bar of your web browser, and drop it onto the list.

       > This feature is supported by most, but not all, current web browsers.

3. Save your work to the server: Item ➜ Save (Ctrl + S) or lock the window (F2 key).

After saving the form, you can click on the hyperlink to open the webpage or file.

Delete an item link

To delete an attached file:

1. Select the item link.
2. Press your keyboard's Delete key, or select Delete File from the context menu.

1160

- To view a file shown in a `Files` list, click on the file, and select `View File…` from the selected file's context menu.

  > If the file opens only when your computer has an application that recognizes the file extension.

  > You can also double-click the selected file.

The file is copied to a temporary folder on your local drive, and Windows opens the file using a related application.

1. Select the file from the item's `Files` list.
2. Select the `Copy Library File...` command from the `Tools` menu or the context menu. When the ☑ `Copy Library File` dialog opens, navigate to the location where you want to put the file, and then click on the dialog's `Save` button. The file is copied from the library to your specified location.

> You can't copy the file if you do not have sufficient access permission, which is specified by the item trustee in the ☑ `File Permissions` dialog.

> The source file remains in the data library, and is not changed or deleted.

1008

To prevent other users from modifying the same file you're working with, you should check out (rather than copy) the file.

You can only check out files that are attached to pending iterations.

When you check the file out from the data library, the system first copies the file to your computer, and then locks the library file from further checkouts (other users can still view or copy the file).

1. Open the item record that contains the file and, if necessary, select the pending iteration from the status bar dropdown list of iterations.
2. Select the item window's `Files` tab, then select the `Revision Files` tab.
3. Unlock the item window by pressing your keyboard's `F2` key.
4. Select the file that you want to check out by clicking on the filename.
5. From the `Tools` menu, select the `Files` ➜ `Check Out and Lock...` command (or the similar command on the file's context menu) to open the ☑ `Check File Out of Library` dialog. Navigate to the folder where you want to save the file, and click the `Save` button.
6. Update the item's status: `Item` ➜ `Save` (`Ctrl` + `S`) or lock the window (`F2` key).

1016

When you check a file back into the library, your changed file replaces the library file. The file lock is freed so that others can check out the file.

1. Use the Item Explorer to locate the item that contains the file. You can quickly view all files that you have checked out by selecting the `Files` tab of the Item Explorer. Open the item window, and select the pending record.
2. Select the item window's `Files` tab, then select the `Revision Files` tab.
3. Unlock the item window by pressing your keyboard's `F2` key.
4. Select the file that you have checked out by clicking on the filename.
5. On the `Tools` menu, select the `Files ➜ Check In and Free...` command to open the ☑ `Check File Into Library` dialog. Navigate to the folder that contains the modified or replacement file, and click the `Save` button. The file is copied to the data library, and replaces the previous version of the file.

   > The previous pending file is permanently replaced and cannot be recovered.

   > The file in your local folder is not affected.

6. Save your work to the server: `Item ➜ Save` (`Ctrl` + `S`) or lock the window (`F2` key).

1163

When you check out a file from the data library, PDXpert locks the library file to prevent other people from making changes at the same time. If you later decide not to modify the checked-out file, you should still free your lock on it. In this case, PDXpert does not copy the file from your workspace, but simply removes the library file lock so that it can be checked out by others.

1. Use the Item Explorer to find the item that contains the checked-out file. You can quickly view all files that you have checked out by selecting Files on the Item Explorer. Open the item, and select the pending iteration.
2. Select the item window's Files tab, then select the Revision Files tab.
3. Unlock the item window by pressing your keyboard's F2 key.
4. Select the file that you have checked out by clicking on the filename.
5. On the Tools menu, select the Files ➜ Free File Lock command. The file in the data library remains the same as before it was checked out. Other users can check it out.
6. Update the item's status: Item ➜ Save (Ctrl + S) or lock the window (F2 key).

> If you're the item's trustee, you can free the lock on a checked-out file (Tools ➜ Release File Lock) even if a different user has checked it out. After you free the lock, the other user must again check out the file (making sure not to overwrite the changed file on their local computer), and then check the changed file back in.

1164

You must be the iteration's trustee. The iteration must be pending, and cannot be on an in-process (for example, a Submitted or Routed) change form.

To remove (delete) the file attachment from a pending iteration:

1. Select the item window's Files tab, then select the Revision Files tab.
2. Unlock the item window by pressing your keyboard's F2 key.
3. Select the file that you want to delete by clicking on the filename.
   - Press your keyboard's Delete key.
   - Open the context menu, and select the Remove File command.

   On an item's first pending iteration, the file is immediately deleted from the list. On later iterations, the file is marked to be remove when the iteration is released on an approved change form.
4. Lock the window (F2 key).

1166

To delete the file attachment or external link from an item's Item Files list:

1. Select the item window's Files tab, then select the Item Files tab.
2. Unlock the item window by pressing your keyboard's F2 key.
3. Select the file or link that you want to delete by clicking on the filename.
4. Open the context menu, and select the Delete File command (or press your keyboard's Delete key).
5. Lock the window (F2 key) to save your changes.

1165

Reports are opened using the context menu.

On item (document, part, change) forms, an `Item Report` shows the complete contents of every page on an item; the `Tab Report` includes only the data on the currently-selected page.

> Multi-level BOM reports may include other relational data, such as the `BOM with Sources` and `BOM with References` reports. These reports show the BOM parts' immediate (first-level) source or reference items, but do not recursively show non-BOM items such as source parts on sources or references, BOM parts on sources or references, or reference items on sources or references. These unusual structures can be handled in Transforms.

Running the report

Standard reports

- Within an item form or on a Collection Explorer member node, open the context menu, and select one of the listed reports (typically the last group of commands). The report is shown in a new form.
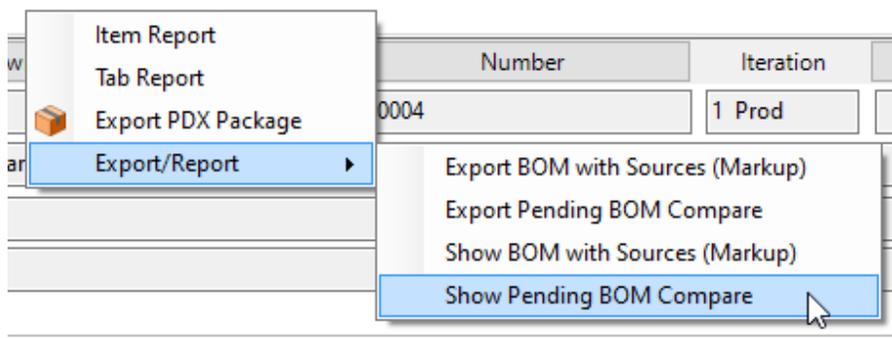
  > To open a context menu, click the secondary (usually right) mouse button while over an object.
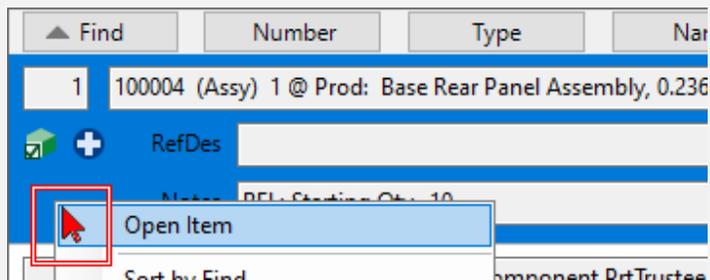
  > To open the context menu in a list, such as the `BOM: Markup` list, right-click on a row background.

Custom reports

PDXpert's standard reports and exports are listed first, followed by optional reports or exports specified by **TRANSFORMS** collection members.

> To show the results of a data transform in the `Export/Report ▶` submenu, its XML code must use a correct context location, such as `<context location="BillOfMaterialsMarkupList" part="true" />`. See the Transforms: <context /> element help topic.

Using the report

The report window has the following controls on the toolbar (see picture below):

1. You can move between report pages using the page controls.

| ◄ | ◄ | 1 | of 2 | ► | ►| | |

2. If you want to print the report, click the printer icon. If you prefer to export the report, select one of the formats from the dropdown list.

3. Use the zoom dropdown control to see the entire report or to see details.

4. You can search for text by typing it into the textbox, and clicking the Find button.

2. Print & Export   3. Zoom   4. Find text

| 🖨 📄 📖 💾▾ | 100% ▾ | Find | Next |

1149

A Product Data eXchange, or PDX, package is a compressed file that contains parts, multi-level BOMs, approved supplier sources, reference documents and similar design data, as well as related file attachments. PDXpert exports PDX files in accordance with the IPC-2571 and IPC-2578 standards (`www.ipc.org`).

> The server computer builds a PDX package, then sends it to your client computer. The IPC-2570 standard specifies a maximum size of 4GB, before compression (PDXpert offers an option for much larger packages). For large PDX packages, server and client computers should have at least 8GB of memory, and 16GB of free disk space.

> A simple part record can have a few hundred IPC-2570 XML elements; a very large product may have over a hundred thousand elements (plus file attachments). Creating the package can take much longer than a multi-level BOM or pick list report. ERP/MES/MRP importers, PDX viewers, and other tools may take a while to open a large package. Consider excluding large or complex elements from the package (e.g., files, custom attributes, dispositioning), or export smaller subassemblies.

> Invalid text characters that are pasted or imported into item records can cause problems when creating and reading PDX XML packages. For different types of data, the PDX exporter may:
> - remove selected whitespace characters (`HT` `VT` `FF` `NBSP` `NEL`), or replace them with a space (`SP`);
> - in single-line text, remove `LF` and `CR` end-of-line characters, or replace them with a space (`SP`), and delete leading and trailing spaces;
> - in multi-line text, replace Linux/MacOS end-of-line characters with the Windows standard (`CR` `LF`); and
> - remove all other characters in `0x0000–0x001F` and `0x007F–0x009F` ranges.

Exporting a PDX package

To export a PDX package:

1. Select an open item form, open the context menu, and select the 📦 Export PDX Package command.

   > To open the context menu: Move the mouse over a part, document or change form and click the secondary (usually right) mouse button.

2. In the ☑ Export PDX Package dialog:
   - Select the PDX export settings from the dropdown list at the bottom of the window, in the center.
   - You can override the selected export settings as desired using the lists and checkboxes shown in the General , Documents and other tab pages.
3. Click the Export button: move to the desired folder, accept or edit the suggested file name, and click the Save button to save the PDX package file.
   Or, click the Cancel button to cancel the export and return to the item record.

A PDX package viewer application enables users to open and browse PDX packages, and extract file attachments. Some manufacturing (MRP/ERP) systems can import part and BOM data from a PDX package.

> The *PDXplorer PDX Viewer* is available for free download at `www.pdxplorer.com`

Export settings reference

Settings

These settings control the IPC-2570 attributes that are included in the PDX package. Each page describes one of the IPC-2570 elements that can be changed.

> When you hold the mouse pointer over a settings checkbox, text box or other setting control, the pop-up hint may show the attribute's *path name:action*, such as `PDXPackage.StdAttr.originatedByContactName:Load` . Refer to the [Transforms collection](#) *help topic* for information about key-value pairs.

Settings page | Package |

The `ProductDataeXchangePackage` element is the root of the PDX package. These settings manage selected attributes and behaviors.

Include standard 'originatedByContactName', or this

When the checkbox is marked, the PDX package includes the `ProductDataeXchangePackage` element's `originatedByContactName` attribute. The attribute value is the textbox contents or, if empty, the name of the person who exported the package.

When the checkbox is cleared, the `originatedByContactName` attribute is not included in the package.

Include standard 'thisDocumentCopyright', or this

When the checkbox is marked, the PDX package includes the `thisDocumentCopyright` attribute. The attribute value is the textbox contents or, if empty, the `Contact` where `isTopLevel="Yes"` is shown as the package copyright holder.

When the checkbox is cleared, the `thisDocumentCopyright` attribute is not included in the package.

Include a 'description' as this

When the checkbox is marked, the PDX package includes the `description` attribute. The attribute value is the textbox contents or, if empty, no attribute value (there is no default value).

When the checkbox is cleared, the `description` attribute is not included in the package.

Sign the PDX.XML file (extension to IPC)

When the checkbox is marked, the PDX package is cryptographically signed. The package signature can be used to show the package contents have not been altered after it is exported. The signature can be read and verified by PDXplorer.

When the checkbox is cleared, the PDX package does not contain a cryptographic signature, and will be compatible with most PDX package viewing and importing tools.

> This is a non-standard extension to the IPC-2570 specifications. Standard PDX package viewing and importing tools (including older PDXplorer releases) may simply ignore the signature; export an unsigned package for those that do not. Tools that compare the `pdx.xml` `Attachment` entries to the package's actual files may show the hidden `PDXXML-{id}.sig` signature file as an extra attachment.

> To enable PDX package cryptographic signing, your PDXpert software license key contains a unique digital signing certificate. This signing certificate periodically expires and must be renewed through an active maintenance, support, and upgrade subscription.

> For technical information about the PDXpert cryptographic signature, search the web for
> | PDXpert package cryptographic signing |

Allow more than 4GB of files (extension to IPC)

When the checkbox is marked, the PDX package is compressed using the ZIP64 algorithm. This can export a package limited almost entirely by available disk space and the network's ability to move it. The package can be read by PDXplorer, starting with 6.0 release.

When the checkbox is cleared, the package remains within the limits of the IPC-specified 32-bit compression algorithms. Packages with large attachment sizes (totaling more than 4GB) or high counts (more than 65535 files) may not be exported.

> This is a non-standard extension to the IPC-2570 specifications. Some PDX readers/importers may not open large packages.

> PDX packages with more than a few gigabytes are often difficult to save, transfer, open, and archive. Use the attachment filter settings (*see next section*) to exclude large disk images, videos, CAD models, and similar files from the package. Save and send very large files separately.

Settings pages | Documents | | Parts | | Manufacturer Parts |

This page manages attributes exported from a part or document record. The PDX package is identified as:

`ProductDataeXchangePackage` `packageType="Manufacture"`

The item's `Class` and `Owner` determines its IPC-2578 element, and which settings page manages its attributes.

- All document records are assigned to the `Item` element with `itemClassification="Document"`. The | Documents | page manages these records.

- All home part records are assigned to the `Item` element with `itemClassification="Part"`, and are managed on the Parts settings page.
- All partner part records are assigned to the `ManufacturerPart` element. These are managed on the Manufacturer Parts settings page.

> A PDXpert item record's Part type or Document type (`globalProductTypeCode`) does not affect which settings page is used to manage the item.

> To learn how PDXpert objects are mapped to the IPC-2570 specification, search the web for
> `PDXpert IPC-2570 technical notes`

Include all Document Types
Exclude all Document Types unless top level
Include marked Document Types or top level
Exclude marked Document Types unless top level

Include all Part Types
Exclude all Part Types unless top level
Include marked Part Types or top level
Exclude marked Part Types unless top level

This dropdown list sets which **PART TYPES** or **DOCUMENT TYPES** are included in the package.

When the list selections show ... marked ... instead of ... all ... , then use the checkbox list to select the item types to include or exclude.

The part or document that you're exporting is automatically marked as the top-level item (`isTopLevel="Yes"`), and is always included in the package. Use the Mark All or Clear All buttons to adjust all types in the list.

> A PDX package transfers parts and their supporting data to manufacturing. Excluding parts (and related documents) from the package can have unexpected results. PDX readers rely on complete part relationships for navigation and for accurately representing the included items. Where these relationships are essential, an `Item` element may be only partially excluded when it's a parent to other `Item` elements.
>
> For example, excluding an **Assembly** part type in a multi-level structure collects all items, then deletes any lower-level **Assembly** parts. This leaves all components in the package, but without their parent subassemblies (similar to a Pick List report). Although the subassembly parts are gone, summary subassembly data (such as part number, type, description) may remain on related parts.
>
> PDXplorer and other PDX viewers often calculate relationships after reading the package, but cannot do this from partial data. For example, the top **Assembly** may show subassembly summaries, but a multi-level BOM tree cannot be calculated without the full subassembly relationships.
>
> Excluding a limited set of items works well in simple PDX packages. Packages with multi-level BOMs should limit filtering to standard attributes, custom attributes, and files/links.

Include these standard attributes
Each setting is applied to all items that are affected by the current settings page.

Include these custom attributes
Each setting is applied to all items that are affected by the current settings page. This list includes all custom attributes across all types. Not all types will have the same custom attributes. Use the Mark All or Clear All buttons to adjust all attributes in the list.

Include all Revision Files (isFileIn=Yes)
Include all Revision Files as summary (isFileIn=No)
Include all Revision Files, with these (pdf,txt,...) as summary
Include these Revision Files (pdf,txt,...)
Exclude all Revision Files
Exclude these Revision Files (pdf,txt,...)

Include all Item Files (isFileIn=Yes)
Include all Item Files as summary (isFileIn=No)

Include all Item Files, with these (pdf,txt,...) as summary
Include these Item Files (pdf,txt,...)
Exclude all Item Files
Exclude these Item Files (pdf,txt,...)

Physical file attachments can be included in the package; or only described (...as summary), or excluded entirely.

By selecting an option using ...these... , you can define a list of files by their extension. Use a comma between each file extension, and do not include the "dot" separator: `pdf,txt,png` and not `.pdf,.txt,.png` Do not use wildcard characters like `?` or `*` .

> Item files are not often included, or included ...as summary , because they are not revision-controlled requirements. Very large revision files, such as `.iso` disk images or media, can be excluded to avoid PDX packages larger than 4GB.

Include all Item web links
Exclude all Item web links

External web links like `https://example.com/price` are copied from each record's `Files: Item Files` list. The setting is applied to all items that are affected by the current settings page.

Settings page `Change`

This page manages attributes exported from the currently-selected change form. The PDX package is identified as:

`ProductDataeXchangePackage packageType="ChangeNotification"`

This settings page is not shown for the `Manufacture` package type.

Include these standard attributes

Each setting is applied to selected change form.

Include these custom attributes

Each setting is applied to selected change form. This list includes all custom attributes across all change form types. Not all change types will have the same custom attributes. Use the `Mark All` or `Clear All` buttons to adjust all attributes in the list.

Revision files on Affected items:
Include all Revision Files (isFileIn=Yes)
Include all Revision Files as summary (isFileIn=No)
Include all Revision Files, with these (pdf,txt,...) as summary
Include these Revision Files (pdf,txt,...)
Exclude all Revision Files
Exclude these Revision Files (pdf,txt,...)

These settings manage revision files that are attached to affected items listed on the change form. The files are identified as "markup" elements (IPC `AttachmentMarkup`). All affected items' revision files that have been added, removed or replaced – as well as those that have not changed – are listed in the markups. Other parts and documents in the package that have not been revised include only their current file attachments as specified on the other settings pages.

Physical file attachments can be included in the package; or only described (...as summary), or excluded entirely.

By selecting an option using ...these... , you can define a list of files by their extension. Use a comma between each file extension, and do not include the "dot" separator: `pdf,txt,png` and not `.pdf,.txt,.png` Do not use wildcard characters like `?` or `*` .

Item files and links on Change form:
Include all Item Files (isFileIn=Yes)
Include all Item Files as summary (isFileIn=No)
Include all Item Files, with these (pdf,txt,...) as summary
Include these Item Files (pdf,txt,...)
Exclude all Item Files
Exclude these Item Files (pdf,txt,...)

The selected change form's `Files` list can be included in the package; or only described (...as summary), or excluded entirely.

By selecting an option using ...these... , you can define a list of files by their extension. Use a comma between each file extension, and do not include the "dot" separator: `pdf,txt,png` and not `.pdf,.txt,.png` Do not use wildcard characters like `?` or `*` .

> Very large revision files, such as `.iso` disk images or media, can be excluded to avoid PDX packages larger than 4GB.

Include all Item web links
Exclude all Item web links

External web links like `https://example.com/share` are copied from the selected change form's `Files` list.

Actions

Save As…

This button exports the current package settings as a file. The file content can be used to create or updated a **TRANSFORMS** collection member. See the [Create a PDX export transform](#) *help topic*.

After the transform is saved, when the ☑ Export PDX Package dialog is next opened, the transform is shown in the `Select PDX starting values` dropdown list.

Select PDX starting values

The `— PDX Standard Package — ▾` exports a standard set of attributes and their default values. Other export settings may be available from active `PDXExport` members of the **TRANSFORMS** collection.

Selecting a new value from the dropdown list copies the selected transform's starting values into the `Settings` control.

> All values in the settings pages are immediately replaced with the new settings, and cannot be undone.

Export

This button exports the PDX package that's defined by the current settings.

Cancel

Click this button to close the window without exporting a PDX package.

IPC-2570 rules and effects

> This section summarizes some of the PDX package limitations. The PDXpert website tells what data is included in a PDX package, as well as technical limits of the PDX format. Search the web for `PDXpert IPC-2570 technical notes`

The IPC standards expect that the home organization owns all assemblies and their BOM parts, and that partner items need very few attributes. Thus, a PDX package may affect how non-conforming data is exported.

- An `Item` (a home organization part) can have a BOM and sources, but a `ManufacturerPart` (a partner organization part) cannot. A partner part with a BOM includes its BOM components, but not the BOM structure.
- Exporting an assembly owned by a partner organization may fail. Multi-level partner BOMs will almost always fail.
- The PDX standard says that only a (home) `Item` can have a `BillOfMaterial`, and a `BillOfMaterialItem` must refer to a (home) `Item`. A `ManufacturerPart` cannot have a `BillOfMaterial`, `ApprovedManufacturerList` or `AdditionalAttributes` for `PDXpert.References` list.
- The PDX package defines the BOM as the only multi-level recursive structure. At each BOM node, the child part may have a BOM list, a Sources list and a References list. The node part's BOM is followed recursively, while only the first-level items are included from the part's Sources and References lists. This means that a PDX package cannot describe Sources on Sources, References on References, Sources on References, or References on Sources. Avoid these relationships in your product structures. If you require these arrangements, then you must export these nodes as separate PDX packages.

The DataGrid shows the results of a **TRANSFORMS** collection member.

> To show a transform's results in the DataGrid, its XML code must use the `<Provider>DataGrid</Provider>` setting. See the
> Transforms: <Provider> help topic.

> The DataGrid supports about 100,000 data cells (columns × rows). Write the transform with this limit in mind. For larger
> results or more complex data filtering, export the data using the `<Provider>Table2</Provider>` transform setting.

Using the DataGrid

- Open the DataGrid by running a transform from the Tools menu ➔ Report/Export Wizard… command, or from a context menu.
- After the DataGrid opens, you can arrange columns and sort rows; filter unwanted data; and copy or export the results.
- You can have more than one DataGrid open at the same time.

Adjusting the view

Adjust column width

- Adjust a column's width by dragging its border. Double-click the column's right-side border to automatically adjust its width to the text.

Order column

- Change the left-to-right column sequence by selecting the column header, and dragging the header box to the correct location.

  The vertical line ❘ highlights where the column will be inserted.
- Restore the original left-to-right column sequence by clicking the Reset Order button.

Hide column

- Hide a column by opening the column's context menu, and selecting the Hide Column command.
- Unhide (show) all hidden columns by clicking the Unhide All button.

Sort rows by column

- Sort the data rows by one or more columns. Click on a column header once to sort ascending (▲ as *0-9,A-Z*). Click again to sort descending (▼ as *Z-A,9-0*). Click once more to remove your sorting. Sorting is not case-sensitive. The Sort by: text shows the sorting rule.
- Restore the original sorting by clicking the Clear Sort button. This is confirmed by the Sort by: Default message.

Filter rows

- Show only useful rows by entering text into the Filter by: box. The filter characters are matched character-by-character to the content of any column, and any non-matching rows are filtered out (excluded).
  - Matching is not case-sensitive.
  - Space characters are used to separate filter "tokens": each token must match at least one column in a row.
  - Extra whitespace (like **TAB** **CR** **NBSP**) and control characters (like **NUL**) are removed from tokens before matching. All other alphanumeric and symbol characters are used for matching. If a table value contains extra whitespace or control characters, these will not be matched.

- Each token automatically begins and ends with a wildcard: typing the token `PART` is immediately converted to `*part*`
      - Text in hidden ("housekeeping") columns is ignored.
  - Clear the filter by clicking on the `×` at the right end of the `Filter by:` box. This restores the original set of data rows.

The row filter criteria is similar to:

```
((columnA has *token1*) OR (columnB has *token1*) OR ... OR (columnN has *token1*))
AND ((columnA has *token2*) OR (columnB has *token2*) OR ... OR (columnN has *token2*))
AND ...
AND ((columnA has *tokenX*) OR (columnB has *tokenX*) OR ... OR (columnN has *tokenX*))
```

where
  - the data values in `columnA` through `columnN` are shown in the table (excluding links to Open the row's record)
  - the user has entered `token1` through `tokenX` filter terms, separated by space characters
  - `*` is the wildcard (zero or more) character

Selecting rows for exporting and copying

> Filter rows before selecting.

- Click anywhere on a data row to select it.
- Select a continuous range of rows: (1) select the first row, (2) hold down the `Shift` keyboard key, and (3) click on the last row in the range.
- Select several separated rows: (1) select the first row, (2) hold down the `Ctrl` keyboard key, and (3) click on any other rows.
- If most rows should be selected, but a few should not, first select the entire data grid by clicking on the upper left corner.
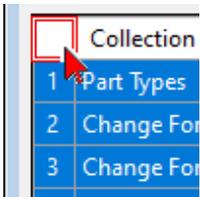
  Then, hold down the `Ctrl` keyboard key and click on any row to unselect it.
- Clear the selected rows by clicking the `Unselect All` button.

Exporting data to a file

Save the data to a file by clicking the `Export All` or `Export Selected` button. The file contains what remains after columns are hidden and sequenced, and rows are sorted, filtered and selected.

Copying data to the Windows clipboard

Copy the data to the Windows clipboard by clicking the `Copy All` or `Copy Selected` button. The copied data contains what remains after columns are hidden and sequenced, and rows are sorted, filtered and selected.

Opening a row item

If a column shows an Open link in some or all rows, clicking the link opens the related document, part, change form or collection member. If the item is already open, its window is brought forward.

When the DataGrid is copied or exported, the Open column is not included in the data.

To learn how to make an Open link, see the Transforms: HK100 column help topic.

Standard reports are available on many of the application's context menus. The Report/Export Wizard exports data and prints reports using the **TRANSFORMS** collection.

To use the Report/Export Wizard:

1. Open the Tools menu and select Report/Export Wizard... When the Report/Export Wizard tool opens:

   - If the transform is an export file, then the Wizard exports your data in a standard delimited text format, such as CSV or XML.

     A. Select a dataset to export from the list of **TRANSFORMS** collection members. Click the Next button.
     B. Some exports may let you select items to include in the report. From the Item Explorer Search or Recent list, drag an item to be included in the XML export and drop it onto the Report/Export Wizard panel.
     C. Click on the Finish button. The Save As dialog opens, and you can name the file and select the folder where the table-formatted file is saved. Select one of the file formats from the Save as type: dropdown list, and then click the Save button.

   - If the transform is a formatted report, then the Wizard opens a report that can be printed or exported as an Adobe Reader, Microsoft Excel or Microsoft Word file.

     A. Select a report from the list of **TRANSFORMS** collection members. Click the Next button.
     B. Some reports may let you select items to include in the report. From the Item Explorer Search or Recent list, drag an item to be included in the XML export and drop it onto the Report/Export Wizard panel.
     C. Click on the Finish button. The ☑ Save As dialog opens, and you can name the file and select the folder where the table-formatted file is saved. Select one of the file formats from the Save as type: dropdown list, and then click the Save button.

2. When the Report/Export Wizard tool is done, the form closes.

Transforms may be designed to export one or more selected iterations. You can choose the iteration by opening the Iteration(s) dropdown, and marking the appropriate checkbox. If the transform is designed to allow more than one revision, multiple checkboxes can be marked.

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Administrators open this window using `Tools menu ➜ Batch Importer…` The menu command is shown when the user's role has ☑ `Collections/Rules administrator` marked.

You can import new parts, documents and files, as well as update your existing item records, using the `Batch Importer` tool. The tool also simplifies setup by importing collections of related information such as organizations, groups, materials, and user accounts.

After your data is imported, you can put it under change control by releasing the pending iterations.

Many attributes on the item's `General`, `Attributes`, and `Notes` pages can be imported in the Item Master import file. Lists of related objects — BOM items, approved sources, references, materials, and file attachments — are imported using separate relationship import files.

> The Batch Importer is used to import correct data from another "known to be good" source (MRP/ERP, PDX packages, Access/Excel, etc.). Import files must always contain correct and consistent data. PDXpert uses this good-quality data to check rules, match collections, and construct relationships.
> **For every import using Batch Importer tool:**
> - Save the database before importing.
> - Inspect the data before importing.
> - Monitor the import log for errors.
> - Review the data after import.
>
> **Do not "fix" failed items after they're imported into PDXpert. Failed imports may damage earlier items and relationships.**
> **If any import row shows a `FAIL`:**
> - Correct the import file.
> - Restore the database to its most recent pre-import backup.
> - Re-import the corrected file.

> The Batch Importer tool can make and update iteration details only on an item's **first pending iteration**. The tool can update item-level values — such as part unit cost, custom attributes, materials and item files & external links — at any time. Collection members can be imported and updated without regard to item release state. Each import file's help topic tells whether it's a collection import, iteration-level import or item-level import. The item master import file contains a mix of attributes; the `Item Master help topic` shows the attributes that can be updated after the item's first release.

Importer controls

Import data template
This selection list shows all of the import options. Each of the options has its own import template and rules, and is described in the related help topic.
Select an `Import Type`, and then click the `Import` or `Export` button.

Add missing collection members
When the checkbox is marked, a missing collection member is automatically added to the collection. For example, marking the ☑ Organization checkbox will add a new **ORGANIZATIONS** collection member when the imported row contains an `Owner` value that doesn't exist.
- These options are used only when importing the Item Master file .
- A new collection member contains only the name and the collection's default values. After importing, each new member must be configured.

> When using these options, each imported row must have correct and consistent collection members. When the row value is imported, the current collection members are searched for an **exact match**. A new collection member is made when the imported member is simply misspelled or shortened; for example, even if `Acme Manufacturing` exists, importing `Acme Mfg.` isn't matched, and is created as a new member.

> Using collection import templates (such as the [Collection: Organizations import file](#)), and leaving the Item Master import options unmarked, helps prevent unwanted collection members.

Copy Status

Click this button to copy the import status to the Windows clipboard.

Import

After selecting the `Import Type`, click the `Import` button to find and import the related import file.

> The status summary shows the import progress, and predicts when the import will finish based on rows already imported. The estimate is adjusted based on other computer tasks; adding new items (slower) or updating existing items (faster); and item complexity (documents are faster than parts, custom attributes are slower, small files and web links are much faster than large attachments).

Cancel

Click the `Cancel` button to stop importing the current file. There may be some delay before the server can respond.

Export

After selecting the `Import Type`, click the `Export` button to export the related import template. The template contains the columns described in each import file help topic.

For your convenience, exported templates include *most* data you've previously imported. Important exceptions are:

- The `Item Masters ∨` export does not include any information for released iterations, such as current revision and lifecycle.
- The `List: Revision Files ∨` export contains only the column headers, and no revision file data rows.
- The `List: Item Files and Links ∨` export contains only the item file names, without the original file path location.

> Exporting a file import template does not copy files from the library.

> Data not included in the exported templates can be exported using one or more **TRANSFORMS** collection queries.

> Future PDXpert releases may change (or exclude) data in exported templates.

Close

Click the `Close` button to stop all importing and close the tool.

General import procedure

> Before importing your data, [back up your database](#). The import tool can make big changes to your database, and **can overwrite data on previously-imported items**. You cannot undo the changes it makes; you can only restore your backup database.

> You should be the only user logged into the system when using this tool.

> The test software limits the number of items you can use without a license key. If you plan to import more than a few thousand items, request a software license key.

> The PDXpert website shows an on-line tutorial with example data. Search the web for `PDXpert import tutorial`.

> If you want to import a single bill of materials into an assembly's BOM, refer to the [Import a CAD BOM](#) topic.

1. Make your import file(s) after reading the related help topics for these files.
2. Click on the `Tools` menu and select the `Batch Importer...` command. The `Batch Importer` tool opens.

   > The `Batch Importer...` command is visible only to users with a **ROLE** that has been marked with the `Collections/Rules administrator` permission.

3. Select the `Import Type` for the data file: `Item Masters ... ∨`, `List: BOM ... ∨`, `List: References ... ∨`, `List: Sources ... ∨`, etc.
4. When importing Item Master data, you can specify whether new collection members should be added during import. If you want collection members added "on the fly", mark the appropriate `Create missing collection member(s)` checkboxes.

> The checkbox setting may apply to more than one column of the import file. For example, the `Person` checkbox adds members using data in the `Trustee` , `Person1` and `Person2` columns.

5. Click the `Import` button, which shows the ☑ `Open File` dialog.
6. Navigate to the file containing your formatted data, and click the `Open` button. The import starts immediately.

> To stop the file import, click the `Cancel` button.

> You can copy the status log messages to the Windows clipboard by clicking the `Copy Status` button.

7. After your file(s) have been imported, click the `Close` button to close the `Batch Importer` tool.

After import, each new item is available within the PDXpert client for further editing and may ultimately be released on a change form, exactly as though you'd added the record manually.

How to initialize your PLM database

PDXpert lets you import these records and relationships:

1. All item master records, which include home organization parts and documents, as well as your partner organization parts and documents.
2. The relationships between your assemblies and their bill of materials components.
3. The relationships between your purchased parts and each approved source part.
4. The relationships between items and their supporting references.
5. The revision files that are attached to the item records' `Revision Files` lists, and copied into the file Library.
6. The item attachments and external links that are attached to item records' `Item Files` lists, and copied into the file Library.
7. The materials used to formulate a part.
8. The contact details (name, abbreviation, website, address, phone) of your partner organizations.
9. A list of persons who are contacts or account users in your system.
10. Lists of custom collection members.

Obtaining the import file templates

Each import file template can be exported as a CSV file.

1. Open the Batch Importer tool: `Tools` ➜ `Batch Importer…`
2. Select the appropriate format from the `Import Type` dropdown list.
3. Click on the `Export` button, and save the file.

When there is no data in the database, the exported files contain a single row of column headers, as specified in the import file specification help topics.

When data is in the database, it may be included in the export. Use this data to validate how PDXpert interpreted your import file. You can make the simple import template by deleting all data except the first row of labels. You can also use the exported item master data as the basis for on-going updates of item properties (such as part cost).

Preparing your database and item master import file

> Your data files must conform to the import file format specifications. The import procedure can use default values and add new collection members "on the fly". To avoid data errors and make this task as efficient as possible, read the other help topics on importing data before using this procedure.

> The Batch Importer can detect certain errors in your data, such as inappropriate data types. It cannot detect problems such as recursive (cyclic) BOM errors, assembly items added as children of component parts, or a part supplier with an inconsistently-spelled name. A careful inspection of import results is your best protection against incorrect data.

> If you don't normally have access to the computer containing the PDXpert Application Server, it may be useful to install a copy of the PDXpert Application Server on your local computer. After you've performed these import tasks, you can move the final database and library files to your production server, and uninstall your local PDXpert Application Server.

- Collect all of your item data into a single `ItemMaster.csv` file. Item data is *everything* that has a part or document number, from whatever source: home items and partner items; individual components, consumables, subassemblies and top assemblies.
- Ensure that file headers are correct (use the `Export` templates).
- Within PDXpert, enter or update any data that will remain constant throughout the import procedure. This would include, for example, entering the software license registration key (if any), entering company name & abbreviation, and setting up user accounts.
- If your items include custom attributes, add the **PART TYPES** or **DOCUMENT TYPES** collection members as needed, and then define their custom attributes before importing the related items. If you're importing custom attributes that reference a custom collection, then all members of the collection must exist before your import.

General procedure for importing each file

> You should be the only user logged into the system when using the Batch Importer.

1. Load your data into the import template.
2. On the Batch Importer tool, select the correct import format from the `Import Type` dropdown list.
3. Click the `Import` button, and navigate to your import file. When you accept the file, its data is immediately loaded into the database.

Collection members import

Collections organize similar data that are applied to parts and documents. It's most efficient to import the collections in this sequence:

- Organizations are your vendors, customers, regulatory agencies, and other entities that own the specifications of parts or documents.
- Persons are PDXpert users as well as observers of the change workflow.
- Groups organize your persons into specified responsibilities and interests.
- Materials are the chemicals and substances that must be tracked for regulatory compliance.
- Custom collections apply a well-specified set of tags to your parts' and documents' custom attributes.

ItemMaster data import and validation tasks

> The **trial software** limits the number of items you can use without a license key. If you plan to import more than a few thousand items, request a software license key for your trial.

During the import, the Batch Importer often supplies a reasonable value if the imported value is empty. The default values are shown in the Item Master import format: ItemMaster.csv format column definitions help topic.

Repeat these steps until your imported item master data is accurate and complete:

1. Review and, if necessary, select the default member of each collection used in the import file, as shown in the `Data type` column of the *Item Master import format* help topic. If the import file has a value that isn't yet a member of a collection, and that value should be used as the default member for missing import values, add the missing member and set it as the collection default.

   > You must specify a valid collection member in each imported item row that doesn't use the default collection member.

2. Compare the set of existing collection members to your import data, and edit any mismatched data. For example, if your import data uses the abbreviation `EA` for **each**, decide which you want to retain, and then edit the `ItemMaster.csv` file or modify the PDXpert collection member name.
3. **Back up your database.** If you're not satisfied with the import result, you can restore this backup and improve the data for another import.

   > See the Back up the database and library help topic.

4. Import your `ItemMaster.csv` file containing parts and/or documents that are owned by your organization as well as those owned by partner organizations.

   > Review the status results to identify (a) the collection members that were added, (b) which items used default collection members, and (c) which rows were not imported.

> Examine the collections to ensure that all new members are correct. In particular, look for "almost duplicate" collection members. If an imported value has minor variations or errors (like `each`, `EA`, `eahc`), these show as separate entries in your collection. Modify your file to eliminate all but the preferred item.

Until you have a final "almost perfect" imported dataset, it's usually easier to restore your database backup, update your import file and/or PDXpert collections, and re-import the `ItemMaster.csv` file. See the <u>Restore data from a backup</u> help topic.

Import your items' relations, materials and file attachments

> These files establish bill of materials, source and file relationship between items, and specify relationship properties. All items in these files are simply matched to document and part records in the database, and do not make any new item records. Your import of the `ItemMaster.csv` data should be complete before importing the relational data files.

> Items, not iterations, are matched. Your imported data establishes relationships between the pending iteration of each matched item.

> Before importing each of these files, take a backup of your database. If you're dissatisfied with the import, you can restore the backup and then edit and re-import the file.

For each parent item row, you can leave many of the columns empty and use the Batch Importer's default values. Blank (empty) values are specified in the relational import column definition tables.

BOM (bill of materials) import

The <u>BOM import file</u> identifies the parent-child (or assembly-component) relationship between two items in the PDXpert database, and adds to this relationship a find-item number, quantity, unit of measure and other data. Before you can import the BOM file, both assembly parent and component child must exist.

Parent items and child items must only be parts. If you want to add documents to a parent item, import the relationships using the `ItemReferences.csv` file.

If you override any of the default values, ensure that each set of assembly records have no duplicate `Find` numbers, that each `Quantity` is a positive number, and the `Unit` (if provided) is compatible with (and preferably identical to) the `Default unit of measure` selection on the child item's record.

Sources import

Each <u>purchased part-manufacturer source</u> (parent-child) pair can be given a rank, or preference, on the import row. Since a purchase part in your PLM database can have more than one approved source, you can use duplicate `Rank` values for interchangeable sources. For example, if there are three equally-qualified primary sources for one purchased part, the import file has 3 rows with the same rank value `1` for each row.

Add child source parts only to parent purchased parts. A document record cannot be a source parent.

References import

An <u>item-reference</u> (parent-child) pair links the supporting children to the referencing part or document. For example, an assembly part may have reference documents that show the assembly procedure, inspection procedure, and calibration procedure. Each of these documents are shown on the assembly's `References` list after the relationships are imported.

Files file

There are separate import formats for *revision files*, and for <u>item attachments and external links</u> . An item in your PLM database can have more than one file attached to either of the file lists.

Each listed file is copied from the location specified into the PDXpert library, and the file attributes are extracted, then listed on the item record's appropriate `Files` list.

An imported file attachment must be a fully-qualified folder and filename to a local drive or a network share. If the file is not found at the location specified, then no file is attached.

Final tasks

After you've imported/updated all of your part and document data:

1. Check that new collection members have correct attributes. Your **Sequences: Identifier** collection should be updated to ensure that future item numbers won't conflict with your imported items' identifiers.
2. Re-index the database: Tools ➜ Index Status... and click the Re-index button.

> Before importing your data, <u>back up your database</u> . The import tool can make major changes to your database, and **can overwrite data on previously-imported items**. You cannot undo the changes it makes; you can only restore your backup database.

> The │ Batch Importer │ tool can make an import file `ItemMaster.csv` template. Select │ Item Masters ⌄ │ from the dropdown list, click the │ Export │ button, and save the file to a convenient location. The file contains existing item data, to check earlier imports or use for updating existing data.

The `ItemMaster.csv` file lets you import new items with their pending iterations, and update the item-level attributes of existing items. Import items can include custom attributes.

Item master data must be imported to provide a foundation for the relational imports of BOMs, sources, references, materials and files.

General guidelines

- The header names are not case-sensitive.
- Imported items that rely on collections (**PART TYPES**, **UNITS OF MEASURE**, **MAKE/BUY CATEGORIES**, etc.) will only be matched to collection members that exist in the Collection Explorer. However, you can force the system to add new members within selected collections by marking the │ Create missing collection member(s) │ checkbox. The new member is given only the name, and the default settings are used for all other values. After importing your data, you should review all new collection members' attributes to ensure they're set correctly.
- The first row of the import file (the "header" row) must contain the column names as specified in this reference, or must match a custom attribute name that's been specified on a **PART TYPES** or **DOCUMENT TYPES** collection member. Custom attributes must be specified within PDXpert before importing the item file.
- Do not include more than one column with the same header name.
- Extra (unmatched) columns are ignored.
- Every value must conform to the column's specified data type (collection member, string, number, etc.) or be empty. For example, an attribute that requires a numeric value cannot include non-numeric characters in its value.
- The item search engine uses natural language rules, similar to a web search engine. The engine collects search tokens, which are alphanumeric strings separated by space characters. Punctuation is usually ignored. For best search results, imported item descriptions, notes, and other text should use space characters between searchable tokens; for example: │ Screw, Phillips, M4 x 0.7mm │ not │ Screw,Phillips,M4x0.7mm │ See the notes at <u>General (document): Document title</u> and <u>General (part): Part name</u> help topics.
- While descriptions with Unicode characters (like *cm²* and *kΩ*) might look better, they're often hard to use. For example, searches are more difficult if some keyboards don't show the character, and older software applications may not know how to import or display these characters.
- Depending upon the custom attribute scheme, there may be one or two columns for each custom attribute. The first column contains the custom attribute value, and the second column contains the value's unit of measure (for UOM scheme) or currency code (for Money scheme). This second column isn't used for other custom attribute schemes. If the value of either column is empty, then the custom attribute's default value is applied.
- Special characters: ERP/MRP and other software may export data that's incompatible with Windows. Microsoft Excel can modify data in unexpected ways. Data copied from Linux and Mac systems, and from some web pages, use incompatible line endings.
  - If you're importing Unicode characters, the import file must be encoded as UTF-8, rather than DOS/Windows ANSI.
  - You can import multi-line text in the larger text fields, such as item `Description` , `RevisionNote` , and `Notes` . The import file must use Windows **CR** **LF** newline pairs. Linux/Mac software may export **LF** only, and some text editors may remove newlines in the CSV file format.
  - Do not import newlines into fields that should not have them, such as item `Number` and `Revision` fields.

Text editors such as Notepad++ can show Unicode and control characters, and enforce encoding. Before importing, inspect Unicode and non-printing control characters in the CSV file. After importing, check that PDXpert correctly displays the Unicode and multi-line text.

- Import rate is about 50 to 250 items per minute, depending on hardware resources (primarily disk speed) and data complexity (especially custom attributes). Import from the client's local disk, not from network resources. For each imported data row, the system checks for duplicates, imports the new item using its type's default values, validates the imported values against the type's and system's rules, matches collection members, updates default values with the imported values, and adds the item to the indexing queue. In other words, there's a lot going on.

Importing new items

- If this import file specification doesn't define a column for a PDXpert data attribute, then the new item uses the default collection member. For example, the Item Master import template doesn't contain a column for `BOM Type Code` so each imported part uses the default member in the **BOM TYPE CODES** collection, usually **Direct material**. Before importing, ensure each of your collections has the correct default member.
- All columns except `Number` are optional. When a specified column is missing, then the new item uses the default value (if any) for the column.
- Attributes use their default values (if any) unless a different value is given in the column.
- Blank values are treated according to the column's data type. If the value is blank and the column expects a:
  - collection member (say, the `CostCurrency`), then the collection's default member (for example, **USD**) is used.
  - number, then the default value for that attribute is used.
  - Boolean (Yes/No), then a No (False) value is used.
  - text string, then a blank zero-length string is used.
- Leading and trailing spaces are removed ("trimmed") from each data element before it's imported.
- Each imported item has **exactly one** iteration, which is imported at a `Pending` release state.

> Use the Product Families import template to add product families to new and existing items. The administrator's Add these product families to every new item that I create user setting list is not applied during batch importing.

Updating items in the database

- Each imported item is matched against all items in the database according to the rules specified in Tools ➜ System Rules… , Item uniqueness specified by: Number, Organization, Class, Type . All columns except `Number` are optional. If a match occurs, then the item row is not imported, but is used to update the existing part or document record. **This update occurs regardless of the iteration release state (pending, released or canceled) of the existing item.**
- Leading and trailing spaces are removed ("trimmed") from each data element before it's matched.
- If an attribute column is omitted from the import file, then items won't have that column's attribute updated. When the attribute column exists in the import file, then the current attribute value is replaced. When the imported value is
  - Empty: the attribute's default value is used.
  - Not empty: the new value overwrites the previous attribute value.
- An item's iteration-level (revision-level) attributes cannot be updated after the item's first release. These are shown as **Updateable** = No in the table below. If the item has been released, these values are not included in an `ItemMaster.csv` export file.

ItemMaster.csv format column definitions

> If you use Excel as your CSV file editor, it may make undesired changes to values that it interprets as a number or date. For example, part number strings beginning with zero (e.g., `01234`) may be silently converted to a numeric value (`1234`); similarly, Excel may convert a text value like `2024-08` to the date `Aug-2024` . Consider using a CSV file editor, Windows Notepad, or other **plain text** editor (not Word) to edit your import file.

Column name	Updateable	Data type	Value if empty	Description
Class	No	*string* **Part** *or* **Document**	**Part**	If not specified, then the item's `Class` is a part. Part records have physical attributes like a unit of measure, cost, mass and package quantity; documents do not.

Owner	No	**ORGANIZATIONS**	default member	Identifies the organization that is primarily responsible for the item's specification and which issues the item `Number`. See note 1.
Type	No	**DOCUMENT TYPES** or **PART TYPES**	default member	If not specified, then the appropriate type collection is given by the item's `Class`, and the record's `Type` selection uses the default member of the calculated type collection. See note 1.
Number	No	*string: 1 ≤ length ≤ 70 characters*	row is skipped	**REQUIRED**: This value is imported as the new part or document `Number` value. If the value is empty, the row is not imported.
Revision	No	*string: length ≤ 10 characters*	no value	
Description	Yes	*string: length ≤ 1000 characters*	no value	This value is imported as the new `Part name` or `Document title` value. See note 6.
Lifecycle	No	**ITEM LIFECYCLE PHASES**	default member	If the value is empty, then the item record `Lifecycle phase` is given the default lifecycle phase (typically **Production**) according to the specified `Type` value. See note 1.
Trustee	Yes	**PERSONS**	default member	If the value is empty, then the default person is assigned as the record's `Trustee` selection. See note 1.
DefaultUOM	No	**UNITS OF MEASURE**	default member	This value applies only to items where Class=Part. If the value is empty, then the record's `Default unit of measure` selection is given the default **UNITS OF MEASURE** collection member (typically **each**).
MakeBuy	Yes	**MAKE/BUY CATEGORIES**	default member	This value applies only to items where Class=Part. If the value is empty, then the record's `Make/buy` selection is given the default **MAKE/BUY CATEGORIES** collection member (typically **Unspecified**). See note 1.
GlobalNumber	Yes	*string: length ≤ 50 characters*	no value	This value applies only to items where Class=Part. This is imported into the `Global number (GTIN, UPC, etc.)` value.
Location	Yes	*string: length ≤ 1000 characters*	no value	This value applies only to items where Class=Part. This value is imported into the record's part `Location` value.
RevisionNote	No	*string: length ≤ 1000 characters*	no value	This value is imported into the record's `Release description` value. See note 6.
CostPerUnit	Yes	*double ≥ 0.0*	0.0	This value applies only to items where Class=Part, and is used by the record's `Unit cost per default unit` value.
CostCurrencyShort	Yes	**CURRENCIES**	default member	This value applies only to items where Class=Part. Use the **CURRENCIES** member's `Currency code` value in this column. If the value is empty, then the record's cost `Currency` selection uses the default **CURRENCIES** collection member (typically **USD**).
PackageQty	Yes	*double > 0.0*	1.0	This value applies only to items where Class=Part. This is imported into the `Standard packaging quantity` value.
PackageUOM	Yes	**UNITS OF MEASURE**	part's default UoM	This value applies only to items where Class=Part. *You must ensure that it's within the same UOM Category as the part's DefaultUOM value.* If the value is empty, then the part's `Default unit of measure` (typically **each**) is assigned as the `Standard packaging quantity` unit of measure selection.
Certify	Yes	*Boolean*	False	This value applies only to items where Class=Part. This value is imported into the record's `Part requires: Certified` checkbox.

Serialize	Yes	*Boolean*	False	This value applies only to items where Class=Part. This value is imported into the record's `Part requires: Serialized` checkbox.
Complies	Yes	*Boolean*	False	This value applies only to items where Class=Part. This value is imported into the record's compliance checkbox (by default, labeled `Meets regulatory requirements`).
Notes	Yes	*string: length ≤ 32000 characters*	no value	This value is assigned to the record's `Notes` page. See note 6.
EffectiveDate	No	*date*	no value	This is used for an assembly's `Effectivity` or a document's `Effective date` value.
Person1	No	**PERSONS**	empty value	This value may not be visible in item record unless the additional person #1 is enabled in the **PART TYPES** or **DOCUMENT TYPES** collection member. See note 2.
Person2	No	**PERSONS**	empty value	This value may not be visible in item record unless the additional person #2 is enabled in the **PART TYPES** or **DOCUMENT TYPES** collection member. See note 2.
Mass	Yes	*double ≥ 0.0*	0.0	This value applies only to items where Class=Part. This is assigned to the `Part mass (weight)` value.
MassUOM	Yes	**UNITS OF MEASURE**: **MASS / WEIGHT**	default member	This value applies only to items where Class=Part. Use the **MASS / WEIGHT** member's `Name` value in this column. If the value is empty, then the record's `Part mass (weight)` unit of measure selection uses the default **MASS / WEIGHT** collection member (typically **g**).
custom (note 5)	Yes	*string*	no value	Custom attribute value that must be compatible with the specified scheme (numeric, Boolean, collection, etc.). If the custom attribute's scheme is a collection (e.g., **COUNTRIES** or **PERSONS**), then the value must exist within the collection.
*custom*_Unit (note 5)	Yes	**collection member**	default unit	Where custom attribute value's scheme is • UOM : unit of measure name (such as **each**), or • Money : 3-character currency code (such as **USD**) Add `_Unit` to show the column's relation to the custom attribute; for example, a custom attribute `Length` will have its unit of measure in the `Length_Unit` column.

Notes:

1. The cell must (a) contain an existing collection member `Name` value; or (b) be a blank value, which will cause the default member to be assigned; or (c) contain a new member that will be added if the related `Create missing collection member(s)` checkbox is marked. If the value fails these tests, the row is not imported.
2. The cell must (a) contain an existing collection member `Name` value; or (b) be a blank value, which will cause a blank (null) value to be assigned; or (c) contain a new member that will be added if the related `Create missing collection member(s)` checkbox is marked. If the value fails these tests, the row is not imported.
3. Matching of collection member names is not case-sensitive.
4. String length limits are provided for guidance, but these limits are not enforced during import. Lengths longer than those specified may be successfully imported but could be difficult to use or may be affected in future releases.
5. Before importing custom attributes, see the Custom attributes help topic for naming and use guidelines.
6. You can import multi-line text in these and other text fields. The import file must be UTF-8 encoded, and use Windows-compatible `CR` `LF` newline pairs. Other software (such as ERP/MRP and Excel) may export LF only, may use other file encoding, or may not allow newlines in the CSV file format. Before importing, inspect text in the CSV file. Check that you do not import newlines in fields that should not have them, such as item Number and Revision fields.

Definitions

Boolean

A logical `True`/`False` or Yes/No value (not case-sensitive). If the value is `True` or `Yes`, then the related checkbox is marked, otherwise the checkbox is cleared.

date

A date value in the local system format, which is derived from the importing computer's Regional and Language settings in the Windows Control Panel. The value must be between `1753-01-01` and `9998-12-31` in the local system date format.

double

A floating-point number, such as `2.5` and `92.5418`, formatted using the importing computer's Regional and Language settings.

string

A series of displayable letter, number and symbol characters, such as `BOLT`. The length of the string `Steel Bolt` is 10 characters. Multi-line text fields can include Windows-compatible **CR** **LF** newline pairs, but not single **LF** and **CR** characters. Avoid non-printing control characters like **NUL**, **TAB**, and most other characters in the range `0x00` to `0x1F`. Characters beyond ANSI/ASCII `0x7F` (such as ANSI Extended alphanumeric and Unicode) can be imported using UTF-8 encoding. However, many of these are difficult to use in text searches, and many software applications cannot import them.

value

The complete contents contained between two CSV delimiters.

Use iteration-level relational files to initialize your database from legacy data sources, such as an MRP database or Excel files. These existing iteration records may have been imported in bulk using the `ItemMaster.csv` file, although they can also be made in the normal course of using PDXpert.

Relational import files add relationships between a parent item's pending iteration and its child items. These relationships are under change control.

Except in the case of file attachments, the import file simply adds a new relationship between existing items; both parent and child items must be in the database. Any number of parent items may be in the import file, and each parent can be related to one or more child items. It's common for some child items to be added to several different parents.

Iteration-level relationships can be added only on a parent item's first pending iteration. After the parent's first pending iteration is released, do not try to import new relationships for that parent item.

Guidelines for importing iteration-level relationships

Before importing your data, [back up your database](#) . The import tool can make major changes to your database, and **can overwrite data on previously-imported items**. You cannot undo the changes it makes; you can only restore your backup database.

Do not try to add or modify an iteration-level relationship after the parent item's first iteration is released. Only item-level data can be updated after an item's first iteration is released.

If you use Excel as your CSV file editor, it may make undesired changes to values that it interprets as a number. For example, part number strings beginning with zero (e.g., `001234`) will often be silently converted to a numeric value (`1234`). If you have any part numbers, document numbers or other data with leading zeroes, don't use Excel. Instead, use a CSV file editor, Windows Notepad, or other **plain text** editor (not Word) to edit your import file.

The `Batch Importer` tool can make an import file `.csv` template. Select the correct `Import Type` template, then click the `Export` button. Most export files contain previously-imported pending data that can be used to confirm that the import is correct.

Import rules

- Parent and child items in these import files are matched according to the identification rule specified in `Tools ➜ System Rules…` Item uniqueness specified by: `Number, Organization, Class, Type` . *Columns not specified by the rule (* `Class` *or* `Type` *) are ignored during matching.*
- Iterations (revision and lifecycle) are always ignored in the matching (in fact, none of the relational import files include columns for specifying iteration values).
- Each parent item's list (BOM items, approved sources, references, file attachments) is a **complete replacement set**. First, the parent item's entire previous list is deleted. Then, the new list is added. If any one row of the parent's set cannot be imported, then the list is not imported.
- Replacement set members are collected for a parent based on the import file's data. Therefore, the set's parent must be identified consistently in the import file: if you explicitly identify the class or type for one row, the same values must be used for all other rows in that parent's set.
- The column names in the first row of the import file (the "header" row) must match the definitions in the help topic. The header names are case-sensitive and must be spelled exactly as shown. Every column with data must have a conforming header. Do not include more than one column with the same header name.
- specified columns may be in any sequence. Extra (undefined) columns in the import file are ignored.
- Every value must conform to the column's specified type (collection member, string, number, etc.) or be empty. For example, a column that requires a numeric value cannot include non-numeric characters.

- Leading and trailing spaces are removed from each data element before it's matched or applied. Other space characters are not affected. For example, the value `  many   spaces  ` becomes `many   spaces`.

This file defines how PDXpert adds parts to their parent assemblies.

Each row in the import file represents a pending parent assembly and a single pending or released child component. The row also specifies values such as the quantity of child item required by the parent. The same child part may be added to more than one row on the parent assembly's BOM list.

> This file is used to add parts to the **first pending iteration** of an assembly. Do not import parts onto any assembly that has a released or canceled iteration.

> For important rules that affect this import, see the Iteration-level relational imports help topic.

> If a pending parent item has an existing list, the parent item's entire previous list is deleted and is completely replaced by the new list.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select List: BOM ⌄ from the dropdown list, click the Export button, and save the file to a convenient location.

> If you want to import a CAD BOM file into an assembly's BOM markup list, see the Import a CAD BOM help topic.

Column name	Data type	Value if empty	Description
Class	string **Part**	**Part**	Must be **Part** or remain empty.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent assembly's specification and which issues the item Number . If not specified, then the home organization is used.
Type	**PART TYPES**	default member	If not specified, then the parent part is matched against the default **PART TYPES** collection member.
Number	string	row is skipped	**REQUIRED**: Part number. If the value is empty, the row is not imported.
ChildClass	string **Part**	**Part**	Must be **Part** or remain empty.
ChildOwner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the child part's specification and which issues the child part Number . If not specified, then the home organization is used.
ChildType	**PART TYPES**	default member	If not specified, then the child part is matched against the default **PART TYPES** collection member.
ChildNumber	string	row is skipped	**REQUIRED**: Part number. If the value is empty, the row is not imported.
Find	integer ≥ 1	last find-item + 1	This value is the Find row identifier. A parent assembly cannot have two rows with the same Find number.
Quantity	double > 0	1.0	This value is the row's Quantity value, and represents the number of child parts required to produce a parent.
Unit	**UNITS OF MEASURE**	default member	If this value is empty, then the part's Default unit of measure is applied. If the value is not empty, and the ☑ Lock part default unit of measure on BOM system rule is • True: the unit must be the part's default UOM.

			■ False: the unit must be in the same UOM Category as the part's default UOM.
RefDes	*string: length ≤ 32000 characters*	no value	This value is used for the child part's `RefDes` ("reference designator") area, and should follow the rules for [reference designators](#) .
Notes	*string: length ≤ 32000 characters*	no value	This value is the `Notes` area.
Per	*string*	**Per Assembly**	Must be **Per Assembly**, **Per Setup**, **As Needed** or remain empty.

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This file defines how PDXpert adds reference items to their parent items.

Each row in the import file represents a pending item—a part or document record—and a single pending or released child reference. The row can also specify a note on how the child item applies to the parent. The same child item may be used on more than one row of the parent's References list.

> This file is used to add items to the **first pending iteration** of a part or a document. Do not import data onto any parent item that has a released or canceled iteration.

> For important rules that affect this import, see the Iteration-level relational imports help topic.

> If a pending parent item has an existing list, the parent item's entire previous list is deleted and is completely replaced by the new list.

> A row is rejected if it contains invalid child items, as specified by the **References Tabs** system rule for its parent item.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select List: References ˅ from the dropdown list, click the Export button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
Class	*string* **Part** *or* **Document**	**Part**	If not specified, then the parent item's Class is a part.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent item's specification and which issues the item Number.
Type	**DOCUMENT TYPES** *or* **PART TYPES**	default member	If not specified, then the appropriate type collection is determined by this parent item's Class, and the default member of the resulting type collection is used to match the record's Type selection.
Number	*string*	row is skipped	**REQUIRED**: Part or document number. If the value is empty, the row is not imported.
ChildClass	*string* **Part** *or* **Document**	**Part**	If not specified, then the child item's Class is a part.
ChildOwner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the child item's specification and which issues the item Number.
ChildType	**DOCUMENT TYPES** *or* **PART TYPES**	default member	If not specified, then the appropriate type collection is determined by the child item's Class, and the default member of the resulting type collection is used to match the record's Type selection.
ChildNumber	*string*	row is skipped	**REQUIRED**: Part or document number. If the value is empty, the row is not imported.
Row	*integer ≥ 0*	last row + 1	This value is given to the Row identifier. A parent item can have several child items with the same Row value. (Do not mix numbered values and empty values on the same parent item.)
Notes	*string: length ≤ 32000 characters*	no value	This value is the reference's Notes area.

This file defines how PDXpert attaches files to document and part records' pending iterations.

Each row in the import file represents an item record with one file that must be imported into the library, and attached to the pending iteration's `Files: Revision Files` list.

> This format imports revision files that are managed under change control.
>
> For historical or background files, use the <u>Item files & links import</u> format.

> This import file is used to add a file to the **first pending iteration** of a part or a document. Do not import a revision file for any item that has a released or canceled iteration.

> For important rules that affect this import, see the <u>Iteration-level relational imports</u> help topic.

> If a pending parent item has an existing revision files list, the parent item's entire previous list is deleted and is completely replaced by the new attachments list.

> Before each new import, ensure there's enough disk space to accept all files in the import list.

> Do not attach multiple files with the same name (including extension) to one item revision.

> Do not import a Windows Link (`.lnk`) file. The real data file is not saved, and the link file doesn't contain information that's useful to other computers.

> Windows has a practical `device:\path\filename.ext` length limit of 260 characters. Verify that deep folder paths and their files are within this limit. To avoid problems when users view or copy revision files from PDXpert to their computers, keep revision filenames under about 80 characters.

> Each new import copies revision files into the `\Data\Library` folder, even if those files were previously imported. *Files that are no longer needed are not automatically deleted from the folder.* Test your import carefully with a small set of data before importing the complete set of files.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select `List: Revision Files ∨` from the dropdown list, click the `Export` button, and save the file to a convenient location. Unlike many other templates, current file data in PDXpert is not included in the exported CSV file (add a **TRANSFORMS** member if you need this list).

Column name	Data type	Value if empty	Description
Class	*string* **Part** *or* **Document**	**Part**	If not specified, then the parent item's `Class` is a part.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent item's specification and which issues the item `Number`.
Type	**DOCUMENT TYPES** or **PART TYPES**	default member	If not specified, then the appropriate type collection is determined by this parent item's `Class`, and the default member of the resulting type collection is used to match the record's `Type` selection.
Number	*string*	row is skipped	**REQUIRED**: Part or document number. If the value is empty, the row is not imported.
RevisionFile	*file: length ≤ 1000 characters*	row is skipped	**REQUIRED**: This is the full file path and name of the imported file, e.g., `C:\MyData\MyFile.txt`. The file is attached to the item's `Files: Revision Files` list. When the file is copied into the system library, its attributes are copied to the file's attachment record.

| | | | If the file does not exist at the specified path, then the file won't be attached. If the file is one of several files related to an item, none of the files will be attached to that item.

It is **highly recommended** that the imported files are located on the same physical machine—that is, not on a network or mapped drive—as the importing PDXpert client. |
| --- | --- | --- | --- |
| **RevisionFileNote** | *string: length ≤ 4000 characters* | no value | This value is imported into the file's `Notes` area. |

1216

This file defines how PDXpert adds approved sources to their part records.

Each row in the import file represents a pending home part and a single approved partner source component, which can be pending or released. The row also specifies values such as the preference rank on the parent.

> This file is used to add source parts to the **first pending iteration** of a purchase part. Do not import parts onto any parent part that has a released or canceled iteration.

> For important rules that affect this import, see the Iteration-level relational imports help topic.

> If a pending parent part has an existing list, the part's entire previous list is deleted and is completely replaced by the new list.

> Do not add the same child part on more than one row on the parent part's Sources: Markup list.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select List: Sources ▾ from the dropdown list, click the Export button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
Class	*string* **Part**	**Part**	Must be **Part** or remain empty.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent part's specification and which issues the item Number . If not specified, then the home organization is used.
Type	**PART TYPES**	default member	If not specified, then the parent part is matched against the default **PART TYPES** collection member.
Number	*string*	row is skipped	**REQUIRED**: Part number. If the value is empty, the row is not imported.
ChildClass	*string* **Part**	**Part**	Must be **Part** or remain empty.
ChildOwner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the child part's specification and which issues the child part Number . If not specified, then the home organization is used.
ChildType	**PART TYPES**	default member	If not specified, then the child part is matched against the default **PART TYPES** collection member.
ChildNumber	*string*	row is skipped	**REQUIRED**: Part number. If the value is empty, the row is not imported.
Rank	*integer ≥ 1*	1	This value is given to the Rank value, and shows the child part's standing relative to other approved sources. A parent part can have several child parts with the same Rank value.
Notes	*string: length ≤ 32000 characters*	no value	This value is the source's Notes area.

Item-level relationships are not under change control. Item-level relational import files can be imported whenever needed.

The import file doesn't make new items, it simply adds a new relationship between existing items. Both parent and child items must be in the database (except in the case of file attachments, where only the parent item is in the database). Any number of parent items may be in the import file, and each parent can be related to one or more child items. It's common for some child items to be used on several different parents.

You can also use item-level relation files to update item files and external links, as well as to keep parts' materials lists current.

Guidelines for importing item-level relationships

> Before importing your data, back up your database . The import tool can make major changes to your database, and **can overwrite data on previously-imported items**. You cannot undo the changes it makes; you can only restore your backup database.

> If you use Excel as your CSV file editor, it may make undesired changes to values that it interprets as a number. For example, part number strings beginning with zero (e.g., `001234`) will often be silently converted to a numeric value (`1234`). If you have any part numbers, document numbers or other data with leading zeroes, don't use Excel. Instead, use a CSV file editor, Windows Notepad, or other **plain text** editor (not Word) to edit your import file.

> The `Batch Importer` tool can make an import file `.csv` template. Select the correct `Import Type` template, then click the `Export` button. The file contains existing item data, to check earlier imports or use for updating existing data.

- Parent and child items in these import files are matched according to the identification rule specified in `Tools ➜ System Rules...` `Item uniqueness specified by:` `Number, Organization, Class, Type` . *Columns not specified by the rule (* `Class` *or* `Type` *) are ignored during matching.*
- Iterations are always ignored in the matching (in fact, none of the relational import files include columns for specifying iteration values).
- **Rows are added cumulatively.** That is, you can import a different row without affecting the current list. If you want to replace an existing materials list, you must explicitly clear the list using the special value specified for that import file.
- The column names in the first row of the import file (the "header" row) must match the definitions in the help topic. The header names are case-sensitive and must be spelled exactly as shown. Every column with data must have a conforming header. Do not include more than one column with the same header name.
- specified columns may be in any sequence. Extra (undefined) columns in the import file are ignored.
- Every value must conform to the column's specified type (collection member, string, number, etc.) or be empty. For example, a column that requires a numeric value cannot include non-numeric characters.
- Leading and trailing spaces are removed from each data element before it's matched or applied. Other space characters are not affected. For example, the value `   many    spaces   ` becomes `many    spaces` .

This file defines how PDXpert attaches item-level files and external links to document and part records.

Each row in the import file represents an item record with

- a file that is imported into the library, and attached to the record's `Files: Item Files` list; or
- an external URI (with protocol such as `http:` or `file:`) that is attached to the record's `Files: Item Files` list.

The import file adds or updates parent-child relationships regardless of the parent item's iteration status (pending, released or canceled).

This format imports historical or background files and web links that are not under change control.

For revision files under change control, use the Revision files import format.

For important rules that affect this import, see the Item-level relational imports help topic.

Rows on the `Files: Item Files` list are added cumulatively. That is, you can import a different row (say, a new website link) without affecting the current list. If you want to replace an existing list, clear the list using the `DELETE-ITEMFILE-LIST` or `DELETE-ITEMLINK-LIST` special values.

Before each new import, ensure there's enough disk space to accept all files in the import list.

Do not attach multiple files with the same name to one item record.

Do not import a Windows Link (`.lnk`) file. The real data file is not saved, and the link file doesn't contain information that's useful to other computers. Use a URI item link if you don't want PDXpert to manage the actual file.

Windows has a practical `device:\path\filename.ext` length limit of 260 characters. Verify that deep folder paths and their files are within this limit. To avoid problems when users view or copy item files from PDXpert to their computers, keep item filenames under about 80 characters.

A new import copies item files into the `\Data\Library` folder. Files that are no longer needed are not automatically deleted from the folder. Test your import carefully with a small set of data before importing the complete set of files.

The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select `List: Item Files and Links ▾` from the dropdown list, click the `Export` button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
Class	*string* **Part** *or* **Document**	**Part**	If not specified, then the parent item's `Class` is assumed to be a part.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent item's specification and which issues the item `Number`. If not specified, then the home organization is used.
Type	**DOCUMENT TYPES** or **PART TYPES**	default member	If not specified, then the appropriate type collection is determined by this parent item's `Class`, and the default member of the resulting type collection is used to match the record's `Type` selection.
Number	*string*	row is skipped	**REQUIRED**: Part or document number. If the value is empty, the row is not imported.
ItemFile	*file: length ≤ 1000 characters*	see note 1	This is the full file path and name of the file, e.g., `C:\MyData\MyFile.txt`, that is copied and attached to the corresponding item's `Files: Item Files` list. As the file is copied into the system library, its attributes are copied to the file's attachment record.

			If the file does not exist at the specified path, then the file is not attached. If the file name is the same as an existing attachment, then the imported file replaces the existing file. The special value `DELETE-ITEMFILE-LIST` removes all item files (but not links) from the item. It is **highly recommended** that the imported files are located on the same physical machine—that is, not on a network or mapped drive—as the importing PDXpert client.
ItemFileNote	*string: length ≤ 4000 characters*	no value	This value is imported into the file's `Notes` area.
ItemLink	*URI: length ≤ 1000 characters*	see note 1	This identifies the location of an external resource ("URI"), such as a supplier website. The URI is added to the parent item's `Files: Item Files` list. Your string should conform to a standard URI scheme, such as `http://` or `file://`. For example, see `http://en.wikipedia.org/wiki/File_URI_scheme#Windows` The importer warns about an invalid URI (such as UNC) but the value is accepted. The resource is not checked that it actually exists. If the URI value is the same as an existing URI, then the URI details (like date) are updated. The special value `DELETE-ITEMLINK-LIST` removes all item links (but not item files) from the item. Be cautious about importing local URIs, such as network file shares, where the path may be renamed or deleted. A resource name resolved using DNS is usually better than a hard-coded IP address.
ItemLinkNote	*string: length ≤ 4000 characters*	no value	This value is imported into the URI's `Notes` area.

Notes:

1. At least one of these two columns must have a value. We recommend importing files and links on separate rows. One data row can import both an item file and item link, but if either value fails then the entire row (both columns) fails.

This file defines how PDXpert materials – that is, chemical substances – are added to existing part records.

Each row in the import file represents an item record with a material name, and possible quantity and notes.

The import file adds, updates or deletes part-material relationships regardless of the parent item's iteration status (pending, released or canceled).

> For important rules that affect this import, see the Item-level relational imports help topic.

> Rows on the Materials list are added cumulatively. That is, you can import a different row (say, a newly-regulated substance) without affecting the current list. If you want to replace an existing materials list, clear the list using the `DELETE-MATERIAL-LIST` special value.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select List: Materials ⌄ from the dropdown list, click the Export button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
Class	*string* **Part**	**Part**	Must be a **Part** or remain empty.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent item's specification and which issues the item Number . If not specified, then the home organization is used.
Type	**PART TYPES**	default member	If not specified, then the part is matched against the default **PART TYPES** collection member.
Number	*string*	row is skipped	**REQUIRED**: Part number. If the value is empty, the row is not imported.
MaterialName	**MATERIALS**	row is skipped	**REQUIRED**: If the value is empty, the row is not imported. The special value `DELETE-MATERIAL-LIST` deletes the materials list from the part. Other rows in the import file can add new materials.
MaterialValue	*double* ≥ 0	0.0	Material's mass quantity or a ratio of material to the total part mass.
MaterialUnit	**UNITS OF MEASURE**	`g` (gram)	If this value is ■ Matched within the UOM category of **MASS** (e.g., `g` or `lbm`), then `MaterialValue` is treated as a mass quantity. ■ Matched within the UOM category of **PROPORTION** (e.g., `%` or `ppm`), then `MaterialValue` mass is calculated using the part's total mass. ■ Empty, then the default mass unit of measure (gram) is applied.
MaterialLocation	*string*	no value	Imported as the material's Location value.

Part mass and imported materials mass

A part's mass is specified on the part's Materials page by the Part mass (weight) value. It can be entered manually or is imported using the Item Master import format values of Mass and MassUOM .

When the materials list is imported, the part's mass is compared to the sum of all materials imported into that part. The imported materials' MaterialUnit says how to use the MaterialValue value:

■ as a **mass** by using a mass unit of measure like g or mg , or
■ as a **proportion** by using a ratio unit of measure like % or ppm , which calculates each imported material's mass from the part's total mass.

Any **UNITS OF MEASURE** collection members in the **Mass / weight** or **Proportion (ratio)** categories can be used as a `MaterialUnit` value.

Part mass (weight) is...	MaterialUnit category	Calculation effect
0 (zero)	Proportion	The material's proportion of part mass can't be calculated, thus the `MaterialValue` is imported as 0.
Equal to the sum of `MaterialValue`	Mass or Proportion	The sum of imported values does not change the part mass, and is 100% of the part mass.
Less than the sum of `MaterialValue`	Mass or Proportion	The part mass is changed to the sum of imported values. If the imported materials list is used to set the part mass, then the part mass should be 0 before importing. If the list of imported materials is incomplete (for example, unregulated materials like water are not imported), then the part's mass in PDXpert is less than the actual part's mass. While each material's mass is correct, the material's proportion of the part is overstated. If the imported materials list is used to set the part mass, then change the part mass back to 0 before importing a replacement materials list.
Greater than the sum of `MaterialValue`	Mass or Proportion	The sum of imported values does not change the part mass. The sum of materials is less than 100% of the part mass. If the part's mass is correct, then each material's mass and proportion is correct, even if some materials (such as unregulated materials) are not included in the materials import list.

This file defines how product families are added to existing document and part records.

Each row in the import file represents an item record with a product family name.

The import file adds, updates or deletes item-product family relationships regardless of the parent item's iteration status (pending, released or canceled).

> For important rules that affect this import, see the Item-level relational imports help topic.

> Rows on the Product Families list are added cumulatively. That is, you can import a different row without affecting the current list. If you want to replace an existing list, clear the list using the `DELETE-PRODUCT-FAMILY-LIST` special value and then import the new list.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select List: Product Families ∨ from the dropdown list, click the Export button, and save the file to a convenient location. The exported template includes all items and their product families, if any.

Column name	Data type	Value if empty	Description
Class	*string* **Part** *or* **Document**	**Part**	If not specified, then the parent item's `Class` is assumed to be a part.
Owner	**ORGANIZATIONS**	home organization	Identifies the organization that is primarily responsible for the parent item's specification and which issues the item `Number`. If not specified, then the home organization is used.
Type	**PART TYPES**	default member	If not specified, then the part is matched against the default **PART TYPES** collection member.
Number	*string*	row is skipped	**REQUIRED**: Part number. If the value is empty, the row is not imported.
ProductFamily	**PRODUCT FAMILIES**	row is skipped	**REQUIRED**: If the value is empty, the row is not imported. The special value `DELETE-PRODUCT-FAMILY-LIST` deletes the `Product families` list from the part. Other rows in the import file can add new product families to the empty list.

1222

This file defines how to add new members of the **GROUPS** collection , and add existing members of the **PERSONS** collection to the group.

The import file cannot delete a group, or remove or replace a person in the group.

The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select `Collection: Groups ∨` from the dropdown list, click the `Export` button, and save the file.

Column name	Data type	Value if empty	Description
Name	*string*	row is skipped	**REQUIRED**: Group name. If the value is empty, the row is not imported. If the `Name` value cannot be matched to an existing collection member, then a new collection member is added; otherwise, the matching collection member's properties are updated.
Description	*string*	no value	Description of group's function or responsibility. A group's rows are collected into a set, so only one description is applied per import. Delete this column from the import file if you don't want the description changed.
Person	**PERSONS** member	no value	If specified, then the text is matched against members of the **PERSONS** collection. If the value is empty, then no person is added. If the person is specified but cannot be matched, then the row is not imported.

1220

Materials collection import

The import file adds or updates **MATERIALS** collection members. Existing database records that link to an updated collection member show the updated information.

Each row in the import file represents one material record with name and regulatory details.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select `Collection: Materials ∨` from the dropdown list, click the `Export` button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
Name	*string*	row is skipped	**REQUIRED**: This is the common or CAS-approved name of the material. If the value is empty, the row is not imported. If the `Name` value cannot be matched to an existing collection member, then a new collection member is added; otherwise, the matching collection member's properties are updated.
Description	*string*	no value	Descriptive information or notes about the material.
CASNumber	*string*	no value	The Chemical Abstracts Service (CAS) registry number uniquely identifies the imported material.
DeclarationCategory	*string* **A**, **B**, *or* **N**	**N**	This categorizes the material's disclosure requirement as **Level A**, **Level B**, or **None**. See the Materials collection help topic for interpretation.
Threshold	*double ≥ 0*	0.0	This number represents the value that triggers reporting of the material. If the imported value is negative, it is set to 0.
ThresholdUOM	**UNITS OF MEASURE**: **PROPORTION (RATIO)**	default member	Use a **PROPORTION** member's complete `Name` value—such as **%**, **ppm**, **ppb**—in this column. If the value is empty, then the default **PROPORTION** member is used.
MaterialCategory	**MATERIAL CATEGORIES**	default member	The material's category. Use a **MATERIAL CATEGORIES** member's `Name` value in this column. If the value is empty, then the default collection member is used.

1221

The import file adds or updates the **ORGANIZATIONS** collection members. Existing database records that link to an updated collection member show the updated information.

Each row in the import file represents one organization record with name, contact details and classifications.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select `Collection: Organizations ∨` from the dropdown list, click the `Export` button, and save the file to a convenient location.

> If your data doesn't have `DisplayName` values, leave the value empty to let the importer create the first set. If you want to improve on the calculated values, export the collection members, edit any of the calculated values, and import the updated file with the final values.

Column name	Data type	Value if empty	Description
Name	*string*	row is skipped	**REQUIRED**: This is the name of the company, agency or other organization. If the value is empty, the row is not imported. If the Name value cannot be matched to a collection member, then a new collection member is added; otherwise, the matching collection member's properties are updated.
DisplayName	*string*	up to 10 characters	Organization's abbreviation or acronym. When empty, an abbreviation is calculated from the Name value.
DUNS	*string*	no value	Dun & Bradstreet D-U-N-S nine-digit identification identifier.
DUNS4	*string*	no value	D&B issues a 13-digit (9+4) value that identifies the organization and its geographic location.
Language	**LANGUAGES**	default member	The organization's preferred language for communications. Use the **LANGUAGES** member's `Name` value in this column. If the value is empty, then the default collection member (e.g., **English**) is used as the record's selection.
PartnerClassification	**PARTNER CLASSIFICATIONS**	default member	The organization's relationship to your own organization. Use the **PARTNER CLASSIFICATIONS** member's `Name` value in this column. If the value is empty, then the default collection member (e.g., **Manufacturer**) is used as the record's selection.
CurrencyShort	**CURRENCIES**	default member	This is the organization's preferred currency. Use the **CURRENCIES** member's `Currency code` value in this column. If the value is empty, then the default collection member (e.g., **USD**) is used as the record's selection.
URL	*string*	no value	The organization's home page or intranet page.
POBox	*string*	no value	Post office box number.
Street	*string*	no value	Physical street address.
City	*string*	no value	City.
Region	*string*	no value	State, province or similar area.
PostalCode	*string*	no value	ZIP, PIN or similar post code. See note 1.
Country	**COUNTRIES**	default member	Use the **COUNTRIES** collection member's `Name` value in this column. If the value is empty, then the default collection member (e.g., **United States of America**) is used as the record's selection.

EmailPrimary	*string*	no value	Primary email address (email 1).
EmailSecondary	*string*	no value	Secondary email address or IM/chat identifier (email 2).
PhoneMain	*string*	no value	Main office phone number (phone 1).
PhoneFax	*string*	no value	Facsimile phone number (phone 2).
PhoneAlternate	*string*	no value	Alternate/mobile phone number (phone 3).
PhoneEmergency	*string*	no value	Emergency/pager phone number (phone 4).
Notes	*string*	no value	Miscellaneous information.

Notes:

1. Do not update this value for the home (default) organization. It is specified in the software license key. Differences during import may disable your license. Use the Tools ➜ Software License Key... menu to import a new license with the correct postal code.

This file defines how to add new members of the **PRODUCT FAMILIES** collection , and add existing members of the **PERSONS** collection to the Product Team.

The import file cannot delete a product family, or remove or replace a person in the Product Team.

> Rows on the Product Team list are added cumulatively. That is, you can import a different row without affecting the current list. If you want to replace an existing list, clear the list using the `DELETE-PERSON-LIST` special value and then import the new list.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select Collection: Product Families ⌄ from the dropdown list, click the Export button, and save the file.

Column name	Data type	Value if empty	Description
Name	*string*	row is skipped	**REQUIRED**: Product family name. If the value is empty, the row is not imported. If the Name value cannot be matched to an existing collection member, then a new collection member is added; otherwise, the matching collection member's properties are updated.
Description	*string*	no value	Description of product family's function or responsibility. A product family's rows are imported one row after the next, so only the final description is applied (including empty descriptions). Delete this column from the import file if you don't want the description changed while working with the Product Team list.
TeamPerson	**PERSONS** member	no value	If specified, then the text is matched against members of the **PERSONS** collection. If the value is empty, then no person is added. If the person is specified but cannot be matched, then the row is not imported. The special value `DELETE-PERSON-LIST` deletes the Product Team persons from the product family. Other rows in the import file can add new persons to the empty list.

The import file adds or updates the **PERSONS** collection members. Existing database records that link to an updated collection member show the updated information.

Each row in the import file represents one person, with their name and contact details. A row may include optional information for adding a user account for the person. A person's user account cannot be updated or deleted using this import file.

The person record is always added before the user account. If the person import fails, then the account cannot be added. An import failure is counted if either the person or the user account, or both, cannot be added.

> The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select
> Collection: Persons ∨ from the dropdown list, click the Export button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
Name	*string*	row is skipped	**REQUIRED**: This is the full name of the person. If the value is empty, the row is not imported. If the `Name` value cannot be matched to an existing collection member, then a new collection member is added; otherwise, the matching collection member's properties are updated.
JobTitle	*string*	no value	The person's job function
Organization	**ORGANIZATIONS**	default (home) member	The person's organization or affiliation. Use the **ORGANIZATIONS** member's `Name` value in this column. If the value is empty, then the home organization is assigned.
EmployeeID	*string*	no value	The person's employee number (do not use any identifier that should remain private).
Supervisor	**PERSONS**	no value	This is the person's manager, which may be useful for preferred currency. Use the **PERSONS** member's complete `Name` value in this column. If the value is empty, then no value is used.
StartDate	*date*	record import date	The date when a person joined the organization, or first had access to PDXpert.
EndDate	*date*	no value	The date when a person left the organization, or last had access to PDXpert.
POBox	*string*	no value	Post office box number.
Street	*string*	no value	Physical street address.
City	*string*	no value	City.
Region	*string*	no value	State, province or similar area.
PostalCode	*string*	no value	ZIP, PIN or similar post code.
Country	**COUNTRIES**	default member	Use the **COUNTRIES** collection member's `Name` value in this column. If the value is empty, then the default collection member (e.g., **United States of America**) is assigned.
EmailPrimary	*string*	no value	Primary email address (email 1).
EmailSecondary	*string*	no value	Secondary email address or IM/chat identifier (email 2).
PhoneMain	*string*	no value	Main office phone number (phone 1).
PhoneFax	*string*	no value	Facsimile phone number (phone 2).

PhoneAlternate	*string*	no value	Alternate/mobile phone number (phone 3).
PhoneEmergency	*string*	no value	Emergency/pager phone number (phone 4).
Access	*string* **FF** *or* **RO**	no value	The user account is added if: ■ the **PERSONS** collection member does not have a user account; and ■ there are available user accounts remaining on the license; and ■ the access value is specified as **FF** or **RO**.
Role	**ROLES**	default member	Use the **ROLES** collection member's `Name` value in this column. If the value is empty, then the default collection member (e.g., **Normal user**) is used.
AccountName	*string*	no value	If the value is empty or has been given to a different user account, then the user account is not added.
Password	*string*	no value	If the value is empty, the new user account has a blank (empty) password.

Custom collection import

The import file adds or updates custom collection members. Existing database records that link to an updated collection member show the updated information.

Each row in the import file represents a custom collection member record that's added to an existing custom collection.

The Batch Importer tool can generate a CSV template file, which can be used to import your data. Select Collection: Custom Members ⌄ from the dropdown list, click the Export button, and save the file to a convenient location.

Column name	Data type	Value if empty	Description
CollectionName	*string*	row is skipped	**REQUIRED**: If the value is empty or the Custom collection does not exist, then the row is not imported. Otherwise, this row is matched to an existing custom collection.
Name	*string*	row is skipped	**REQUIRED**: If the value is empty, the row is not imported. If the collection member exists, then the collection member's Abbreviation and Description fields are updated. Otherwise, a new member is added. See note 1.
Abbreviation	*string*	no value	This value is imported into the collection member's Abbreviation field.
Description	*string*	no value	This value is imported into the collection member's Description field.

Notes:
1. If the custom collection has no members, then the first data row in the import file is used as the default member of the collection. This can be edited after the import.

The PDXpert database includes a set of read-only views that contain part, document and change form records. You can use these views as the basis for **Transforms** and, via an Open Database Connectivity ("ODBC") client, extract data for part lookup, reporting and other applications.

There are 3 kinds of read-only views within PDXpert:

- **Public views** are built into the PDXpert database. They can provide data to ODBC clients, SQL Server client applications, Transforms, or user-specified views.
  Changes to the PDXpert database attempt to keep public views as stable as practical, minimizing rework to your queries after an upgrade.
  The `viewer` schema contains the most recent pending and released items. If both pending and released relationships exist, the pending relationship is shown. These views are used primarily for item-level look-up data for CAD and for client-side local database queries.
  Public views always end with the characters `…View` (such as `ItemView`). Within the view's name, `…Pair…` is a parent-child (for example, assembly-component) view. `…Master…` views include each item's custom attributes.
  An ODBC client using a public view directly must
  - handle all data types/sizes in the table; or
  - SELECT only those columns that contain data types that it can handle.
  Otherwise, the ODBC client application must extract compatible data from a public view via a user-specified view.
- **User-specified views** ("UDV") can be added to the PDXpert database using the **Views** collection, in the Collection Explorer's `General` group. UDVs select data from public views and other user-specified views to support CAD applications on the PDXpert client computer. A UDV can exclude columns, filter data, perform calculations, reformat data and `CAST()` data types to other more convenient types. User-specified views are always contained in the `viewer` schema, and begin with the characters `My…`; for example, `viewer.MyReleasedParts`.
  A UDV selects data from a limited set of public views (`viewer.ItemView`, `viewer.ItemMasterView`, `viewer.SourceItemMasterView`, and `viewer.FilePairMasterView`) that are created on the client. The UDV query `SELECT` statement must conform to SQLite or SQL Server syntax, depending on the option chosen in the User Settings: Enable local views option.
- **Private views** are written to support internal requirements of the PDXpert application, and normally used only for advanced queries. These views may be modified or deleted when upgrading to a new PDXpert release; queries using these should be tested and updated after an upgrade. Private views are always contained in SQL Server's default `dbo` schema, and end with the characters `…_View`; for instance, `dbo.Item_View` or just `Item_View`.

Client-side and server-side connections

Product data is contained in the server machine's Microsoft SQL Server database, and a subset can be copied to the SQLite or SQL LocalDB database on the client workstation. Client-side views are designed for fast and secure CAD part lookup. More powerful and flexible server-side views are useful for general reporting and data extraction to downstream systems, such as ERP/MRP. See the Make an ODBC connection help topic.

Effect of PDXpert upgrades

Do not add your own views, tables, functions or other objects to the PDXpert (`PDXpertDB`) database. Views are often deleted and rebuilt during an upgrade, and PDXpert will not know how to rebuild your views. Unknown objects may interfere with normal operations or damage your data. Use a separate database to contain your own database objects.

Public views typically remain stable from one release to the next. Revisions to public views are given in the upgrade's release notes.

User-specified views contained in the PDXpert **Views** collection are retained during upgrades. After upgrading to a new PDXpert release, test (and, if needed, update) user-specified views.

An Open Database Connectivity ("ODBC") driver enables compatible third-party software – CAD, MRP, reporting tools, office applications – to read data from PDXpert's database using industry-standard database queries.

> Many ODBC client applications, such as Microsoft Access, will have their own connection instructions or wizard. Look for a "connect to external data" or similar command.

> The most recent Microsoft ODBC Driver for SQL Server is preferred for all new development. Microsoft is deprecating the SQL Server OLE DB provider and the SQL Server Native Client for Windows.

ODBC connection options

Connecting to client-side SQLite or SQL LocalDB
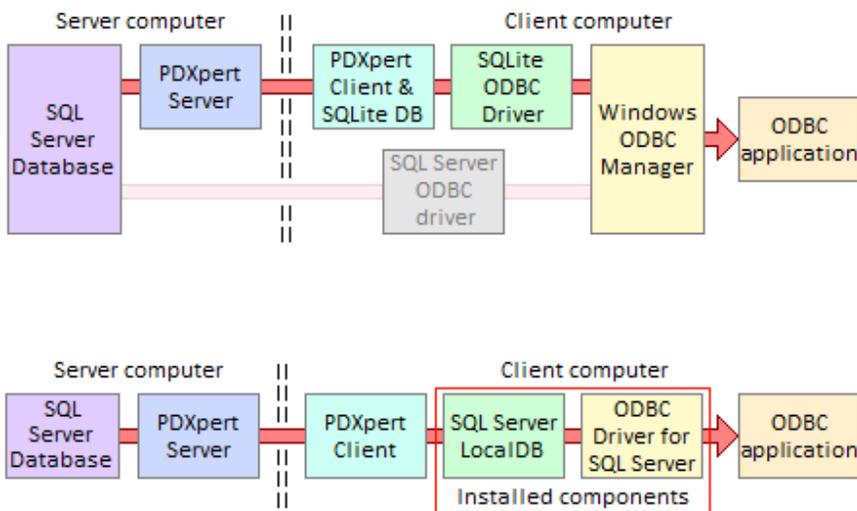
Advantages of using SQLite or SQL LocalDB on the client workstation:

- Some data is materialized locally to increase query performance.
- Data obtained from local views has no network delay.
- Even when the workstation is disconnected, the local database provides static snapshot of previous part data.
- The server-side SQL Server can be completely firewalled from the network.

When you enable local views, the SQLite database is automatically installed. However, SQL Server LocalDB is recommended because queries are compatible with, and can be tested on, the server instance. If you prefer to use SQL Server LocalDB, then you must install it as given in the PDXpert Installation Guide on-line: search the web for PDXpert LocalDB client

Connecting to server-side SQL Server

> This is the recommended connection to the PDXpert database instance.
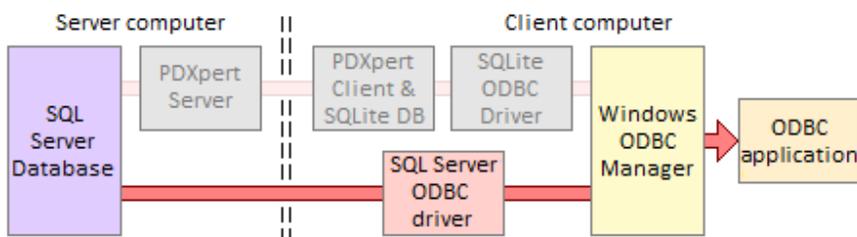
Advantages of using SQL Server on the server computer:

- SQL Server can manage concurrent queries.
- Data obtained from the server is immediately available, and has no refresh delay.
- Any public view (not just the CAD-related basic subset) can be used in queries.
- Queries can use SQL Server's full range of built-in data manipulation functions.
- Table column names are somewhat more flexible for Custom Attribute names.
- The local workstation doesn't require the PDXpert client to update its data.
- SQL Server offers powerful development tools with better documentation, support and complementary products.
- The PDXpert client starts faster because there's no client-side data to download.

If your PDXpert system uses SQL Server LocalDB, then you must upgrade to SQL Server Express (or higher) and open firewall ports to access the database from client workstations.

Using client-side local views with SQLite ODBC driver

> SQL Server LocalDB is a different client-side database option. It may be used where SQL Server compatibility, multi-session access and performance are important. LocalDB supports some CAD applications that don't access SQLite as a shared resource. See the PDXpert Installation Guide on-line (search the web for `PDXpert LocalDB client`).

The PDXpert client can enable a subset of public views and user-specified views for use with CAD or other local applications. These local views are contained in a SQLite database that PDXpert makes when the ☑ Enable local views: Using SQLite database user setting is marked.

SQLite ODBC driver setup

The following example procedure uses a free open source SQLite3 driver. If you use a commercial SQLite ODBC driver, follow the supplier's installation and DSN configuration procedure instead.

1. Enable the `PDXpert.db` database file on the client workstation.
   A. Open the PDXpert client application.
   B. From the Tools menu, select the User Settings... command.
   C. On the User Settings tool, mark ☑ Enable local views with the Using SQLite database option. Save the setting: Item ➔ Save , or Ctrl + S .

   > The ☑ Enable local views option is available only when the current user has been given a ROLES collection member that includes the ☑ Allow local views on user computer permission. If local views are not enabled, then the client machine's local views database is not made or, if made before, is no longer refreshed.

2. The SQLite3 ODBC driver is available at `http://www.ch-werner.de/sqliteodbc/` . When connecting 64-bit CAD tools, install the 64-bit version of the driver. When connecting 32-bit tools, install the 32-bit version.
3. Click on the Windows Start menu and select the Control Panel , and then select Administrative Tools . Open the Data Sources (ODBC) tool.
4. On the ODBC Data Source Administrator window, select the User DSN tab, and click the Add... button. The Create New Data Source window opens.
5. From the list of drivers, select the SQLite3 ODBC Driver . Click the Finish button.
6. On the SQLite3 ODBC DSN Configuration window, do the following:
   - Enter a Data Source Name : PDXpertSQLite3 .
   - Click the Browse... button, navigate to the `%LocalAppData%\PDXpert` folder (similar to `C:\Users\user\AppData\Local\PDXpert`), and select the `PDXpert.db` file.
   - Enter a Lock Timeout [ms] : 10000 (10 seconds).
   - Select from Sync.Mode : NORMAL ⌄ .

   Click the OK button to close the DSN configuration window.
   Click the OK button to close the ODBC Data Source Administrator window.

Developing a SQLite ODBC query

The `PDXpert.db` database has data objects in three categories:

- A set of public views that your ODBC client can query directly. These end with `…View` (for example, `ItemView`).
- Client user-specified views that are saved as members of the PDXpert **VIEWS** collection. These begin with `My…` (for example, `MyReleasedParts`). Although all **VIEWS** collection members are shown, your ODBC client can query SQLite views only using SQLite-compatible syntax.

  > See view naming tips and query limitations in the [Views collection](#) help topic.

- Private views are prefixed as `_Private` . **Do not query these tables**, as their design can change.

Develop queries for your ODBC client application using a SQLite development tool. Search the web for `SQLite manager` or similar, and install your preferred tool.

> Example: *DB Browser for SQLite* at `http://sqlitebrowser.org`

Using instructions from your installed development tool, select the `PDXpertSQLite3` data source to access the `PDXpert.db` database. This is usually done using the `Select Data Source` window and clicking on the `Machine Data Source` list. The `PDXpert.db` database is located in the `%LocalAppData%\PDXpert` folder. It does not require user name or password.

> Do not add new or delete tables or views in the `PDXpert.db` database. Use only `SELECT` statements; do not update or delete any data contained in the database.

Using a SQLite ODBC query with your ODBC client application

Using instructions from your installed ODBC client, select the `PDXpertSQLite3` data source to access the `PDXpert.db` database. This is usually done using the `Select Data Source` window and clicking on the `Machine Data Source` list. The `PDXpert.db` database is located in the `%LocalAppData%\PDXpert` folder. It does not require user name or password.

After the queries are developed, add a new **VIEWS** collection member with the desired SQL statement. Your ODBC client obtains the desired data from the named view.

Using the server-side SQL Server with Microsoft's ODBC driver

> If your PDXpert system uses the SQL Server LocalDB database, you must replace it with SQL Server Express (or higher) to allow connections from network computers. After this install, use the PDXpert Application Server's `Change Database Server` button to move the database from SQL Server LocalDB into the new SQL Server instance.

> Microsoft often changes the ODBC driver; for current information, search the web for `Microsoft ODBC Driver for SQL Server on Windows` . Some ODBC drivers will show or hide the schema (such as `dbo` and `viewer`), which may affect your client application. Your ODBC client application may have different requirements, and you should follow those instructions instead.

> If SQL Server is installed on a network computer, you may also need to:
> - Use the SQL Server Configuration Manager application to enable the Named Pipes and TCP/IP protocols within `SQL Native Client Configuration` + `Client Protocols` , and `SQL Server Network Configuration` + `Protocols for PDXPERT` . Microsoft SQL Server must be restarted before the changes will take effect.
> - Make sure that the firewalls and/or antivirus on both server and network computers allow communication to the SQL Server TCP port. Seach the web for Microsoft's help topic `Configure the Windows Firewall to Allow SQL Server Access`

SQL Server ODBC driver: Initial setup

This example makes a database source name (`.dsn`) file.

1. Click on the Windows `Start` menu and select the `Control Panel` , and then select `Administrative Tools` . Open the `Data Sources (ODBC)` tool.

2. On the ODBC Data Source Administrator window, select the File DSN tab, and click the Add... button. The Create New Data Source window opens.

3. From the list of drivers, select the most recent version of ODBC Driver for SQL Server driver. Click the Next button.

4. Provide a new file name, such as PDXpertSQLViewer , and ensure that you know where the file will be saved. Click the Next button.

5. After you confirm the summary, click the Finish button. The basic file is saved, and a new page accepts more details.

6. Enter a Description (such as PDXpert SQL viewer data source). In the Server location, enter the fully-qualified server machine name and SQL Server instance name, such as PLMSERVER\PDXPERT . Click the Next button.

7. Select the With SQL Server authentication option to make sure that SQL Server examines the log-in ID. Apply the appropriate log-in ID and Password values, and click the Next button.

> Use the default log-in name PDXpertViewer and password By2Go4Me8 unless you've added a different account or changed the password. You can manage log-in accounts using Microsoft's SQL Server Management Studio.

8. Mark the checkbox to set the default database to PDXpertDB . Click the Next button.

9. If you want to encrypt the data, mark the ☑ Use strong encryption for data checkbox and, depending on your server configuration, the ☑ Trust server certificate checkbox. If you're on a trusted network, clear both checkboxes to avoid certificate errors. Click the Finish button.

10. Click the Test Data Source... button to make sure that your connectivity settings are correct. You should see the message TESTS COMPLETED SUCCESSFULLY!

> If you have errors making the connection, examine your Microsoft SQL Server configuration, firewall and antivirus settings, and ODBC client application's connection procedure. (See the next section to add a port number to the DSN file.) ODBC clients must account for differences in 32b/64b applications and operating systems. Microsoft offers extensive help on the web. For example: *Microsoft ODBC Driver for SQL Server*
> https://docs.microsoft.com/en-us/sql/connect/odbc/microsoft-odbc-driver-for-sql-server . At the time of writing, Microsoft offers a wizard for *Solving connectivity errors to SQL Server*
> https://support.microsoft.com/en-us/help/4009936/solving-connectivity-errors-to-sql-server

SQL Server ODBC driver: Final settings

The .dsn file is a simple text file containing the connection information. It can be viewed and edited by Windows Notepad or similar text editor. This example includes the PWD= argument to simplify log-in.

```
[ODBC]
DRIVER=ODBC Driver XX for SQL Server
UID=PDXpertViewer
PWD=By2Go4Me8
SERVER=PLMSERVER\PDXPERT
DATABASE=PDXpertDB
WSID=PLMCLIENT
APP=Microsoft® Windows® Operating System
DESCRIPTION=PDXpert SQL viewer data source
```

If your SQL Server is listening on a port other than the default port, then the SQL Server log file will show the port number:

```
07/18/2019 12:34:56,Server,Unknown,Server is listening on [ 'any' <ipv4> 16361].
```

Add the address parameters to the DSN file using the server's IP address or machine name (ADDRESS=server,port):

```
ADDRESS=10.1.1.1,16361
ADDRESS=PLMSERVER,16361
```

Using SQL Server Management Studio

SQL Server Management Studio can be used to develop views which, after testing, can be saved as members of the VIEWS collection.

SQL Server Management Studio is both powerful and potentially dangerous to your PDXpert database. The complete set of undocumented PDXpert database tables and private views may be visible. These private objects, which use the default Database Owner (dbo) database schema, are compiler-generated and may change from one release to the next.

Use only `SELECT` commands, and only objects within the `viewer` and `released` database schemas. Only very experienced SQL developers should consider updating or deleting data in the PDXpert PLM database.

Do not add your own table, view, stored procedure, or other resource directly into the PDXpertDB database. A PDXpert system upgrade deletes unknown objects before rebuilding public views and members of the **VIEWS** collection. Make a separate database to hold your own objects.

When writing SQL code, query views, not tables.

PDXpert PLM database objects may change after an upgrade. Where possible, base your queries on public views and user-specified views.

PDXpert's documented public views, as well as members of the **VIEWS** collection, are within the safe `viewer` database schema, such as `PDXpertDB.viewer.ItemView` or `PDXpertDB.viewer.MyReleasedParts`.

The default public views log-in name is `PDXpertViewer` and password is `By2Go4Me8`, unless you add a different account or change the password. You can manage log-in accounts using Microsoft's SQL Server Management Studio.

The `ItemView` contains all part and document records with standard item attributes. The `ItemMasterView` contains all columns of the `ItemView` plus all custom attributes. These views are available in both the `viewer` and the `released` schemas.

A basic SQL statement is `SELECT * FROM ItemView`

The `Class` column is coded: the value `1` specifies that the item is a part, while the value `2` shows that it's a document. For example:

```
SELECT ClassName = CASE Class WHEN 1 THEN 'Part' WHEN 2 THEN 'Document' ELSE 'Unknown' END FROM ItemView
```

All dates are shown using SQL Server's default format. If you need a different format, such as ISO 8601, then a conversion is required. For example:

```
SELECT convert(varchar(23),CostDate,126) AS IsoCostDate FROM ItemView
```

Booleans ("checkbox values") are zero or non-zero integers. A value `=0` is **false** while value `<>0` is **true**. Null values are possible. For example:

```
SELECT
  CASE
    WHEN [Complies]<>0 THEN 'Pass'
    WHEN [Complies]=0 THEN 'Fail'
    ELSE 'Unknown'
    END AS CompliesState
FROM viewer.ItemView
```

You can use the `IsCanceled` , `Revision` and `PendingRevision` values in the `viewer` schema to obtain insight into the item's current release state.

Release state	IsCanceled	Revision	PendingRevision
Pending	false	null	not null
Released	false	not null	null
Released (with Pending)	false	not null	not null
Canceled	true	not null	null
Canceled (with Pending)	true	not null	not null

> Both of these views are also contained in the local views database. Client-side ODBC applications can select from these views and from SQLite-compatible **VIEWS** collection members based on these views.

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be changed or eliminated in a future PDXpert release. These columns are not documented, and you should ignore them in your SQL queries. Do not add any custom attributes that use the `HK` prefix. You may want to make a user-specified view that excludes the housekeeping columns.

> The column sequence may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

Column name	Note	Data type	Attribute name

ItemId		*GUID (item primary key)*	*unique record identifier; not visible within PDXpert client*
Class		*integer* 1 (part) *or* 2 (document)	item Class
Owner		**ORGANIZATIONS** Name	item Owner
OwnerShort		**ORGANIZATIONS** Display name	item Owner
IsHomeItem	1	*Boolean*	*calculated; not visible within PDXpert client*
Type		**DOCUMENT TYPES** or **PART TYPES** Name	item Type
TypeShort		**DOCUMENT TYPES** or **PART TYPES** Abbreviation	item Type
Number		*string*	item Number
RevID	2	*GUID (iteration primary key)*	*unique released (or canceled) record identifier; not visible within PDXpert client*
IsCanceled		*Boolean*	released iteration has been canceled *not visible within PDXpert client*
Revision	2	*string*	released (or canceled) iteration's Revision
RevisionNote	2	*string*	released (or canceled) iteration's Revision description
PendingRevID		*GUID (revision primary key)*	*unique pending record identifier; not visible within PDXpert client*
PendingRevision		*string*	pending iteration's Revision value
PendingLifecycle		**ITEM LIFECYCLE PHASES** Name	pending iteration's Lifecycle phase
PendingRelativeMaturity		**ITEM LIFECYCLE PHASES** Relative maturity *integer*	pending iteration's Lifecycle phase maturity value
PendingRevisionNote		*string*	pending iteration's Revision description
ReleasedOn		*date*	released iteration Released date
EffectiveOn		*date*	released iteration Effective date (document) or Effectivity (assembly)
Description		*string*	item Document title or Part name
Lifecycle	2	**ITEM LIFECYCLE PHASES** Name	released iteration's Lifecycle phase
RelativeMaturity	2	**ITEM LIFECYCLE PHASES** Relative maturity *integer*	released iteration's Lifecycle phase maturity value
Version	2	*string*	released iteration Version
Trustee		**PERSONS** Name	item Trustee
DefaultUoM	3	**UNITS OF MEASURE** Name	part Default unit of measure
MakeBuy	3	**MAKE/BUY CATEGORIES** Name	part Make/buy
GlobalNumber	3	*string*	part Global number (GTIN, UPC, etc.)
Location	3	*string*	part Location

Handling	3	HANDLING/STORAGE CATEGORIES Name	part Handling/storage advisory
Recovery	3	RECOVERY METHODS Name	part End of life recovery method
CostPerUnit	3	*real number*	part Unit cost per default unit value
CostCurrencyShort	3	CURRENCIES Code	part Unit cost per default unit : Currency
CostDate	3	*date*	part Unit cost per default unit : As on
PackageQty	3	*integer*	part Standard packaging quantity value
PackageUOM	3	UNIT OF MEASURES Name	part Standard packaging quantity units
Certify	3	*Boolean*	part Part requires: Certification
Serialize	3	*Boolean*	part Part requires: Serialization
Complies	3	*Boolean*	part Meets regulatory requirements
Notes		*string*	item Notes
ProductFamily		*string*	semicolon-delimited list of item Product families
Mass	3	*double*	part Part mass (weight) value
MassUOM	3	MASS / WEIGHT Name	part Part mass (weight) unit of measure
custom	4	*string*	custom attribute text or numeric value
***custom*_Member**	4	**collection member** Name	custom attribute value's UOM or currency units, or other collection member

Notes:

1. A *True* value represents a home part or document; a *False* value is a partner item. This value will never be NULL.
2. If the item has neither a released nor canceled iteration, then the iteration-related value (e.g., `RevID`) is null.
3. Document rows (that is, where `Class` is 2) are NULL for part attributes.
4. These columns are included in the ItemMasterView, and are not in the ItemView. Custom attribute ("CA") names are shown in value/unit columns; the name is used in the column header. All identically-named CAs are shown in the same column, regardless of item type. Where a custom attribute name conflicts with a system reserved attribute name (such as `Number` or `Type`) then your custom attribute name is shown with a leading underscore (`_Number` or `_Type`). See the <u>Custom attributes</u> help topic for naming guidelines. If a custom attribute name is longer than 120 characters, it is truncated. Custom attribute values are NULL if the item hasn't been assigned the custom attribute.

The `ReferencePairView` and `ReferencePairMasterView` are parent-child lists of items and their reference items. The view is a side-by-side set of the parent item attributes; a single child item's attributes; and the parent-child relation attributes of row number and notes. The parent part or document may have zero, one, or many child reference records.

The `ReferencePairView` is derived from the `ItemView` list of items, and excludes custom attributes from the parent and child items. The `ReferencePairMasterView` is derived from the `ItemMasterView` list of items, and includes custom attributes.

When a parent item has a pending iteration (that is, the `PendingRevID` is not null), then its **markup** row numbers, items, and notes are displayed. When a parent item has **only** a released iteration (`RevID` is not null, `IsCanceled` is false, and the `PendingRevID` is null), then it displays each current released child iteration (`Revision_Child` , `Lifecycle_Child` , etc.) with row numbers and notes. If a child item has a pending iteration, that's shown in separate columns (`PendingRevision_Child` , `PendingLifecycle_Child` , etc.) but is not yet assigned to the parent's current configuration. A query that requires the current released parent must test that the parent `PendingRevID` is null and `IsCanceled` is false.

The basic SQL statement is `SELECT * FROM ReferencePairView`

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release without notice. These are not documented, and you should ignore these columns in your own SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

> The column ordering may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

ReferencePairView

Column name	Data type	Record attribute
ItemId ... Notes	see: [ItemView columns](#)	parent item standard attributes
ItemId_Child ... Notes_Child	see: [ItemView columns](#)	child item standard attributes
Row	*integer*	reference `Row` number
RowNotes	*string*	reference row `Notes`

ReferencePairMasterView

Column name	Data type	Record attribute
ItemId ... *custom*_Member	see: [ItemMasterView columns](#)	parent item standard and custom attributes
ItemId_Child ... *custom*_Member_Child	see: [ItemMasterView columns](#)	child item standard and custom attributes
Row	*integer*	reference `Row` number
RowNotes	*string*	reference row `Notes`

The `SourcePairView` and `SourcePairMasterView` are parent-child lists of all items. A parent may have zero or more source child records. If a source child exists, the child's item attributes, preference rank and notes are included in the row; otherwise, these values are null.

The `SourcePairView` is derived from the `ItemView` list of items, and excludes custom attributes from the parent and child items. The `SourcePairMasterView` is derived from the `ItemMasterView` list of items, and includes custom attributes.

When a parent part has a pending iteration (that is, the `PendingRevID` is not null), then it displays the **markup** rank, items, and notes. When a parent part has **only** a released iteration (the `PendingRevID` is null, `RevID` is not null, and `IsCanceled` is false), then it displays the **current** released child iteration (`Revision_Child` , `Lifecycle_Child` , etc.) with rank and notes. If a child part has a pending iteration, that's shown in separate columns (`PendingRevision_Child` , `PendingLifecycle_Child` , etc.) but is not yet assigned to the parent's current configuration. A query that requires the current released parent must test that the `PendingRevID` is null and `IsCanceled` is false.

A basic SQL statement is `SELECT * FROM SourcePairView`

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release without notice. These are not documented, and you should ignore these columns in your own SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

> The column ordering may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

SourcePairView

Column name	Data type	Record attribute
ItemId ... Notes	see: ItemView columns	parent item standard attributes
ItemId_Child ... Notes_Child	see: ItemView columns	approved source item standard attributes
Rank	*integer*	source row Rank
RowNotes	*string*	source row Notes

SourcePairMasterView

Column name	Data type	Record attribute
ItemId ... *custom*_Member	see: ItemMasterView columns	parent item standard and custom attributes
ItemId_Child ... *custom*_Member_Child	see: ItemMasterView columns	approved source item standard attributes
Rank	*integer*	source row Rank
RowNotes	*string*	source row Notes

The `SourceItemMasterView` is specifically intended for use in a CAD environment for part look-up, where the CAD tool may require dedicated custom parameters and/or display up to three approved part sources.

The `SourceItemMasterView` identifies a parent item and up to 3 approved sources side-by-side; each set of source columns are identified by the suffixes `_1`, `_2`, and `_3`. The parent item's columns are identical to the `ItemMasterView` columns. Source item columns are obtained from the `ItemView` list (without custom attributes). Sources are listed in the order defined by the `Rank` shown on the parent list. Sources sharing the same rank value do not have a specified column order.

When a parent part has a pending iteration (that is, the `PendingRevID` is not null), then it displays the **markup** rank numbers, items, and notes. When a parent part has **only** a released iteration (the `PendingRevID` is null, `RevID` is not null, and `IsCanceled` is false), then it displays the **current** released child iteration (`Revision_Child`, `Lifecycle_Child`, etc.) with rank and notes. If a child part has a pending iteration, that's shown in separate columns (`PendingRevision_Child`, `PendingLifecycle_Child`, etc.) but is not yet assigned to the parent's current configuration. A query that requires the current released parent must test that the parent `PendingRevID` is null and `IsCanceled` is false.

The basic SQL statement is `SELECT * FROM SourceItemMasterView`

> This view is also contained in the local views database. Client-side ODBC applications can select from this view and from SQLite-compatible **VIEWS** collection members based on this view.

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release without notice. These are not documented, and you should ignore these columns in your own SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

> The column ordering may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

Column name	Data type	Record attribute
ItemId ... *custom*_Member	refer to the ItemMasterView reference help topic	parent item standard and custom attributes
Rank_1	*integer*	source 1 row `Rank`
RowNotes_1	*string*	source 1 row `Notes`
Class_1 ... Notes_1	see: ItemView columns	source 1 item standard attributes
Rank_2	*integer*	source 2 row `Rank`
RowNotes_2	*string*	source 2 row `Notes`
Class_2 ... Notes_2	see: ItemView columns	source 2 item standard attributes
Rank_3	*integer*	source 3 row `Rank`
RowNotes_3	*string*	source 3 row `Notes`
Class_3 ... Notes_3	see: ItemView columns	source 3 item standard attributes

The `StructurePairView` and `StructurePairMasterView` are parent-child lists of all BOM items. The view is a side-by-side set of the parent item attributes; a single child item's attributes; and the parent-child relation attributes such as find (row) number, quantity and unit of measure. The parent (typically an assembly) may have zero, one, or many child (component) records.

The `StructurePairView` is derived from the `ItemView` list of items, and excludes custom attributes from the parent and child items. The `StructurePairMasterView` is derived from the `ItemMasterView` list of items, and includes the parent and child items' custom attributes.

When a parent part has a pending iteration (that is, the `PendingRevID` is not null), then it displays the **markup** Find numbers, items, RefDes, and notes. When a parent has **only** a released iteration (the `PendingRevID` is null, `RevID` is not null, and `IsCanceled` is false), then it displays the **current** released child iteration (`Revision_Child` , `Lifecycle_Child` , etc.) with Find, RefDes and notes. If a child part has a pending iteration, that's shown in separate columns (`PendingRevision_Child` , `PendingLifecycle_Child` , etc.) but is not yet assigned to the parent's current configuration. A query that requires the current released parent must test that the `PendingRevID` is null and `IsCanceled` is false.

The basic SQL statement is `SELECT * FROM StructurePairView`

> In earlier PDXpert releases, the structure views contained reference documents. These are now contained in separate `ReferencePair` views.

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release without notice. These are not documented, and you should ignore these columns in your own SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

> The column ordering may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

StructurePairView

Column name	Data type	Record attribute
ItemId ... Notes	see: ItemView columns	parent item standard attributes
ItemId_Child ... Notes_Child	see: ItemView columns	child item standard attributes
Find	*integer*	row Find number
Per	*integer* (note 1)	row Per
Quantity	*real number*	row Quantity
Unit	UNIT OF MEASURE Name	row Unit
RefDes	*string*	row RefDes
RowNotes	*string*	row Notes

Notes:
1. BOM quantity category values are: 0=Per Assembly; 1=Per Setup; 2=As Needed

StructurePairMasterView

Column name	Data type	Record attribute
ItemId ... *custom*_Member	see: ItemMasterView columns	parent item standard and custom attributes
ItemId_Child ... *custom*_Member_Child	see: ItemMasterView columns	child item standard and custom attributes
Find	*integer*	row `Find` number
Per	*integer* (note 1)	row `Per`
Quantity	*real number*	row `Quantity`
Unit	UNIT OF MEASURE `Name`	row `Unit`
RefDes	*string*	row `RefDes`
RowNotes	*string*	row `Notes`

Notes:

1. BOM quantity category values are: 0=Per Assembly; 1=Per Setup; 2=As Needed

The `ChangeView` contains all change forms with standard item attributes. The `ChangeMasterView` contains all columns of the `ChangeView` plus all custom attributes. These views are available in both the `viewer` and the `released` schemas.

The `Lifecycle` column is coded

Value	Lifecycle	Abbreviation
0	Originated	ORG
1	Submitted	SUB
2	Routed	RTD
3	Held	HLD
4	Approved	APP
5	Disapproved	DIS
6	Canceled	CAN
7	Stopped	STP
8	Rejected	REJ
9	Accepted	ACC
10	Released	REL
11	Completed	CMP

For example:

```
SELECT
Type
,Number
,Priority
,CASE [Lifecycle]
 WHEN 0 THEN 'Originated'
 WHEN 1 THEN 'Submitted'
 WHEN 2 THEN 'Routed'
 WHEN 3 THEN 'Held'
 WHEN 4 THEN 'Approved'
 WHEN 5 THEN 'Disapproved'
 WHEN 6 THEN 'Canceled'
 WHEN 7 THEN 'Stopped'
 WHEN 8 THEN 'Rejected'
 WHEN 9 THEN 'Accepted'
 WHEN 10 THEN 'Released'
 WHEN 11 THEN 'Completed'
 ELSE ''
 END AS [Lifecycle]
FROM [viewer].[ChangeView]
```

Column definitions

There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release. These columns are not documented, and you should ignore them in your SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

Column name	Data type	Attribute name
ItemId	*GUID (item primary key)*	*unique record identifier; not visible within PDXpert client*
Type	CHANGE FORMS Name	Type
TypeShort	CHANGE FORMS Abbreviation	Type as displayed in the Item Explorer
Number	*string*	Number
Summary	*string*	Name as displayed in the Item Explorer
Lifecycle	*integer* 0 (ORG) to 11 (CMP) - see table	Lifecycle
WillReleaseCancelItems	*Boolean*	on CHANGE FORMS member as Releases/cancels items on Affected tab
Analyst	PERSONS Name	Analyst
Trustee	PERSONS Name	Trustee
OriginatedDate	*date*	Origination date
ReleasedDate (note 1)	*date*	Release date
ProblemSource	PROBLEM SOURCES Name	Problem source
ChangeReason	CHANGE REASONS Name	Change reason
ChangeClassification	CHANGE CLASSIFICATIONS Name	Change classification
ChangePriority	CHANGE PRIORITIES Name	Change priority
BeginSerialNo	*string*	[administrator defined]
BeginEffectiveDate	*date*	(none)
EndSerialNo	*string*	[administrator defined]
EndEffectiveDate	*date*	(none)
MaximumQuantity	*integer*	Maximum quantity value
MaximumQuantityUOM	UNITS OF MEASURE Name	Maximum quantity count units
MaximumDuration	*integer*	Maximum duration value
MaximumDurationUOM	UNIT OF MEASURES Name	Maximum duration time units
FirstAuxiliaryPerson	PERSONS Name	[administrator defined]
SecondAuxiliaryPerson	PERSONS Name	[administrator defined]
PrimaryDiscussion	*string*	[administrator defined], typically the change description
SecondaryDiscussion	*string*	[administrator defined], typically an optional supporting problem statement
Notes	*string*	Notes tab
custom (note 2)	*string*	custom attribute text or numeric value

custom_Member (note 2)	collection member Name	custom attribute value's units, or other collection member

Notes:

1. If the change has not yet been released, then this value is empty and affected items have not yet been updated to their planned release/cancel states.
2. These columns are included in the ChangeMasterView, and are not in the ChangeView. All administrator-assigned custom attribute ("CA") names are displayed in value/unit columns; the name is used in the column header. All identically-named CAs are displayed in the same column, regardless of change type. Where a custom attribute name conflicts with an existing system-assigned attribute name (such as `Number` or `Type`) then the custom attribute name is displayed with a leading underscore (`_Number` or `_Type`). See the help topic Collections reference > Custom attributes for naming guidelines. If a custom attribute name is longer than 120 characters, it is truncated.

The `ChangePairView` and `ChangePairMasterView` are parent-child lists of all changes (parent), as well as items on their `Affected` list (child). The view is a side-by-side set of the change form attributes; a single affected item's attributes; and the change/affected item relation attributes for released and canceled iterations. The parent change form may have zero, one, or many affected item child records, which determines the number of rows in the view.

The `ChangePairView` is based on the `ChangeView` and `ItemView` lists, and excludes custom attributes from the change form and affected items. The `ChangePairMasterView` is derived from the `ChangeMasterView` and `ItemMasterView` lists, and includes custom attributes.

The affected item always reflects the most current item data, as obtained from the `ItemView` and `ItemMasterView` lists. Therefore, only the most recent change pairs indicate the affected item's current iteration; earlier change pair views accurately reflect the items (class, owner, type, number, etc.) that were affected, but not the actual iteration that was released or canceled. To obtain non-current change data that includes the actual released or canceled iterations, use a custom SQL query based on the `[AffectedItem_View]` and related non-public views.

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release without notice. These are not documented, and you should ignore these columns in your own SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

> The column ordering may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

ChangePairView

Column name	Data type	Record attribute (note 1)
ItemID ... Notes	see: ChangeView columns	change form standard attributes
ItemId_Child ... Notes_Child	see: ItemView columns	affected item standard attributes
LineNumber	*integer*	affected item row number
ReleaseRevision	*string*	if affected item was released: new iteration's revision identifier
ReleaseLifecycle	**LIFECYCLE** Name	if affected item was released: new iteration's lifecycle
ReleaseNote	*string*	if affected item was released: new iteration's Release description
CancelRevision	*string*	if affected item was canceled: old iteration's revision identifier
CancelLifecycle	**LIFECYCLE** Name	if affected item was canceled: old iteration's lifecycle
CancelNote	*string*	if affected item was canceled: old iteration's Release description

ChangePairMasterView

Column name	Data type	Record attribute (note 1)
ItemId ... *custom_*Member	see: ChangeMasterView columns	change form standard and custom attributes
ItemId_Child ...	see: ItemMasterView columns	affected item standard and custom attributes

custom_Member_Child		
LineNumber	*integer*	affected item row number
ReleaseRevision	*string*	if affected item was released: new iteration's revision identifier
ReleaseLifecycle	**LIFECYCLE** Name	if affected item was released: new iteration's lifecycle
ReleaseNote	*string*	if affected item was released: new iteration's Release description
CancelRevision	*string*	if affected item was canceled: old iteration's revision identifier
CancelLifecycle	**LIFECYCLE** Name	if affected item was canceled: old iteration's lifecycle
CancelNote	*string*	if affected item was canceled: old iteration's Release description

The `FilePairMasterView` is a parent-child list of all items and the database properties of their file attachments. The view is a side-by-side set of the parent item attributes; a single file's name, Size (bytes), and AddedOn date. The parent item (for example, a document object) may have zero, one, or many file records, one per row.

The `FilePairMasterView` is derived from the `ItemMasterView` list of items, and includes custom attributes.

When a parent item has a pending iteration (that is, the `PendingRevID` is not null), then its **markup** revision files are displayed. A parent item that has **only** a released iteration (`RevID` is not null, `IsCanceled` is false, and the `PendingRevID` is null) displays each current released revision file. A query that requires the current released parent must test that the parent `PendingRevID` is null and `IsCanceled` is false. The complete set of item files and external links is always displayed.

The basic SQL statement is `SELECT * FROM FilePairMasterView`

> The database row contains only the file attachment's database properties. It is not the actual file object, which is not contained within the database.

> This view is also contained in the local views database. Client-side ODBC applications can select from this view and from SQLite-compatible **VIEWS** collection members based on this view.

Column definitions

> There may exist in the view one or more "housekeeping" columns that have been reserved for PDXpert's private use. These columns' names begin with the prefix `HK` (for instance, `HK1`). Housekeeping columns may be redefined or eliminated in a future PDXpert release without notice. These are not documented, and you should ignore these columns in your own SQL queries. Do not create any custom attributes that use the `HK` prefix. You may want to create a user-defined view that excludes the housekeeping columns.

> The column ordering may not be exactly as shown in this table, and may change in a future PDXpert release. Use the column name, not ordinal position, in your SQL queries.

FilePairMasterView

Column name	Data type	Record attribute
ItemId ... Notes	see: ItemView columns	parent item standard attributes
FileList	*string:* **Item**, **Revision**, **External**	list that contains file attachment
Filename	*string*	original file name, as seen in the PDXpert client's file list
LibraryName	*string*	physical file name (notes 1, 2)
Size	*integer*	byte count (note 2)
AddedOn	*date*	date that file was attached (note 2)

Notes:
1. To ensure uniqueness, PDXpert assigns a separate alias filename when the file is copied into the library folder.
2. Value is null when `FileList` is *External*

Open the window by selecting Tools ➜ User Settings...

> User settings are reset when you select ☑ Reset my account settings checkbox on log-in, and if your user account is deleted or replaced (for example, the account access is changed from read-only to full-function).

General

Out of office agent

While you are out of the office, you can select a different user to work on your behalf. Each time you log into the PDXpert client application, your agent is shown in the status bar. Notify the selected person before you leave, and clear your selection when you return.

> You can select only a person with a full-function user account.

> A system administrator can change or remove your selected agent with the User Management tool .

> The agent is a temporary setting. If the user should always have your permissions, the administrator can add the user to your reviewing groups or assign to the user a different role.

- Your agent can manage all items where you are the trustee. A **PRODUCT FAMILIES** Denied list won't affect your agent's access to your items.
- Your agent receives your task notices. In the Item Explorer's Tasks list, your agent sees tasks that are given to you, and given by you.
- Your agent receives your change workflow notices, and can review your change forms. When the agent approves or disapproves a change, the agent – not you – is shown as the change reviewer. Your agent may work on change forms where you are the analyst.
- If you are listed on the Product Team of a **PRODUCT FAMILIES** collection member, then the agent is also a temporary member of that product team.
- If you are an analyst, your agent is also an analyst – even if your agent hasn't been given a role with ☑ Is an analyst permission.
- If you are a system administrator, then your agent is also an administrator. However, if you are the super administrator, your agent is not given the super administrator permissions.
- Your agent cannot authorize anyone else to work on your behalf. If your agent selects an agent, your permissions aren't passed to that person.

Item Explorer: Recent items tracking limit

You can specify the number of items that are listed in the Item Explorer's Recent list. If you have a slow network connection, try using a smaller value to reduce data transfers.

Markup list style

Use font styles and colors to highlight changes in an item's Markup lists. These settings never affect Current lists.

> These are your settings, and won't affect how other users see your markups. For example, you may see errors in yellow, but others may not.

> After you save new settings, close and then re-open items to refresh their styles.

Add

On ⊕ Add rows, all text in each changed field is underlined. Where the entire row is new, all fields are styled; if the row is replacing a removed row, then only changed fields are styled.
While the list is unlocked, the style is not shown in fields that you can edit.

Remove

On ⊖ Remove rows, all text in each changed field is italicized. Where the entire row is removed, all fields are styled; if the row is replaced by an added row, then only changed fields are styled.

Errors

Markup rows with errors have all text shown as bold, with an optional yellow background. The parent item can be locked or unlocked. Errors are shown when:

When a user account is first made or is reset, all markup style settings, except ☑ RefDes as + – = , are marked.

- The row's item has a lifecycle that's incompatible with the parent's lifecycle; for example, a markup contains a **Prototype** part and a parent assembly is at **Production**.
- There are RefDes errors; for example, the number of RefDes values doesn't match the Quantity, or the same RefDes is used on more than one row.

Errors are never shown on `Current` lists. They are also hidden on released and canceled `Markup` lists when the ☑ Only on Pending setting is marked.

Colors

When marked, fields that have a style are also shown with text and background colors: Add style, *Remove style*, **Errors style**.

RefDes as + – =

When the assembly part is locked, this setting shows the RefDes differences between the ⛔ Remove and ➕ Add row values at the same Find location. Instead of showing the final list of RefDes values (like `R2, R8`), the list shows added, removed and no-change reference designators as `+count:add –count:remove =count:same` , like `+1:R2 –2:R4,R7 =1:R8` .

This setting shows RefDes changes on your own `Markup` list only when it's locked. While you're editing, the actual reference designator list – *not* changes to the removed row – is shown. The actual values are always shown on the `Current` list after the assembly is released, on standard BOM reports, and in PDX packages. When you add a new Find row, there's no difference to show: when the assembly is locked, the RefDes values are shown exactly as entered.

Only on Pending

When marked, all markup styles are shown only on an item's pending iteration, and not on the `Markup` list of a released or canceled iteration.

Add these product families to each new item

If you design a group of items for a product, or consistently work with a product team, you can specify them here. The listed product families are automatically copied to each new item you make, and you can modify the new item's list. This list is not copied when you revise a previously-released item.

> To assign or clear the `Product families` list on many items, an administrator can use the Product Families import template within the Batch Importer tool .

Use standard Windows cursors

Some virtualization applications or utilites can use only Windows standard cursors. Custom cursors – showing, for example, a dragged part with its status icon – may be poorly rendered or disappear on the virtual desktop. Mark this setting to replace custom cursors with the default Windows cursors.

Copy me on email notices that I trigger

As you work with a change form or assign tasks, emails may be sent to other people. You know about these, so the system doesn't normally send these notices to you. However, mark this checkbox to include yourself in the email distribution.

Confirm exit when application is closed

If you sometimes click on the client application's close box instead of an item window close box, or press `Alt+F4` (close application) rather than `Ctrl+F4` (close window), marking this checkbox will show a confirmation dialog.

Enable local views

Mark this checkbox if you want PDXpert to make and maintain a CAD part database on the local client machine. An ODBC application can obtain part data faster from the client's local database than from the server-side database. The local database contains a limited set of views for parts, parts with custom attributes, source part relationships, and file names (principally for links to manufacturer websites); user-defined views are limited to the data contained in these starting views.

For details about connecting your CAD tool, see the Make an ODBC connection help topic.

> The ☑ Enable local views option is available only when the user has been given a **ROLES** collection member that includes the ☑ Allow local views on user computer permission. If local views are not permitted or enabled, then the

> client machine's local views database is not made or, if previously made, is no longer refreshed.

> When the PDXpert client is open, the local database is refreshed every 10 minutes. New items and items with modified summary data (owner, number, description) are also copied to the local views database whenever the PDXpert client requests any data from the server (for example, running a search or opening any record).
>
> When the PDXpert client is closed, the local database isn't refreshed. However, your ODBC application can use the previously-copied data.

There are two client-side ODBC database options available:

- Using SQLite database : When you enable local views, PDXpert installs a SQLite 3 database. Choose this option if you want PDXpert to always use SQLite, even if SQL Server LocalDB is installed on the client computer. You must separately install a SQLite 3 ODBC driver for your ODBC client application, and use SQLite syntax in your user-specified views.
- Using SQL Server LocalDB : Install LocalDB when SQL Server compatibility, performance and multi-session access are important. LocalDB supports some CAD applications that can't be used with SQLite. The PDXpert website's *Installation Guide* may have more detail about installing the LocalDB and ODBC driver on the client computer.

  > If your computer doesn't have LocalDB installed, then PDXpert updates the SQLite database instead. For example, your office computer may have LocalDB installed, but your preference is ignored if your home computer does not. To support both SQLite and SQL Server LocalDB, use generic SQL syntax that's compatible with both, write distinct user-specified views for each, or use your ODBC client application to query the public views.

Task workdays

When you add a new task to an item, the Task workdays setting calculates the default due date. The task due date uses the number of available workdays from today (holidays are not considered). After the task's due date is calculated, you can adjust the date to any date, even if the workday is not set as active.

- The Default workdays is the period that is automatically added to today's date to get the task's due date. If you specify zero, then the due date is today, even if today is not an active workday.
- Set the active workdays (☑ Sunday through ☑ Saturday) to match your workweek.
  When all workdays are active: The Default task period (workdays) is added to today's date without adjusting for weekends.
  At least one workday must be active: If you clear the only marked workday, then the following day is automatically marked.

When a user account is made or reset, all days except ☑ Sunday and ☑ Saturday are marked, and the default period is 5 workdays.

> The Administrator override user setting has been moved to the Tools menu: Administrator Override command .

You use the Item Explorer and Collection Explorer (the "Explorers") to search for, select and drag collection members (like units of measure) and items (documents, parts and changes). You can drag objects from the Explorers onto lists in the item workspace.

The Explorers can be arranged to best suit the tasks you're performing.

Window management

Pinning and unpinning (Auto Hide)

Auto Hide allows you to minimize Explorers along the edges of the PDXpert application window so that the windows do not occupy valuable space. By minimizing Explorers, you can increase the viewable area of the workspace.

You pin or unpin an Explorer by clicking on the thumbtack icon, which toggles between the two modes.

📌✕ When an Explorer is "pinned" to the workspace, the window will remain open while you perform other tasks.

📍✕ You can unpin your Explorers, which lets them slide back to a tab on the edge of your workspace where the Explorer is docked. If you position the mouse over the tab, the Explorer will "slide out" from the tab area.

Docking and floating

The Explorers may be "floated" anywhere on the screen, fully independent of the PDXpert application window.

To create a floating Explorer, the window must first be pinned. Then, select the Explorer's title bar and drag it until the preview outline does not snap to any dockable areas. When you release the mouse, the Explorer will float in its own window.

You can dock the Explorer along any edge of the PDXpert application workspace. Select the Explorer's title bar and drag it to one of the four docking images near each window edge.

> You can re-dock a floating Explorer window by selecting the Window | Reset Explorer Docking command.

Horizontal splitting

When the windows are stacked, adjust how much workspace is dedicated to each one by dragging the splitter bar.
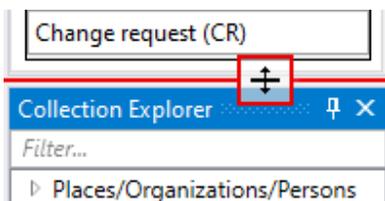
A splitter bar sets the Explorers within their minimum and maximum sizes. When an Explorer is minimized, only its title bar is displayed.

Adjusting size

You can increase the size of an Explorer by dragging the edge furthest from its docked edge. The dragged edge position can be different for pinned and unpinned modes.

Grouping as tabs or side-by-side

This feature automatically groups the Explorers together with tabs representing each Explorer. Only the contents of one tab may be displayed at a time. Only the active tab is closed when the Close button is clicked and only the active Explorer is unpinned when the thumbtack icon is clicked.
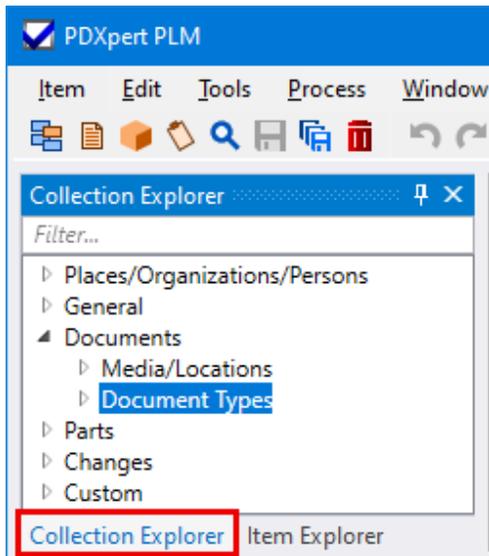
You can arrange the Explorers to be side-by-side, top-and-bottom or overlapping. Drag one Explorer on top of the other, and a positioning aid will appear. Drop the Explorer on one of the four outside images to arrange the Explorers next to each other, or drop the Explorer onto the middle image to overlay the two Explorers.
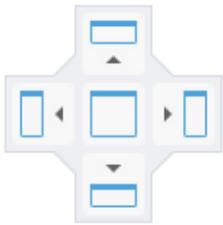
Item Explorer grid adjustments

Row selection

Click on the row to select it. Once the row is selected, you can drag the contents onto another grid, or double-click to open the item.

Column width & location

You can adjust a column width by dragging the grid line that separates the rows.

Drag a column header to move the related column to a new position.

Column sorting

Click on the column header to sort the rows by that header. One click will sort the rows in ascending order, a second click will sort the rows in descending order.

Layout suggestions

Guests

Guest users who are primarily interested in looking for items can unpin or close the Collection Explorer. You may prefer to dock the Item Explorer along the bottom edge of the workspace if many items have long document titles and part descriptions.

Normal users

During periods where you're creating many parts or documents, it may be easiest to keep the Collection Explorer pinned on the left window edge, and the Item Explorer pinned along the bottom edge. After you've created the items, you can search for items to drag onto your new items' BOM and Source markups, and when dragging items onto the releasing change form's Affected tab. (The Explorers overlay also works well for these tasks.)

Administrators

For most administrative tasks, the Collection Explorer can be pinned to the left or right edge of the workspace. Auto-hide (unpin) the Item Explorer.

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In the PDXpert client application:

1. From the ⬚Help⬚ menu, select ⬚Technical Support…⬚
2. On the ☑ About PDXpert PLM window, ⬚Technical Support⬚ shows the methods for contacting us.
3. Include the PDXpert Application Server and the PDXpert client log files with your technical support question. See the next section of this help topic.

Or, search the web for ⬚PDXpert technical contact⬚ .

Log files

PDXpert Application Server and the PDXpert client log files may help solve your technical support question.

> You must start PDXpert at least once to make these files.

You normally click a ⬚Save Log Files⬚ button, which is available in the server and client. However, in some cases you may need to go to a Windows folder to obtain the log files. In this case, you'll go to an "environment variable" location such as the `%ProgramData%` folder. Windows expands these variables into actual file paths as needed.

Server application log files

The PDXpert Services and the PDXpert Application Server application log files contain a record of normal and unusual events. The target files are saved only on the computer where the PDXpert Application Server has been installed.

Server UI is open and responsive

Using the ☑ PDXpert Application Server window:

1. Run the ⬚PDXpert Server⬚ application.
2. On the ⬚Manage⬚ tab, click on the ⬚Save Log Files⬚ button, and save the file to a convenient location.

Server UI can't be opened or doesn't respond

If the ⬚PDXpert Server⬚ can't be opened or is unresponsive, find the log files.

- Target files: `PDXpert.Service.log` and `PDXpert.Server.log`
- PDXpert environment folder: `%ProgramFiles%\PDXpert\PDXpert PLM\Logs`

To obtain a copy of the log files:

1. Locate the target log files folder in Windows Explorer ([described below](#)).
2. In Windows Explorer, right-click the log files' folder and select ⬚Copy⬚ from the context menu.
3. Right-click on an open area of your Windows Desktop and select ⬚Paste⬚ from the context menu.
4. Right-click and select ⬚Send to ▸ Compressed (zipped) folder⬚ to save a `Logs.zip` file.

Client application log files

The PDXpert client log file contains a record of normal and unusual application events. The client target file is saved only on a workstation with the PDXpert client installed.

Client UI can be opened

If you do not have the PDXpert PLM client application open:

1. Run the ⬚PDXpert PLM⬚ client application.
2. On the PDXpert log-in window, click the ⬚Options⬚ button.
3. Click on the ⬚Save Log Files⬚ button, and save the file to a convenient location.

If you have the ☑ PDXpert PLM window open:

1. On the `Help` menu, select the `Technical Support…` command.
2. On the ☑ `Technical Support` window, click on the `Save Log Files` button, and save the file to a convenient location.

Client UI can't be opened

If the `PDXpert PLM` client application can't be opened or is unresponsive, find the log files.

- Target file: `PDXpert.log`
- Windows environment folder: `%LocalAppData%\PDXpert\Logs`

To obtain a copy of the log files:

1. Locate the environment folder in Windows Explorer (<u>described below</u>).
2. In Windows Explorer, right-click the log files' folder and select `Copy` from the context menu.
3. Right-click on an open area of your Windows Desktop and select `Paste` from the context menu.
4. Right-click and select `Send to` ▸ `Compressed (zipped) folder` to save a `Logs.zip` file.

Environment variable folders

To locate an environment variable folder, do **one** of these:

- Open File Explorer and type the value into the address bar and then press the `Enter` key.
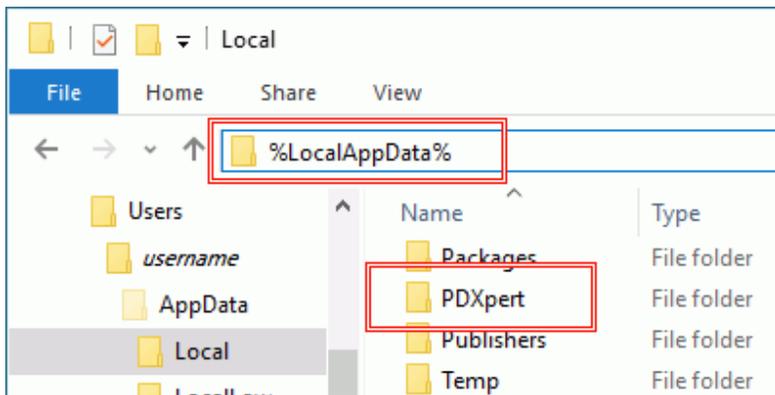
- Enter the value into the Windows Start menu's search box and then press the `Enter` key.

Administrators open this window using Tools menu ➔ User Management… The menu command is shown when the user's role has ☑ Collections/Rules administrator marked.

> PDXpert software is licensed for a specified number of *named user accounts*.
>
> A **named user account** is a unique log-in username that is **given to only one person, and which no other person may use**.
>
> A workgroup may share a named user account to look up product data on a *kiosk computer*. The kiosk uses a **read-only user account on a single computer at a specified physical location**. If you follow the rules (see below), then for licensing purposes you may count the kiosk computer as one person, regardless of how many actual people use the kiosk computer.
>
> A PDXpert software license may not be used with more than one server computer. The PDXpert client may not be used to provide concurrent, shared, floating, enterprise, site or other non-exclusive user access.

A *full-function named user account* lets users make new part, document and change records; add file attachments to the system library; review, comment on, and approve change forms; and configure the system through the administrator role. You can easily select (and edit) which permissions are applied to each user account by giving the user an appropriate role from the **ROLES** collection.

A *read-only named user account* lets a user view—but not add or change—data records and attached files.

Whenever you wish, you can give an available full-function user account to a read-only user, and vice versa. You can also delete one person's user account and give it to a different person.

Open the User Management tool (Tools ➔ User Management…) to:

- Add a new user account
- Add a new kiosk account
- Set a person as the super administrator
- Change the default Admin name
- Give a new role to a user
- Reset (clear) a forgotten password
- Add, modify or remove a user's out of office agent
- Convert between full-function and read-only access
- Modify a user account name
- Set a person's status to inactive
- Delete an existing user account
- Read column reference information

If desired, you can give a read-only role to a user with a full-function user account, which then acts as a read-only user account.

> If the number of log-in accounts exceeds the maximum permitted by your license, then only the super administrator account can log into PDXpert. Use the Super Admin account to remove any excess log-in accounts.

> To manage user accounts, you must have an administrator role. See the Roles: Collections/Rules administrator help topic. The super administrator always has permissions to add and remove user accounts.

> Any change that you make to a user's account may not take effect until after that user closes the PDXpert client.

Add a new user account

> The Batch Importer tool can add persons and their user accounts in a single import file. See the Persons collection import help topic.

A user account is licensed for the exclusive use of one person. The new user account has a role, a username and an optional password, and the default set of user settings.

> A new user account row is shown when (1) unused licenses are available, and (2) a **PERSONS** collection member doesn't yet have a user account.

Open the `User Management` tool (`Tools` ➜ `User Management…`):

1. In the `Access` column, select whether you are adding a `Full-function ▾` or `Read-only ▾` user account.
   The total number of licensed user accounts is specified by your PDXpert software license. To open the `Software License Key` tool, select the `Software License Key…` command from the `Tools` menu.

2. In the `Person` column, select the person whom you want to have a user account.
   If you don't see the correct person in the list, (1) close this `User Management` tool, (2) add a new person record in the **PERSONS** collection, in the Collection Explorer (`Places/Organization/Persons` ▷ `Persons`), and (3) re-open the `User Management` tool.

   > Include the person's email address. When the user account is created, the person gets an email with the account name and PDXpert client download link.

3. In the `Role` column, select the set of permissions that a user will have within PDXpert.
   Roles are managed in the **ROLES** collection. If you don't see the correct role in the list, (1) close this `User Management` tool, (2) add a new role record in the **ROLES** collection, in the Collection Explorer (`Places/Organization/Persons` ▸ `Roles`), and (3) re-open the `User Management` tool.

4. Enter the `Account name` that the person should use for the log-in dialog. The log-in name is not case-sensitive: `LEE` and `lee` refer to the same user.

   > If you want the user authenticated by your organization's Active Directory (AD) or Lightweight Directory Access Protocol (LDAP) service, enter both the domain name and user name as `{domain}\{username}`. User names are validated within a domain; for example, `company\lee` and `engineering\lee` are different accounts. Specify an AD/LDAP server name or IP address and, if needed, include the colon-prefixed port number (usually :389 or :636); for example, `10.1.2.3:389\lee`
   >
   > The PDXpert server (not client) computer sends the user's credentials for AD/LDAP authentication, and must join the AD/LDAP domain. PDXpert uses the default .NET settings for credential validation. Edit the `LDAPContextOptions` setting in the PDXpert service configuration file to use other options: search the web for `PDXpert LDAPContextOptions`

   > This username is used only for account log-in. Within the PDXpert application, users are shown with their **PERSONS** member name.

   > Use an account name that's clearly related to the person's name. It's impractical to manage software license compliance using a generic account name like `quality`.

   > User authentication systems often don't allow spaces, and the `Account name` follows this practice by removing spaces as you type. To include one or more spaces in the account name, enter the name without spaces and then insert them. You cannot use a space at the beginning or end of the account name.

5. If you wish, enter the `Password` that the person should use for the log-in dialog. Although a user's password is case-sensitive, this temporary password does not need to meet the requirements you specify in the **Password policy** system rule . For example, you can provide the user with a blank temporary password even though you specify a minimum password length.

   > If you're using AD/LDAP to authenticate the user, this password is not used and should be left blank.

   > The password value is hidden after you add the account.

6. In the `Action` column, click the `Create` button to save the new user account. If you have set up the system email account , the system sends an email with a `PDXpertClientSetup` download link and the user account name and password.

Add a new kiosk account

A kiosk account provides read-only access to any number of people in a workgroup on one physical computer. The new kiosk account must have read-only access and an account username that begins with *kiosk…* characters.

Open the `User Management` tool (`Tools` ➜ `User Management…`):

1. Add a new member in the **PERSONS** collection using the kiosk computer's network name, such as SERVICE02. If necessary, close the `User Management` tool, add the member, and then re-open the `User Management` tool.
2. In the `Access` column, select the `Read-only ⌄` user account.

    If you don't see a `Read-only ⌄` user account, you can select a `Full-function ⌄` user account. The role that you select in Step 4 (below) must have the ☑ `Restrict access to read-only` checkbox marked.

3. In the `Person` column, select the kiosk computer's name that you added in Step 1.
4. In the `Role` column, select the set of viewing permissions that kiosk users will have within PDXpert.
5. Enter the `Account name` that kiosk users should enter for the log-in dialog. The username must begin with *kiosk*, such as `kiosk2` or `kiosk-service`.

    If you want the kiosk user authenticated by your organization's Active Directory (AD) or Lightweight Directory Access Protocol (LDAP) service, read the *Enter the* `Account name` *topic* [note in the section above](#) .

6. If you wish, enter the `Password` that the person should use for the log-in dialog. The password should meet the requirements you specify in the **Password policy** system rule.

    If you're using AD/LDAP to authenticate the user, this password is not used and should be left blank.

    The password value is hidden after you add the account.

7. In the `Action` column, click the `Create` button to save the new user account.

Set a person as the super administrator

The system's super administrator handles unusual situations: the PDXpert Server can reset this user's password, and this user can delete excess user accounts to comply with the license. The super administrator can also act as an analyst and edit item data after the item is released, regardless of the role assigned to the user. See the [Persons: Default member of collection](#) and [Administrator override](#) help topics.

Set the super administrator as the default member of the **PERSONS** collection:

1. In the Collection Explorer, go to the **PERSONS** [collection](#) (within the `Places/Organizations/Persons` group).
2. Select the person who will be given the super administrator permissions.

    This person must have a user account with full-function access.

3. Right-click the person's name in the list, and select `Set as Super Admin` on the context menu.
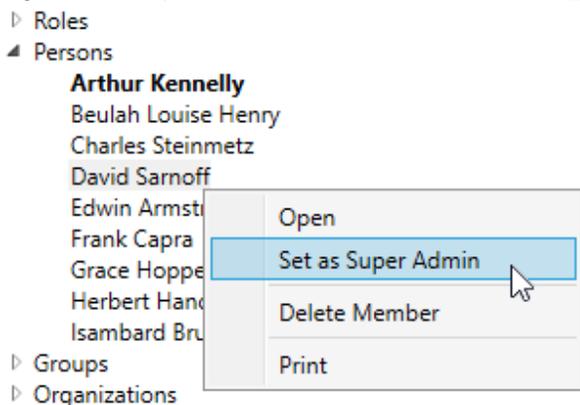
Change the default Admin name

The first time you use PDXpert, you use the default user account.

This user account has:
- A **PERSONS** collection member called **Admin**.
- A user account log-in name `admin` with a blank (empty) password. This user account has full-function access and an administrator role.

This topic tells how to change both of these to something more useful.

Change the *Admin* name in the Persons collection

Your data should always show the real name of the person managing your data. Update the **PERSONS** collection's **Admin** record to something useful.

1. Log into PDXpert using any administrator account, typically `admin` (see the Log into PDXpert help topic).
2. In the Collection Explorer, go to the **PERSONS** collection within the `Places/Organizations/Persons` group, and expand the `Persons` collection.
3. Open the `Admin` member by double-clicking the node.
4. Change the **Admin** value in the `Name` to your name (or whomever is the principal application administrator). Add whatever other information you'd like.
5. Save your changes.

> Renaming the record has no effect on the account log-in name, which remains `admin` until the account is changed. See the next section.

Change the *admin* account log-in name

If you don't want to log into PDXpert with the `admin` user name, replace the admin user account with a new user account that has the correct log-in name.

To do these steps, your license must have two or more full-function user accounts.

1. Set another **Persons** collection member as the super administrator .
2. Close PDXpert, and then log in using the super administrator user account.
3. Open the `User Management` tool (`Tools` ➜ `User Management…`), find the user account with the `Account name` of `admin`, and click the `Delete` button.
4. Use the correct log-in name to add your new user account .
5. Set the super administrator to the correct **Persons** collection member.

Give a new role to a user

Open the `User Management` tool:

- Select the role from the dropdown list box in the `Role` column. Your selection is saved immediately.
  > The new assigned role takes effect after the user closes, and then re-opens, the client.

Reset (clear) a forgotten password

Open the `User Management` tool:

- Click on the `X` button in the password textbox. You can leave the password blank or enter a new password, and then click the `✓` button to save it.
  > An administrator cannot see the user's password. PDXpert hides an existing password before you clear it, and immediately after you save the new password.

Add, modify or remove a user's out of office agent

> Only persons with a full-function user account are listed as agents.

> The agent is a temporary setting. If the user should always have another user's permissions, add the user to reviewing groups or assign to the user a different role.

Open the `User Management` tool:

- Select the agent from the dropdown list box in the `Agent` column. Your selection is saved immediately.
- To remove a user's agent, select the blank value from the dropdown list. Your selection is saved immediately.

Convert a user account between full-function and read-only access

The system identifies a user account by its account access and account name. To change a user's access, the system must build a new user account using the new Access value.

1. To remove the existing access and free the log-in name, delete the existing user account.
2. Add the new user account.

Modify a user account name

The system identifies a user account by its account access and account name. To change a user account log-in name, the system must build a user account using the new Account name.

1. To remove the existing user account log-in name, delete the existing user account.
2. Add the new user account.

Set a person's status to inactive

When users leave your PDXpert system, keep their history of making and revising items, assigning and completing tasks, adding file attachments, and reviewing change forms. Don't delete or rename the **PERSONS** collection member. Instead, set the person as inactive.

> Before removing the user account, give an agent control of the user's in-work items and tasks; released and canceled items may be ignored. During this period, keep the user's account or convert to a read-only user account , and set the user's Agent value in the Tools menu ➔ User Management tool. The assigned agent needs a full-function user account with sufficient permissions.

To set the person's status to inactive in the **PERSONS** collection:

1. If the person is set as the system's Super Administrator (that is, the person is shown in **bold** in the Collection Explorer's **PERSONS** collection), then select a different person as the Super Administrator by right-clicking the other person's name, and selecting Set as Super Admin.
2. If the person participated in your change workflow:
   A. In all **GROUPS** collection members, remove the person from each group's Persons list. If this is the only person listed, then add an active user as the group's reviewer.
   B. In all **CHANGE FORMS** collection templates: On the Attributes page, if the person is the change form's Default analyst, select a different person. On the Participants page, remove the person from Observing groups and persons list.

3. On this **PERSONS** collection member window:
   A. On the General page, unmark the ☑ Active: users can select checkbox. When the record is saved, the user account is automatically deleted .
   > Setting a person as inactive deletes that person's search history, recent items list, favorites, and user settings. If you make a new user account for that person, then user settings (such as ☑ Enable local views and Out of office agent) are set to their default values, and may need to be adjusted.
   B. On the Address page, delete the person's Primary email address .

4. Close or lock the window to save your changes.

Delete a user account

Deleting a user account prevents the person from opening PDXpert, and lets a different person have the user account. This is also used when switching the person's access from a read-only to a full-function user account, or the reverse.

> To keep the person's activity history, set the **PERSONS** collection member's status to inactive . Do not rename the **Persons** record to show a new user.

Deleting a user account deletes that person's search history, recent items list, favorites, and user settings. If you make a new user account for that person, then user settings (such as ☑ Enable local views and Out of office agent) are set to their default values, and may need to be adjusted.

If the former user has selected an out of office agent, deleting the user account also removes the agent's permissions to the user's items and tasks.

Open the User Management tool:

- To remove a person's log-in credentials and release the license, click the Delete button on the appropriate row.
  - You cannot delete your own account. Another administrator must delete your account.
  - You cannot delete the super administrator's account. Close the ☑ User Management tool, and set a different person as the super administrator . Return to the ☑ User Management tool to delete the previous super administrator's user account.

Columns reference

Id
System-assigned value for internal use. Value cannot be assigned or edited. Column can be sorted.

Access
The user account permissions: Full-function ∨ or Read-only ∨ . Value is needed to create the user account. User account must be deleted to give the person different access. Column can be sorted.

After updating the software license, re-open this window to update the available Full-Function and Read-Only user account counts.

Person
A **PERSONS** collection member that identifies the person who has the user account. Value is needed to create the user account. User account must be deleted to change the person. Column can be sorted.

After adding or deleting a **PERSONS** collection member, or changing the Name , re-open this window to update the dropdown list.

Role
A **ROLES** collection member that defines the full-function or read-only user account permissions. Value is needed to create the user account, and may be edited whenever needed. Column can be sorted.

After adding or deleting a **ROLES** collection member, or changing the Name , re-open this window to update the dropdown list.

Agent
A person who is assigned the current user account's permissions to act when the person is not available. It is not used to create the user account, and may be edited or cleared whenever needed. Column can be sorted.

Account
User name used to log into the PDXpert client application, and normally used to confirm a change reviewer's response. Value is needed to create the user account. User account must be deleted to change the account log-in name. If the value includes a domain (entered as `domain-name\user-name`), then the account log-in name and password are passed to the domain's Active Directory or LDAP server for authentication. Column can be sorted.

Password
User account password. A value is not needed to create the user account, and the password does not need to match the **Password policy** system rule. If the Account column includes a domain, then this password value is ignored. The assigned password is reset to empty/blank using the X button. A new password is assigned using the ✓ button. Column cannot be sorted.

Action
Command button to create the new user account, or delete the existing account. The Delete button is not available to delete the current administrator's account or the Super Administrator's account. Column cannot be sorted.

Administrators open this window using Tools menu ➜ Email Management... The menu command is shown when the user's role has ☑
 Collections/Rules administrator marked.

Settings

The PDXpert Application Server – not the PDXpert client – uses the email account on this window to send email notices.

Setting up the email account

> The PDXpert server computer name is used as the hostname. The server computer name must contain only
> ANSI Basic alphanumeric and hyphen/minus ("-") characters, and cannot start or end with a hyphen. RFC 1123, Section 2.1:
> `<let-or-digit>[*[<let-or-digit-or-hyphen>]<let-or-digit>]`.

> If notices have been sent before an email account is set here, the queue may contain emails. Before configuring the email
> account, review the Queue email list and delete any obsolete notices.

1. Get a new email account, such as `PDXpert.NoReply@MyCompany.com` or possibly use a third-party email service like
`PDXpert.MyCompany@gmail.com` .

    > Just like a printer or other simple device, PDXpert can't respond to multi-factor authentication (MFA or 2FA) requests.
    > When you set up this email account, **disable secondary authentication**. Errors like `Client not authenticated`
    > `to send mail` or `Authentication unsuccessful` may be related to MFA settings.

    > Ensure that the email account can forward all outbound notices. SMTP servers may place limits on the source or
    > destination of the emails, or the total number that can be forwarded within a given time.

    > Ensure that emails sent from the account do not fill up the account storage and prevent new emails being forwarded.

    > If your SMTP server accepts connections only from known senders, confirm that the PDXpert server computer is not
    > blocked.

    > To help recipients know the true email sender, use a dedicated email account rather than a personal email account.

    > PDXpert does not handle any inbound email traffic, and won't respond to replies by email recipients. Consider adding
    > an auto-responder notice to the account.

    > Although a "forwarding only" account can be used, you won't receive test confirmations at the end of this setup
    > procedure.

2. On the Settings , enter the email address into the Email address for sending notices textbox.

    > The SMTP server typically sends mail from the same address that was used during email setup. In most cases, the
    > email address here exactly matches the account Name that you enter in the account credentials, below. A mismatch
    > may show an error like `Client does not have permissions to send as this sender.`

    > If the email account uses a common service (like `@outlook.com` `@gmail.com`) but you're unsure of the settings, try
    > the Auto Configure button after entering the address. You'll be prompted to provide the account password. The
    > PDXpert Application Server tests typical service settings like ports 587, 465 and 25; and SSL/TLS enabled/disabled.
    > *This may take a couple minutes.* If useful settings are discovered, the settings are saved and a test email is sent from
    > PDXpert to your email account.

3. Enter the email account values. You should first specify the Outgoing mail server (SMTP) of your outbound email (SMTP) server.
An SMTP server is an internet domain, often with a sub-domain prefix, such as `mail.mycompany.com` or `smtp.office365.com` ,
or an IP address like `192.168.23.105` .

    - If the PDXpert Application Server is installed on a computer that has a local Windows SMTP server enabled, you can use
    the value of `localhost` .

- You can obtain the SMTP server name from your IT administrator, or look in your email client (such as Microsoft Outlook) for the server your own email account uses.
- To get the SMTP settings for a commercial email service, search the web for `outgoing smtp settings for service`, such as `outgoing smtp settings for Office 365` or `outgoing smtp settings for gmail`.
- You can enter the IP address of your Microsoft Exchange server. If you don't know the Exchange server's IP address, but you do know its machine name, you can determine its IP address by "pinging" it from the Windows command line: Start ▸ `cmd`, and then type `ping servername` where you substitute your Exchange server's computer name for *servername* (for example, `ping msexchange` or `ping mailserver`). The screen shows the IP address for that server in the first line, between the square brackets. In the following example, the IP address of *myserver* is `192.168.23.105` :

```
C:\>ping myserver

Pinging myserver [192.168.23.105] with 32 bytes of data:
Reply from 192.168.23.105: bytes=32 time<1ms TTL=128
...
```

4. If your SMTP server does not use the default TCP port 25, enter the server's preferred Port number (for example, 587).

> Your PDXpert server computer's firewall and other software (antivirus/antispam) must let a TCP connection through this port.

5. If your SMTP server requires an encrypted connection, mark ☑ Use encryption with explicit SSL/TLS [STARTTLS] . For example, mark this checkbox when using `smtp.gmail.com` with port 587 .

> There are two types of SSL authentication for SMTP, *explicit* and *implicit*.
>
> The Microsoft .NET mail client used by PDXpert supports explicit SSL/TLS in accordance with internet standard RFC 2228. Explicit SSL/TLS connects to a normal SMTP port (typically 25 or 587) in plaintext. The .NET mail client then issues a `STARTTLS` to start encryption.
>
> Implicit SSL is an unofficial protocol that begins immediate encryption using an agreed port (often 465). *By design, the Microsoft .NET mail client used by PDXpert does not support implicit SSL/TLS.* Some email service providers will accept port 587 instead of their preferred SSL port.

6. Enter the account Name for the email account that is used to send notices to PDXpert users.
7. Enter the account Password for the email account name provided in the Name textbox, and re-type it in the Confirm password textbox.
8. Click on the Save Settings button, then click the Test Settings button. An email notice is sent from the email account that you've specified back to that same account. A new email in the account's in-box confirms that the account settings are correct.

PDXpert PLM test email message - Message... — ☐ ✕

PDXpert PLM <pdxpert.plm@ | ☸ 1▾
PDXpert PLM test email message ⌄

This is an e-mail message sent automatically by PDXpert PLM while testing your mail settings.
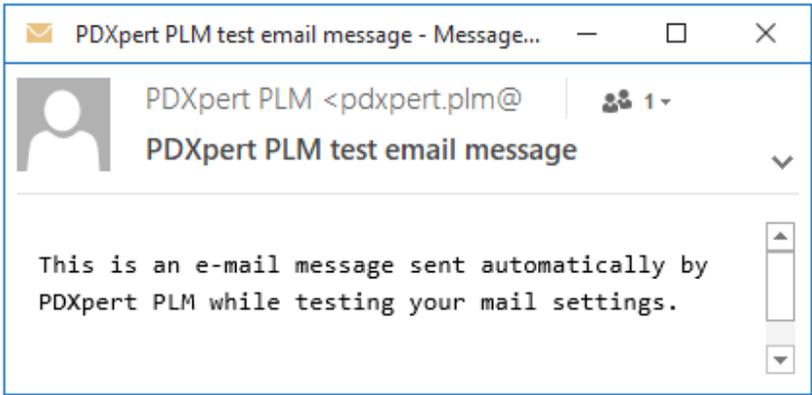
> Test emails are relayed from the SMTP server to the same email account. To make sure that the test notices are being correctly received, look in the inbox of the email account. If the receiving POP account is unable to store and show the test emails (for example, it's a forwarding-only account and there's no inbox), then you won't be able to directly examine the emails.

Common email issues

- To receive a workflow notice, each recipient must have a valid email address entered into the **Persons** member record. Ensure the email address has the correct spelling.

- The change form's workflow sends notices to identified users during the expected workflow event. For example, if observers should be sent email notices when a change form moves from `Accepted` to `Released`, then the `Observers` checkbox on template workflow path `24` must be marked and all observing persons must be shown in the change form's `Observers` list.
- A notice recipient must truly be assigned the related task: the person must be listed in the reviewing group, selected as the change analyst, shown as an observer, etc.
- To reduce email inbox clutter, the system doesn't include the person who triggers a workflow notice. If you prefer to receive these emails, open the `Tools` ➜ `User Settings...` and mark `☑ Copy me on email notices that I trigger`.
- The email server must accept emails from the PDXpert server's IP address or machine name.
- An email server often forwards any email to another address within the local domain. However, the server typically requires client authentication to forward emails outside the local domain. Authentication requires the client's assigned user account name and password, and maybe an encrypted connection.
  - If the PDXpert email service has been assigned an outside email account (like `PDXpert.MyCompany@gmail.com`), confirm that the account is allowed.
  - If emails sent to addresses within your company (`User1@MyCompany.com`) are successful and emails sent outside your company (`User2@gmail.com`) are not (or vice versa), then check: the SMTP server name, port and encryption settings are correct; the username and password are valid; the email server is configured for external domains; and the server applies the correct rules to the email account.
- If you have an enterprise anti-spam list, allow PDXpert's assigned email address in the spam filter definition file. Users with individual anti-spam filters must also allow this email address.
- A change workflow may send many notices to many recipients, so appropriately configure any limits on PDXpert's assigned email account (such as the maximum SMTP relays).
- Emails are sent with some delay after the triggering event. PDXpert checks the `Queue` list every few minutes for new email notices to send. The email server has a separate queue with its own delay.

Templates

PDXpert sends email notices when certain events occur. For example, when a new user account is made, the person may get an email showing how to download the PDXpert client application, and log into the new user account. Other notices are sent to a user who must act on a change form, or who is an observer to the change workflow action. And, there are emails related to tasks assigned by one user to another user.

PDXpert uses a standard set of email templates. Emails always have a plain-text **Subject line** and HTML-formatted **Content**.

Instructions are online to:
- Adjust the content of *emails sent to new user accounts*, as defined in the PDXpert Server service configuration file.
- Replace PDXpert's standard *workflow and task email templates* with your own templates.

Search the web for `PDXpert email notice templates setup`.

Queue

Sometimes email notices cannot be sent because, for instance, the email SMTP server is unavailable due to system maintenance, network interruption or other issue. The PDXpert Application Server holds the email notices in a queue and tries to re-send them every few minutes.

The list shows the status of each unsent email:

Email ready: The email notice is in the queue and is sent during the next connection to the SMTP server.

Email blocked: The email notice has not been sent, often because the SMTP server is not available. The system continues to attempt to send blocked notices for up to 24 hours.

Email failed: When all attempts have failed, the system will stop trying to send the email notice. A failure often occurs because (1) the current email settings are not correct; or (2) the **PERSONS** collection member's email address is blank or invalid.

If the email server has been unavailable for a while, unsent emails may no longer be useful to their intended recipients. In this case, delete selected (or all) notices from the email queue before re-enabling the email server.

Administrators enable this option using Tools menu ➜ ✓ Administrator Override The menu option is shown when the user's role ☑ Collections/Rules administrator setting is marked.

Select this menu option to correct minor text or list selection errors in released or in-process items.

> **WARNING: This suspends system rules that protect approved database records.**
> - CAD software, manufacturing systems, and supply chain partners may rely on a current value in PDXpert. Check that other systems will accept (or ignore) your changes.
> - Before making changes to a production system, back up your database and confirm that no other users are using the system.
> - After making changes, test your changes in item records, related reports, PDX packages, and Transforms to ensure there are no unexpected effects in PDXpert or other computer systems.
> - Edit only the attributes shown below. Never use the ✓ Administrator Override option to add or remove BOM, reference, source, or revision file relationships, or a change form's affected item list. Use the standard change revision process to add or remove items on these lists.

> To protect data from accidental changes, select this option only when necessary, and clear it as soon as the task is finished. As a further safety measure, this option is cleared every time you close your PDXpert client.

While the option is selected, the status bar shows Administrator Override tool is active , and the following attributes may be edited:

Documents

Number

> If the **DOCUMENT TYPES** collection member has its ☑ User cannot edit assigned number checkbox marked, then the setting must be cleared and saved to allow editing. After editing the Number , restore the checkbox value.

Item-level attributes (except Class and Type) : Owner , Description , Product families , Attributes , Custom , Notes
Item-level relationships: Item Files list
Iteration attributes: Revision , Lifecycle , etc. and Tasks relationships
Iteration relationships: Can add/delete References and Revision Files while item is at Originated or Submitted

Parts

Number

> If the **PART TYPES** collection member has its ☑ User cannot edit assigned number checkbox marked, then the setting must be cleared and saved to allow editing. After editing the Number , restore the checkbox value.

Item-level attributes (except Class and Type) : Owner , Description , Product families , Attributes , Custom , Notes
Default unit of measure

> Modifying a part's Default unit of measure value affects bills of materials, and may affect (or damage) related data records in CAD or manufacturing systems. See the Attributes page (part): Default unit of measure help topic.

Item-level relationships: Materials , Item Files lists
Iteration attributes: Revision , Lifecycle , etc. and Tasks relationships
Iteration relationships: Can add/delete BOM , Sources , References , and Revision Files while item is at Originated or Submitted

> Edit the Markup list, and re-open the part window to see your changes in the Current list.

> The BOM row unit of measure is controlled by the ☑ Lock part default unit of measure on BOM system rule . Modifying a row's Unit of measure value may affect (or damage) related data records in other computer systems. Check the impact carefully. You may also need to update the row's Quantity . See the Attributes page (part): Default unit of measure help topic.

Change Forms

Change form attributes (except `Class` and `Type`) : `General` , `Attributes` , `Custom` , `Notes`

Change form relationships: `Related` , `Observers` , `Files` , `Tasks` relationships

Releasing relationships: Can add/delete `Affected` and `Reviewers` while change lifecycle is at `Originated` or `Submitted`

Custom collection member

Default member of collection

> This allows a custom collection's default member to be removed so that the collection can be deleted. See [Deleting a custom collection](#) .

Administrators open this window using Tools menu ➜ Index Status… The menu command is shown when the user's role has ☑
Collections/Rules administrator marked.

The Index Status tool shows the status of indexed items (documents, parts, change forms) and file attachments.

There are two index functions, with different purposes:

- A SQL Server *database table index* determines how fast a data table can be scanned to find a specific data record, and how fast it's linked to related records in other tables. These table indexes are used for item searches; making new items; opening existing records; running reports and transforms; and anything else that gets data from the SQL Server database.
- The *search engine index* selects documents, parts, change forms and file attachments in response to an Item Explorer search request. This index only affects **what text** can be found using the Item Explorer; it has no impact on **how fast** it can be found. This index has no performance effect on creating or viewing items; processing change forms; running reports; or using transforms.

Although both indexes are automatically managed, you can use the Re-index button to rebuild the database table indexes and then update the search engine index.

After you click the Re-index button, you can close the Index Status tool – the indexing process continues to run on the server computer until it's finished.

> Re-index during a quiet time:
> - Rebuilding the database table indexes requires noticeable system resources.
> - Until search engine indexing is finished, some items may not be shown in Item Explorer search results.

> A typical computer indexes about 2000 items per minute, but indexing can be much faster or slower depending on many factors.

Database table index

- Maintain database performance by re-indexing at least once a year. More frequent re-indexing is normally not needed.
- The Batch Importer tool can fragment database table indexes, particularly when importing items that have custom attributes. Re-index after you finish a large import project.
- If frequent re-indexing noticeably improves performance, consider scheduling a task to regularly de-fragment the table indexes. If you're comfortable using Transact-SQL, search the web for `sql server reorganize rebuild fragmented index`

Search engine index

Item index

- The search index is updated by the server computer's PDXpert Server service. The index service selects a new group of records from the index queue every few seconds.
- When you save a record, it's added to the service's indexing queue. If there's nothing else in the queue, then indexing starts on the next index cycle.
  - After making or changing a data record, the record and all of its direct relationships are re-indexed; the indexed results may not be instantly available.
  - After changing a collection member, every item using that member must be re-indexed. If you edit a frequently-used member (for example, an item lifecycle name or unit of measure), then most items in the database may need re-indexing.
- Server hardware, storage connection bandwidth, SQL Server edition, and transaction load have a big effect on index speed.
- Item indexing is first-in, first-out. If the queue is working on other records, these are completed before new items are started. If a group of items is added to the queue, some items become searchable before others. A search may return a few — but probably not all — matching items, and then more may appear in a new search, until all have been indexed.
- If the same item is added to the queue several times, then the system indexes the item once, and deletes the duplicate entries.

- An item's indexed terms may include information about related items. For example, a change form may mention a part number that it released, and the change form may appear in that part's search results.
- Adding, changing or removing a type's custom attribute definition adds all related items to the queue. Unlike standard attributes, a custom attribute cannot be optimized and needs more time to index. Indexing speed is directly related to the number of custom attributes multiplied by the number of items with those attributes.

File index

- File attachments are indexed using software components ("IFilters") installed on the server computer. There may be a noticeable delay before file indexing starts, and the filter service runs at a much slower speed than item indexing.
- Adding a new file to an item automatically schedules the file for indexing. In normal operation, there's never a need to use the Re-index button.
- Restoring a database PDXZ file automatically indexes all files. When you restore a database `.BAK` and separate library folder, and do not restore the contents of the `Data\Filter` folder, use the Re-index button.
- Indexing speed and quality depend on file size, language/culture settings, source application, and IFilter capabilities. These capabilities may be affected by Microsoft Windows and .NET updates, as well as third-party plug-ins installed on the server computer.
- Most IFilters are designed to extract normal text from files; only specialized IFilters can convert scanned images to usable text characters (OCR).
- After installing or upgrading an IFilter, restart the server computer.
- For simpler IFilters, such as the *File Properties filter*, results may be directly saved in the item index, not in the `Data\Filter` folder. If you assign a new IFilter to (for example) CAD files that previously used the *File Properties filter*, use the Re-index button to re-index these files.
- An IFilter produces the same results each time a file is indexed. Previously-indexed results that have been saved in the `Data\Filter` folder are not re-indexed. In general, older files should be re-indexed only when an IFilter is changed or upgraded; for example, if the Windows default *Reader Search Handler* is replaced with a different PDF filter.
- In the special case when a complete re-index of all library files is required, select one of these options to delete the `Data\Filter` folder contents:

Option A: Preferred for all systems.
- On the PDXpert Server window, note the location of the current data directory.
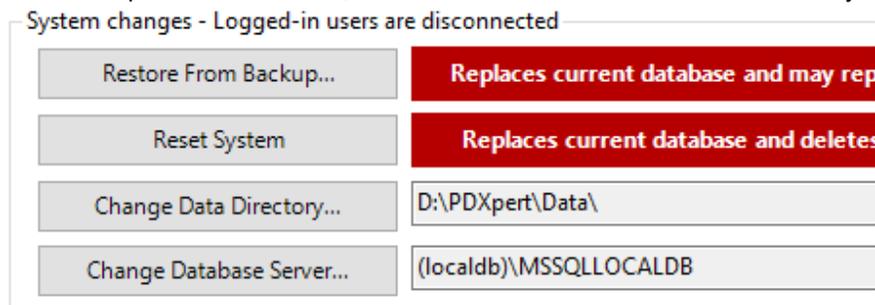
  .
- Close the ☑ PDXpert Application Server window and all PDXpert clients.
- Stop the PDXpert Server service and, if asked, the PDXpert Filter Service.
- Delete all files in the server data directory's `Data\Filter` folder.

  > Do not make any changes in other data directory folders.

- **Restart the server computer.** Do not simply restart the PDXpert Server service.
- After Windows restarts, open a PDXpert client to re-index all files using the Re-index button.

Option B: Acceptable for smaller systems using the `.PDXZ` backup format.
Resetting the system deletes the content of all folders, including the `Data\Filter` folder.
- [Back up the database and library.](#)
- [Reset the database and library.](#)
- [Restore the backup.](#)

Administrators open this window using Tools menu ➔ Recursion Assistant... The menu command is shown when the user's role has ☑ Collections/Rules administrator marked.

Recursion (also *cyclic* or *looping*) errors are infinite loops of product BOMs, where an item is shown on its own BOM, or on one of its lower-level child items. They're often discovered when a multi-level BOM report fails. An example would be a multilevel assembly list like:

```
... continues ...
Assembly 100123
  Assembly 100101
    Assembly 120456
      Assembly 100123
        Assembly 100101
          Assembly 120456
            ... continues ...
```

In this example, assembly 100101 cannot automatically be identified as the top-level item, because it's also a child of 100123. You may see an error message like `The maximum recursion has been exhausted before statement completion` when running a multilevel BOM report or adding an affected assembly to a change form.

The Recursion Assistant searches your database for recursions, and lets you select the true top-most parent item.

> The Recursion Assistant lets you update items that were previously released. Back up your database before using this tool, and examine your results after the test is finished.

> To ensure data integrity, you must be the only one user logged into the system while using the tool.

> Another type of recursion error occurs when References are cross-linked: where `ItemA` shows `ItemB` as its reference, and `ItemB` shows `ItemA` as its reference. The cross-linked items must be found, and then one side of the relationship must be removed. Cross references complicate revision management, can't be represented in PDX packages, and make some types of **Transforms** difficult to write.

> The Recursion Assistant... menu command is only visible to users who have a **Roles** member that includes the Collections/Rules administrator permission.

1. Click on the Item menu ➔ Close All to close all part, document and change form records before you begin.
2. Click on the Tools menu and select the Recursion Assistant... command. This opens the Recursion Assistant tool and automatically starts the recursion search.
   - The Recursion Assistant may show one or more recursion groups. In each group, a **random** assembly is selected. Review and select the correct top-level assembly. If you need to investigate further, mark the ☑ Skip this and fix later option.

     > If you select an assembly that is not the top assembly, then the correct relationship is broken and the incorrect relationship is not fixed.

     Click the Continue button to make the necessary changes to the selected BOMs.
   - If the test doesn't find any recursion errors, then the list is empty. Click the Continue button.

3. When the tool shows `Recursion test finished` , click the Close button.

Create Member...

Opens a wizard to make a new member of any collection. This command is available only if your role includes the administrator permission.

Create Document...

Opens a wizard that prompts you for the document's identification, and then saves this new document and opens a window for further editing.

Create Part...

Opens a wizard that prompts you for the part's identification, and then saves this new part and opens a window for further editing.

Create Change...

Opens a wizard that prompts you for the change form's identification, and then saves this new change and opens a window for further editing.

Search

This command shows the Item Explorer's   Search   page.

Close

Closes the selected window. If you've edited the item, then it's saved.

Close All

Closes all open windows in the application workspace. If you've edited any items, then those items are saved.

Save

Saves all changes to the selected item, and clears the undo buffer.

Save All

Saves all changes to all modified items, and clears each undo buffer.

Remove Object

Deletes the active object (the front-most window in the workspace) from the database.

If the active window is:

- A part or document with a pending iteration and at least one released or canceled iteration, then the pending iteration is deleted. If the part or document does not have a released or canceled iteration, then the complete item is removed: Remove your document and Remove your part
- An originated, submitted or canceled change form, then the change form is deleted: Remove your change form
- A collection member, then the member is removed: Remove a collection member

See the related help topics for rules (such as user permission, use by other items, release state) that may prevent deleting the record.

Exit

Closes the PDXpert client application.

Undo

PDXpert has extensive undo capabilities. In general, you can undo all edits made to an item in reverse sequence to how they were originally added. Saving your edits clears that item's undo list.

Redo

If you've undone several steps, you may decide you've gone "too far back". Redo lets you restore any steps that were accidentally undone.

Cut

This command copies the selected data to the system Clipboard, and then deletes the selected data.

Copy

This command copies the selected data to the system Clipboard. The source data remains unmodified.

Paste

This command copies the system Clipboard's contents to the selected control or list.

Delete

This command deletes the selected text.

Select All

Where more than one object can be selected, this selects all objects.

Revert to Last Saved

Undoes all changes that have been made to the selected item since the last time it was saved, and clears its undo list.

Refresh

An item's data is copied from the database when the item is first opened. If other users make changes to the record, your open copy may become out of date. To obtain a fresh copy of the selected record's data, you can close and then re-open the record or use the `Refresh` command.

> The command only refreshes data on the selected object, including "child" relationships like the BOM, Sources and References lists. It doesn't refresh "parent" relations as shown on the `Appears On` lists.

Lock Object, Unlock Object

If you have permissions to modify the current object, this unlocks the form. When you lock the form, your modifications are saved.

When you're the trustee of, or on the product team for, an unreleased document, part or change then the attributes that you can edit are immediately available. However, if the item is released or canceled, you can only modify the product team attributes after you unlock the item.
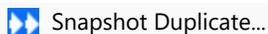
Snapshot Duplicate…

In most product management environments, often a new item is quite similar to another existing item. You can take a "snapshot" (exact copy) of the displayed item iteration, and then add the new item's unique data. This command (1) creates a new blank item of the same class and type, and (2) copies much of the source item's data (including BOM, source, reference and custom attribute values) into the new item. The copied value of `Lifecycle phase` controls whether the new item's `Revision` starts with its `Initial revision sequence` or `Subsequent revision sequence` value.
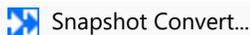
Snapshot Convert…

Similar to the `Snapshot Duplicate` command, you can make a copy of the displayed item iteration, and then add the new item's unique data. Before the item is created, you can select any existing part or document type from a pop-up window, and the source item's transferrable data is copied to the target item. Since part and document attributes can be quite different, some starting values may be substituted in the new item.

User tools

Report/Export Wizard…

Opens the Report/Export Wizard for exporting data files and running specialized reports using members of the **Transforms** collection. This command is available when the user's role has ☑ Allow Transforms marked. See the Use the Report/Export Wizard help topic.

Markup Wizard…

Opens the Markup Wizard for revising the list of child items that are shown on groups of parent items. This command is available when the user's role has ☑ Is an analyst marked for both Documents and Parts . See the Use Markup Wizard help topic.

User Settings…

Opens the User Settings form, which lets you manage personal settings. See the Adjust your user settings help topic.

Passwords…

Opens the ☑ Set Password dialog, which lets you change your local account password. This command is not available if you have logged into PDXpert using a domain account, which is like {domain}\{username} . See the Set your password help topic.

Export/Report ▸

Shows selected members of the **Transforms** collection. Commands are shown only when the user's role has ☑ Allow Transforms marked, and where the transform's context location is UserArea . See the Running the report: Custom reports help topic.

Administrator tools

These commands are available when the user's role has ☑ Collections/Rules administrator marked.

> Before using an administrator tool, read the help topic carefully.

✓ Administrator Override

If you have been given an administrator role, then you can select this option to correct minor text or list selection errors in released items. This option isn't used to edit attributes normally managed by the item trustee, analysts and product team members. While the option is enabled, the status bar shows Administrator Override tool is active . See the Use Administrator Override help topic.

> **WARNING: This suspends system rules that protect database records.**
> - CAD software or supply chain systems may rely on a current value in PDXpert. Check that other systems will accept (or ignore) your changes.
> - Before making changes to a production system, back up your database and confirm that no other users are using the system.
> - After making changes, test your changes in item records, related reports, PDX packages, and Transforms to ensure there are no unexpected effects in PDXpert or other computer systems.
> - Edit only the attributes shown below. Never use the ✓ Administrator Override option to add or remove BOM, reference, source, or revision file relationships. Use the standard change revision process to add or remove items on these lists.

> To protect your data from accidental changes, select this option only when necessary, and clear it as soon as the task is finished.

Batch Importer…

To load data from another source, and to update part and document records, see the Use the Batch Importer help topic.

Email Management…

Opens the Email Management tool, which lets administrators manage the outbound email notice settings and queue. See the Email management help topic.

Index Status…

The Index Status tool shows the status of indexed items (documents, parts, change forms) and file attachments. The Re-index button rebuilds the database table indexes and replaces the search engine index. See the Index Status help topic.

Recursion Assistant…

The Recursion Assistant examines your database for cyclic errors on multi-level bills of materials. See the Use the Recursion Assistant help topic.

Software License Key…

To enter your license key, see the Enter the software license key help topic.

System Rules…

Opens the System Rules tool, which lets administrators manage the software's functions. See the System Rules tool help topic.

Update Currencies…

You can update the exchange rate for members of the **CURRENCIES** collection. If you change the default member and then run this tool, the default member's Exchange rate is set to 1 and the exchange rate for every other currency is re-calculated.

> This free currency update service relies on one or more third-party providers to get exchange rates for your convenience. These providers' accuracy, reliability, licensing, service interface, and availability are not guaranteed. You may need to update PDXpert to reflect provider changes; future PDXpert releases may not include a free update service. If the service is unavailable or doesn't meet your needs, then manually edit the exchange rates or update values with a SQL query.

User Management…

To manage your user accounts, see the Manage user accounts help topic.

Export/Report ▸

Shows selected members of the **TRANSFORMS** collection. Commands are shown only when the administrator's role has ☑ Allow Transforms marked, and where the transform's context location is `AdministratorArea`.

All of these menu items are used to move a change from one change lifecycle state to a different lifecycle. Only certain steps may be available, depending on (a) the change's status and (b) the lifecycle states enabled by the current workflow. For example, if you've just finished making a new change, you may only submit it to an analyst; you cannot approve, release or cancel it, and therefore these menu items aren't available.

> To process a change form, it must be open and selected.

Return to Originator

Return a change form to the originator for more technical information or corrections.

Submit to Analyst

Submit a change form to an analyst, who reviews it to ensure that it conforms to the change process: required data is provided, affected items are identified, and the appropriate groups will review it.

Route for Approval

Notify the reviewers in each listed group that the change is available for their review and approval.

Release Change

If the change form has not been automatically released by the workflow, this command lets the change to be released after a review of any comments made by reviewers while the change form was routed for approval.

Reject Change

Sets the change form to the permanently rejected lifecycle state. A rejected change has no effect on the affected items, and cannot be modified or removed from the database.

Cancel Change

Sets the change form to the permanently canceled lifecycle state. A canceled change has no effect on the affected items, and may be removed from the database.

Complete Change

A completed change form ensures that the change's content, including dispositioning information, is permanently locked.

Reset Explorer Docking

Restores the Item Explorer and Collection Explorer to their default docked location.

Open Item Explorer

Shows the Item Explorer dockable window, if it's previously been closed.

Open Collection Explorer

Shows the Collection Explorer dockable window, if it's previously been closed.

Cascade

Overlays and offsets all item windows within the workspace.

Tile Vertical

Resizes all item windows to fit within the workspace side-by-side.

Tile Horizontal

Resizes all item windows to fit within the workspace top-to-bottom.

1 (window title) …

Allows you to select an item or member window from all windows in the workspace.

More items…

If this menu selection is displayed, more than 9 items are currently open and available for selection. This selection opens the Select Window dialog, from which you can restore any minimized window.

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❓ PDXpert PLM Help

Opens the help file to the best topic.

Contents

Opens the help file to the ⎢ Contents ⎥ tab.

Index

Opens the help file to the ⎢ Index ⎥ tab.

Shortcuts

Opens the help file to the Keyboard shortcuts topic, which shows function keys, ⎢ Alt ⎥ and ⎢ Ctrl ⎥ keys, and other tips.

Setup Guidance

Opens the help file to the Setup introduction topic, which summarizes the steps for configuring the software.

Technical Support...

Opens the ☑ Technical Support dialog, which contains PDXpert's support information. You can save the client log files from this window.

PDXpert on the Web

Launches your computer's default web browser, and opens the PDXpert website's home page.

About PDXpert PLM...

Opens the ☑ About PDXpert PLM dialog, which shows information about the application and your computer.

Use the checkbox to manage the PDXpert Error Reporting Service (PERS). PERS is an important tool for discovering unexpected behavior, analyzing run-time errors, and improving software quality. *PERS never includes any of your product data.* It includes the PDXpert profile, software environment, and .NET exception stack trace.

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A single document is shown in a `Document` form.

At a minimum, a document consists of an owning organization that's responsible for its technical content, document type, document number, title, technical content revision and business lifecycle.

Since documents may be physically managed and distributed, you can specify the media or storage location of the document.

Most documents are CAD, images, and text files, and thus you can attach computer files to the document record's `Files` lists.

Class icon

The document class icon shows the most recent iteration's release status:

Pending
Released
Canceled

> You can drag the icon and drop it onto a destination, such as a different item's markup list or a change form's affected list.

The form always opens the released iteration. If the document doesn't have a released revision, the pending iteration is opened. If there's no pending iteration, then the most recent canceled iteration is opened.

Status bar controls

The status bar controls let you:

- Unlocked the form for editing using the `Lock / Unlock` selection. Locking the window automatically saves any changes.

- Select an iteration using the dropdown box. Each iteration shows its current release state (pending, released, canceled) as an icon; its revision and lifecycle; and the executing change form that released it.
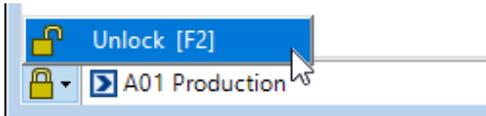
Pending
Released
Canceled

Iterations in the list are shown with most recent first, and the oldest last.

- Make a new pending iteration by selecting `<..New..> ∨` from the list. This option is not shown if the document has a pending iteration.
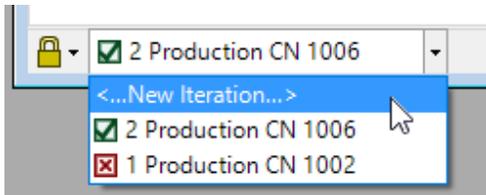
Document pages

[Files: Item Files](#)

[Tasks](#)

[Notes](#)

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The ‹General› page provides the basic information about the document: its unique identity (owner, number, name), a selected technical content identifier (revision), and how that technical content may be used (lifecycle).

Owner

This is the organization that gives the document number, controls the document's contents and approves its release. Typically, your organization owns documents that define its designs and procedures. Other partner organizations can also own documents, such as (a) regulatory agencies that publish industry requirements, (b) manufacturers that publish product datasheets, or (c) customers that issue product requirements to your designers.

The value is locked on first release.

Document type

The type defines the document's attributes and behaviors (like numbering, revision format, custom attributes, etc.), which are controlled by its **DOCUMENT TYPES** collection member. The class icon shows the most recent iteration's release status:

Pending
Released
Canceled

The type defines the document's attributes and behaviors (like numbering, revision format, custom attributes, etc.), which are controlled by its **DOCUMENT TYPES** collection member.

> The ‹Type› cannot be edited. If you want to apply a different document type, you must convert the document and let PDXpert copy whatever it can from the old document using the new Document Type's rules. You can then remove the unwanted document from your system or, if it's been released, cancel the released iteration . If the new item must use the same Number, then search the web for this application note:
> `PDXpert Switching an existing item to a different type` .

Number

The document ‹Owner› and ‹Type› determine the document number rules:

- Documents designed and controlled by your home organization are given a number based on the document type:
    - Manually: You can enter your own number or click the ‹1▸2› button to give a new number, and further edit the given value. The ‹Number› textbox and the ‹1▸2› button are both enabled.
    - Automatically: The ‹Number› field, as well as the ‹1▸2› button on the right-most end of the textbox, is locked and the document number is present.
- Documents designed and controlled by partner organizations are given document numbers by those organizations. The ‹Number› field is editable and the ‹1▸2› button disabled.

The auto-number format and value are specified in a **SEQUENCES: IDENTIFIER** collection member.

The value is locked on first release.

Document name (title)

The document title provides an indexed, searchable description of the document's contents or purpose.

> The starting value is copied from the document type's ‹Text template› value. See the Document types: Document title template help topic.
>
> The ‹Name{a}› button inserts the values on the ‹Custom› page into the document type's ‹Text template› . The button is visible only when custom attributes have been specified on the document type. To make a new document title, first enter the custom attribute values, and then click the ‹Name{a}› button to make the title. The new name completely replaces the previous name. You can edit the new name after the custom attributes have been inserted.

> The search engine finds and indexes search tokens, which are alphanumeric strings separated by space characters. When a document title like `Spec, Screw, Metric` is indexed, individual tokens `Spec Screw Metric` are found (the commas `,` are removed). The item's complete set of tokens includes the description, owner, number, custom attributes, notes, and other data fields. Search results are ranked based on how many tokens are matched: when searching for metric screw specifications, `metric screw spec` ranks higher than `screw spec` . The item's list of tokens gives search flexibility: you won't care that other users use `SCREW, SPEC, METRIC` or `Spec, metric screw` for the title. You may also look for `spec*` to find titles with `specification` . The token list

also lets you omit items that include an unwanted token: `spec metric -screw` . See the <u>Search for items</u> and <u>Search commands</u> help topics.

> While descriptions with Unicode characters (like *cm²* and *kΩ*) might look better, they're often hard to use. For example, searches are more difficult if some keyboards don't show the character, and older manufacturing applications may not know how to import or display these characters.

The value is locked on first release.

Trustee

This is the person who has overall responsibility for the document's contents. The trustee can edit various fields, add references, attach files, and add the document to a change form's Affected list. The trustee, as well as analyst, can give the document to a different user, who becomes the new trustee.

Product families

Permissions defined within a **PRODUCT FAMILIES** collection member change how other users can view or edit this item. Add a product family by dragging it from the **PRODUCT FAMILIES** collection in the Collection Explorer.

Double-click a product family in the list to show the **PRODUCT FAMILIES** collection member.

> The <u>User settings tool</u> can define a list of **PRODUCT FAMILIES** collection members that are copied to each new item.

> Administrators can use the Batch Importer tool to add **PRODUCT FAMILIES** collection members to this list, or reset the list.

— Iteration: Revision at Lifecycle —

This area shows the selected iteration's current status – Pending Released Canceled – with supporting details.

Revision

A document revision identifies each step in the evolution of a document's technical content.

Depending upon the rules adopted by your company, a document revision can specify a major non-interchangeable change, or a minor ("clerical") difference. Normally, technical content that has major changes is given a new document number. Changes that simply add minor content, clarify technical information, or correct clerical errors usually retain the same document number, but require a new revision.

The revision's 1▸2 button sets the revision to the starting value of the current revision sequence, based on the selected Lifecycle phase .

The value is locked on release.

Lifecycle phase

Independent of technical content revisions, a document can be given a level of "business maturity". You may have relatively little confidence in a first-draft document: you may need to circulate it for comment, try out its procedures, or build prototype parts with it. As your confidence in the document's accuracy and relevance develops, the lifecycle progresses. When the document is fully validated, you release it for production use.

Lifecycle selections are specified in the **ITEM LIFECYCLE PHASES** <u>collection</u> .

> If the **DOCUMENT TYPES** collection member specifies a Subsequent revision sequence , after selecting a new Lifecycle phase value, make sure that the Revision is correct.

The value is locked on release.

Version

A version is used to distinguish documents with the same document number. The Version field may be shown or hidden, depending on whether the **DOCUMENT TYPES** collection member lets documents have versions.

Like a revision, a document version distinguishes earlier iterations of a document from later ones. Unlike a revision, which is managed by PDXpert, the version is made by an outside entity—a person or a different computer application, such as a software compiler—and manually entered here. If both revisions and versions are used for a document, you must make a new iteration to change the version.

> The **DOCUMENT TYPES** <u>collection</u> member's ☑ Show Version field setting shows or hides this field.

The value is locked on release.

Person #1
Person #2

These fields can show people with responsibility for the selected iteration's contents. This list is managed in the **Persons collection** .

> The **Document Types collection** member's ☑ Show a Person #1/#2 role settings show or hide these fields, and can show custom labels, such as Author or Reviewed by .

Revision area

Identify where document changes have been made ("pages 7-9", "Appendix B", "zone A-3").

The value is locked on release.

Release description

The Release description summarizes how or why the iteration has been changed. The change form's Affected list shows the first 50 characters as a brief note to reviewers.

The value is locked on release.

Created on

The system-assigned date when the selected iteration was created. Users cannot change it.

Release status

The system shows when the selected iteration is released for use.

- If the iteration is not on any executing change form's Affected list, then the status is shown as Pending and the text field is empty.
- If the iteration is added onto an executing change form but is not yet released, then the status is shown as Pending and the text field shows the change form that will release the iteration.
- If the iteration is released, then the status shows Released and the change form that released it.

Double-click the change number to open the related change form.

Release date

This date is set by the system to show the release date of the selected iteration. Users cannot change it.

Effective date

The effective date shows when the iteration is permitted for use. If you do not set the date, then the system copies the iteration's Release date ; that is, the document is immediately available for use as needed.

The value has no effect on PDXpert's operation; the technical content is correct on its release date.

> A document's Effective date is almost always its release date. The document's availability must support the physical parts' effectivity (which is often immediate) and the resulting procurement/production schedule.

Cancel status

The system shows when the selected iteration is replaced by a new released iteration, or the item is withdrawn from use.

- If the iteration is not shown on any executing change form's Affected list, then these fields are not shown.
- If the iteration is added onto an executing change form but is not yet canceled, then the status is shown as To be canceled , and the text field shows the change form that will cancel the iteration.
- If the iteration is canceled, then the status shows Canceled and shows the change form that canceled it.

Double-click the change number to open the related change form.

Cancel date

This date is set by the system to show the cancel date of the selected iteration. Users cannot change it.

RELATED TOPICS

How to manage documents

Language

The document is written in this language, which need not be the same language as that used by PDXpert. When a new document is made, the owning organization's default language is copied to this field, but can be overridden.

Media/location

This lets you specify the document's medium (e.g., paper, film, CD, DVD) or its physical storage location, according to the **MEDIA/LOCATIONS** collection members specified by your administrator.

Snapshot from

If the document is copied from a snapshot source (Edit ➜ Snapshot...), then this shows the original source. Open the source item by double-clicking it. Removing the source item deletes this reference.

> This field is shown only when the item was copied from another item. Removing (deleting) the source item from the system deletes this reference.

RELATED TOPICS

[How to manage documents](#)

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> These controls are visible only when custom attributes have been specified on the related **DOCUMENT TYPES** , **PART TYPES** , or **CHANGE FORMS** collection member.

The custom attributes list extends PDXpert's standard attributes with properties that are unique to your organization. Custom attributes are specified by your administrator for all items of a particular item type.

Custom attributes can be changed at any time by the item trustee, an analyst or member of the product team.

RELATED TOPICS

Specifying custom attributes
DOCUMENT TYPES collection
PART TYPES collection
CHANGE FORMS collection

1053

The `References` lists show parts and documents that affect, influence or validate the document's content. For instance, a product performance specification document may refer to a set of industry standards or regulations.

> The `References` lists are shown when documents and parts are enabled as references. See the **References Tabs** system rule .

> Do not make cross references (where `ItemA` shows `ItemB` as its reference, and `ItemB` shows `ItemA` as its reference). Cross references complicate revision management, can't be represented in PDX packages, and make some types of TRANSFORMS difficult to write.

> Use the **item icon** to drag a part or document from the list to any other location that accepts the item. To select multiple items, click on the first row, press the keyboard `Shift` (range) or `Ctrl` (individual), then click on a different row.

Markup list

This is the initial set of child items that will be approved for use on the iteration. The mark-up list is used to modify the list of items referenced by the document iteration.

While the document iteration is pending, a reference record's most recent pending or released iteration is shown.

To change the contents of the `References: Markup` list:

- Add a new reference to the list by dragging an item (document or part) from the `Search` or `Recent` lists on the Item Explorer, and then dropping it onto the `References: Markup` list. Add notes as needed.

  > You can only drop documents and parts onto documents that will accept them. The ☑ References accept parts and ☑ References accept documents checkboxes are specified in the **References Tabs** system rule.

- Modify the `Row` and `Notes` values by unlocking the record and editing the value. (This can also be done after the document iteration is released.)
- Replace an existing reference by dragging an item from the Item Explorer and dropping it onto an existing `References: Markup` row. The notes are copied to the replacement row, and can be edited.
- Remove an existing reference by selecting the reference, opening the context menu, and selecting the `Remove Item From List` command (or pressing your keyboard's `Delete` key). The row is still shown, but is marked to be removed upon release.

Releasing the part iteration on a change form copies the `References: Markup` list to the `References: Current` list. (Removed references aren't copied.) The iteration's `References: Markup` list cannot be changed. It permanently shows the released child iteration as the row's starting point.

Current list

This is the most recent set of child items that are approved for use on the iteration. While a document iteration remains pending, its `References: Current` list of references remains hidden.

After a document iteration is released, its `References: Current` list always shows the latest released iteration of a referenced item. That is, each time a referenced item is revised and released, the document's `References: Current` list of references is automatically updated each time it's opened.

When a document iteration is canceled, the `References: Current` list shows the reference iteration that was valid at the time of cancelation. If a referenced item is subsequently revised, the canceled document's `References: Current` list of references won't be updated.

Markup and Current data fields

The document's trustee can edit the `References: Markup` list while the iteration remains pending. The document's `References: Markup` and `References: Current` lists are locked when the iteration is released or canceled.

Row

    This is the sequence in which the references list is sorted. Enter any non-negative (≥0) integer value.

Item

    This identifies the item referenced by the document.

Notes

    You may use this text for any purpose.

> The contents of this field are indexed, and will return the reference item.

> The Notes field is not under revision control, and can be edited by the trustee and product team members.
> - To change the released iteration's value without creating a new iteration, unlock the released iteration, select the Markup list, and edit the data.
> - To keep the previous iteration's value, create a new iteration. On the Markup list's context menu, select the Modify Item command, then edit the data.

Use the sort buttons along the top of each list to temporarily adjust the references.

> The IPC-2570 standard does not define References. PDXpert uses the `AdditionalAttributes` element to include a referenced item, which is added to the `Items` list. That item includes the referenced item's attributes; attachments for revision (`isFileIn=Yes`) and item (`isFileIn=No`) files; materials; and change history.
>
> The PDX specification's `AdditionalAttributes` element doesn't support a recursive structure, and therefore a PDX package excludes the referenced item's own references, sources and BOM items. If your supply chain partner needs these details, the referenced item must be exported in its own PDX package.

RELATED TOPICS

    [Manage document references](#)
    [How to manage documents](#)

This is a view of where the document appears within other items ("where used").

> `References` The document is used as a reference by the listed items. Reference documents — such as a requirement, specification or procedure — are often identified to support a design, production or inspection task.
>
> Each row of the References list shows when the item was first added to the parent item (`From`), its current state or when it was removed (`To`), and some relationship details. The row's pop-up shows more detail about the relationship, including the latest iteration of the parent. If any information in the relationship changed – such as the reference `Notes` – then a separate row is shown.
>
> `Changes` The list shows each change form that includes the document on its `Affected` list. Use the lifecycle filter buttons, above the list, to include or exclude change forms that affected the item.
>
> Rows in the Changes list show release/cancel details for executing change forms ⬛ and only item information for advisory change forms ⬛ .

To view higher-level items where
- the document is shown, regardless of iteration, select the `This Item appears on these: ⌄` option.
- only the selected iteration is shown, select the `This Revision appears on these: ⌄` option.

To open a listed item, double-click on its icon or select `Open Item` from the context menu.

> Select any item to drag it from the list to any other location that accepts that class of item. To select multiple items, click on the first item, press the keyboard `Shift` (range) or `Ctrl` (individual), then click on a different item.

RELATED TOPICS

      How to manage documents

1051

These controls are visible only when the ☑ Show Files tab checkbox is marked on the related **Document Types** , **Part Types** , or **Change Forms** collection member.

PDXpert can directly operate on the files that define a product. You tell PDXpert where the file is, and whether you want PDXpert to copy it into the data library or just point to it as an external browser link.

All commands for file management are on the Tools ➜ Files submenu, as well as on each list's context menu.

There are 3 general categories of files: closely managed revision files, item attachments saved in the system library, and external links to resources that PDXpert doesn't manage.

In a standard PDX package, part/document revision files and change form files are included (isFileIn="Yes"). Item files attached to documents and parts are identified in the PDX package but are not included (isFileIn="No").

Links to external resources are included in a PDX package. Some users may not see the linked resource if, for example, the link points to a private server on your local network.

All files' Notes are included in PDX attachment descriptions.

Revision Files

A revision file is related to a particular technical revision of a part or document, and is permanently saved within the data library when the related item iteration is released by a change form.

Objects that don't have revisions (such as **Change Forms** and **Organizations**) don't have revision files.

Because a revision file is identified by revision and not by lifecycle, PDXpert uses the accepted term *revision file* even though the file is attached to an iteration (revision + lifecycle) record. A new iteration that simply modifies the record's lifecycle usually copies its revision files forward with the same technical content. The file's Notes text is tied to the file, and is shown on all iterations that use that file.

Item Files

An item file isn't as tightly controlled as a revision file. It can be added, changed or deleted throughout the item's life regardless of any iteration's release status.

An item file can be saved within the PDXpert server's library, or saved as an external link.

- An *item attachment* saves an exact copy of a file. These may be background sketches, customer notes, vendor quotes or production records.
- An *external link* is a resource on the local network or internet that PDXpert doesn't copy or control. It may be updated, moved or deleted without PDXpert knowing. Use an external link when you want to point to the latest version of "background information" data, such as a supplier's web page.

File commands

These commands are shown on the file context menu. Some commands are shown only for a revision file or for an item file.

View File...
Copies the file from the server to a temporary location on your computer, and asks Windows to open the copy. See the Viewing a file help topic.

Copy Library File...
Copies the file from the server to a location that you specify. See the Copy a file help topic.

Add New File...
Adds a file to the Revision Files or Item Files list. See the Attach a revision file or Attach an item file help topics.

Add New External Link...

Lets you specify a link to an external resource, such as a website or network file. See the [Attach an external link](#) help topic.

Add Notes...

Add a brief comment about the file.

Permissions...

Sets permissions for viewing and managing the file.

📎 **Check Out and Lock...**

Copies a revision file to a location you specify, and locks the file so other users can view and copy the file, but can't check it out. See the [Check out a file](#) help topic.

📎 **Check In and Free...**

Replaces the checked-out revision file from a location that you specify, and frees the file lock so that other users can check it out. See the [Check in a file](#) help topic.

Free File Lock

Removes a checked-out file's lock without replacing the file with an updated version. See the [Free a file lock](#) help topic.

Delete File

Deletes the selected file from the list.

- A revision file can be immediately deleted if it's not on an earlier released iteration. Otherwise, it can be marked for removal after processing an executing change form. See the [Remove a revision file](#) help topic.
- An item file or external link can be deleted without processing a change form. See the [Remove an item file or external link](#) help topic.

Microsoft Windows provides good cross-platform file support. However, archive files – `.zip`, `.7z`, `.rar`, and similar general purpose lossless compression formats – should be made only on a Windows machine.

All files, including compressed files, are copied unchanged into the PDXpert library. If a compressed file is later included in a PDXZ backup file or a PDX package, Windows may try to optimize files that can be decompressed by the .NET `System.IO.Compression` namespace. If any file was compressed on a non-Windows platform or downloaded from the internet, this Windows optimization may create an invalid PDXZ file or PDX package without warning.

- **Backup:** If you're unsure about the source of any compressed file attachment, then do not use the `.PDXZ` file format. Instead, use the Database without Library (*.bak) backup format, and save the `Library` folder files separately.
- **PDX package:** Before attaching a non-Windows compressed file, decompress the archive's content and then re-compress it on a Windows machine. This applies only to *revision* file attachments; a PDX package does not include *item* file attachments.

Windows may block unknown files that are downloaded from sources outside your network. Windows sets a hidden *NTFS Alternate Data Stream* (ADS) that must be changed.

Before attaching a file to a PDXpert item, open the file's Properties window to see that the file is unblocked. Administrator permission may be needed to unblock a file.

If you're careful about downloads and have a good antivirus program, you can configure Windows to stop blocking files using a group policy or registry setting. Search the web for `disable windows file blocking` Or, save the file to a non-NTFS drive (e.g., FAT) which doesn't support ADS. For more technical discussion, read about the `IAttachmentExecute` Windows API and `IZoneIdentifier` interface.

RELATED TOPICS

[Item Explorer: Files](#)

Give yourself or others an informal reminder about preparing the item for release using the Tasks list. Whether you need to make sure of a design parameter, write a procedure, or call your supplier, you can enter the task and update it.

> Tasks are requests, not requirements. Incomplete tasks do not prevent an item from being released. After release, the task is no longer relevant and is locked at its current status.

Assigned to

This is the person that has been given a task. The task is made by dragging this person's name from the Collection Explorer's **PERSONS** collection, and dropping that onto an empty area in the list.

Due on

The day when the task should be completed.

Status

Shows the progress of the task:

Not Started: When the task is given, before work has begun.

In Progress: The assigned person is working on the task.

Waiting on Another: The assigned person needs information from a different person to complete the task.

Completed: The task is finished.

Deferred: The task will not be completed for the current release, but may be considered for a later release.

Canceled: The task will not be performed. The notes should discuss why the task is no longer useful.

Status on

The date that the status was changed (managed by the system).

Priority

Select the urgency of the task. The person's task list shows the highest priority tasks first, then the soonest due dates, and finally by the most-recently modified tasks.

Assigned by

The person who gave the task (managed by the system).

Assigned on

The day that the task was given (managed by the system).

Task description

Describes the task.

RELATED TOPICS

[Working with tasks](#)
[Item Explorer: Tasks](#)

You can use this to keep the item's history, meeting minutes, or for any other purpose you choose.

You can enter up to about 10 printed pages of general information.

1059

A single part is represented in a Part tab.

At a minimum, a part consists of an owning organization that's responsible for its technical content, part type, part number, name, technical content revision and business lifecycle.

The Attributes page shows more information about the part and how it's used in production.

The Materials list lets you specify the part's total weight, which can be used:

- as the basis for rolling up an assembly's total weight, and
- to specify the percentage of various materials that makes up the part and, in turn, roll-up the constituent materials in its parent assemblies.

A part may have a bill of materials ("BOM"), parts and documents as references, and parts as approved sources. Any part can also show on the BOM of a higher-level assembly, can be a source for a different part, and be a reference on other document or part records.

You can choose whether to attach CAD files, part specifications and other electronic files directly to a part's Revision Files list, or attach the files to a document record and list that document on the part References list.

Class icon

The part class icon shows the most recent iteration's release status:

> You can drag the icon and drop it onto a destination, such as a different item's markup list or a change form's affected list.

The form always opens the released iteration. If the part doesn't have a released revision, the pending iteration is opened. If there's no pending iteration, then the most recent canceled iteration is opened.

Status bar controls

The status bar controls let you:

- Unlocked the form for editing using the Lock / Unlock selection. Locking the window automatically saves any changes.
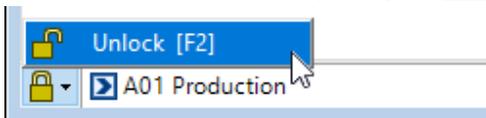
- Select an iteration using the dropdown box. Each iteration shows its current release state (pending, released, canceled) as an icon; its revision and lifecycle; and the executing change form that released it.

Iterations in the list are shown with most recent first, and the oldest last.

- Make a new pending iteration by selecting <..New..> ∨ from the list. This option is not shown if the part has a pending iteration.
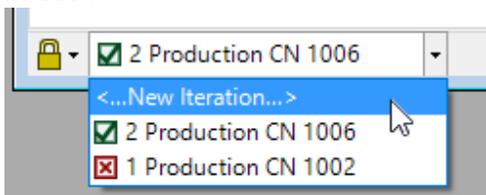
Part pages

1084

The General page provides the basic information about the part: its unique identity (owner, number, name), a selected technical content identifier (revision), and how that technical content may be used (lifecycle).

Owner

This is the organization that is responsible for the design and construction of the part, and controls its technical content. Typically, your own organization is responsible for parts that are fabricated according to your designs and procedures. Partner organizations can own parts, which your organization then can use in your products or for supporting your production process.

The value is locked on first release.

Part type

The type defines the part's attributes and behaviors (like numbering, revision format, custom attributes, etc.), which are controlled by its **PART TYPES** collection member. The class icon shows the most recent iteration's release status:

Pending

Released

Canceled

The Type cannot be edited. If you want to apply a different part type, you must convert the part and let PDXpert copy whatever it can from the old part using the new Part Type's rules. You can then remove the unwanted part from your system or, if it's been released, cancel the released iteration . If the new item must use the same Number, then search the web for this application note: PDXpert switching an existing item to a different type .

Number

The part number uniquely identifies a physical item located in a particular inventory location. The Owner and Type set the part number rule:

- Parts designed and controlled by your home organization are given a number based on the part type:
  - Manually: You can enter your own number or click the 1·2 button to give a new number, and further edit the given value. The Number textbox and the 1·2 button are both enabled.
  - Automatically: The Number field, as well as the 1·2 button, is locked and the part number is present.
- Parts designed and controlled by partner organizations are given part numbers by those organizations. The Number field is editable and the 1·2 button disabled.

The auto-number format and value are specified in a **SEQUENCES: IDENTIFIER** collection member.

> A part number uniquely identifies the item *and* is a distinct inventory location. You should expect that home parts with the same number but different part types or revisions are freely mixed in the same inventory bin.

The value is locked on first release.

Part name

The part name provides an indexed, searchable description of the part's purpose and application.

> The starting value is copied from the part type's Text template value. See the Part Types: Part name template help topic.

> The Name{a} button inserts the values on the Custom page into the part type's Text template . The button is visible only when custom attributes have been specified on the part type. To make a new part name, first enter the custom attribute values, and then click the Name{a} button to make the name. The new name completely replaces the previous name. You can edit the new name after the custom attributes have been inserted.
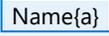
> The search engine finds and indexes search tokens, which are alphanumeric strings separated by space characters. When a part name like LED, Red, 5mA is indexed, individual tokens LED Red 5mA are found (the commas , are removed). The item's complete set of tokens includes the description, owner, number, custom attributes, notes, and other data fields. Search results are ranked based on how many tokens are matched: when searching for red surface-mount LEDs, red 5ma led ranks higher than 5ma led . The item's list of tokens gives search flexibility: you won't care that other users use RED 5MA LED or LED, red 5mA for the name. The token list
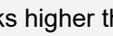
also lets you omit items that include an unwanted token: `led 5ma -red` . See the Search for items and Search commands help topics.

> While descriptions with Unicode characters (like *cm²* and *kΩ*) might look better, they're often hard to use. For example, searches are more difficult if some keyboards don't show the character, and older manufacturing applications may not know how to import or display these characters.

The value is locked on first release.

Trustee

This is the person who has overall responsibility for the part's contents. The trustee can edit fields, build the part's BOM and add sources or references, attach files, and add the part to a change form's Affected list. The trustee, as well an analyst, can give the part to a different user, who becomes the new trustee.

Product families

Permissions defined within a **PRODUCT FAMILIES** collection member change how other users can view or edit this item. Add a product family by dragging it from the **PRODUCT FAMILIES** collection in the Collection Explorer.

Double-click a product family in the list to show the **PRODUCT FAMILIES** collection member.

> The User settings tool can define a list of **PRODUCT FAMILIES** collection members that are copied to each new item.

> Administrators can use the Batch Importer tool to add **PRODUCT FAMILIES** collection members to this list, or reset the list.

— Iteration: Revision at Lifecycle —

This area shows the selected iteration's current status – Pending   Released   Canceled – with supporting details.

Data revision

A part revision identifies each step in the evolution of a part record's technical content.

Normally, a physical part that is not interchangeable with earlier versions is given a new part number. Changes that simply add to the data record's content in minor ways, clarify technical information, or correct clerical errors likely retain the same part number, but require a new record revision identifier.

> PDXpert automatically shows the part's currently-released iteration on a parent assembly. Immediately upon release of the new iteration, all higher-level BOMs, Sources and References will refer to the new iteration; the higher-level items aren't otherwise affected.

> Good configuration management practice says that a physical part has no revision identifier. The PDXpert part Data revision field refers to a specific database metadata record, which may be revised without affecting part interchangeability. Parts with the same number but different metadata revisions can be freely mixed with earlier parts in the same inventory bin. If a part iteration is not interchangeable with the part's preceding iterations, then the new iteration requires a separate inventory location, and therefore a new part number. The revision identifier should never be considered relevant for inventory management, production or servicing; marking a metadata revision on the physical part is usually discouraged.

The revision's 1▸2 button sets the revision value to the starting value of the current revision sequence, based on the selected Lifecycle phase .

The value is locked on release.

Lifecycle phase

Independent of technical content revisions, a part is given a level of "business maturity." For instance, your initial design may use a **Preliminary** lifecycle, intended for internal discussion. As your confidence in the part's accuracy and relevance develops, you may build a small quantity of **Prototype** parts to make sure of fit and performance. When the part is proven, you release it at an unlimited, or **Production**, lifecycle. These lifecycle states represent business uses, and may include multiple technical revisions or a single design.

Lifecycle selections are specified in the **ITEM LIFECYCLE PHASES** collection .

> If the **PART TYPES** collection member specifies a `Subsequent revision sequence`, after selecting a new `Lifecycle phase` value, make sure that the `Revision` is correct.

The value is locked on release.

Version

A version is used to distinguish parts with the same part number. The `Version` field may be shown or hidden, depending on whether your administrator lets the selected part type have versions.

A part version distinguishes earlier iterations of a part from later ones. Unlike a record revision, which is managed by PDXpert, the version is made by an outside entity - a person or a different computer application, such as a software compiler - and manually entered here. If versions are used for a part, making a new version also changes the part record revision.

> The **PART TYPES** collection member's ☑ Show Version field setting shows or hides this field.

The value is locked on release.

Person #1

Person #2

These fields can show people with responsibility for the selected iteration's contents. This list is managed in the **PERSONS** collection .

> The **PART TYPES** collection member's ☑ Show a Person #1/#2 role settings show or hide these fields, and can show custom labels, such as `Designed by` or `Validated by`.

Revision area

If a part has been affected in a particular location (for example, "main valve", "power switch") or database attribute ("BOM at Find 3") you can highlight that information here.

The value is locked on release.

Release description

The `Release description` summarizes how or why the iteration has been changed. The change form's `Affected` list shows the first 50 characters as a brief note to reviewers.

The value is locked on release.

Created on

The system-assigned date when the selected iteration was created. Users cannot change it.

Release status

The system shows when the selected iteration is released for use.

- If the iteration is not on any executing change form's `Affected` list, then the status is shown as `Pending` and the text field is empty.
- If the iteration is added onto an executing change form but is not yet released, then the status is shown as `Pending` and the text field shows the change form that will release the iteration.
- If the iteration is released, then the status shows `Released` and the change form that released it.

Double-click the change number to open the related change form.

Release date

This date is set by the system to show the release date of the selected iteration. Users cannot change it.

Effectivity

Effectivity shows when is the earliest permitted use of the released iteration. If you do not set the date, then the system copies the iteration's `Release date`; that is, the part can be immediately scheduled for production.

The value has no effect on PDXpert's operation; the technical content is correct on its release date.

> The `Effectivity` value is shown only for assemblies, where the `BOM: Markup` list is available. A BOM's effectivity determines the demand for its components, thus an individual component is effective on its `Release date`.

The value is locked on release.

Cancel status

The system shows when the selected iteration is replaced by a new released iteration, or the item is withdrawn from use.

- If the iteration is not shown on any executing change form's `Affected` list, then these fields are not shown.

- If the iteration is added onto an executing change form but is not yet canceled, then the status is shown as `To be canceled`, and the text field shows the change form that will cancel the iteration.
- If the iteration is canceled, then the status shows `Canceled` and shows the change form that canceled it.

Double-click the change number to open the related change form.

Cancel date

This date is set by the system to show the cancel date of the selected iteration. Users cannot change it.

RELATED TOPICS

[How to manage parts](#)

Default unit of measure

The unit of measure specifies how a part is purchased and consumed. Although most parts are individual units, and therefore **each** is often appropriate, some production items are measured using categories such as length, volume or weight.

Some units of measure aren't useful for counting parts, so each unit's **Unit of Measure Categories** collection defines whether it is included in this list. For example, manufactured parts are not purchased in units of voltage or torque.

The part's default unit of measure may be modified when the part is added to a BOM. In this case, the default unit determines the set of compatible units of measure that can be applied. See the **Lock part default unit of measure on BOM** system rule help topic.

After the part has been released, an administrator can modify the part's default unit of measure by using the Tools menu: Administrator override command .

> After the part has been released, changing the part's default unit of measure may have unexpected effects.
> If you can't be sure of the impact, the safest path is to treat a new UOM as a non-interchangeable change: Create a new part record with the preferred Default unit of measure , revise all BOMs to replace the old part, and cancel the old part when you release its replacement.
>
> Changing a released Default unit of measure value may affect or damage data records shared with other computer systems. Check that other systems can accept a unit change, and that inventory balances, purchase orders and other records can be updated.
>
> Check the effect on your BOMs. Use the part's Appears On: BOM list to identify all affected assemblies, quantities, and units of measure.
>
> The new Default unit of measure must be in the same UOM Category as the previous unit. **Do not change the unit from one UOM category to a unit in a different UOM category.** For example, do not assign a **Length** category unit (like **cm**) if the part uses a **Count** category unit (like **each**).
>
> After changing the value, check that the Minimum order quantity and Standard package quantity units are correct; also check the Unit cost per default unit value.
>
> If the ☑ Lock part default unit of measure on BOM system rule is marked, then **all related BOM rows are automatically updated** to use the part's new default unit. **The quantity is not affected.** You may need to revise the quantity on each BOM. If the ☑ Lock part default unit of measure on BOM system rule is *not* marked, then review (and perhaps revise) each affected BOM to ensure that the part's quantity and unit are correct.

Make/buy

Select the method used to get the part. The available selection is managed in the **Make/Buy Categories** collection .

BOM type code

This value identifies how the part is aggregated or consumed in production. While **Direct material** is most common, parts may be usefully given other classifications, such as **Phantom** (a virtual assembly) or **Kit** (left unassembled). The available selection is managed in the **BOM Type Codes** collection .

Global number (GTIN, UPC, etc.)

Use this field for an equivalent part number known by a third party such as NATO NSN, GS1 GTIN or UPC EAN-13, or a customer.

Location

This specifies the place where the item can be found, such as a warehouse shelf or storage bin identifier. This value is included on the Pick List (sometimes called a "knock-down kit") report.

Handling/storage advisory

This shows any health or safety hazard, or special handling or storage considerations, for the part. The list is specified in the **Handling/Storage Categories** collection .

Meets regulatory requirements

When marked, the part meets the requirement shown.

> Your administrator may have hidden this field, or specified a more appropriate label such as RoHS compliant or Meets UL 508 , in the **Part Types** collection member window.

Language

The part may have labels or other nomenclature in this language, which need not be the same language as that used by PDXpert. When a new part is made, the owning organization's default language is copied to this field, but the value can be overridden.

Process time

Enter the length of time that it takes to fabricate, machine, assemble or otherwise produce the part. Internally-fabricated components often have process time and no lead time.

Lead time

Enter the time that it takes to receive the part or material from a supplier. Purchased components typically have lead time and no process time.

Minimum order quantity

If the part supplier requires a minimum order, or your production line is scheduled based on economically efficient production quantities, then enter the value here.

The unit of measure value is first given the part's Default unit of measure value. While the unit matches the Default unit of measure, it follows any change to the Default unit of measure. If the value is given a different part unit of measure, then changes to the Default unit of measure are ignored.

> Before changing this unit of measure, check that your manufacturing systems accept a unit of measure different than the part default.

Standard package quantity

The part supplier may define a package quantity, such as a wire reel of 100 meters, which you can record here.

The unit of measure value is first given the part's Default unit of measure value. While the unit matches the Default unit of measure, it follows any change to the Default unit of measure. If the value is given a different part unit of measure, then changes to the Default unit of measure are ignored.

> Before changing this unit of measure, check that your manufacturing systems accept a unit of measure different than the part default.

End of Life (EOL) recovery method

Specify the method by which the part can be reclaimed or recycled. Many parts can be refurbished or disassembled, while others can be broken down for their basic chemicals. The list is specified in the **RECOVERY METHODS** collection .

Cost: Unit cost per default unit, Quoted quantity, As on

This information is used for calculating the total cost for an assembly that includes the part. It also can provide useful information to other designers about the cost of the part for their own applications.

On assembly parts, this value is normally left empty. To always get the current assembly cost, the cost is calculated "on demand" using a cost roll-up report. When a non-zero value is shown on an assembly, it's added to the BOM roll-up cost; for example, you can show an overhead or labor cost.

Part must be: Certified, Serialized

Mark these checkboxes if the part is a critical component that requires certification (or "first article" acceptance) prior to use, and/or requires each production unit to be uniquely identified.

Do not include in roll-up: Cost

This checkbox zeroes out the cost of the item during cost rollup calculations. For instance, if the item is floor stock (such as a machine screw) and is expensed in manufacturing overhead, you may want to exclude it from the unit assembly cost. If you exclude a subassembly's cost, then the costs for all items within its lower-level structure(s) are also ignored.

Do not include in roll-up: Mass & materials

When the checkbox is marked, the item's mass and materials aren't included in a mass roll-up, materials content, materials declaration or similar report.

Do not include in roll-up: Lower-level mass/materials

This checkbox is enabled on parts that have the ☑ Show BOM tab checkbox marked in the part's **PART TYPES** collection member.

When the checkbox is marked, the mass and materials reported to higher-level assemblies in roll-up reports is simply whatever is contained in this item's Part mass (weight) and Materials list . Any mass or materials contained in items on the

current item's BOM are ignored.

When the checkbox is cleared, the mass and materials reported to higher-level assemblies in roll-up reports is the recursive sum of items on the current item's BOM, plus the current item's Part mass (weight) and Materials list .

Regardless of the setting of this checkbox, the value reported to higher-level assemblies are excluded (reported as zero) if the Exclude item from roll-up: Mass & materials checkbox on the part Attributes is marked.

Items shown on Sources lists have no effect on mass or materials roll-up calculations.

Snapshot from

If the part is copied from a snapshot source (Edit ➜ Snapshot…), then this shows the original source. Open the source item by double-clicking it. Removing the source item deletes this reference.

> This field is shown only when the item was copied from another item. Removing (deleting) the source item from the system deletes this reference.

RELATED TOPICS

How to manage parts

> These controls are visible only when custom attributes have been specified on the related **Document Types** , **Part Types** , or **Change Forms** collection member.

The custom attributes list extends PDXpert's standard attributes with properties that are unique to your organization. Custom attributes are specified by your administrator for all items of a particular item type.

Custom attributes can be changed at any time by the item trustee, an analyst or member of the product team.

Related topics

[Specifying custom attributes](#)
[**Document Types** collection](#)
[**Part Types** collection](#)
[**Change Forms** collection](#)

> These controls are visible only when the ☑ Show Materials tab checkbox is marked on the **PART TYPES** collection member .

Part mass (weight)
> This value is used in calculations to determine the proportion of a particular substance entered into the materials list, and the total mass of an assembly that includes the current part.

Materials list

You can identify the part's substances that should be tracked for regulatory compliance and reporting. Each line item consists of (a) the material, (b) the quantity and its unit of measure, (c) a calculated proportion (based on the Part mass value, supplied above), and (d) an optional location of the substance within the part. Click on a column header to sort the list.

> Materials values can be changed by the part trustee (and analysts) until the part is released. After release:
> - A change to the released materials data is treated as non-interchangeable. This requires a new part number, not a revision to the released part.
> - The materials list is updated by using the Tools menu: Administrator override command or the Batch Importer tool .

Material name
> A chemical substance is added by dragging this material from the Collection Explorer's **MATERIALS** collection, and dropping in onto an empty area in the list.

Quantity
> The total amount of the chemical substance at the Location specified.

Units
> Although any unit of measure may be used, in most industries **gram** (g) is the preferred measurement unit for regulatory reporting.

%
> The material as a percentage of the part, calculated by the system as 100% × Quantity / Part mass.

PPM
> The parts-per-million of the material, calculated by the system as 10^6 × Quantity / Part mass.

Location
> Location of the substance within the part (for instance, connector plating). You can use the same material, with different quantity at different locations.

RELATED TOPICS
> Manage materials
> How to manage parts

1079

The ⌷BOM⌷ (the Bill of Materials) lists show the parts (with quantities) that are required to build the assembly.

> The ⌷BOM⌷ lists are shown only if ☑ Show BOM tab is marked on the **PART TYPES** collection member.

The BOM is changed by specifying the desired result on the ⌷Markup⌷ list.

If a part iteration has not yet been released, then the ⌷Current⌷ list isn't shown.

After an assembly has been released, the ⌷Current⌷ list will always show the latest released iteration of each BOM component. And, a BOM component's new iteration automatically shows on its parents' BOMs as soon as the component is released.

> Since a part's most recently released iteration is always listed on the BOM, you must follow this best practice rule: parts with the same identifying number are interchangeable, and non-interchangeability cannot be controlled using only a revision. *If a part is not interchangeable with its previous iteration, the modified part must be given a new identifying number - not a new revision.*

> Assemblies and their BOM components are typically owned by the home organization.
>
> Some organizations adopt vendors' proprietary part numbers for their internal manufacturing/purchasing system (ERP) and reference them directly on their product BOMs. While this approach may seem simple in the short-term, it limits your purchasing department to exactly one source for each part, and may cause some assemblies to carry one vendor part while other assemblies carry a different but equivalent part. Changing a vendor part also requires changing each assembly where it's used.
>
> The better method is to make an internal part with your own part number, list the various sources that meet your requirements, and use this internal part on BOMs.
>
> When the Allow partner parts on BOM system rule is enabled, a part's name shows the owner's ⌷Display name⌷.

When an assembly iteration is canceled, the ⌷Current⌷ list will show the child part iteration that was valid at the time the parent was canceled. If a child part is subsequently revised, that later iteration does not show on the canceled assembly's BOM.

Markup list

This is the initial set of parts that will be approved for use on the iteration. The BOM mark-up identifies changes to the assembly's components. A component may be designed or purchased, or may be a subassembly with its own bill of materials.

While the assembly iteration is pending, a component part's most recent pending or released iteration is shown.

To modify the contents of the ⌷Markup⌷ list:

- Add a new part to the list by dragging it from the Item Explorer ⌷Search⌷ or ⌷Recent⌷ list, and then dropping it onto the ⌷Markup⌷ list. Add quantity and other details as needed.
- Change an existing part by selecting the component, opening the context menu, and selecting the ⌷Change Row with Same Item⌷ command. A new row is added, and the row details can be edited.
- Replace an existing part by dragging a part from the Item Explorer and dropping it onto an existing ⌷Markup⌷ row. The details are copied to the replacement row, and can be edited.
- Remove an existing part by selecting the part, opening the context menu, and selecting the ⌷Remove Item From List⌷ command (or pressing your keyboard's ⌷Delete⌷ key). The row is still shown, but is marked to be removed upon release.

If you're working with the parent assembly's first pending iteration, you can freely adjust the parts on the markup list by editing their Find numbers.

Releasing the part iteration on a change form copies the ⌷Markup⌷ list to the ⌷Current⌷ list. (Removed parts aren't copied.) The released iteration's ⌷Markup⌷ list cannot be changed after release, except when using the Administrator Override option. The markup always shows the child iteration that was active at the moment that the parent was released.

The `Markup` list can be sorted using the buttons in the list header, or commands on the context menu. Use the `Tools` ➜ User settings to adjust the markup data styles.

Current list

This is the most recent set of parts that are approved for use on the iteration. While an assembly's iteration remains pending, its `Current` list of parts remains hidden.

After the assembly iteration is released, its `Current` list always shows the latest released iteration of each component part. That is, every time a child part is revised and released, the parent assembly's `Current` list is automatically updated to the new child's iteration.

When the assembly's iteration is canceled, the `Current` list is locked to show the final component iterations that were valid at the time of cancelation. If a child part is subsequently revised, the canceled assembly's `Current` list won't be updated.

You can see all of the parts that are approved for use on the assembly. Drill down to deeper levels by clicking on the expansion icons (⊞ and ⊟) on the left edge of each panel.

Markup and Current data fields

> Use the **part icon** to drag a part from the list to any other location that accepts a part. To select multiple parts from the Markup list, click on the first row, press the keyboard `Shift` (range) or `Ctrl` (individual), then click on a different row.

These fields can be edited on a parent assembly pending iteration ("markup"), and are locked on the released ("current") list.

Find
> This relates a physical location to a part number, and is useful for tracking revision changes to the row. A BOM's find number is 1 or greater, and unique for each row on a released assembly. Find numbers (that is, the general part location on the assembly) are stable for the life of the assembly, even if the part number changes. If the part is no longer needed, the BOM row is removed and the find number is left unused.
>
> > To ensure compatibility with multilevel BOM reports and transforms, as well as other software applications such as MRP, use values from 1 to 999 only.
>
> > In mechanical assembly drawings, a part's location is assigned a Find ("drawing bubble" or "callout") number. Users don't want to re-learn the physical location after every drawing revision, so both the drawing and BOM row keep the original find number from one revision to the next. For example, production users learn that Find 8 is a brass insert, initially part number 10101.
> > If a part is deleted from the assembly, the remaining Finds are not renumbered. Removing a part at Find 5 leaves a gap so that users (a) learn that there's no Find 5 part to be installed, and (b) continue to see all other parts are their previous Find locations. For example, the brass insert remains at the Find 8 locations.
> > If you replace the part at Find 8 to perform a similar function (say, with a stainless steel insert, part 12402), the BOM part is replaced at Find 8 – the BOM and drawing Finds don't change.
> > Find numbers also let you skip a part list on the assembly drawing. Without the part numbers, changing a part number on the BOM may not require any change to the drawing. For example, substituting the brass insert 10101 with stainless steel insert 12402 may not change how the Find 8 locations appear.
> > In an electronics assembly drawing, the RefDes value relates a physical location to a part number, and the Find simply identifies rows that have changed.

Quantity (value, units of measure)
> Give the quantity of child parts that are required to build the parent assembly.
> A system rule setting determines whether the part's default unit of measure is locked on a BOM. If it's unlocked, then you can give a different measure in the same unit of measure category (count, length, mass, etc.). See the Lock part default unit of measure on BOM system rule help topic.
>
> > Whenever the component part's default unit of measure is modified, review the part's quantity and unit on each affected BOM.

To show an "as required" quantity, enter a typical or average value and select **As needed** for the BOM quantity category . This helps manufacturing forecast how many to get. If you don't have an estimate or the part is bought as floor stock, then use `1` .

RefDes (Reference Designator)

A reference designator (*RefDes*, also *component designator* or *part locator*) connects a single part instance in a diagram to its unique location in an assembly.

While editing the `Markup` list, RefDes values are separated, counted and compared to the Quantity value according to these rules:

- A reference designator has a prefix of at least one alphabetic (A-Z, a-z) character. The prefix is immediately followed by at least one numeric (0-9) character; for example, `S2` or `R0012`, but not `FA` or `J 7`. Different prefixes are OK: `D8,VR2`. A RefDes can have a suffix, like `U43C`.
- Individual reference designator values are separated by a comma `,`, semicolon `;` or vertical line `|`; for example, `U1A, U1B` or `LED7;LED9`. Spaces can be used between each RefDes but are not required.
- A hyphen `-` or colon `:` identifies a range of reference designator values, starting with the lowest value; for example, `R6-R12` or `C036:104`. This starting value's format is applied to the entire range (only the numeric value of the upper limit is used). The upper value doesn't need a prefix, but if it's included then it must match the lower value's prefix. A range value cannot have a suffix.
- Reference designator data is stored exactly as entered. However, characters in a valid RefDes are converted to upper case for comparison, counting and exporting to a PDX package.
- A reference designator is one unit of the Quantity unit of measure. Fractional Quantity values can't be compared.

A count or format error (such as missing or duplicate values, or invalid range endpoints) changes the text background color, and is shown in the RefDes tooltip. After changing the RefDes or Quantity value, press the keyboard `Tab` key to save the value and update the calculation.

These rules are used to separate reference designators into [PDX package](#) `ReferenceDesignator` elements. Use the Notes field for normal text.

The ☑ Show RefDes changes on Markup [user setting](#) lets you choose whether to show the actual values, or their differences, when a new row is replacing a removed row at the same Find. The differences are shown only when the assembly is locked.

The content of the RefDes field is not indexed for search.

BOM quantity category

BOM quantity categories are used in roll-up and pick list calculations.

- A part quantity is typically specified **Per assembly**. The quantity is summed into its higher-level parent, then multiplied by that parent's quantity, continuing to the top assembly.
- Parts specified as **Per setup** (such as a disposable fixture) and **As needed** (lubricants, fasteners, or floor stock) are included in roll-up and pick list reports, but are always treated as having zero quantity.

  You can use the **Per setup** or **As needed** setting to apply custom calculation rules for your manufacturing system in your **TRANSFORMS** and **VIEWS**.

Notes

This text may contain information for any purpose, such as an instruction for the current row.

The content of the Notes field is indexed for search.

The Notes field is not under revision control, and can be edited by the trustee and product team members.
- To change the released iteration's value without creating a new iteration, unlock the released iteration, select the `Markup` list, and edit the data.
- To keep the previous iteration's value, create a new iteration. On the `Markup` list's context menu, select the Change Row with Same Item command, then edit the data.

In some industries, especially electronics, an assembly may show a part as *do not place* or *do not populate* ("DNP"), *do not install* ("DNI"), *no load* ("NL"), or similar term.

The DNP location shows an optional part that changes the assembly's function (product variations), adds some temporary capability (in-process test), or allows manual adjustment after assembly (calibration). The assembly's documents say how and when the DNP part is used. The normal assembly process ignores the DNP part.

Thus, there's a difference between the parts shown on the BOM and the actual parts required to produce the assembly. This difference can be handled in several ways, depending on how manufacturing makes the intended assembly while skipping or postponing the DNP part:

- Do not show a DNP part on the BOM. Instead, DNP parts are described only in documents – like the schematic, assembly drawing, or test/calibration procedure – that are intended for people and invisible to software systems.
- Identify both normal and DNP parts in the same BOM row:
  - Show the normal part with correct `RefDes` and matching `Quantity`.
  - Show the DNP part's reference designators in the `Notes`.

  When the BOM is exported to downstream systems, there are no DNP part rows to filter. The BOM row's `Notes` can be exported or not, as needed.
- Create one DNP part number that's used for any DNP location, and appears as a separate row in the BOM. The single BOM row can show all reference designators (e.g., C56, R21, U3) and the DNP row's quantity matches the RefDes count. The BOM that's exported to production can include or leave out this one DNP row.
- Create a DNP non-inventoried/phantom equivalent of the standard part, as needed. For example, a placed resistor may have a DNP equivalent using a different part number. The CAD places accurate DNP schematic symbols and component footprints; each DNP part is separated from the normal placed parts; the CAD and PLM BOMs show an accurate quantity and RefDes of each DNP part; DNP parts may be filtered when exported to the production BOM; and BOM revisions clearly show markup differences when switching from DNP to the normal placed part (or vice versa).
- Where a supply chain partner needs the placed part in one row and the DNP part (with zero `Quantity`) in a separate row, the [Limit part to one BOM row](#) system rule can be changed.

  The DNP rows will show a warning for RefDes with 0 quantity. You can avoid this by putting the reference designators into the `Notes` field, or by setting the correct DNP quantity and `As Needed ▾` category.

  However, this system rule allows *any* BOM to show duplicate part rows with non-zero quantities. Duplicate rows complicate BOM maintenance, and may cause import problems for some manufacturing systems. In most cases, it's the partner's production engineer that needs the DNP parts; the DNP rows must still be filtered before importing into the manufacturing system. Using one of the other methods (a) can show DNP parts to humans while filtering them for production software; and (b) keeps the preferred system rule setting for simpler BOM management and exporting.

RELATED TOPICS

[Add, modify or remove BOM parts](#)
[Import a CAD BOM](#)
[How to manage parts](#)

The `Sources` lists show approved parts that are purchased from one or more approved vendor sources. A sources list is sometimes called an Approved Manufacturer List ("AML") or Approved Vendor List ("AVL").

Source parts are provided by partner organizations, and these partners assign their own part numbers.

> The `Sources` lists are shown only if ☑ Show Sources tab checkbox is marked on the **PART TYPES** collection member .

You first make the source record with the partner's information in the part's `Owner` and `Number` data fields, along with related information such as the purchased part `Type` and partner's `Part name` . You can also attach files, such as datasheets or supplier specifications, to the source record. The iteration's `Revision` lets you to track information changes (such as datasheet or catalog files), while the business `Lifecycle` tends to be quite static, often simply **Production** or perhaps **Approved**.

After you've made and saved the source part, you add it as an approved part onto the `Markup` list of your organization's purchased part record.

If a part iteration has not yet been released, then the `Current` list isn't shown.

After the part is released, the `Current` list always show the latest released iteration of each approved source. And, a source component's new iteration automatically shows on its parents' Sources list as soon as the component is released.

When you want to revise the list of approved sources, you make a new part record iteration and show on the `Markup` list the parts to keep, add or remove.

Although your supply chain partners are your normal part sources, your own organization may also be the source for a part. This may occur if you want to consolidate several interchangeable parts with different part numbers under a single preferred number, or if you're switching to a different part numbering system and want the old parts to be a temporary source for the new part numbers.

Markup list

This is the initial set of parts that will be approved for use on the iteration. The `Markup` list shows parts that have been previously approved for use, as well those parts that are being added or removed as approved sources.

While the part iteration is pending, a source record's most recent pending or released iteration is shown.

To change the contents of the `Markup` list:

- Add a new source to the list by dragging a part from the `Search` or `Recent` lists of the Item Explorer, and then dropping it onto the `Markup` list. Modify the `Rank` and add `Notes` as needed.
- Edit the `Rank` or `Notes` on an existing item by selecting the source, opening the context menu, and selecting the `Change Row with Same Item` command. A new row is added, and the notes can be edited.
- Replace an existing source by dragging an item from the Item Explorer and dropping it onto an existing `Markup` row. The notes are copied to the replacement row, and can be edited.
- Remove an existing source by selecting the source, opening the context menu, and selecting the `Remove Item From List` command (or pressing your keyboard's `Delete` key). The row is still shown, but is marked to be removed upon release.

Releasing the part iteration on a change form copies the `Markup` list to the `Current` list. (Removed sources aren't copied.) The released iteration's `Markup` list cannot be changed. It permanently shows the released child iteration as the row's starting point.

Current list

This is the most recent set of parts that are approved for use on the iteration. While a part iteration remains pending, its `Current` list remains hidden.

After a part iteration is released, its `Current` list always shows the latest released iteration of a source item. That is, each time a source item is revised and released, the part's `Current` list is automatically updated to the new child's iteration.

When a part iteration is canceled, the `Current` list is locked to show the source part iterations that were valid at the time of cancelation. If a source item is subsequently revised, the canceled part's `Current` list won't be updated.

Markup and Current data fields

> Use the **part icon** to drag a part from the list to any other location that accepts a part. To select multiple parts, click on the first row, press the keyboard `Shift` (range) or `Ctrl` (individual), then click on a different row.

The part's trustee can edit the `Markup` list while the iteration remains pending. Both `Sources` lists are locked when the iteration is released or canceled.

Rank

Rank is *product advice to help purchasing and production*.

All source (partner) parts meet the parent (home) part's technical requirements. The home part's inventory location may freely intermix preferred and non-preferred sources without further selection.

A source part that has the most-preferred technical properties is ranked as `1`. Ideally, all sources equally meet the requirement without further qualification, all have similar technical properties, and all are ranked as `1`.

An interchangeable but less desirable source may not be ranked as `1` although it fully meets the technical requirement. For example, if the service life requirement is 20,000 hours, a preferred source may offer 30,000 hours while a non-preferred part is rated for 22,000 hours. In this case, the preferred part is the better choice – unless purchasing finds it is too expensive or affects the production schedule.

Use the `Notes` to explain why the source received its rank: incoming inspection time; sorting labor and scrap cost; production yield; service life; etc. All inspection, testing or other processing of a non-preferred part must occur *before* intermixing it with existing inventory.

A revised requirement or new partner datasheet may affect rank. However, changing the rank typically doesn't affect the technical content of the source part or its parent part, since all sources remain interchangeable regardless of rank.

> A source's technical rank isn't affected by business considerations like price, payment terms, or current inventory. Downstream activities in purchasing and production apply their own business rules: Which source is available *today* to meet the production schedule? Can we get a special price *today* by bundling other purchases? Can we get a part *today* that's almost as good, if we accept a higher scrap rate? The downstream team uses the part's technical rank as one factor of many to decide *today's* strategy.

> The `Rank` field is not under revision control, and can be edited by the trustee and product team members.

> The `Rank` field is not under revision control, and can be edited by the trustee and product team members. See the `Notes` data field, below.

Item

This identifies the approved source: partner organization, its part number and description.

Notes

You may use this text for any purpose.

> The content of this field is indexed, and returns the source item.

> The `Notes` (and `Rank`) field is not under revision control, and can be edited by the trustee and product team members.
> - To change the released iteration's value without creating a new iteration, unlock the released iteration, select the `Markup` list, and edit the data.
> - To keep the previous iteration's value, create a new iteration. On the `Markup` list, select the `Remove Item from List` command. Find the same part in the Item Explorer, or drag the removed part's icon into the empty area on the `Markup` list. Then edit the data.

Use the sort buttons along the top of each list to temporarily adjust the sources.

Hints for identifying your supply chain partners

Every purchased part in your warehouse has at least one, and preferably several, approved original manufacturer sources. Parts are interchangeable with each other because their relevant functional and physical properties are equivalent. Part interchangeability – form, fit, and function equivalence – states that any approved source can be used for the application.

One of a product designer's principal tasks is identifying which items are sourced from outside the company, and then qualifying those sources to ensure that they comply with the design requirements. The qualification task requires a review of the manufacturer's specifications, and possibly testing the part's performance within the intended environment. In summary:

- Part *requirements* are defined by the home organization.
- Part *functional and performance specifications* are defined by the part's original manufacturer.
- When the part meets its published specifications, it's the result of the original manufacturer's engineering and production procedures.
- When the part fails to meet the published specification, only the original manufacturer can address the problem.

Of course, manufacturer's representative, reseller or distributor often helps communications between you and the manufacturer. But an agent can't be more than an assistant: if you have a problem with the part meeting the published spec, the agent may give you a refund but certainly won't revise the original design documents, examine the production procedure, or write a corrective action.

> Engineering has qualified the source using the manufacturer's technical data, and identifies it using the manufacturer's – not agent's – name and part number.

From a requirements perspective, engineering is neutral on *how* the part is obtained. Purchasing chooses the best way to obtain the qualified part, and this choice is affected by the dynamics of business relationships, contracts, schedules, shipping rates, payment terms and (especially) prices. If a new distributor can offer better terms, or quicker delivery, then the decision is within the scope of production rather than design, and no engineering participation is expected.

While supply chain details don't always belong in the product definition, designers often have useful knowledge about where to get parts. Designers can add supply chain details to assist their purchasing colleagues. If supply chain details would be helpful, then:
- Use the source's rank to distinguish your primary (truly qualified) manufacturer part(s) from secondary (indirectly qualified) distributor part(s). For example, you may want to establish a rule that all indirectly-qualified sources are given ranks higher than, say, 20. If you include distributors on your sources list, any updates would require bumping the parent part's revision and releasing a change form. – OR –
- Add distributors' part numbers into the manufacturer part record's `Notes` field or in a set of custom attribute fields selected from members of the **ORGANIZATIONS** collection. Since these are item-level properties, updates won't require a change form.

RELATED TOPICS

    [Manage approved sources](#)
    [How to manage parts](#)

The ⸢References⸣ lists show documents and parts that are used to make or validate the part. For instance, the list can refer to documents that specify fabrication and inspection procedures, or tools needed for fabrication.

> The ⸢References⸣ lists are shown when documents and parts are enabled as references. See the **References Tabs** system rule .

> Do not make cross references (where `ItemA` shows `ItemB` as its reference, and `ItemB` shows `ItemA` as its reference). Cross references complicate revision management, can't be represented in PDX packages, and make some types of Transforms difficult to write.

> Use the **item icon** to drag a part or document from the list to any other location that accepts the item. To select multiple items, click on the first row, press the keyboard ⸢Shift⸣ (range) or ⸢Ctrl⸣ (individual), then click on a different row.

Markup list

This is the initial set of child items that will be approved for use on the iteration. The mark-up is used to modify the list of items referenced by the part iteration.

While the part iteration is pending, a reference record's most recent pending or released iteration is shown.

To change the contents of the ⸢Markup⸣ list:

- Add a new reference to the list by dragging an item (document or part) from the ⸢Search⸣ or ⸢Recent⸣ lists on the Item Explorer, and then dropping it onto the ⸢Markup⸣ list. Add notes as needed.
  > You can only drop documents and parts onto parts that can accept them. The ☑ References accept parts and ☑ References accept documents checkboxes are specified in the **References Tabs** system rule.
- Modify the ⸢Row⸣ and ⸢Notes⸣ values by unlocking the record and editing the value. (This can also be done after the document iteration is released.)
- Replace an existing reference by dragging an item from the Item Explorer and dropping it onto an existing ⸢Markup⸣ row. The notes are copied to the replacement row, and can be edited.
- Remove an existing reference by selecting the reference, opening the context menu, and selecting the ⸢Remove Item From List⸣ command (or pressing your keyboard's ⸢Delete⸣ key). The row is still shown, but is marked to be removed upon release.

Releasing the part iteration on a change form copies the ⸢Markup⸣ list to the ⸢Current⸣ list. (Removed references aren't copied.) The iteration's ⸢Markup⸣ list cannot be changed. It permanently shows the released child iteration as the row's starting point.

Current list

This is the most recent set of child items that are approved for use on the iteration. While a part iteration remains pending, its ⸢Current⸣ list of references remains hidden.

After a part iteration is released, its ⸢Current⸣ list always shows the latest released iteration of a referenced item. That is, each time a referenced item is revised and released, the part's ⸢Current⸣ list of references is automatically updated each time it's opened.

When a part iteration is canceled, the ⸢Current⸣ list shows the reference iteration that was valid at the time of cancelation. If a referenced item is subsequently revised, the canceled part's ⸢Current⸣ list of references won't be updated.

Markup and Current data fields

The part's trustee can edit the ⸢Markup⸣ list while the iteration remains pending. The part's ⸢Markup⸣ and ⸢Current⸣ lists are locked when the iteration is released or canceled.

Row
This is the sequence in which the references list is sorted. Enter any non-negative (≥0) integer value.

Item

This identifies the item referenced by the part.

Notes

You may use this text for any purpose.

> The content of this field is indexed, and returns the reference item.

> The `Notes` field is not under revision control, and can be edited by the trustee and product team members.
> - To change the released iteration's value without creating a new iteration, unlock the released iteration, select the `Markup` list, and edit the data.
> - To keep the previous iteration's value, create a new iteration. On the `Markup` list's context menu, select the `Modify Item` command, then edit the data.

Use the sort buttons along the top of each list to temporarily adjust the references.

> The IPC-2571 standard does not define References. PDXpert uses the `AdditionalAttributes` element to include a referenced item, which is added to the `Items` list. That item includes the referenced item's attributes; attachments for revision (`isFileIn=Yes`) and item (`isFileIn=No`) files; materials; and change history.
>
> The PDX specification's `AdditionalAttributes` element doesn't support a recursive structure, and therefore a PDX package excludes the referenced item's own references, sources and BOM items. If your supply chain partner needs these details, the referenced item must be exported in its own PDX package.

RELATED TOPICS

[Manage part references](#)
[How to manage parts](#)

This is a view of where the part is shown within other items ("where used").

BOM The part is assembled into, consumed by, or modified for the listed parent items. This list is often called *where used* in manufacturing systems.

Sources The part has been approved for purchase to fulfill the requirements of the listed parts. There's usually only one part on this list, unless the part is qualified for use on more than one purchased part.

References The part is used as a reference by the listed items. Reference parts – such as a tool, fixture or test equipment – are often identified to support a production or inspection task.

Each row of the BOM, Sources and References lists shows when the item was first added to the parent item (From), its current state or when it was removed (To), and some relationship details. The row's pop-up shows more detail about the relationship, including the latest iteration of the parent. If any information in the relationship changed – such as the BOM Quantity , source Rank , or reference Notes – then a separate row is shown.

Changes The list shows each change form that includes the part on its Affected list. Use the lifecycle filter buttons, above the list, to include or exclude change forms that affected the item.

Rows in the Changes list show release/cancel details for executing change forms ❗ and only item information for advisory change forms ℹ .

To view higher-level items where
- the part is shown, regardless of iteration, select the This Item appears on these: ⌄ option.
- only the selected iteration is shown, select the This Revision appears on these: ⌄ option.

To open a listed item, double-click on its icon or select Open Item from the context menu.

> Select any item to drag it from the list to any other location that accepts that class of item. To select multiple items, click on the first item, press the keyboard Shift (range) or Ctrl (individual), then click on a different item.

RELATED TOPICS

　　How to manage parts

> These controls are visible only when the ☑ Show Files tab checkbox is marked on the related **DOCUMENT TYPES** , **PART TYPES** , or **CHANGE FORMS** collection member.

PDXpert can directly operate on the files that define a product. You tell PDXpert where the file is, and whether you want PDXpert to copy it into the data library or just point to it as an external browser link.

All commands for file management are on the Tools ➜ Files submenu, as well as on each list's context menu.

There are 3 general categories of files: closely managed revision files, item attachments saved in the system library, and external links to resources that PDXpert doesn't manage.

> In a standard PDX package, part/document revision files and change form files are included (isFileIn="Yes"). Item files attached to documents and parts are identified in the PDX package but are not included (isFileIn="No").
>
> Links to external resources are included in a PDX package. Some users may not see the linked resource if, for example, the link points to a private server on your local network.
>
> All files' Notes are included in PDX attachment descriptions.

Revision Files

A revision file is related to a particular technical revision of a part or document, and is permanently saved within the data library when the related item iteration is released by a change form.

Objects that don't have revisions (such as **CHANGE FORMS** and **ORGANIZATIONS**) don't have revision files.

Because a revision file is identified by revision and not by lifecycle, PDXpert uses the accepted term *revision file* even though the file is attached to an iteration (revision + lifecycle) record. A new iteration that simply modifies the record's lifecycle usually copies its revision files forward with the same technical content. The file's Notes text is tied to the file, and is shown on all iterations that use that file.

Item Files

An item file isn't as tightly controlled as a revision file. It can be added, changed or deleted throughout the item's life regardless of any iteration's release status.

An item file can be saved within the PDXpert server's library, or saved as an external link.

- An *item attachment* saves an exact copy of a file. These may be background sketches, customer notes, vendor quotes or production records.
- An *external link* is a resource on the local network or internet that PDXpert doesn't copy or control. It may be updated, moved or deleted without PDXpert knowing. Use an external link when you want to point to the latest version of "background information" data, such as a supplier's web page.

File commands

These commands are shown on the file context menu. Some commands are shown only for a revision file or for an item file.

    View File...
    Copies the file from the server to a temporary location on your computer, and asks Windows to open the copy. See the
    Viewing a file help topic.

    Copy Library File...
    Copies the file from the server to a location that you specify. See the Copy a file help topic.

    Add New File...
    Adds a file to the Revision Files or Item Files list. See the Attach a revision file or Attach an item file help topics.

    Add New External Link...

Lets you specify a link to an external resource, such as a website or network file. See the [Attach an external link](#) help topic.

Add Notes...

Add a brief comment about the file.

Permissions...

Sets permissions for viewing and managing the file.

Check Out and Lock...

Copies a revision file to a location you specify, and locks the file so other users can view and copy the file, but can't check it out. See the [Check out a file](#) help topic.

Check In and Free...

Replaces the checked-out revision file from a location that you specify, and frees the file lock so that other users can check it out. See the [Check in a file](#) help topic.

Free File Lock

Removes a checked-out file's lock without replacing the file with an updated version. See the [Free a file lock](#) help topic.

Delete File

Deletes the selected file from the list.

- A revision file can be immediately deleted if it's not on an earlier released iteration. Otherwise, it can be marked for removal after processing an executing change form. See the [Remove a revision file](#) help topic.
- An item file or external link can be deleted without processing a change form. See the [Remove an item file or external link](#) help topic.

Microsoft Windows provides good cross-platform file support. However, archive files – `.zip`, `.7z`, `.rar`, and similar general purpose lossless compression formats – should be made only on a Windows machine.

All files, including compressed files, are copied unchanged into the PDXpert library. If a compressed file is later included in a PDXZ backup file or a PDX package, Windows may try to optimize files that can be decompressed by the .NET `System.IO.Compression` namespace. If any file was compressed on a non-Windows platform or downloaded from the internet, this Windows optimization may create an invalid PDXZ file or PDX package without warning.

- **Backup:** If you're unsure about the source of any compressed file attachment, then do not use the `.PDXZ` file format. Instead, use the Database without Library (*.bak) backup format, and save the `Library` folder files separately.
- **PDX package:** Before attaching a non-Windows compressed file, decompress the archive's content and then re-compress it on a Windows machine. This applies only to *revision* file attachments; a PDX package does not include *item* file attachments.

Windows may block unknown files that are downloaded from sources outside your network. Windows sets a hidden *NTFS Alternate Data Stream* (ADS) that must be changed.

Before attaching a file to a PDXpert item, open the file's `Properties` window to see that the file is unblocked. Administrator permission may be needed to unblock a file.

If you're careful about downloads and have a good antivirus program, you can configure Windows to stop blocking files using a group policy or registry setting. Search the web for `disable windows file blocking` Or, save the file to a non-NTFS drive (e.g., FAT) which doesn't support ADS. For more technical discussion, read about the `IAttachmentExecute` Windows API and `IZoneIdentifier` interface.

RELATED TOPICS

[Item Explorer: Files](#)

Give yourself or others an informal reminder about preparing the item for release using the | Tasks | list. Whether you need to make sure of a design parameter, write a procedure, or call your supplier, you can enter the task and update it.

> Tasks are requests, not requirements. Incomplete tasks do not prevent an item from being released. After release, the task is no longer relevant and is locked at its current status.

Assigned to
    This is the person that has been given a task. The task is made by dragging this person's name from the Collection Explorer's **PERSONS** collection, and dropping that onto an empty area in the list.

Due on
    The day when the task should be completed.

Status
    Shows the progress of the task:
    Not Started: When the task is given, before work has begun.
    In Progress: The assigned person is working on the task.
    Waiting on Another: The assigned person needs information from a different person to complete the task.
    Completed: The task is finished.
    Deferred: The task will not be completed for the current release, but may be considered for a later release.
    Canceled: The task will not be performed. The notes should discuss why the task is no longer useful.

Status on
    The date that the status was changed (managed by the system).

Priority
    Select the urgency of the task. The person's task list shows the highest priority tasks first, then the soonest due dates, and finally by the most-recently modified tasks.

Assigned by
    The person who gave the task (managed by the system).

Assigned on
    The day that the task was given (managed by the system).

Task description
    Describes the task.

RELATED TOPICS
    [Working with tasks](#)
    [Item Explorer: Tasks](#)

1061

You can use this to keep the item's history, meeting minutes, or for any other purpose you choose.

You can enter up to about 10 printed pages of general information.

1059

A single change form is shown in a `Change form` tab. A change form is owned by the home organization (which is responsible for managing its contents), and has a unique change identifier.

The `Change form` is used to manage other items and has a unique set of tabs:

- items that are affected
- groups that must review and approve
- observers who will be notified
- related change forms
- files that implement the change, such as rework instructions

Attributes

Since changes have different behavior than other items, they require special attributes describing their

- Purpose: reasons for change, alternatives investigated, problem source
- Effects: items affected and date, disposition instructions
- Constraints: production quantity, serial/lot numbers, or time limits

Affected items

These are the items that are the subject of the change. If the change is an executing change, then the pending items are released, the released items are canceled, and all of the listed items' BOM, source and reference lists are updated according to their `Markup` lists.

Related changes

Many times, a change form is one of a related set. For example, a new part must be released for prototyping before revising an assembly to use it. You can show this sort of interdependency by adding other change forms.

Reviewing groups and observers

Specified groups, such as engineering, manufacturing, and quality assurance, approve change forms. Group members can respond on the group's behalf. PDXpert lets you add any licensed user with appropriate permissions to be a reviewer for any group.

Authorized reviewers can sign a change form once it has been submitted by an analyst; a reviewer approves (or disapproves) it on behalf of the group. A group's reviewer can never sign on behalf of a different reviewer, or undo a signed change form if a subsequent reviewer has acted on it or the change is no longer in the `Routed` lifecycle state.

Change forms can notify other persons, groups and organizations as a change goes through its lifecycle. For example, a major customer may be notified when the change affects its customized product.

Page selector

Class icon

The class icon shows the change lifecycle status:

In work:
 Originated
 Submitted to analyst
 Routed for approval
 Held awaiting more information
 Stopped after disapproval, wait for an analyst to select the next step
 Accepted, and waiting for analyst final review
Success:
 Released. All reviewers approved the change. The analyst completes the change.
 Completed. The affected items are dispositioned.

Failure:

- Canceled, after a reviewer disapproved. The analyst deletes the change.
- Rejected, after a reviewer disapproved. The change form is kept permanently.

> You can drag the icon and drop it onto a destination, such as a different change's Related list.

Status bar control

The status bar control lets you unlock the form for editing using the Lock / Unlock selection. Locking the window automatically saves any changes.

Change Form pages

[General](#)
[Attributes](#)
[Custom](#)
[Affected](#)
[Related](#)
[Reviewers](#)
[Observers](#)
[Files](#)
[Tasks](#)
[Notes](#)

The General page provides the basic information about the change form: its name, its identifier number, its lifecycle state, who originated it and when, and descriptive information.

Change type (Executing/Advisory)

The Type defines the change form's properties such as numbering, workflow, participants, effect on items listed in its Affected list, etc. These are controlled by its **CHANGE FORMS** collection member. The type shows that it is an Executing or Advisory change form.

The class icon shows the current change lifecycle:

- Originated
- Submitted to analyst
- Routed for approval
- Held awaiting more information
- Stopped after disapproval, wait for an analyst to select the next step
- Accepted, and waiting for analyst final review
- Released. All reviewers approved the change. The analyst completes the change.
- Completed. The affected items are dispositioned.
- Canceled, after a reviewer disapproved. The analyst deletes the change.
- Rejected, after a reviewer disapproved. The change form is kept permanently.

The Type cannot be edited.

Number

The number, with the Type above, uniquely identifies the change within PDXpert. In most cases, this value is automatically given based on the **CHANGE FORMS** member's Identifier sequence selection.

Problem source

If the change is the result of a problem that was found in an existing item, you can identify how or where that problem was discovered based on the **PROBLEM SOURCES** collection .

Originator (Trustee)

This is the person with overall responsibility for the change form's contents. The originator can edit various fields, build the Affected list, submit the change to an analyst, and designate a new originator.

Analyst

This person manages the change after the originator has finished. When the change is in the Submitted state, the analyst can modify any of the trustee's work, add or remove file attachments, and route the change to the reviewing groups. The analyst may separately receive workflow notices.

Other analysts cannot modify the change or its file attachments. However, they may set the change workflow (for example, move the change from Routed to Submitted), and can replace the analyst with a different analyst, including themselves.

Change reason

This selection categorizes why the change form is necessary, and is selected from the **CHANGE REASONS** collection .

Change lifecycle

Changes are given a lifecycle state based on their progress through your organization's workflow. This state can be changed only by using the workflow specified in its **CHANGE FORMS** collection member.

Origination date

The date when this change form was made.

Release date

The date when this change form's lifecycle was set to Released . All items on the Affected list of an executing change form are given this date for their own released/canceled dates.

Product families

Product families are automatically added as you add items to the change's Affected list. The change form's product families list is obtained from each affected item's product families. The list cannot be edited, but will be recalculated if you change an affected item's product families.

> This field is shown if any Affected items have been assigned product families, or the change has not been Routed.

Change description

Gives the change form's purpose and expected results. The label may be different to reflect the particular change form, such as `Request proposal` or `Deviation description` .

1091

These fields show a change form's:

- Classification, priority, and responsible parties (for example, an initiator and a validator)
- Estimated cost effect
- Effective limits, such as the production quantity, serial/lot numbers, or time period

> Your administrator may have hidden some of these fields, or given other labels, in the **CHANGE FORMS** collection member window.

Change classification

You can select the change class, which typically identifies the change form's effect on part interchangeability (and thereby suggests that new item identifier numbers have been given), customer impact, or contractual requirements. The available selection is managed in the **CHANGE CLASSIFICATIONS** collection .

Priority

You can inform your colleagues about the urgency, and possibly the scope, of the change. Selecting a particular priority may also require entering the beginning serial number and/or date when the change must take effect. The available selection is managed in the **CHANGE PRIORITIES** collection .

> The change form's priority is shown in Item Explorer's `Tasks` list according to the `Task priority` selected in the **CHANGE PRIORITIES** member.

Person #1
Person #2

These fields show people who have some role or responsibility for the change's contents. The list is managed in the **PERSONS** collection .

These can be shown or hidden, and their labels changed, in the **CHANGE FORMS** collection member.

Cost estimate

This section gathers costs as: one-time expenses not allocated to specific affected items; one-time (non-recurring) expenses related to affected items; and recurring expenses that are added to each affected item whenever it's produced.

Other costs (or −savings)

This is the cost for tasks not otherwise given in the individual disposition expenses on the `Affected` list. A negative value, such as `-1000.00`, is a one-time savings or income; for example, unused inventory is sold.

Non-recurring

This is the total of all one-time costs from each affected item that has a non-recurring dispositioning cost.

One-time total

This is the sum of the `Other costs (or −savings)` and the `Non-recurring` costs, and shows the immediate cost of the change.

Recurring

This is the total of future per-unit costs from each affected item that has a recurring dispositioning cost.

Effective limits

These values can be used in any combination to limit the effect of the change.

Starting values may be used to specify when an executing change form takes effect, or the starting point of an advisory change form. Ending values are normally used only for advisory changes, such as a Deviation/Waiver.

The data labels may be changed in the **CHANGE FORMS** collection member.

Start on (serial number / date)

The serial number, lot code, event, or production date of the first production unit affected by the change form.

End on (serial number / date)

The serial number, lot code, event, or production date when production is no longer affected by the change form.

Maximum quantity affected

The maximum number of production units that can be affected by this change.

Maximum period

The maximum time that production that can be affected by this change.

Snapshot from

If you've copied the change from a different change, then that other change is shown. Double-clicking on the item will open it.

This field is shown only when the item was copied from another item. Removing (deleting) the source item from the system deletes this reference.

Discussion

If this field is shown, enter the related information.

> These controls are visible only when custom attributes have been specified on the related **DOCUMENT TYPES** , **PART TYPES** , or **CHANGE FORMS** collection member.

The custom attributes list extends PDXpert's standard attributes with properties that are unique to your organization. Custom attributes are specified by your administrator for all items of a particular item type.

Custom attributes can be changed at any time by the item trustee, an analyst or member of the product team.

RELATED TOPICS

Specifying custom attributes

DOCUMENT TYPES collection

PART TYPES collection

CHANGE FORMS collection

1053

A change form's Affected list shows those items that are impacted by the release of the change.

When an executing change form is released, the listed items are released or canceled, and child items listed on their parents' ... Markup lists are added on or taken off the lists. With an advisory change form, the status of items shown on the Affected list is not changed as a result of the change form being released.

> Limit the number of items on the Affected list. A smaller list is easier and faster to review and approve.

Item rows

Add an item to the change form by dragging it from the Item Explorer, and dropping it onto the Affected list. When working with an executing change form, this item drop may add other items automatically; see How items are added , below.

If you have a preferred sorting sequence for the affected items, you can sort the list using a context menu command (for example, Sort by Number), and then select the Update line numbers menu item to renumber the list. After the change has been routed, the list can be temporarily sorted, but the line numbers are permanent.

> A part or document can be dragged from the Affected list to any other location that accepts the item. Only one item at a time can be selected.

Use the filter buttons to change what's shown in the list:

🏠 Show/hide home items
🏭 Show/hide partner items
📦 Show/hide parts
📄 Show/hide documents
▦ Collapse list to hide details
▤ Expand list to show details

An executing change acts on an item to:

- Release a pending iteration. The single ▶☑ row releases the iteration. *The change form does not have a released iteration to cancel.*
- Revise an item. It has two iteration rows: one row ▶☒ cancels the earlier iteration and the other row ▶☑ releases the revised iteration.
- Cancel a released iteration. The single ▶☒ row cancels the iteration. *The change form does not have a pending iteration to release.*

> This canceling iteration must be removed from parent relations (BOM, Sources, References lists) before the change can be routed.

Iteration rows

On an executing change form, each affected item has one or two rows that show the revision and lifecycle that will be released or canceled, and the Release description .

The icons show what happens when the executing change form is released:

▶☑ If the iteration is pending when the change form is routed, then it is released when the change form is released. This row is shown when the affected item:
- Doesn't have a released iteration, and you want to release its pending iteration; or
- Has a released iteration that *is being replaced by* this pending iteration.

▶☒ If the iteration is released when the change form is routed, then it is canceled when the change form is released. This row is shown when the affected item:

- Doesn't have a pending iteration, and you want to cancel its released iteration; or
- Has a pending iteration that *is replacing* this released iteration.

Disposition rows

A disposition specifies how to move production items from canceled to released configurations, and calculates the cost of the change. Canceled items are reworked or discarded, and released items are prepared for use. These activities are authorized only after the change form's review, approval, and release. Although physical parts are commonly dispositioned, you can also disposition documents; for example, recovering or destroying canceled drawings, and distributing released replacements.

- Dispositions are linked to iterations that an executing change form is releasing or canceling. The **CHANGE FORMS** collection → Release/Cancel iterations on Affected list setting must be marked. Advisory change forms don't accept dispositions.
- Disposition tasks are performed when the change moves to the Released state. The **CHANGE FORMS** collection → Pause at Released state setting must be marked. Changes that immediately move to the Completed state after approval don't accept dispositions.

Each iteration can have one or more disposition rows, each describing a specified activity (or cost) at a specified location.

Adding a disposition row

To add disposition information to an affected iteration:

1. Select the iteration, and do one of the following:
   - Select the iteration, open the context menu, and select the Add Disposition command; or,
   - At the top of the Affected list, click on the [icon] button.
2. In the disposition detail at the bottom of the form, enter the disposition information.

Disposition detail panel

When a disposition row [icon] is selected, its detail panel at the bottom of the form shows this information:

Activity
The disposition action or category.

Location
The location of the items to be dispositioned (as of the date shown in the Quantity).

Recurring activity
Mark this checkbox if the activity represents an expense for all future items, such as a per-unit licensing fee or tooling amortization cost.

Quantity
The number of items to be dispositioned, their units, and the date of the item count.

Unit cost
The unit cost for each item to be handled in accordance with the disposition instructions at the specified location.

Subtotal cost
The total cost for the dispositioning activity is calculated by multiplying the quantity by the unit cost.

Assigned to
You can assign the activity to a particular person, who can then view the assignment in the Tasks list on the Item Explorer.

Target completion
Specify the date when the dispositioning activity should be done.

Actual completion
The assigned person can update this (as well as the quantity and unit costs fields) after the change form has been released to show when the actual dispositioning activity was completed.

Notes
Instructions for performing the dispositioning activity.

Deleting a disposition row

To delete disposition information from an affected iteration:

- Select the iteration, and do one of the following:
    - Select the disposition row, open the context menu, and select the Delete Disposition command; or,
    - At the top of the Affected list, click on the ⬛ button.

How items are added

Advisory change form

When you add an item to the Affected list of an advisory change, only that item is added to the list. PDXpert does not add any other items automatically.

Executing change form

When you add an item to the Affected list of an executing change, PDXpert looks at the item's BOM , References and Sources lists to decide what other items should be automatically added:

1. If you add a parent item, and that item has a BOM, source or reference child item with a pending iteration, then that child is automatically added to the Affected list. You can manually remove any released child with a pending iteration from the Affected list.
2. All child items that are automatically added to the Affected list are examined. If the child item has a BOM, source or reference child item (a "grandchild") that has **never** been released, then that grandchild item is automatically added to the Affected list. This process is repeated for each lower level until all automatically-added items have been examined, and all never-released items have been added.

    > You must select lower-level pending iterations that are not visible on the parent you add. That is, you must manually add to the Affected list any released grandchild that has a pending iteration.

Before routing the change for approval, always review the Affected list to make sure that PDXpert is doing what you intend.

> An item on a change form should be re-dropped onto the Affected list each time you modify the item's BOM , References or Sources lists.

> Conflicts may arise when a child item (a) is listed on a different change form, (b) has no pending or released iteration available, (c) has edits that aren't saved, or (d) has been revised after the parent item has been added to the change form. To resolve these conflicts, fix the underlying problem and then re-drop the parent item onto the Affected list to correctly add the child item's iteration.

> The most efficient way to ensure your intended changes get onto a change form's Affected list is to work from the bottom of your revised product structure to the top. That is, add each higher-level revised item onto the change only after you've added all lower-level iterations.

> There may be times when a previously-released item has an incomplete pending iteration, and you don't want it added automatically to any change forms. In this case, make a separate executing change and add the item to the Affected list. When its parent items are later added to other change forms, the pending iteration is on a change form and thus can't be added.

Many times, a change is part of a larger set of changes. For example, a deviation may need a change request, which in turn needs a change notice. Similarly, you may need to implement one change notice before you can proceed with a dependent set.

You can show this relationship by dragging any number of change forms from the Item Explorer onto the list.

1089

A person with a full-function account can review and approve change forms on behalf of a group (identified in the **GROUPS** collection).

Before the change form is routed for review, you can add and delete reviewing groups to the approval list. You can also specify the sequence in which the reviewers are notified and whether the reviewing group's participation is required or optional.

Authorized reviewers examine a routed change form. A reviewer can never sign on behalf of a different reviewer, or undo a signed change form if a subsequent reviewer has acted on it or the change is no longer in the | Routed | lifecycle state.

As the change originator or analyst

Order
   The review sequence determines the sequence that reviewing groups are notified of the routed change. You can have several groups with the same review order value. All groups that share the same review order are notified at the same time.

Group
   Specify the group that reviews the change.

Participation
   Specify whether the reviewing group is required — | Must act ⌄ | — to approve the change. If the group's response is optional — | Can act ⌄ | —, the change will simultaneously notify the next group in sequence while waiting for the group's response.

As a reviewer

Comments
   Add comments to explain the reason for your response.

   > The **Reviewer's comment required** system rule may require your comment before your response is saved.

Reviewer response (and status date)
   Specify whether you approve, disapprove or want to hold (suspend) the change form.
   - ✔ Approve
   - ✖ Disapprove
   - ❓ Hold

Reviewer
   When you provide a response for the group, your name is automatically shown.

Password
   After providing your response, you're prompted to enter your password. After you type in your password, your response is recorded, all fields are locked, and the workflow lifecycle is updated.

> When a routed change form is returned to the | Submitted | or | Originated | state, it shows the current reviewer names, responses and comments. When the change form is again sent to the | Routed | state, each reviewer's name and response is cleared, and the comment is retained. Any person currently in the group can provide a response for the re-routed change.

As the change lifecycle state is updated, the observers shown on this list are sent an email notice.

The people listed on the ⬚ Observers ⬚ list are usually only interested in major events in the workflow (such as when the change is released or rejected). The change workflow used by the change form determines the workflow paths when email notices are sent.

- To add a group of observers, drag the group's name from the **Groups** collection of the Collection Explorer onto this list.
- To add an observer, drag the person's name from the **Persons** collection of the Collection Explorer onto this list.

Delete an observer or group by clicking on it, and then pressing your keyboard's ⬚ Delete ⬚ key.

1087

These controls are visible only when the ☑ Show Files tab checkbox is marked on the related **DOCUMENT TYPES** , **PART TYPES** , or **CHANGE FORMS** collection member.

PDXpert can directly operate on the files that define a product. You tell PDXpert where the file is, and whether you want PDXpert to copy it into the data library or just point to it as an external browser link.

All commands for file management are on the Tools ➜ Files submenu, as well as on each list's context menu.

There are 3 general categories of files: closely managed revision files, item attachments saved in the system library, and external links to resources that PDXpert doesn't manage.

In a standard PDX package, part/document revision files and change form files are included (`isFileIn="Yes"`). Item files attached to documents and parts are identified in the PDX package but are not included (`isFileIn="No"`).

Links to external resources are included in a PDX package. Some users may not see the linked resource if, for example, the link points to a private server on your local network.

All files' Notes are included in PDX attachment descriptions.

Revision Files

A revision file is related to a particular technical revision of a part or document, and is permanently saved within the data library when the related item iteration is released by a change form.

Objects that don't have revisions (such as **CHANGE FORMS** and **ORGANIZATIONS**) don't have revision files.

Because a revision file is identified by revision and not by lifecycle, PDXpert uses the accepted term *revision file* even though the file is attached to an iteration (revision + lifecycle) record. A new iteration that simply modifies the record's lifecycle usually copies its revision files forward with the same technical content. The file's Notes text is tied to the file, and is shown on all iterations that use that file.

Item Files

An item file isn't as tightly controlled as a revision file. It can be added, changed or deleted throughout the item's life regardless of any iteration's release status.

An item file can be saved within the PDXpert server's library, or saved as an external link.

- An *item attachment* saves an exact copy of a file. These may be background sketches, customer notes, vendor quotes or production records.
- An *external link* is a resource on the local network or internet that PDXpert doesn't copy or control. It may be updated, moved or deleted without PDXpert knowing. Use an external link when you want to point to the latest version of "background information" data, such as a supplier's web page.

File commands

These commands are shown on the file context menu. Some commands are shown only for a revision file or for an item file.

 View File...
  Copies the file from the server to a temporary location on your computer, and asks Windows to open the copy. See the Viewing a file help topic.

 Copy Library File...
  Copies the file from the server to a location that you specify. See the Copy a file help topic.

 Add New File...
  Adds a file to the Revision Files or Item Files list. See the Attach a revision file or Attach an item file help topics.

 Add New External Link...

Lets you specify a link to an external resource, such as a website or network file. See the [Attach an external link](#) help topic.

Add Notes...

Add a brief comment about the file.

Permissions...

Sets permissions for viewing and managing the file.

📎 Check Out and Lock...

Copies a revision file to a location you specify, and locks the file so other users can view and copy the file, but can't check it out. See the [Check out a file](#) help topic.

📎 Check In and Free...

Replaces the checked-out revision file from a location that you specify, and frees the file lock so that other users can check it out. See the [Check in a file](#) help topic.

Free File Lock

Removes a checked-out file's lock without replacing the file with an updated version. See the [Free a file lock](#) help topic.

Delete File

Deletes the selected file from the list.

- A revision file can be immediately deleted if it's not on an earlier released iteration. Otherwise, it can be marked for removal after processing an executing change form. See the [Remove a revision file](#) help topic.
- An item file or external link can be deleted without processing a change form. See the [Remove an item file or external link](#) help topic.

Microsoft Windows provides good cross-platform file support. However, archive files – `.zip`, `.7z`, `.rar`, and similar general purpose lossless compression formats – should be made only on a Windows machine.

All files, including compressed files, are copied unchanged into the PDXpert library. If a compressed file is later included in a PDXZ backup file or a PDX package, Windows may try to optimize files that can be decompressed by the .NET `System.IO.Compression` namespace. If any file was compressed on a non-Windows platform or downloaded from the internet, this Windows optimization may create an invalid PDXZ file or PDX package without warning.

- **Backup:** If you're unsure about the source of any compressed file attachment, then do not use the `.PDXZ` file format. Instead, use the Database without Library (*.bak) backup format, and save the `Library` folder files separately.
- **PDX package:** Before attaching a non-Windows compressed file, decompress the archive's content and then re-compress it on a Windows machine. This applies only to *revision* file attachments; a PDX package does not include *item* file attachments.

Windows may block unknown files that are downloaded from sources outside your network. Windows sets a hidden *NTFS Alternate Data Stream* (ADS) that must be changed.

Before attaching a file to a PDXpert item, open the file's `Properties` window to see that the file is unblocked. Administrator permission may be needed to unblock a file.

If you're careful about downloads and have a good antivirus program, you can configure Windows to stop blocking files using a group policy or registry setting. Search the web for `disable windows file blocking` Or, save the file to a non-NTFS drive (e.g., FAT) which doesn't support ADS. For more technical discussion, read about the `IAttachmentExecute` Windows API and `IZoneIdentifier` interface.

RELATED TOPICS

[Item Explorer: Files](#)

Give yourself or others an informal reminder about preparing the item for release using the | Tasks | list. Whether you need to make sure of a design parameter, write a procedure, or call your supplier, you can enter the task and update it.

> Tasks are requests, not requirements. Incomplete tasks do not prevent an item from being released. After release, the task is no longer relevant and is locked at its current status.

Assigned to
> This is the person that has been given a task. The task is made by dragging this person's name from the Collection Explorer's **PERSONS** collection, and dropping that onto an empty area in the list.

Due on
> The day when the task should be completed.

Status
> Shows the progress of the task:
> > **Not Started**: When the task is given, before work has begun.
> > **In Progress**: The assigned person is working on the task.
> > **Waiting on Another**: The assigned person needs information from a different person to complete the task.
> > **Completed**: The task is finished.
> > **Deferred**: The task will not be completed for the current release, but may be considered for a later release.
> > **Canceled**: The task will not be performed. The notes should discuss why the task is no longer useful.

Status on
> The date that the status was changed (managed by the system).

Priority
> Select the urgency of the task. The person's task list shows the highest priority tasks first, then the soonest due dates, and finally by the most-recently modified tasks.

Assigned by
> The person who gave the task (managed by the system).

Assigned on
> The day that the task was given (managed by the system).

Task description
> Describes the task.

RELATED TOPICS

> [Working with tasks](#)
> [Item Explorer: Tasks](#)

You can use this to keep the item's history, meeting minutes, or for any other purpose you choose.

You can enter up to about 10 printed pages of general information.

1059

Administrators open this window using Tools menu ➔ System Rules... The menu command is shown when the user's role has ☑ Collections/Rules administrator marked.

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

System rules are managed by persons who have been given a **ROLES** collection member that includes the ☑ Collections/Rules administrator permission.

Refer to the individual *System Rules reference* help topics for information about each system rule.

General: Item uniqueness specified by...
General: Reviewer's comment required on...
General: Unlock change form Files
General: Unlock change form Tasks
General: Copy previous tasks
General: Copy files to snapshot
Password Policy
References Tabs
BOM: Allow duplicate parts
BOM: Lock part default unit of measure
BOM: Allow partner parts

2101

Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Determines the behavior of attached files when items are duplicated.

Description

True: All files attached to a source item are copied to any snapshot of that item.

False: Files are not copied from an item, and the user should manually add any relevant files to the item snapshot.

Data type

True/false

Recommended or default value

False

Details

Files are typically attached to an item (and to a particular iteration of an item), and usually can't be used on new items copied from a snapshot.

2114

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the `Tools` ➔ `System Rules…` menu.

Purpose

Determines whether tasks on a part/document iteration (revision) are copied to the new pending iteration or a snapshot.

Description

True: All tasks shown on the existing item iteration are copied to the new pending iteration. In the case of a snapshot, tasks are copied to the new part or document. Each copied task's status is reset to `Not Started`.

False: Tasks are not copied from the existing iteration, and the user must manually add tasks.

Data type

True/false

Recommended or default value

False

Details

Tasks may be consistent from one iteration to the next, in which case they can be automatically copied forward. However, copying old tasks may not be useful and requires careful review before saving the new iteration (which sends task-related emails).

When using the `Edit` menu's `Snapshot …` commands, the existing item's most recent tasks are copied to the new item's first iteration if this system rule is *True*.

A change form's tasks are not affected by this setting.

2113

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the Tools ➔ System Rules... menu.

Purpose

Specifies the identifier set that's used to determine item uniqueness. The identifier set prevents duplicate items. An item can't be saved if the values in its identifier set are the same as an existing item's.

Description

True: Include the data element to validate that an item's identifier set is unique.

False: Ignore the data element while validating that an item's identifier set is unique.

Data type

True/false

Recommended or default value

Data element	Element description	Default
Number	Part or document number	True
Organization	Item owner	True
Class	Part 🟫 or document 📄	False
Type	**PART TYPE** or **DOCUMENT TYPES** collection member	False

Details

When a data element is set as *True* (that is, the checkbox is marked), it's included in the test for uniqueness. Or, you can think of it this way: setting a data element to *False* makes that element a passive attribute that will be ignored, just like the item's Name, Language or Trustee.

> Reducing an identifier's "degrees of freedom" by clearing checkboxes reduces ambiguity and communication errors. However, be cautious about removing data elements after items have been given identifiers using a larger set of elements. If you reduce the identifier set so that previously-unique items are now considered duplicates, you may need to modify at least one element of the item's identifier set to re-establish uniqueness before saving.

> Selecting the Number as *True* with the Organization as *False* would mean that many legitimate overlaps between two organizations' part numbers would be invalid. Except in special circumstances, if you mark ☑ Number , you should also mark ☑ Organization .

Identification goal	Example & configuration	Number	Organization	Class	Type
Within any organization, there can be no duplicate part numbers and no duplicate document numbers. No part may have the same number as a document. *Recommended goal.*	You give number 12005 to any organization's document. No other document or part owned by that organization can be given number 12005. You could have a single **IDENTIFIER SEQUENCE** shared by all **PART TYPE** and **DOCUMENT TYPE** members. You could also define **IDENTIFIER SEQUENCE** members with distinct formats for documents and parts; for example, a 5-digit	True	True	False	False

	number is given to a document and a 6-digit number is given to a part.				
Within any organization, there can be no duplicate part numbers and no duplicate document numbers. However, a part and a document may share the same number.	There can be only one part 103006 and one document 103006. The document 103006 may (but doesn't need to) specify the design details of part 103006. You'd have a single **IDENTIFIER SEQUENCE** shared by all **PART TYPE** and **DOCUMENT TYPE** members, and manually give (edit) the identifier of one related part to match the document number (or vice versa).	True	True	True	False
Within any organization, there can be duplicate part numbers and document numbers, provided that they are of different types.	You could give 120406 to a part such as a bare printed circuit board (**PART TYPE**: **PCB**), and overlay related document types: **Schematic** 120406, **Drill Pattern** 120406, and **Silkscreen** 120406. Each part and document type could have their own **IDENTIFIER SEQUENCE**, but they all share the same length and format. When appropriate, you'd manually give (edit) the identifier(s) for related items.	True	True	True	True
The software performs no validation, and duplicates items are OK. *Not recommended for normal use.*	You could give any value to any item data element. This is for unusual circumstances, such as when legacy data contains duplicate items. To reduce the chance of giving the same identifier to new items, ensure that your **SEQUENCES: IDENTIFIER** collection members cannot overlap by either giving unique prefixes to each one and/or by minimizing the number of members specified in the **SEQUENCES: IDENTIFIER** collection.	False	False	False	False

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Specifies whether a user who reviews a change form is required to provide a comment for specified responses.

Description

True: The authorized reviewer for a group must provide a reason for the response.

False: The authorized reviewer for a group may, but is not required to, provide a reason for the response.

Data type

True/false

Recommended or default value

Reviewer's comment required on

- Approve: False
- Disapprove: True
- Hold: True

Details

Approvals are the expected response and typically don't require any comment. The decision to disapprove or hold is an unexpected response and the reviewer should provide a reason, unless the change originator and reviewers will always be quite familiar with the issues involved in the decision.

Regardless of how the system rule is marked, a comment can always be added at the reviewer's option.

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

> To avoid unexpected effects, all change forms should be [Completed], [Canceled] or [Rejected] before editing this system rule.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Determines when the [Files] list is unlocked and available for attaching and removing files and external links.

Description

Allows change form [Files] list to be modified while the change has not yet been routed for review, or until the change form is [Completed] or [Rejected].

Unlock change form Files while change

◉ Is at Originated or Submitted
Select this when change form files and external links must be attached for review and approval. After a change is [Routed] (and beyond), files are locked. Returning the change form to [Originated] or [Submitted] unlocks the [Files] list, and files can be attached and removed.

◉ Is not Completed or Rejected
Select this when change form files and external links may be added during the preparation and review cycles, and locked only when the change is finished.

> To add or remove files when the change is [Released], the **CHANGE FORMS** collection member must have its ☑ Pause at Released state checkbox marked.

Data type

Option selection

Default value

Unlock change form Files while change ◉ Is at Originated or Submitted

Details

These values define when the change originator and product teams can add, replace, and remove change form files.

2156

Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

To avoid unexpected effects, all change forms should be Completed , Canceled or Rejected before editing this system rule.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Determines when the Tasks list is unlocked and available for assigning and completing tasks.

Description

Allows change form Tasks list to be modified while the change has not yet been routed for review, or until the change form is Completed or Rejected .

Unlock change form Tasks while change

◉ Is at Originated or Submitted
Select this when change form tasks are used only to prepare the change for routing. After a change is Routed (and beyond), tasks are locked. Returning the change form to Originated or Submitted unlocks the Tasks list, and tasks can be assigned and closed.

◉ Is not Completed or Rejected
Select this when change form tasks are used to prepare the change for completion, and are available during most of the workflow. Tasks can be used for general dispositioning instructions where detailed instructions aren't required, or for advisory changes without an iteration on the Affected list.

To work with tasks when the change is Released , the **Change Forms** collection member must have its ☑ Pause at Released state checkbox marked.

Data type

Option selection

Default value

Unlock change form Tasks while change ◉ Is at Originated or Submitted

Details

These values define when the change originator and product teams can add, adjust, remove and close change form tasks.

2155

Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Specifies the password characteristics for all user accounts.

This password policy is only for user accounts authenticated by PDXpert. If user accounts are authenticated by your organization's Active Directory (AD) or Lightweight Directory Access Protocol (LDAP) service, then the domain password policy applies.

Passwords are tested against these rules only when the user creates or changes their password. Users are not required to change their password if it met the previous rules. Use the Password period to force a password expiration. After the period has expired, users will have new passwords, and the Password period can be adjusted or returned to 0 (never expires).

Description

Administrators specify the numeric, symbolic, and upper-/lower-case alphabetic characters, as well as the minimum number of characters, that are required of all users' passwords.

Data type

True/false; integer

Recommended or default value

Assess your environment (number of users, sensitivity of product information, computer locations, regulatory requirements, etc.) to determine your password policy. See comments for each control.

Details

Separate password required
> Marking this value specifies that the user must make a unique password for change reviews. Clearing this checkbox lets the user enter the account log-in password for saving a change reviewer response.
>> This value is typically not marked unless a separate signature validation is essential. In most cases, it's unnecessary to require a user to manage two separate passwords.

Must have at least one uppercase letter: A to Z

Must have at least one lowercase letter: a to z

Must have at least one number: 0 to 9

Must have at least one symbol: !@#$%^&*(~)+[-]<|>/?\{_}
> When one of these checkboxes is marked, the user's password must use at least one character from the specified character set.
>> Mark at least two, and preferably 3, of these checkboxes to ensure a minimal level of security.

Minimum password length
> The maximum length is 28 characters. If you set this value to zero, then the user can have a blank password.
>> The password length, coupled with a rich set of Must have at least... values (above), determines the overall password strength. A length of at least 8 characters ensures a minimal level of security.

Password period

The number of days that a password remains valid. The maximum period is 1000 days. A user's password never expires if you enter 0.

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Determines whether part and document records' References lists will accept child parts or documents.

Description

True: Items of the specified class can be added onto the item's References list.

False: Items of the specified class can't be added onto the item's References list.

Data type

True/False

Recommended or default value

Parts

> If both checkboxes are cleared, then the References selection is not shown on part records.

References accept parts
  Default is **True**. Set as True to let part records reference other parts (for example, designed parts may identify tooling or fixtures).
  A multi-level part relationship is normally shown as an assembly/components list on the BOM , not as References .

References accept documents
  Default is **True**. Set as True to part records reference documents (for example, assemblies may identify assembly instructions).

Documents

> If both checkboxes are cleared, then the References selection is not shown on document records.

References accept parts
  Default is **False**. Set as True if you let document records identify parts as references.

  > Because a document doesn't consume or otherwise rely on the existence of a part, this relationship is typically not allowed.

References accept documents
  Default is **False**. Set as True if you let document records identify other documents as references (for example, procedures may identify requirements).

  > Multi-level document references are not shown in standard reports or supported by the IPC-2570 "PDX" export standard.

Details

> Avoid cross-references where two records reference each other. You can easily discover a cross-relationship by looking at the referenced item's Appears On: References list.

Simplify the relationship by limiting which items can reference other items. Reference relationships should be single-level ("flat"), not multi-level ("deep"). Deep relationships require custom transforms to show, and cannot be exported in a PDX package.

> Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

Administrators open this using the Tools ➜ System Rules... menu.

Purpose

Determines whether a part record's BOM list can have more than one row with the same part number.

Description

Lets multiple rows of the same part number (for example, a wire of various specified lengths) to be added to a BOM list.

Data type

Option selection

Recommended or default value

A part number can be added to a bill of materials

Within a single row only
> **Default (recommended) setting**. Select this if a part can't be used on more than one row. If a user tries to add a part that exists on the BOM markup, the system blocks the added part and shows an error message.
>
> > This setting tests for duplicate parts only as the part is added to the BOM. If existing BOM lists contain duplicate part numbers when you select this system rule setting, the existing assemblies are not changed.

On one or more rows (show warning)
> Select this if a part can be used on more than one row, but duplicates are unusual. When a user tries to add a part that exists on the BOM markup, the system shows an option to cancel or continue.

On one or more rows (no warning)
> Select if a part number can be used on more than one row, and duplicates are common. No warning is shown.

Details

In almost all industries, the default setting (*Within a single row only*) is preferred practice. Manufacturing systems typically expect all individual instances of a part number to be consolidated into one row (at one Find). The assembly's total required quantity is not split across several rows.

However, a few specific manufacturing processes may need several rows with the same part number; for example, a wiring harness manufacturer must specify different lengths of the same wire.

> Some manufacturing systems may not accept duplicate part numbers within a bill of materials. Before letting duplicates, make sure that downstream software systems can work with multiple rows of the same part number.

> When the setting is Within a single row only , then importing a BOM file with duplicates will fail; otherwise, duplicate parts are treated as correct and no warning is shown.

Before editing a system rule, ensure that no other users are using the system. After editing a system rule, close the PDXpert client and start it again.

To prevent unit of measure conversion errors in MRP exports and roll-up reports, **this rule is a one-time setting**. If this rule is saved as *False*, then it cannot be reset as *True*.

To avoid problems with your internal systems and supply chain partners' software, keep this rule set as *True*.

Administrators open this using the Tools ➔ System Rules... menu.

Purpose

Ensures that a part's default unit of measure is always used on a bill of materials (BOM).

Description

True: Every BOM uses the Default unit of measure that's been specified on the part's Attributes page. The unit cannot be edited on the BOM.

False: The unit of measure specified on a part can be overridden with a compatible unit of measure on a BOM markup. For example, a part with a default unit (for example, length **cm**) can be added to a BOM markup, and then be re-specified with a compatible unit (say, **mm** or **inch**).

While this rule is *False*: If you change a part's default unit of measure, use the part's Appears On: BOM list to make sure that the quantity and unit of measure is correct on each BOM.

Data type

True/False

Recommended or default value

True.

Details

It's highly recommended to keep the default value (*True*). Many production planning systems and contract manufacturers use a part's default unit of measure everywhere, including on the BOM.

Setting this rule to *False* gives users greater freedom to specify units of measure on assembly BOMs. However, this is generally useful only in small-volume engineered-to-order or one-of-a-kind products, and is risky for volume manufacturing.

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> Before you begin editing a system rule, ensure that no other users are using the system. After you finish editing a system rule, close the PDXpert client and start it again before working with items.

Administrators open this using the Tools ➜ System Rules… menu.

Purpose

Determines whether a bill of materials must contain only home organization parts, or can include partner organization parts.

Description

True: A partner part—that is, where the owning organization is not the home organization—may be added to a BOM: Markup list.

False: Only home parts can be added directly to a BOM: Markup list. A partner part can be added indirectly to the BOM by making a home part, adding the partner part to the home part's Sources: Markup list, and then adding the home part to the BOM.

Data type

True/false

Recommended or default value

False

Details

It's highly recommended to keep the default value (*False*). Standard practice says that the BOM shows only home parts, and never partner parts. The home part on the BOM specifies requirements, while partner parts (source parts) meet those requirements. Standard practice reduces production and servicing costs by making it easier to re-use, substitute, disqualify, and specify alternate sources.

Setting the value to *True* is generally useful only in small-volume engineered-to-order or one-of-a-kind products, and is risky for volume manufacturing.

> Some manufacturing systems can't show partner parts on the bill of materials. Before letting partner parts on the BOM, make sure that downstream software systems (including contract manufacturing ERP/MRP) identify parts using both organization and number.

> The IPC-2570 standard doesn't allow partner parts directly on the bill of materials. PDXpert's PDX package implementation exports the owning organization as an additional (non-standard) attribute.

> When the setting is false, then importing a BOM file with partner parts will fail.

> When partner parts are allowed, the BOM list shows the Owner sort button, and includes the part's Display name in the part name.

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> Collections can have system-wide impact.
>
> - Other users should not be using the system while you're making changes to your collections.
> - Close all item records in your workspace before you begin.
> - Change forms should be Released , Completed , Canceled , or Rejected before editing the **Change Forms** collection.
> - Close the PDXpert client and start it again when you've finished.

Each collection contains one or more members with attributes or rules. Each collection member may be simple (like a country name) or complex (a Change Notice). More complex members may reference simpler members, and items (parts, documents, change forms) are assembled from simple members (like **Organizations**), complex members (**Part Types**) and user-entered text and relationships.

A collection member has at least a name, description, three common attributes (below), and often a lot more.

Referenced and copied attributes

Each collection member has a set of attributes that are either referenced by, or copied to, the items that use them.

- Referenced attributes are defined on the collection member and cannot be changed on the item that uses it. If an administrator edits a collection member's referenced values, then all items that reference the member immediately show that new referenced value.
  For example, a unit of measure **each** is defined as a unique member of the **Units of Measure** collection. While a user may *select* the **each** member for a part's default unit of measure, the user can't edit the name from **each** to **EA**. If an administrator edits the collection member's name, every part that previously showed **each** would now show **EA**.
- Copied attributes have an initial value in the collection member. This value is copied as a starting value that can be edited. If an administrator edits a collection member's copied values, then previous items values are not affected; only new items created after the update are affected.
  For example, users can edit an individual part's Number after the **Sequences:Number** value has been copied to the part. Previous items' numbers won't be changed as a result of changing the **Part Types** member to use to a new number sequence, or editing the sequence to use a different Prefix or Next number value. Creating a new **Units of Measure** collection member has no effect on parts that have been assigned a unit of measure.

In summary: If a user cannot change the setting value on the item (say, the Type name or whether the Files list is shown), then this is a referenced value. All administrator edits are passed to all related items (past, current and future). However, if the user can edit a member setting on the item, then this is a copied value. Administrator edits on the related collection member won't affect the assigned value on existing items.

> Custom attributes are similar to copied attributes but have their own rules for how existing items are affected. See the
> Custom attributes help topic.

Common attributes

Each collection member has a Name , which should be unique among all members in the collection. Some collections have an Abbreviation (or Code or Display name), which should be unique among all of the collection's Active members. After a new member name is entered, the system may suggest an abbreviation, which can be accepted, changed or replaced.

Active: users can select
> When this checkbox is marked, the member shows in selection lists for new objects. When cleared, the member shows only on previous records and cannot be selected for new objects. You can modify this checkbox. At least one member of each collection must be active; setting all members of a collection inactive may cause system errors.
> An inactive collection member name is shown as dimmed in the Collection Explorer tree: Inactive member

Default member of collection

When this checkbox is marked, the member is given to new items that use the collection. Only one member of a collection can be set as the default member . If this checkbox is marked, then ☑ Active: Users can select is also marked and locked. The default collection member name is shown as bold in the Collection Explorer tree: **Default member**

Permanent member of collection

This is a system-managed value. When the checkbox is marked, the member is required for proper operation. The member cannot be deleted from the collection. Even when the checkbox value is locked, most other member attributes can be modified.

RELATED TOPICS

[Add a new collection member](#)

[Change a collection member](#)

[Delete a collection member](#)

Back up your database before editing custom attributes. Editing (adding, modifying, deleting) custom attributes has a large impact on your database. It modifies all related items, rebuilds the search index and public views, and replaces the client cache.

Before you begin editing custom attributes, ensure that:
- Other users have exited the system.
- All data transfer services (e.g., ERP/MRP queries, ODBC connections) are stopped.
- ODBC applications that use local views are closed. Changes to custom attributes can affect the local views database.
- In your own PDXpert client, all parts, documents and change forms are closed.

Deleting a custom attribute removes its label and data from every related item. You cannot undo this removal; you can only restore the database backup.

After you delete a collection member's custom attributes and before adding new custom attributes, save your edits and then close the PDXpert client and start it again. This ensures that the client's local cache is using the updated database schema.

After you finish editing custom attributes, close the PDXpert client and start it again. Other users should start the PDXpert client before resuming work with an ODBC application that relies on local views. This ensures that the client's local cache is using the updated database schema.

Items affected by your edits must be re-indexed, which may affect search results until indexing is finished.

Purpose

Custom attributes are useful for specifying unique data about your product design. You can define custom attributes for any item type, and those attributes are then attached to instances of that item.

A custom attribute is always related to an item, not an iteration. It can be modified by the item trustee, any analyst, and any Product Team member regardless of the iteration's release state.

The document, part and change form windows let users provide a value for any custom attributes that you have specified in the collection's member.

An item's custom attribute values can be inserted with its naming template (as specified on the Part Type or Document Type) to automatically give the item's name.

Where used

Documents, parts, change forms

Data fields

Sort

This integer value (1, 2, 3, ...) determines the sequence in which the custom attribute is shown on the item (left to right, from top to bottom). Missing values do not affect the layout sequence. If the same `Sort` value is used by more than one attribute, then these attributes are sorted by `Name` value.

Using gaps between values (2,4,6,…; 10,20,30,…) allows new rows to be inserted without renumbering the current values.

Scheme

The scheme determines the data type of the custom attribute value, as well as whether there's a unit of measure shown. There are 3 principal schemes: *UOM*, *data* type and *collection*.

When a custom attribute's scheme is selected, it can never be changed.

The *UOM* scheme is used for numeric values with units of measure. For example, a part type (such as **Machine Screw**) defines a custom attribute (for example, `Length`) with a unit of measure (say, **cm**). As users make **Machine Screw** parts, they can supply the actual `Length` numeric value and unit of measure.

The *Data:* schemes specify a value with a particular format and data-entry method. On the item window:

> `Data: Boolean ⌄` becomes a checkbox.

> `Data: Date ⌄` provides a calendar dropdown control.

>> The same value is shown to all users, regardless of their computer's time zone. The value is not stored as UTC or converted to local time.

> `Data: Float ⌄` accepts a numeric value with fractional element.

> `Data: Integer ⌄` accepts whole numbers only.

> `Data: Money ⌄` is similar to a Float, but also shows a member of the **CURRENCIES** collection.

> `Data: String ⌄` is normal text (alphabetic, numeric, punctuation and symbol characters).

> `Data: URI ⌄` is a universal resource identifier, prefixed with `ftp://` , `http://` , `file://` or similar, and has an `Open` button.

The *Collection* schemes specify that users can choose a member of the selected collection. For example, selecting the `Languages ⌄` scheme lets users select **English**, **French** or other active member of the **LANGUAGES** collection. A custom collection shows as `Custom: collection name ⌄` such as `Custom: Colors ⌄` .

Name

This is the name of the custom attribute, which is shown as the control's label on the item.

> The strings `_#_` , `_##_` and `_###_` are reserved and cannot be used for custom attribute names. Avoid using `HK` as the first two letters in your name to prevent conflicts with system "housekeeping" columns (`HK1` , `HK2` , ...).

> See Naming custom attributes , below.

Description or use (mouse hover text)

This describes the custom attribute's purpose. The text is shown in a pop-up when the mouse is moved over the control.

> It's helpful to show the expected range of values and data format. For example, instead of a general instruction like `Enter the maximum power` it's more helpful to say `Maximum rating from 1W to 50kW` . Users rely on these suggestions to improve their search results.

Default value

Although a default value is not required, you can suggest one to the user. If you do not specify a default value, then a numeric value is `0` and a Boolean value is `false` ; other scheme default values can remain empty.

> Modifying the `Default value` on an existing custom attribute does not change the value on existing items.

Default unit of measure

Units of measure are related to the `UOM ⌄` and `Data: Money ⌄` schemes. If you do not select a unit of measure in the item type (for example, your data is text), then the item record's custom attribute unit of measure is also blank.

> Changing the `Default unit of measure` on a custom attribute is possible but may impact downstream conversions. Items using the original unit of measure are not updated to the new value.

Setup

Custom attribute definitions follow these rules:

- When a new custom attribute definition is added to an item type, all existing items of that type are updated to include the new custom attribute. The default value, if any, of the new custom attribute is applied to each item.
- If a custom attribute definition is deleted from the item type collection member, all items of that type lose that custom attribute.
- An item's custom attribute is added or deleted regardless of its release status. The changes are seen when the affected item is opened.

Consider limiting the length of the custom attribute `Name` to less than 30 characters.

Adding a custom attribute

> Read all warnings at the beginning of this topic.

To add a custom attribute to a **Document Types**, **Part Types**, or **Change Forms** collection member:
1. In the Collection Explorer, open the collection member that will have the custom attribute.
2. On the `Custom` list, select a scheme, and name the new custom attribute. See [Naming custom attributes](#) , below.
3. Save the custom attribute: `Item` ➜ `Save` , or `Ctrl` + `S` .

Deleting a custom attribute

> Read all warnings at the beginning of this topic.

> Deleting a custom attribute automatically deletes its label and data value from every document, part, or change form that uses to it.

To delete an existing custom attribute on a **Document Types**, **Part Types**, or **Change Forms** collection member:
1. In the Collection Explorer, open the collection member that has the custom attribute to be deleted.
2. On the `Custom` list, click on an empty area within the row's background to select and highlight the row.

3. Press the `Delete` key on your keyboard to remove the row.
4. Save the collection member: `Item` ➜ `Save` , or `Ctrl` + `S` .

Design guidelines

> Also refer to the help topics under [View & export via ODBC](#) for related information.

Each custom attribute requires two database columns: one is for a data value (string, number, date, etc.), the other for a collection member selection.

Naming custom attributes

Custom attribute names show as column headers in public views and database queries.

Many types can share the same custom attribute `Name` . In this case, the item types' custom attribute values, regardless of scheme differences, are inserted into a single value/member pair of database columns.

Almost any character (including the space character) may be used in the custom attribute name. However, limiting your character set makes SQL queries easier to write, improves compatibility with members of the **Transforms** and **Views** collections, and simplifies data exchange with other software systems.

Attribute name summary

> The best custom attribute name (a) doesn't conflict with a standard PDXpert data column name, (b) begins with a letter, (c) contains only ANSI Basic alphanumeric and underscore characters, (d) is short, and (e) is not a Microsoft SQL Server or SQLite reserved key word.

- Begin an attribute `Name` with a letter character. Avoid special symbols, punctuation, and doubled space characters.
- Use short `Name` values, preferably fewer than 40 characters. Long labels are difficult to use when designing custom SQL queries and reports, and when [defining text templates to insert custom values](#) . Use the `Description or purpose` text for longer

explanations or instructions.

- Avoid using attribute names as questions. You'll avoid the leading word as well as question mark ☑ Have you confirmed cost? becomes ☑ Cost confirmed .
- Use checkboxes (scheme is `Data: Boolean ▾`) for simple either-or options. When there are three or more options, use a custom collection to limit users' choices like `Not applicable ▾` / `Yes ▾` / `No ▾` .
- Avoid using unnecessary uppercase letters, which need extra space on small screens; for example, `Organization` is often better than `ORGANIZATION` .
- PDXpert uses the `Sort` numbers to automatically lay out attributes from left to right, and top to bottom. On the item's `Custom` list, the right-hand columns are wider than the left. So, when the `Sort` numbers are sequential, use the odd numbers (1,3,5,...) for shorter labels and data, and even numbers (2,4,6,...) for longer labels and text responses.

SQL Server constraints

SQL Server column names must be a *regular identifier* that:

- begins only with letter characters specified by Unicode Standard 3.2 (which includes `A-Z` and `a-z`), `@` and `#`
- limits subsequent characters to Unicode letters, `0-9` , `_` , `$` , `@` and `#`
- is not a Transact-SQL reserved word: `http://msdn.microsoft.com/en-us/library/ms189822.aspx`

> Refer to this Microsoft SQL Server help topic for naming guidance:
> `http://msdn.microsoft.com/en-us/library/ms175874.aspx`

SQLite constraints

SQLite column names must:

- begin with a letter or underscore character, and
- limits subsequent characters to alphanumeric and underscore characters.

PDXpert constraints

If you give a custom name that matches a system name, such as `Number` or `Type` , then your values are prefixed in the view with an underscore (like `_Number` or `_Type`).

> PDXpert's public views and Batch Importer templates (for example, the ItemView and ItemMaster template) show common system names. A complete list of data names requires a SQL query: `SELECT * FROM (SELECT DISTINCT COLUMN_NAME AS [Name] FROM information_schema.columns) C ORDER BY [Name]`

PDX package XML constraints

The IPC-2750 standards use the W3C XML technology standard. While PDXpert handles most of the details, your custom attribute names must conform to the XML standard, particularly regarding letter case and whitespace.

Your custom attribute's name is exported into PDX packages as an XML `AdditionalAttribute` element's `name` attribute `value`. Differences in letter case or whitespace may prevent an export, or create inconsistent PDX export packages, or cause errors importing the PDX package into other software.

- Characters in the XML attribute `name` are case-sensitive. No case conversion ("folding") is performed before strings are matched, thus `A` and `a` are not the same.
  Rule: When a custom attribute name is used on more than one item type, use the same letter case for every type's name. For example, a **Purchase** part's custom attribute `name="RoHS"` and a **Design** part's `name="ROHS"` may cause processing errors.
- A validating XML importer may normalize attribute values by replacing whitespace (`0x09` , `0x0A` , `0x0D` , `0xA0`) with a space (`0x20`) character; discarding leading and trailing whitespace; and compacting multiple whitespace characters to a single space. **Rule:** Use only normal space characters. Do not use new line or tab characters, leading or trailing space characters, or sequences of space characters.

Number of custom attributes

PDXpert has no architectural limitation on the number of custom attributes specified, but there are practical constraints imposed by SQL Server and search indexing.

A table or view in SQL Server is limited to about 1000 columns. PDXpert's public views may include multiple side-by-side items, each with their own custom attributes. After deducting PDXpert's standard attributes from the total available SQL columns, **the maximum number of unique custom attributes specified across all item types is about 200** (that is, 400 SQL columns).

This maximum number:

- Is specified on, and limited at, the item type collections. Custom attributes can be added to or removed from **PART TYPES**, **DOCUMENT TYPES** or **CHANGE FORMS** as needed, but the sum of the custom attribute definitions should remain within the limit.
- Refers to uniquely-named custom attributes. If you have a **PART TYPES** collection member **Design** with the custom attribute `Tolerance`, there is a pair of SQL view columns, `Tolerance` and `Tolerance_Member`. Adding the `Tolerance` custom attribute to a different **PART TYPES** member, such as **Purchase**, doesn't make any new columns.
- Does not limit the number of items that use a custom attribute list. Although the custom attribute *definition limits* should be observed, you can have *virtually unlimited item records* with those custom attributes.

> Compared to PDXpert's standard attributes, indexing a custom attribute for search needs much more time. Its name and scheme must be examined, and then attached to the item's standard index results. Adding or deleting a custom attribute updates all related items, which requires time to assign the starting value and re-index the items.

Batch Importer: Importing custom attribute values

See the Batch Importer: Definitions help topic section for rules on importing custom attribute values.

Inserting custom attribute values into an item name

Each member of the **PART TYPES** and **DOCUMENT TYPES** collections includes a name format definition, called a *text template*. The text template is copied from the part or document type to the new item. The text template can include parameters that are replaced by the values of custom attribute values.

Custom attribute values can be inserted into the item's name exactly as they're shown on the item's Custom page. Values can also be modified with formatting commands. For example, most custom attribute values can be converted to all uppercase characters. Dates and numbers can be formatted for a consistent look. Some values can have extended properties, and some text can be converted to title case.

After inserting, extra space characters are always removed from the name: two or more adjoining spaces are replaced with a single space, and leading and trailing spaces are deleted.

Setting up a type's custom attribute for inserting

In the Collection Explorer, make or open a **PART TYPES** or **DOCUMENT TYPES** collection member:

1. On the collection member's Custom list, add a new custom attribute or find an existing custom attribute. Notice the custom attribute's Scheme and Name . In this example, we'll say the Scheme is Data: String ∨ and the Name value is Rating .
2. On the collection member's Attributes page, use the custom attribute's Name value in the Part name template or Document title template . Show the custom attribute's Name value as `{value}`, along with any other text you want in the template. In our example, let's use: `Motor, {Rating}`. The Data: String ∨ scheme allows the inserted value to be formatted as uppercase : `Motor, {Rating@U}` .

In the Item Explorer, make an item that's based on this collection member:

1. On the new item's Custom page, enter the value into the custom attribute. For example, in the Rating custom attribute, enter `100 watts` .
2. On the new item's General page, click the Name{x} button to insert the actual rating value into the default part name. In our example, `Motor, {Rating}` becomes `Motor, 100 watts` . If the template is `Motor, {Rating@U}` , then the item description becomes `Motor, 100 WATTS` .

Basic substitution

You can use a parameter more than once, and each can have its own format command.

Names and format commands are case-sensitive. Your parameter name in the text template must exactly match the custom attribute's name.

When the scheme is `Data: Boolean ⌄`, then the custom attribute Name, not the true/false value, is inserted into the item description. In other words: when the custom attribute checkbox is marked, the checkbox's label is inserted into the item name; if the checkbox is not marked, an empty string replaces the parameter.

> Short, simple custom attribute names are more useful for inserting. In particular, a short `Data: Boolean ⌄` custom attribute like `RoHS-compliant` is better for inserting than, say, `Part complies with RoHS standard`.

Extended values

Some custom attributes have a pair of values: a primary value and an extended value. You can use one or both values in the text template.

Scheme	Primary value {name}	Extended value {name++}
UOM	Numeric value	Unit of measure
Data: Money	Numeric value	Currency 3-character code
Collection member	Name	Abbreviation

To insert an extended value into the text template, add `++` to the end of the custom attribute's name. For example, if you have a custom attribute named **Length** based on the UOM scheme, then use `{Length}` for the primary numeric value (e.g., `59`), and `{Length++}` for the unit of measure (e.g., `cm`). A collection member's abbreviation may also be called its `Display name` or `Short name`; some collections may not have abbreviations.

Format commands

A format command contains one or more characters that begin with the `@` character.

Number format commands

A number format command is a set of characters that specify leading zeroes, trailing zeroes, group separators (e.g., thousands) and decimal separator (as "." point or "," comma). Some commands can be single characters; for example, the format command `@D` specifies an integer without fractional element.

The client workstation's `Windows Control Panel ▶ Region` settings affect which characters are used for group separators and decimal separator.

The most common format commands are briefly described in the following table. Each custom attribute value can be formatted using a single "Standard" format command (like `@F3`), or several "Custom" format commands (like `@0.00##E+00`).

> Some formats may overlap with the attribute's data scheme. For example, if you've specified a custom attribute as percentage or currency, applying these format commands will be redundant, and the extra formatting may be misleading.

Style	Format command	Description	Example output
Standard	D	Decimal value with optional negative sign. An optional numeric value specifies the number of digits. Valid only for the **Data: Integer** scheme.	`D` applied to 12345 is `12345` `D6` applied to 12345 is `012345`
Standard	E, e	Exponential value with optional negative sign. An optional numeric value specifies the number of digits after the decimal separator. The format command's case defines the exponent as "E" or "e".	`E` or `E6` applied to 1234.5 is `1.234500E+003` `e2` applied to 1234.5 is `1.23e+003`

Standard	F	Fixed-point value with optional negative sign. An optional numeric value specifies the number of digits after the decimal separator.	`F` or `F2` applied to 12345.6 is `12345.60` `F0` applied to 12345.6 is `12346`
Standard	N	Numeric value with optional negative sign. Result is *n,nnn,nnn.nn…* where *n* is 0-9, comma is the group separator, and period is the decimal separator. An optional numeric value specifies the number of digits after the decimal separator.	`N` or `N2` applied to 12345.6 is `12,345.60` `N0` applied to 12345.6 is `12,346`
Custom	0	The zero-placeholder symbol forces a "0" where the converted digit is empty.	`000000` applied to 12345.6 is `012346` `0.00` applied to 12345.6 is `12345.60`
Custom	#	The digit symbol accepts a digit where the converted value is specified.	`######` applied to 12345.6 is `12346` `#.##` applied to 12345.6 is `12345.6`
Custom	.	Inserts a localized decimal separator into the formatted value.	See examples above.
Custom	E0, E+0, E-0 e0, e+0, e-0	Exponential value with optional negative sign. An optional numeric value specifies the number of digits after the decimal separator. The format command's case defines the exponent as "E" or "e", and + forces the sign character.	`0.###E+00` applied to 1234.5 is `1.235E+03` `0.00000e-0` applied to 1234.5 is `1.23450e3`

> For information on these and other format commands, search the web for `.NET standard numeric format` .

Date format commands

A date format command uses date and time parts, such as year, month and day. Put together commands to convert a date value: the command `@yyyy-MM` formats the custom attribute value of March 6, 2019 to `2019-03` . Some commands can be single characters; for example, the format command `@Y` is equivalent to `@yyyy MMMM` .

The Windows Control Panel ▸ Regional and Language Options settings affect non-numeric commands, such as names for days and months. If consistency is important across computers, use only format commands that define numeric results.

The most common custom format commands are briefly described in the following table. The example shows the output when using a date input value of Wednesday, March 6, 2019.

Format command	Description	Example output
d	The numeric day of the month from 1 through 31	`6`
dd	The numeric day of the month from 01 through 31	`06`
ddd	The abbreviated, localized name of the weekday	`Wed` in the en-US culture, or the local culture equivalent
dddd	The full, localized name of the weekday	`Wednesday` in the en-US culture, or the local culture equivalent
M	The month as a number from 1 through 12	`3`
MM	The month as a number from 01 through 12	`03`
MMM	The abbreviated, localized name of the month	`Mar` in the en-US culture, or the local culture equivalent
MMMM	The full, localized name of the month	`March` in the en-US culture, or the local culture equivalent
yy	The last two digits of the year	`19`
yyyy	The four digits of the year	`2019`

> For information on these and other format commands, search on the web for `.NET standard date format` .

Text format commands

Custom attributes values – except numbers and dates – can be inserted as uppercase or lowercase. Add the `@U` or `@L` format command to the custom attribute's name `{name@U}` / `{name@L}` , or extended name `{name++@U}` / `{name++@L}` . For instance, if you have a **PART TYPES** collection member named **Assembly** with an abbreviation **Assy**, adding `name@U` inserts `ASSEMBLY` while adding `name++@L` inserts `assy` . A Data: Boolean ∨ called `RoHS` that's formatted in the template as `{RoHS@U}` will be inserted as `ROHS` when the value is true.

Text can be inserted using Windows title case when it's a collection member name, a Data: String ∨ attribute, or a Data: URI ∨ attribute. Words that are in uppercase are treated as acronyms, and are ignored. You can apply localized Windows CurrentCulture rules with `@t` (lowercase) or a consistent Windows InvariantCulture using `@T` (uppercase). Microsoft's title casing rules may change over time.

2050

Collection Explorer ◢ **PLACES/ORGANIZATION/PERSONS** group ◢ **LANGUAGES** collection

Purpose

Identifies the language in which an item is written or used, in accordance with ISO 639 standard.

> This is information about the item (principally documents, product labels and packaging), and does not affect any language attributes or capabilities within PDXpert.

Where used

All items

Data fields

Name
   This is the complete name for the language.

ISO 639 short code
   The two-character ISO code was devised primarily for use in terminology and includes identifiers for most of the major languages of the world. Most technology standards bodies (such as W3.org) use this code.

Terminology (abbreviation)
   This should be one of the values specified for ISO three-character codes, and is required by PDXpert.

Bibliography code
   This is an alternative ISO three-character code.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Setup

You should identify the languages of your organization's international products and the likelihood of exchanging information in foreign languages, and then make those languages available to your users.

2024

Purpose

Defines currencies for purchase and dispositioning costs.

> Costing reports convert all calculated costs to the default currency.

> The active currency exchange rates can be updated using the Tools ◢ Update Currencies... menu command .

Where used

Countries, parts

Data fields

Name
This is the name of the currency.

Currency code
The system uses the ISO standard 3-character currency code. With the important exception of the Euro (EUR), this code typically consists of a 2-character country code prefix, followed by a one-character currency letter: for example, Japan:Yen=JPY, Switzerland:Franc=CHF, Canada:Dollar=CAD.

Exchange rate
This numeric value defines how many units of a currency that another currency can buy. The currency exchange rate is referenced to the default currency (☑ Default collection member is marked).
This value represents the number of units required to purchase a single default currency unit. That is, there are [this currency's exchange rate] units per [default currency] unit. The default member's exchange rate is, by definition, equal to 1.

> Example: It costs 100 Japanese Yen (JPY) to purchase one United States Dollar (USD). If the default currency member is **USD** (exchange rate = 1), then the exchange rate for **JPY** would equal 100. Conversely, if the **JPY** member is the default currency (exchange rate = 1), then the exchange rate for **USD** would equal 0.01.

Exchange date
This specifies when the exchange rate was acquired.

Active: users can select
Default member of collection
Permanent member of collection
After marking an inactive member as ☑ Active , update the Exchange rate value.
After setting a **CURRENCIES** collection member as the default, update all active Exchange rate values.
See the Managing collections: Common attributes help topic.

Setup

Although the collection members will change infrequently, if you do much business using other currencies you may wish to schedule regular updates to the exchange rate information.

Purpose

Defines countries for addresses, telephone access codes and currencies.

> The correct country is required for validating PDXpert's software license key.

Where used

Organizations, Persons

Data fields

Name
   This is the complete (official) name for the country.

Short name
   This is the common name of the country that's shown in most country-related fields.

Country code
   The system uses the ISO standard 2-character abbreviation.

Internet domain
   This specifies the Internet country code top-level domain issued by IANA.

Default language
   This is the country's preferred business or technical language. Most companies that operate within this country communicate in this language.

Default time zone (GMT/UTC)
   This field is used to suggest local time zones for organizations that are in this country. If this country has more than one time zone, it's usually most useful to select the time zone of the capital city or principal commercial center.

Telephone country code
   Enter the numeric telephone country code. Although the telephone access code is usually unique, some countries share codes (e.g., the US, Canada and the Caribbean are all 1) and other countries may have more than one code.

Currency
   Select the country's currency from the **CURRENCY** collection list.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Setup

To reduce the number of countries they have to scroll through, users will appreciate if you mark ☑ Active: users can select only for those countries that affect your PLM procedure. Consider design groups, vendors, purchasing and (possibly) currencies. If you export your products, then you may want to include destination countries.

2014

Collection Explorer ◢ **PLACES/ORGANIZATION/PERSONS** group ◢ **PARTNER CLASSIFICATIONS** collection

Purpose

Classifies organizations and their function in your supply chain.

Where used

Organizations

Data fields

Name
> This is the complete name for the partner classification.

Description
> This gives the partner classification and its function.

PDX partner classification code
> This should be one of the standard values specified for PDX packages, although you can create a non-standard (`other`)
> value. For the set of standard PDX enumerated values, see IPC-2571, Section 9.1: `globalPartnerClassificationCode`

Active: users can select
Default member of collection
Permanent member of collection
> See the Managing collections: Common attributes help topic.

Setup

Identify your organization's partner relationships: customers, suppliers, regulatory agencies are all likely. If you must track your source materials or production for traceability or product recall, you may want to identify individual elements of a complex supply or distribution channel (e.g., country distributor, regional distributor, reseller, manufacturer's rep).

2036

Collection Explorer ◢ **PLACES/ORGANIZATION/PERSONS** group ◢ **ROLES** collection

> Other users should not be using the system while you're working. Users (including you) may not see changes to their assigned role until the next time they log into PDXpert.

Purpose

Specifies the permissions users have for accessing information, which should correspond to their job responsibilities. A role may be given to any number of users, and each user has exactly one role.

Where used

To specify permissions to user accounts in the User Management list.

Data fields

General

Name
   This is the complete name for the role.

Description
   This gives the role and its function.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Collections/Rules administrator
   An administrator manages the Collections and Rules. If the Tools menu: Administrator Override command is marked and the role also permits access to documents, parts and changes, the administrator can modify many attributes of items after they've been released.

> Marking this checkbox marks all View and Edit settings in the Collections page, which can then be edited individually.

> It's a good idea to have an administrator role assigned to two or more users. Set one administrator as the Super Administrator .

Allow Transforms
   When marked, the Report/Export Wizard and other custom report, DataGrid and table export functions can be used.
   When cleared, the Report/Export Wizard is not shown on the Tools menu. Custom report, DataGrid and table export functions cannot be used.
   Regardless of this setting, users can always use the standard reports and their "export as file" functions.

Allow local views on user computer
   When enabled, the ☑ Enable local views option can be enabled in the user's Tools ◢ User Settings... menu.

Restrict access to read-only
   This checkbox controls whether a full-function user account can change data. When marked, a full-function user account cannot add or edit items, add file attachments, approve change forms, or act as an administrator. Viewing permissions are controlled by the other role permissions.

> Marking this checkbox disables all ☑ Manage settings in the Collections page.

Documents

View pending

The role has access to documents that have not yet been released.

View released
The role has access to documents that have been released, and are not canceled.

View canceled
The role has access to documents that have been canceled.

Create new
The role can add new documents, edit documents, and be a trustee for those documents.

Is an analyst
A document analyst can change trustees, be the trustee for any document, and manage changes that affect documents.

Parts

View pending
The role has access to parts that have not yet been released.

View released
The role has access to parts that have been released, and are not canceled.

View canceled
The role has access to parts that have been canceled.

Create new
The role can add new parts, edit documents, and be a trustee for those parts.

Is an analyst
A part analyst can change trustees, be the trustee for any part, and manage changes that affect parts.

Change forms

To view change forms, the **ROLES** member must also allow View items owned by: All organizations .

View unreleased
The role has access to changes that have not yet been released, or have been canceled or rejected.

View released
The role has access to changes that have been released or completed.

Create new
The role can add (originate) new changes and submit them for review.

Submitted items can be edited
An item's Trustee edits an item's pending iteration before it's added to an executing change form, and while the executing change is at Originated state.

When this setting is not marked, after an item's executing change is submitted, only analysts can edit the item iteration.

When this setting is marked, the trustee may edit the affected iteration while its executing change form is at Submitted state.

While helpful when the item trustee is not the change form's originator, it requires close communication between trustees and the change analyst.

> This setting doesn't affect users whose role includes ☑ Is an analyst because an analyst can always edit items on a submitted change.
> This value is always enabled for the super administrator, regardless of the Administrator Override menu setting.

View items owned by

User's organization
Users can always view items when the item's Owner matches their organization.

User's and home organizations
When this option is selected, users can view items owned by the home organization, along with their own organization's items.

All organizations

When this option is selected, users can view items owned by the home organization and all partner organizations.

Each user is assigned to an organization, which is given by the **PERSONS** collection member's Organization selection. When the user is in the home organization, then the options User's organization and User's and home organizations are equivalent.

Setting a permission other than All organizations may hide items in:

- Search results
- A part Sources list
- A part or document References list
- A part or document PDX package export
- Built-in reports

Edit after first release

Some item data is locked at the first release, and cannot be changed on later iterations. When the following options are marked, the data can be changed after the first release.

> Disabling these options can remind administrators of your preferred practice, but administrators are never completely blocked:
> - Any administrator can use the Batch Importer tool or edit their own **ROLES** collection member to change this data.
> - The Super Administrator can edit these item data fields, regardless of the setting. Set these options for other administrator roles that use the Tools menu ➔ Administrator Override setting.

Item description
> A document title or part name can be changed after the first iteration has been released. The user must be the item's trustee or an analyst for the item.
>
> > Accepted configuration management practice is to lock the original item name after the first release. Documents and item catalogs may use the original name, and downstream systems (such as production and sales) may not update item descriptions.

Custom attributes
> Attributes shown on a document or part Custom page can be changed after the first iteration has been released. The user must be the item's trustee, an analyst or a member of the item's Product Team.
>
> > If a custom attribute value is used to generate the original item name, then consider whether to also mark the ☑ Item description to allow a different name.

Mass and materials
> A part's mass and materials list can be changed after the first iteration has been released. The user must be the item's trustee, an analyst or a member of the item's Product Team.
>
> > For regulatory reporting (like RoHS compliance), a non-interchangeable change to the Materials list normally requires a new part number, rather than revising the list. For changes that don't affect regulatory report results, such as adding non-regulated substances, the current part can be updated after release.

Collections

> Restrict roles that can add or change members of the **TRANSFORMS** collection. Transforms directly access your database, and inexperienced or malicious users can damage or destroy your data.

The role can view or edit any collection within the Collection Explorer. Most users should be allowed to view members of various collections and, as needed, use the collections as a drag-and-drop source (for example, to assign persons to tasks). Some non-administrative users may be allowed to manage selected collections, such as **ORGANIZATIONS** (e.g., to add new suppliers), **VIEWS** (for CAD users) and **UNITS OF MEASURE**.

Marking an ☑ Edit checkbox marks the related ☑ View checkbox. Clearing a ☑ View checkbox clears the related ☑ Edit checkbox.

Setup

> A person who belongs to a reviewing group on an executing change form has permission to view the change form and its affected items, expanding the viewing permissions of the person's assigned role. See the [Groups collection: Group reviewer permission](#) help topic.

Throughout this user help guide:

- An analyst is specified by marking ☑ Changes: Create new , as well as ☑ Documents: Is an analyst and/or ☑ Parts: Is an analyst . Analysts may be specialized by item class:
  - A document analyst has ☑ Documents: Is an analyst marked.
  - A part analyst has ☑ Parts: Is an analyst marked.
  - A system analyst has both ☑ Documents: Is an analyst and ☑ Parts: Is an analyst marked.
- An administrator is specified by marking ☑ Rules/Collections administrator .

A reviewer should be given a role where, as a minimum, the related ☑ View pending and ☑ View released are marked. This allows review of items affected by the change form, as well as related items (e.g., unchanged items on an assembly's BOM).

Typically, users employed by the home organization can view items owned by all organizations.

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Purpose

Specifies people who have an interest in your product data and, optionally, lets you add and manage PDXpert user accounts for them.

Where used

System-wide

Data fields

General

Name

This is the complete name for the person.

> Always use the actual name of a real person or kiosk machine. Unknown names like **Engineer1** hide valuable history and make software license compliance more difficult.

> Before changing the person's Name or deleting the person record, refer to the *Setup* below.

Email address

The Email address is used for system notices, such as change reviews and task assignments. To send a person's notice to several email addresses, separate each by a comma: `user.name@mycompany.com, username@alternate.com`

> Use your email client (e.g., Microsoft Outlook) to act on incoming notices – for example, to sort into topic folders, set a priority or schedule a reminder. The default email subject contains useful filtering criteria, such as the change type abbreviation and workflow state.

Job title

This gives the person's job function.

Organization

Select the employing organization from the dropdown list.

Employee identifier

In larger organizations, this may be useful to distinguish between similarly-named employees.

> Do not enter privacy-sensitive information such as social security number. Use an organization-issued identifier instead.

Supervisor

Select the employee's supervisor from the dropdown list. This information may be useful when the employee cannot be contacted.

> Start at the highest level that you'll need of a company's organization chart. As you work down the chart, you'll always have an employee's supervisor available as you enter their data.

Start date

You may wish to record when a person joined the organization, or first had access to PDXpert.

End date

You may wish to record when a person left the organization, or last had access to PDXpert.

Default member of collection

The default member of the **PERSONS** collection is called the super administrator. This user has full ability to view, create and edit items, collections and system rules, even when assigned a **ROLES** collection member with limited permissions. See the [**ROLES** collection](#) and [Manage user accounts: Setting a user as the super administrator](#) help topics.

Use the super administrator account to access your system under these unusual conditions:

- All known log-in accounts or passwords have been lost. On the PDXpert Application Server, click the $\boxed{\text{Reset Admin}}$ button, then use the super administrator account to update user accounts in the PDXpert client's $\boxed{\text{User Management}}$ tool.
- More log-in accounts have been assigned than are allowed by your PDXpert software license. Log into PDXpert using the super administrator account, and then delete user accounts in the PDXpert client's $\boxed{\text{User Management}}$ tool. When the total number of user accounts is within the limits shown in the $\boxed{\text{Software License Key}}$ tool, all remaining users will again have normal access.

Active: users can select

Mark this checkbox for current PDXpert users, and clear it for previous users.

> If you're removing a user's log-in account, you'll usually make the person record inactive to keep their activity history, rather than rename or delete the record. See the Set a person's status to inactive help topic.

Permanent member of collection

See the Managing collections: Common attributes help topic.

Address

This contains the person's individual contact information.

When you click the $\boxed{\text{Copy organization's address}}$ button, then the person's $\boxed{\text{Organization} \vee}$ values are copied to all **empty** address and phone values. Existing values are not replaced. Delete any existing address and/or phone value if you want the organization's value copied. The organization's email address and messaging user name(s) are never copied.

Setup

> The Batch Importer tool can import and update **PERSONS** collection members and create user accounts .

Any number of **PERSONS** collection members can be added without affecting the software license count. Persons can receive email notices without having a PDXpert user account.

For complete information on adding, changing and removing user accounts in the $\boxed{\text{User Management}}$ tool, see the Manage user accounts help topic.

> **It may not be possible to delete a person.** PDXpert uses the person record to track user activity history. Even after you remove the person from collections (**GROUPS**, **PRODUCT FAMILIES**, all change forms' analyst and participants, custom attribute defaults), the record may remain tied to items (trustee, auxiliary persons, custom attributes), file attachments (added by, checked-out by), change reviews, tasks (assigned by/assigned to), and queued email notices.
>
> If the person was given a user account, it's more practical to keep the user's history by deleting the user account and making the **PERSONS** member not active.

Collection Explorer   ◢   **PLACES/ORGANIZATION/PERSONS** group   ◢   **GROUPS** collection

Purpose

Identifies a specific responsibility in the change review procedure, and the persons who are assigned that responsibility.

Where used

Change form and related workflow

Data fields

General

> Name
>> This is the complete name for the group.

> Description
>> This describes the group and its function.

Persons

Add a person record by dragging it from the **PERSONS** collection and dropping it onto the list.

If the group is used for change reviews, then the person must have a full-function user account.

Setup

> The Batch Importer tool can import and update **GROUPS** collection members and persons .

How to use groups

A group is a *responsibility* or *authority*. Name the group to show *What is the responsibility or authority of the group's persons?*

A responsibility may be given to one person now, and to another person later. Several persons may have the same responsibility, and any one of them can do the work. Some persons may be qualified for more than one responsibility, and can be added to several groups.

Change form review groups

> To provide a response to the change form, the reviewing person must have a full-function user account.

> A group can be added to a change form's workflow only when there's a person in the group. However, after the group is on a change workflow it's possible to change the persons list. Be sure that each reviewing group always has at least one responsible person.

> Every person in a reviewing group receives that group's change workflow notices. The first person to respond completes the group's review.

A group is most often used to identify the responsibility (knowledge and skills) needed to review a change form.

In smaller organizations, this responsibility may be rather broad: **Engineering**, **Quality**, **Production**. Larger organizations have more limited or special review responsibilities, like **Component Engineer** or **Metal Fabrications Purchaser**. Create each responsible group and add the responsible person to the group. When that person is no longer responsible, update the group with the person's replacement. The change workflow remains the same, and years from now the change forms will show they've all been reviewed by the correct authority.

The group's responsibility is not the same as a person's name, job or department. Don't create one group for each user. For example, assigning the person **Pat Lee** to a person-based group **Pat Lee Review** has disadvantages.

- Responsibilities change less frequently than users. You may need more person-based groups than responsibility-based groups, and may update change form templates more often.
- Change form originators (especially new employees) may not always know which person has a specific responsibility, but usually know when a responsibility like **Quality** is needed.
- When one person has several responsibilities — say, **Quality** and **Production Engineering** —, the group name shows the authority that the change needed, and the reviewer used.
- The group name confirms that your review workflow is correct before routing the change. Change participants can immediately see that **Program XYZ Engineer** doesn't belong on a change for the ABC program, but **Pat Lee Review** needs more information. Similarly, a change that has little impact on marketing may suggest removing the **Marketing** responsibility or setting the group's participation from Must Act ⌄ to Can Act ⌄ . This can improve the approval list quality, and shorten the review process.
- If a reviewing person must be changed after the change form is routed, the reviewer is easily replaced in a responsibility-based group. When using a person-based group, the workflow must be restarted because the group must be replaced.
- Adding new persons to share responsibilities, or using an out-of-office agent , can cause confusion if the reviewer doesn't match the group name.
- Responsibility-based groups show a consistent, useful history. On released change forms, the group shows why a person was on the reviewing list; on new change forms, the group shows who has that same responsibility today. Person-based groups can't show this history.

Responsibilities may change as the organization and products evolve. As a product moves from development to maturity, the sustaining engineer replaces the design engineer; possibly several groups are assigned to one person. When a responsibility is no longer needed, the **GROUPS** member is set as inactive to keep the review history. The group can be set to active if it's needed again.

Group reviewer permission

A person who is added to a change form's reviewing group has permission to view the change and its affected items. This expands the viewing permissions of the person's role.

Group reviewer permission is equivalent to applying these **ROLES** collection permissions to the change form's affected items:

- Document ☑ View pending , ☑ View released , ☑ View canceled checkboxes
- Part ☑ View pending , ☑ View released , ☑ View canceled checkboxes
- Change form ☑ View unreleased and ☑ View released checkboxes

It doesn't affect the user's ☑ Create new , ☑ Is an analyst or ☑ Collections/Rules administrator permissions.

For example, if the user's assigned role has only ☑ View released permission, then the reviewing group lets the user see a routed (unreleased) change form and each affected item's pending and canceled iterations. This expanded permission lets users with a full-function user account give the group's response.

The group reviewer permission expands users' roles only while they're added to the group. Users added to the group can view items previously reviewed by the group. Users removed from the group's Persons list will return to their role's normal permissions. This may prevent users from viewing items they've previously viewed and approved. A user with a role that has no permissions can only view items related to the group's change review responsibilities.

Group reviewer permission enables access to items listed on the change form, but doesn't apply to related items. For example, an assembly listed on a change may be viewed, but if none of its BOM items are on the change, then these cannot be viewed unless other permissions allow viewing.

Change form observing groups

A group can also be a set of observers organized by product, functional team or partner. They don't have reviewing responsibilities, but perhaps responsibility to rework parts or update computer records when the change form is released. When set in the workflow, observing groups receive email notices.

Other groups

Groups can identify a team in custom attributes on parts, documents and change forms. It's possible to use this team to link, for example, email addresses or phone lists in custom exports, reports or automation.

2017

Purpose

Identifies your organization as well as the suppliers, customers, regulatory agencies and other entities that interact with it or that affect your products.

> By design, the *home organization* is permanent, default and active, and is the licensee of this PDXpert instance. You cannot delete the home organization.

Where used

Documents, parts, persons (employees)

Data fields

General

Name

This is the name of the company, agency or other organization. It should be different from all other organization names.

> This value is locked for the home organization. You can only change its value in the Software License Key tool, which can be opened by double-clicking on the Name field or by selecting Software License Key from the Tools menu. If you're using a ◉ Registered license with a Registration key, you must request a new license key file with the correct Organization name.
>
> You may need to close the PDXpert client and start it again to see license changes in the Organizations member.

Display name

Use the organization's abbreviation for this value. It should be different from all other organization abbreviations, and no more than about 10 characters. It's used extensively throughout PDXpert to identify the organizations responsible for writing and managing documents as well as designing and manufacturing parts. For other uses, see [Color-coded environments](#), below.

D-U-N-S number

The D&B D-U-N-S Number is a unique nine-digit identification sequence, which provides unique identifiers of single business entities, while linking corporate family structures together. It is recognized and/or required by many government, industry standards bodies and trade associations, including ANSI, the United Nations, the U.S. Federal Government and the European Commission.

D-U-N-S+4

This 13-digit (9+4) value specifies the organization and its geographic location. In non-IPC environments, you may prefer to use this for the EAN.UCC 13-digit Global Location Number.

Language

This is the organization's preferred language for communications. Most documents, part descriptions and changes are written in this language. You can select from active members of the languages collection.

Partner classification

You can classify the organization and its relationship to your own organization, which may be important to other parties who exchange product design data with you. (See the **PARTNER CLASSIFICATIONS** topic for more information.)

Currency

This is the organization's preferred currency. For instance, when a part is given a cost, this currency is used unless overridden.

URL/website

Enter the organization's home page or intranet page. Clicking on this link launches your computer's default browser and attempts to open the web page.

Active: users can select
Default member of collection
Permanent member of collection

See the Managing collections: Common attributes help topic.

Address

These fields are used to specify the organization's location and contact information. A PDX package includes this information, which is helpful to supply chain partners.

> The Country and Postal code values are locked for the home organization. You can only change their values in the Software License Key tool. You may need to close the PDXpert client and start it again to see license changes.

Files

The Files list lets you attach files to the organization. These can be changed or removed at any time by users with administrative permissions for the **ORGANIZATIONS** collection.

To add, edit or remove a file:

- Right-click within the Files area or directly on an existing file. This shows a context menu with the available commands.

Library files are saved within PDXpert's own data library. Appropriate uses may be to save, for example, non-disclosure agreements and contracts.

URLs can point to files stored anywhere such as a file server or website. An unmanaged file is not controlled by PDXpert, and may be modified, moved or deleted without PDXpert's knowledge. Use a URL when you want to always point to the latest version of an often-updated "background information" file, such as the organization's web site or supplier-maintained price list.

Notes

The Notes textbox may be used for any purpose that you choose. Up to 20,000 characters (about 10 printed pages of text) can be added.

Setup

> The Batch Importer tool can import new **ORGANIZATIONS** collection members .

The organization that has the PDXpert software license is always the default ("home") collection member. Add the default organization's address.

Add an organization record for any entity that:

- Issues document numbers or part numbers that are used in your PLM system
- Supplies you with parts
- Has regulatory control over the technical contents of your documents
- Has adopted any of your documentation for its own use, and is affected by changes to that documentation

Providing a unique Display name for every entity you add to the database helps you distinguish between various organizations' parts and documents. Make the abbreviation suggestive of the organization you're working with: "Motorola", "CSA", "VDE", "FDA" and "Boeing" are good examples.

> In U.S. Government contracting environments, the CAGE code can be appended to the Name or used as the Display name value. The CAGE then becomes a searchable value for items in the database.

Color-coded environments

> You must request a separate software license key for each non-production server.

The `Display name` is shown in the application and on reports. You can confirm to users that they're using a non-production system for test or training.

If you include an exclamation character `!` anywhere in the `Display name`, the background color on the main window's status bar is changed.

`!` (without a number following) shows the status bar with a dark gray background. For example, `Test!` shows status text as `Status text`.

`!1` shows the status bar with a dark red background. For example, `Home!1` shows as `Status text`

`!2` shows the status bar with a dark yellow (brown) background. For example, `Use!2Train` shows as `Status text`

`!3` shows the status bar with a dark green background. For example, `ALT!3rd` shows as `Status text`

`!4` shows the status bar with a dark blue background. For example, `!4Blue` shows as `Status text`

`!5` shows the status bar with a dark orange background. For example, `!5Orange` shows as `Status text`

`!6` shows the status bar with a dark teal background. For example, `!6Teal` shows as `Status text`

`!7` shows the status bar with a dark violet background. For example, `!7Violet` shows as `Status text`

> To see the effect, lock the form `F2` to save your changes.

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Collection Explorer ◢ **GENERAL** group ◢ **ITEM LIFECYCLE PHASES** collection

Purpose

Classifies item lifecycle phases, which distinguishes the lifecycle phases — that is, the design maturity — of documents, internally developed parts, and partner parts.

Where used

Documents, parts

Data fields

Name
> This is the complete name for the lifecycle phase.

Display name
> The abbreviation is used where the full lifecycle Name may be too long. These include the Item Explorer's search results Release column and on an item's References lists.

Description
> This gives the lifecycle phase and its function.

Relative maturity
> The lifecycle phase specifies a numeric maturity of items, compared to other items' lifecycle phases. PDXpert uses a zero value as unlimited production. Negative values are pre-production, and positive values are post-production.
>
> > PDXpert uses relative maturity to select the initial revision sequence or subsequent revision sequence to a part or document. See help topics Items: Common elements and Document and part iterations .

Active: users can select
Default member of collection
Permanent member of collection
> See the Managing collections: Common attributes help topic.

Setup

The number of lifecycle phases is primarily determined by your business rules for constraining an item when its technical content is not ready for **Production** (relative maturity 0).

Some people distinguish document lifecycle phases from part phases. For instance, a document may have **Preliminary** (design, review, validate) and **Production** status. A part may go through a more detailed cycle of **Preliminary** (internal review, vendor quote, customer discussion), **Prototype** (design validation), **Field test** (production validation / customer acceptance) and **Production** (unconstrained).

There's rarely a need for lifecycles after **Production**. This is because the *technical content* normally doesn't change in post-production, just its *usage or availability*. A **Design End of Life** (with relative maturity of 0) signals the part should not be used in new designs but lets it remain on existing production BOMs. If the item is not serviceable for any use, then remove it from any BOM, Sources or References list and cancel its released iteration.

By convention, parts produced by partner organizations and adopted without change by the home organization are maintained at **Production** only. Since your organization has no direct control over their technical content, the parts are simply qualified and Released , or disqualified and Canceled , for production use.

As is often the case, defining fewer members makes the collection easier to understand and manage.

Collection Explorer　◢　**GENERAL** group　◢　**PRODUCT FAMILIES** collection

Purpose

Specifies the users who can or cannot view selected product data.

> Product families are used for access permissions, not for simply categorizing items. If you want a searchable tag for item categories, use the item description text or a custom attribute.

Where used

Parts, documents, changes

Data fields

General

Name
　This is the complete name for the product family.

Description
　This gives the product family.

Active: users can select
Default member of collection
Permanent member of collection
　See the Managing collections: Common attributes help topic.

Denied Access list

You may deny users, groups and organizations access to items in the product family. When the product family is added to an item, persons on this list cannot open the item.

The denied list is ignored for these cases:

- The product family's product team list overrides its denied access list. Users listed on the Product Team always have access to items in the product family.
- Analysts always have access to the items specified by their role.
- Trustees always have access to their items.

Product Team

When the product family is assigned to a part or document, team members can modify selected attributes. Marking the ☑ Product team on a **CHANGE TYPES** member workflow includes team members on workflow emails.

To set up the Product Team members and permissions:

1. Unlock the Product Family record.
2. From the **PERSONS** collection, drag and drop persons onto the team members list.
3. In the Manage… groups, set the access these persons have on items (parts and documents) and change forms.

> An item's product team settings are summed to get the complete set of user permissions. For example, if an item has **PF1** with ☑ Attributes and ☑ Custom marked, while **PF2** has ☑ Custom and ☑ Tasks marked, then a person assigned to both product teams will have permissions to Attributes , Custom and Tasks on that item.

> The product team settings allow more users to modify the item. This may increase editing conflicts with the item trustee and other team members. Always add the fewest possible Product Team persons, and enable the minimum set of permissions, to

> accomplish your goals.

> Product families can be added or removed throughout an item's life, whether pending, released, or canceled. This may affect access to attributes on the item, as well as on related change forms.

> A document's or part's Trustee, a change form's Originator and change form's Analyst are always treated as members of the product team, regardless of whether they've been explicitly listed on the Product Team list.

> Product team members must have a Role that allows normal editing permissions on items. Adding a person with a read-only user account or role will not provide full-function permissions.

> In some cases, the product team member has more permissions than the item Trustee or change Originator. For example, a trustee may be assigned a Role that does not allow editing custom attributes after the item's first release; however, a product team member may have a Role with this permission.

Manage as item Trustee

When a checkbox is marked, the product team persons have permissions equal to the item trustee. For example, when the ☑ Custom checkbox is marked, a product team member can edit the item's attributes on the Custom page.

Product team members do not have permission to delete a pending iteration. This must be done by the trustee or an analyst.

General
  Allows edits to item-level fields on the item's General page: Owner , Number , Trustee , Product families list, part Name or document Title , and Name{x} button (when shown). On a part's Attributes page, the Default unit of measure can also be modified until the part is released.
  This permission is affected by the user role Edit after first release: ☑ Item description setting.

  > **Be cautious** allowing product team members ☑ General permissions. This allows users to re-assign the Trustee , and to add or remove Product families . This can affect permissions to all other item attributes.

  > This setting does not allow edits to iteration-level attributes on the General page; see the Attributes setting below.

Iteration
  Allows edits on all editable attributes within the — Iteration — section on the item's General page.

Attributes - Notes
  Allows edits to all attributes on a document Attributes page; on a part, all Attributes values except a part's Default unit of measure (this is managed by the ☑ General setting); and on a document or part, the Notes page.

Custom
  Allows edits to the part or document Custom page attributes.
  This permission is affected by the user role Edit after first release: ☑ Custom attributes setting.

Part: Materials
  Allows edits to the part Materials page attributes: the Part mass setting and the Materials list.
  This permission is affected by the user role Edit after first release: ☑ Mass and materials setting.

Part: BOM
  Allows edits to the part BOM page Markup list.

Part: Sources
  Allows edits to the part Sources page Markup list.

References
  Allows edits to the document or part References page Markup list.

Revision Files
  Allows edits to the document or part Files page Revision Files list.

Item Files
  Allows edits to the document or part Files page Item Files list.

Tasks

Allows edits to the document or part | Tasks | page list.

Manage as change Originator

When a checkbox is marked, the product team persons have permissions equal to the change form's originator. For example, when the ☑ Related checkbox is marked, a product team member can add and remove change forms on the | Related | page list.

Without originator or analyst permissions, product team members can't delete the change form. Product team members with ☑ General permissions can submit and route the change form.

General

Allows edits to the change form's | General | page, and permits processing the change to | Submitted | or | Routed | workflow states.

> **Be cautious** allowing product team members ☑ General permissions. This allows the product team to modify the Originator and Analyst , which can affect permissions to all other item attributes.

Attributes - Notes

Allows edits to the | Attributes | page, and to the | Notes | page.

Custom

Allows edits to all | Custom | page attributes.

Affected

Allows edits to the change form's | Affected | page list, including disposition rows.

> **Be cautious** allowing product team members ☑ Affected permissions. This allows users to add new items and new Product Families that may substantially expand the available permissions to all persons on the added product teams.

Related

Allows edits to the change form's | Related | page list.

Reviewers

Allows edits to the change form's | Reviewers | page list.

Observers

Allows edits to the change form's | Observers | page list.

Files

Allows edits to the change form's | Files | page list.

This permission is affected by the system rule Unlock change form Files setting.

Tasks

Allows edits to the change form's | Tasks | page list.

This permission is affected by the system rule Unlock change form Tasks setting.

Setup

> The Batch Importer tool can import and update **PRODUCT FAMILIES** collection members and persons .

Setting exclusions on the | Denied Access | list can be valuable if you have users that can see most things, but you want to prevent them from seeing a few selected items. If all of your users are trusted, then not excluding anyone is the easiest option to manage.

PDXpert's underlying security model is "permissive" rather than "restrictive", and all users are assumed to enjoy at least viewing access to the vast majority of items. This makes typical permissions very simple to administer, but it gets complicated when restricted access becomes a major goal across the database. Thus, the Product Families are only useful to deny access to a limited set of items; the vast majority of items won't be denied by a Product Family.

Product Families are separately assigned (and perhaps later removed) on whichever items need the restricted or extra permissions. There's no inherited behavior from related parent items; for example, an assembly's Product Families won't affect the components on its BOM.

Search results always include both normal and denied-access items so users know about, and can request access to, restricted items. Thus, protected items should not contain any secrets within the search results fields (Owner / Type / Number / Lifecycle / Description). Similarly, all item fields are indexed, so a user can search for a secret to test if the system has a match, even if the secret record can't be opened.

When a person needs access to a small number of items, exporting a PDX package is often simpler and more secure than a user account with denied access.

2039

Purpose

Defines the format and next number for new documents, parts and changes.

Where used

Documents, parts, changes

Data fields

General

Name
This is the complete name for the identifier sequence.

Description
This gives the identifier sequence and how it should be used.

Prefix

This is an unchanging set of characters that is copied to the beginning of every `Next assignment` value.

> Example: If you've specified `DWG-` as the sequence's prefix characters and the `Next assignment` value contains `100123`, then the value given to a new item is `DWG-100123`. The item following is assigned `DWG-100124`.

Next assignment

The `Next assignment` value is given to a new item's number attribute, and the value is then incremented. You specify both the sequence's format and the actual next-assigned value. The format is determined by the location and type of character (letter, number or symbol) that you enter. If you enter a numeric digit at a specified location, then all subsequent values will only use a numeric digit at that location. Likewise, a letter at a particular location ensures that only letters are used when the identifier is incremented. Non-alphanumeric characters (symbols like / or -) are skipped when the value is incremented.

> Example: If you've specified `123AZ-99` as the `Next assignment` value, then the value is incremented to `123BA-00`.

> Use only numeric characters (0…9) in your sequences. Avoid using a sequence longer than 8 characters.

Suffix

This is an unchanging set of characters that is added to the end of every `Next assignment` value.

> Example: If you've specified `-000` as the sequence's suffix characters and the `Next assignment` value contains `100123`, then the value assigned to a new item is `100123-000`. The item following is assigned `100124-000`.

Skip characters

You can also specify which characters are not considered when a `Next assignment` value is incremented. Since these characters are only examined when the sequence increments, you can (for instance) use a skip character as the initial value for an identifier and it will never be used in a subsequent assignment.

Enter the exact characters to be skipped, without a space, quote or other delimiter: `IOSQXZ`.

> Example: If the letters `IOSZ` are invalid, then the `Next assignment` value of `CH9Y9` is incremented to `CJ0A0`.

> If your company mixes letters and numbers in the same sequence (*not* a best practice), then the letters BIOQSZ are good candidates to be skipped since, in some typefaces or handwritten notes, they are difficult to distinguish from numbers.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Where Used list

This list enumerates all of the item types that are using the identifier sequence.

Setup

> Designing a part or document number scheme can be simple or highly complex. For our recommendations, search the web for `PDXpert item number best practice`.

Item identification is not just giving a number to a part or document, but typically includes defining the owning organization and possibly the item class and type.

To avoid duplicate identifiers, your System Rules tool specifies which data elements are tested for uniqueness. As you configure your identification system, see the **Item uniqueness definition** system rule help topic for more information.

> The sequence generator doesn't try to enforce the rule. You can edit the value using, for example, a different prefix, suffix, or skip character.

> If you need to reserve a block of numbers (such as for a contract design service), edit the Next number value. For example, if the current value is `100489` and you need to reserve a block of 100 numbers, modify the Next number to `100589`.

> Although you can modify a sequence after it's been in use, you should consider possible conflicts with existing items. Edit the value only when no other users are adding new item records.

2041

Purpose

Defines the technical revision format for documents and parts.

Where used

Documents, parts

Data fields

General

Name
   This is the complete name for the revision sequence.

Description
   This gives the revision sequence and its use.

Starting revision
   This is given to a new item's revision. The `Starting revision` value never changes; instead, subsequent revisions of the item are incremented based on the previous revision's value and the sequence rules, such as invalid characters.

   You specify both the revision sequence's format and the value. The format is determined by the location and type of character (letter, number or symbol) that you enter. If you enter a numeric digit at a specified location, then all subsequent values use only a numeric digit at that location. Likewise, a letter at a particular location ensures that only letters are used when the identifier is incremented. Non-alphanumeric characters (e.g., "/" or "-") are ignored when the value is incremented.

   > Example: If you've specified `A.01` as the `Starting revision` value, then the next item iteration is given as `A.02` . The revision immediately following A.99 is B.00.

   If no alphanumeric characters are specified, then the item's initial iteration is given the starting revision value. Any subsequent revisions are alphabetic.

   > Example: If the `Starting revision` value is specified as a hyphen `-` , then the next item iteration would be `A` .

Skip characters
   You can also specify which characters are not considered when a `Starting revision` value is incremented. Since these characters are only examined when the sequence increments, you can (for instance) use a skip character as the initial value for a revision and it will never be used in a subsequent revision.

   Enter the exact characters to be skipped, without a space, quote or other delimiter: `IOSQXZ` .

   > Example: If the letters `IOSZ` are invalid, then an item with revision *H* is incremented to new revision *J*.

   > Skip characters are applied to single-character revisions only.

   > If your company mixes letters and numbers in the same sequence (*not* a best practice), then the letters `BIOQSZ` are good candidates to be skipped since, in some typefaces or handwritten notes, they are difficult to distinguish from numbers.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Where Used list

   This list enumerates all of the document and part types that are using the revision sequence.

Setup

Alphabetic characters have traditionally been used for revisions. Although most items won't require more than 20 revisions, you may want to specify a double-letter revision sequence starting at "AA". This offers almost 700 revisions for those particularly long-lived items, and specifying the number of revision characters up front means your users will never have to worry whether the item is truly at Revision B, instead of an accidentally truncated Revision BC.

Numeric revisions are a more recent, and often superior, practice. They do not require skip characters, and are far more accessible on computer keyboards for all languages. It's better to not use 0 as the first character in the Starting revision : Microsoft Excel often silently deletes leading zeroes, for example, revision 02 becomes 2.

> The sequence generator doesn't try to enforce the rule. You can edit the suggested revision using a skip character or different number of characters.

> Although you can modify a sequence after it's been in use, you should exercise caution as it will affect all new items, as well as all existing items, that rely on that sequence.

2042

Purpose

Classifies units of measure (*UoM*) into related categories. A unit of measure that belongs to a specified UoM category can be converted to a different member of the same category.

Where used

Unit of Measure

Data fields

Name
    This is the complete name for the UoM category.

Description
    This gives the UoM category and its function.

Use on part
    When this checkbox is marked, any unit within the category may be selected for a part's default unit of measure. For example, the **Proportion** category is too indefinite to be used on a BOM, while the **Count** (e.g., **each**) category is commonly used on BOMs.

Permanent member of collection
    For information, see the Managing collections: Common attributes help topic.

Setup

Numeric custom properties will often require units of measure. Broad types of property units would include electrical (voltage, resistance, capacitance, inductance, power dissipation), and mechanical or physical (load, tensile strength, rotational velocity), chemical (pH, molecular weight).

2044

Collection Explorer ◢ **GENERAL** group ◢ **UNITS OF MEASURE** group ◢ **UNITS** collection

Purpose

Defines measurement units for counting parts, time durations, physical properties, and other purposes.

Where used

System-wide

Data fields

Name

This is the complete name for the unit of measure. Unlike most other `Name` attributes, this value is limited to 4 characters, such as *each*, *mm*, *kg* and *ohms*.

> While units of measure with Unicode characters (like *cm²* and *kΩ*) might look better, they're often hard to use. For example, searches are more difficult if some keyboards don't show the character, and older manufacturing applications may not know how to import or display these characters.

Description

This gives the unit of measure more fully.

UoM category

Use this dropdown list to select the appropriate category for the unit of measure. See the **UNITS OF MEASURE (CATEGORY)** collection help topic.

> Ensure that the correct category is selected. You cannot change this value after the new member is saved.

Measurement locale

You can specify whether a unit of measure is related to one of the principal regional measurement systems, or is globally applied.

Default units per this unit

This conversion constant is the number of default member units required to make this unit. That is, there are [conversion constant] x [default members] in [this member]. The default member conversion constant is, by definition, equal to 1.0. Enter how many units of the default member you need to equal this member.

> There are 100 centimeters in one meter. In the **UoM CATEGORY Length** collection, if the default category member is set as:
> - **centimeter** (conversion constant = 1), then the **meter** member's conversion constant is 100.
> - **meter** (conversion constant = 1), then the **centimeter** member's conversion constant is 0.01.

Active: users can select
Default member of collection
Permanent member of collection

For information, see the Managing collections: Common attributes help topic.

Setup

Keep poorly characterized unit types ("carton", "as needed", etc.) to a minimum, since they are not convertible to other compatible units on part lists.

Collection Explorer ◢ **GENERAL** group ◢ **TRANSFORMS** collection

Purpose

Defines a template for reporting, exporting and displaying data using custom data queries.

Where used

Report/Export Wizard or, if defined within the transform, on menus.

Data fields

General

Name
The name of the transform template.

Description
A summary of how the data contained in the transform is used.

Active: users can select
Default member of collection
Permanent member of collection
See the Managing collections: Common attributes help topic.

XML

A transform consists of the following sections (element and attribute names are case-sensitive unless noted otherwise):

- `<Provider>`*provider name*`</Provider>` The transform creates a DataGrid window; structured export file; or formatted report.

Provider name (note 1)	Provider ID (note 2)	Description
`DataGrid`		Tabular data window displays, filters and exports results within the PDXpert client
`PDXExport`		PDX package export content definition
`Report1`	f61035e0-a334-4978-909b-b4d4733c7654	SQL Server RDLC report with PDXpert's standard header and footer format (Obsolete)
`Report2`	7505f796-a1b5-43cc-8ee3-218f7bf6ffdc	Unmodified, fully custom SQL Server RDLC report (note 3)
`Table1`	8fb9e24b-bbfb-44a0-903e-d526db8e3fd0	Export tabular data file with CSV, TAB, XLS or XLSX extension. Obsolete: Use the `Table2` provider. This provider uses Microsoft OLEDB, which is replaced by OpenXML. Use only when Excel 97-2003 files are required.
`Table2`		Export tabular data file as CSV, TAB or XLSX (using OpenXML)
`XML`	e2c4e89a-db62-43ad-a718-ec08726d42b3	Export tabular data as a simple XML file

Notes:

1. The *Provider name* is case-sensitive. Use the value exactly as shown.
2. Do not use the *Provider ID* for new transforms. Edit older transforms to use the *Provider name*.
3. This provider uses the complete `<Report>...</Report>` contents of a standard RDLC design file, excluding the `<?xml ...>` encoding declaration in the first line.

- `<context />` This optional element specifies added areas where the transform is shown. The transform context is specified by a location, and one or more objects that contain the location and are compatible with the transform. See *<context /> element setting* below.
  - `location="name"` identifies where the transform can be shown.
  - `part="true"`, `change="false"`, etc. identifies the objects that are compatible with the export file or report. This also defines the parameter that's passed to the transform's query: item revision GUID or change item GUID.
- `<dataquery xmlns="http://www.plmx.org/DataQuery.xsd"></dataquery>` This contains an optional database SQL query that makes a data source. If the attribute `parameterized="true"` is included, then the SQL statement can include parameters in the `WHERE` clause to select a document or part revision GUID, or a change form GUID. See syntax and examples in *Parameterized SQL queries* below.
- `<Report>RDLC code</Report>` The optional *Report Definition Language (Client-side)* code is an XML-based report definition specified by Microsoft for SQL Server reporting services.
- `<settings />` This element configures options.
  - `isImport="true/false"` identifies whether the transform represents, respectively, an assembly (e.g., CAD BOM) import or a datagrid/export/report. If missing, the value is `false`.
  - `fileSaveAs="preferred file name"` suggests a file name for saving the export file or report. See syntax and examples in *fileSaveAs setting* below.
  - PDX packages contain one or more `<kvp key="..." value="..." />` elements that adjust the package content. See *PDX export transforms setting* below.
- `<xsl:stylesheet></xsl>` The optional XSL instructions transform the source data into the appropriate import/export file format.

Setup

> Restrict roles that can add or change members of the **TRANSFORMS** collection. Transforms directly access your database, and inexperienced or malicious users can damage or destroy your data.

A transform can be used to show product data in a DataGrid window or printable report, or export it to a file.

The flow for output data is

Database ⇒ *SQL data query* ⇒ transform *XML* ⇒ [*datagrid window* or *export file* or [*RDLC* ⇒ *report*]]

> After upgrading to a new PDXpert release, always test your transforms for proper operation.
>
> A transform contains custom code that's not visible to PDXpert's upgrade procedure. It's impossible to ensure that a transform will remain forward-compatible with future PDXpert upgrades. An upgrade may contain new features that removes the need for an existing custom report or export. In some cases, a transform may require changes to maintain compatibility.
>
> Transforms included with your PDXpert system are provided to demonstrate initial capabilities, and may need updating for compatibility with future PDXpert releases.

> Import (input) transforms are supported for backward compatibility with older PDXpert releases. Use the Standard BOM Import format instead.

Adding a new transform

When you receive or make a new XML transform as a text file:

1. Add a new **TRANSFORMS** collection member.
2. Open the text file in a plain text editor like Notepad or Notepad++. Do not open or edit the file in a word processing application like Wordpad or Word.
3. Select the entire contents (`Ctrl` + `A`), and copy (`Ctrl` + `C`) the text to the Windows Clipboard.
4. On the transform window, select the XML page, and paste the text (`Ctrl` + `V`) into the XML textbox.
5. Save the transform.

Using a transform

After you save the new transform, it's immediately available. For showing or exporting data, see the <u>Use the Report/Export Wizard</u> help topic. Selected transforms can be on context menus, as specified in the transform's <u>*<context />* element</u> .

Designing a transform

SQL transforms

You can export data from an SQL query into a comma-separated value ("CSV") file, or use a SQL query as the basis for a custom report or datagrid view. The query can search all database objects (a *bulk query*) or focus on objects selected by the user (a *parameterized query*).

The system always includes a SQL parameter, `@P0_CurrentUser` , for personalizing a bulk or parameterized SQL query. This is the SQL **uniqueidentifier** of the person who executes the query. For example, a query to *export all items* can instead *export the current user's items* with the proper code, for example, `WHERE Trustee=@P0_CurrentUser` .

> Do not use transforms to update native `PDXpertDB` tables. Updates to native tables may affect data synchronization or cache coherence that result in client "can't save" transaction errors. However, a transform can create, update and delete temporary tables to, for example, aggregate data for reporting.

> A `P0_` parameter is provided by the system, not the user. Using it in a SQL query doesn't require the `parameterized="true"` attribute in the `<dataquery>` element.

> Do not declare a variable `@PLIST` or variables beginning with the characters `@P0…` to `@P9…` in your transform. These variables are declared automatically by PDXpert to identify reserved parameters and user-selected items.

> PLM data is complex, and the PDXpert schema is highly-normalized. For example, multi-level BOM queries that include sources, references, file metadata, materials, and custom attributes need many joins. Where performance is a problem, use the de-normalized `Matererialized…` and `viewer.…` tables/views. If your query takes longer than a few minutes, consider upgrading your SQL Server edition and server hardware; redesigning the query to limit data, subqueries, joins and calculations; and/or copying the database to a separate instance dedicated to reporting. For serious data analytics, consider data extraction to a de-normalized data warehouse architecture.

> The DataGrid window has a **text** filter that looks at all values within each row. If row filtering doesn't work as expected, try formatting each column's data as text in the final SQL `SELECT` statement. Apply `CAST()` or `CONVERT()` functions to numeric, date, or other non-text values; convert `NULL` values to an empty string.

Bulk SQL queries

A SQL statement can be used to export bulk information in specified columns, with criteria and sorting as specified within the statement.

For example: `SELECT * FROM PDXpertDB.viewer.ItemView`

After writing your SQL query, add a new **TRANSFORM** collection member, and embed the query within this XML framework:

```
<Definition>
```

```
<dataquery xmlns="http://www.plmx.org/DataQuery.xsd">
 <choice>
  <sqlquery>
   <sql>
    <![CDATA[
    replace this line with a SQL SELECT statement
    ]]>
   </sql>
  </sqlquery>
 </choice>
</dataquery>
<Provider>DataGrid</Provider>
<settings />
<context />
</Definition>
```

To show the results, select Tools ◢ Report/Export Wizard... and select your transform.

> The `DataGrid` provider can display approximately 100,000 cells. When using the `DataGrid` provider, limit the number of rows that can be returned by using `TOP (n)` in your SQL query. The value of *n* is usually `10000` or less. If users need more than 100,000 cells, use the `Table2` provider to export the data.

Parameterized SQL queries

Parameterized queries using `@Pn` or `@PLIST` must always include `<dataquery` *parameterized="true"* ...

Exact parameters

A parameterized SQL statement can output results from an item selected using the Report/Export Wizard. The syntax for a part or document is `RevID=@P1` or `PendingRevID=@P1`. For a change form, use `ItemID=@P1`.

Part or document released (or canceled) revision example:

```
<Definition>
 <Provider>DataGrid</Provider>
 <context location="TopLevel" part="true" document="true" />
 <dataquery parameterized="true" xmlns="http://www.plmx.org/DataQuery.xsd">
  <choice>
   <sqlquery>
    <sql>
     <![CDATA[
     SELECT Owner, Type, Number, Revision, Description
     FROM viewer.ItemView
     WHERE RevID=@P1
     ]]>
    </sql>
   </sqlquery>
  </choice>
 </dataquery>
 <settings fileSaveAs="Summary of Released {ItemTypeShort} {ItemNumber}" />
</Definition>
```

Change form example:

```
<Definition>
 <dataquery parameterized="true" xmlns="http://www.plmx.org/DataQuery.xsd">
  <choice>
   <sqlquery>
    <sql>
     <![CDATA[
     SELECT Type, Number, Summary
     FROM viewer.ChangeView WHERE ItemID=@P1
     ]]>
    </sql>
   </sqlquery>
  </choice>
 </dataquery>
 <Provider>DataGrid</Provider>
 <settings fileSaveAs="Change Summary {ItemNumber}" />
 <context location="TopLevel" change="true" />
```

```
</Definition>
```

> You can specify more than one item parameter in your query. As each item is added to the Report/Export Wizard, the system automatically declares a new T-SQL variable as `DECLARE @Pn uniqueidentifier = {objId};`, where *n* is 1 or higher. An error occurs if the user selects fewer items that your query requires. For example, if your query refers to `@P1`, `@P2` and `@P3` and the user drops only two items onto the Wizard, the query's reference to `@P3` fails.

Table parameters

If you're not sure how many items a user will want to include, you can design a transform query that uses a SQL table variable. This table, declared as `@PLIST`, contains a list of part revision, document revision and change item identifiers. The table has two columns, and an unlimited number of rows:

- The `Ordinal` column (SQL numeric data type **int**, starting at 0) contains the sequence that a part, document or change form is dropped onto the Report/Export Wizard. Use this value if it's important for the query to know the sequence that items are added (for example, the primary assembly of a BOM comparison).
- The `Id` column (SQL data type **uniqueidentifier**) contains the revision identifier (if part or document) or change form's item identifier. To select the data records related to the user's items, your query must `JOIN` other tables or views to this column.

This transform accepts any number of released part and document iterations, and any number of change forms, and sorts them in the sequence they're added to the Report/Export Wizard:

```
<Definition>
 <dataquery parameterized="true" xmlns="http://www.plmx.org/DataQuery.xsd">
  <choice>
   <sqlquery>
    <sql>
     <![CDATA[
     SELECT
       [Class]
       ,[Owner]
       ,[Type]
       ,[Number]
       ,[Iteration]
       ,[Description]
     FROM
     (
       SELECT
         CASE Class WHEN 1 THEN 'Part' ELSE 'Document' END AS [Class]
         ,Owner
         ,TypeShort AS [Type]
         ,Number
         ,Revision + ' @ ' + Lifecycle AS [Iteration]
         ,Description
         ,LIST.Ordinal
       FROM
         @PLIST AS LIST
         INNER JOIN viewer.ItemView IV ON IV.RevID = LIST.Id

       UNION ALL

       SELECT
         'Change'
         ,''
         ,TypeShort
         ,Number
         ,''
         ,Summary
         ,LIST.Ordinal
       FROM
         @PLIST AS [LIST]
         INNER JOIN viewer.ChangeView CHG ON CHG.ItemId = LIST.Id
     ) ItemList
     ORDER BY
       Ordinal
     ]]>
    </sql>
```

```
      </sqlquery>
     </choice>
    </dataquery>
    <Provider>DataGrid</Provider>
    <settings fileSaveAs="Selected Items {FileDatetime}" />
    <context location="None" />
   </Definition>
```

To show the resulting data:

1. On the `Tools` menu, select `Report/Export Wizard…`
2. Select the transform, and click the `Next >` button.
3. Drag one or more items from the Item Explorer and drop onto the Report/Export Wizard. Click the `Finish` button.

Housekeeping columns in DataGrid

PDXpert public views may include housekeeping columns. These are named as `[HKnumber]` ; for example, `[HK1]` . In most cases, housekeeping columns are useful only to PDXpert; they aren't interesting to users, and their definition may change.

The DataGrid hides all housekeeping columns automatically. Housekeeping columns are not included when copying or exporting. If you want a housekeeping column shown in the DataGrid, you must rename the column in your SQL query, like `SELECT [HK1] AS [ID1]`

HK100 column

Include an ID column named `[HK100]` in your SQL query to let users open a document, part, change form or collection member from the DataGrid. The column shows an Open link in the DataGrid.

The SQL column named `[HK100]` must contain the `ItemID` (not revision ID) of a document, part, or change form; or a collection member ID. If the ID cannot be matched to an item or collection member record, then nothing is opened. If `[HK100]` is a null value, then the Open link is not shown in that row. Do not include more than one `[HK100]` column in your SQL query. The link column header is always blank.

> If a row contains more than one item, consider putting the Open column immediately after the selected item's number, or collection member name. This example opens the part's source:
>
> `SELECT Number AS [Part], Number_Child AS [Source], ItemId_Child AS [HK100] FROM viewer.SourcePairView`

<settings fileSaveAs=… /> setting

When exporting data or saving a report, the `fileSaveAs="preferred file name"` setting suggests a file name to the user. The user can edit or replace the file name before the file is saved.

The suggested file name value can be simple text like `fileSaveAs="Released parts"` , which is shown in the ☑ Save As dialog as `Released parts` .

You can mix text with current values; for example, `"Saved on {FileDatetime@dddd} by {FileCreator}"` becomes `Saved on Friday by Pat Lee` in the ☑ Save As dialog.

.

Value name (note 1)	Applies to (note 2)	Value inserted into file name
{FileCreator}	All	Current user's name from the **PERSONS** collection.
{FileDatetime}	All	Current local date and time as *year-month-day hour-minute*, like `2022-06-21 15-22` (note 3).
{ItemClass}	Selection	First selected item's class: `Change` , `Document` or `Part`
{ItemName}	Selection	First selected item's name / description of up to 100 characters (note 4).
{ItemNumber}	Selection	First selected item's number.

`{ItemOwner}`	Selection	First selected item's owner name from the **ORGANIZATIONS** collection.
`{ItemOwnerShort}`	Selection	First selected item's owner abbreviation (display name) from the **ORGANIZATIONS** collection.
`{ItemType}`	Selection	First selected item's part type, document type or change form.
`{ItemTypeShort}`	Selection	First selected item's part type, document type or change form as an abbreviation.
`{ItemRevision}`	Selection	First selected item's revision.
`{ItemLifecycle}`	Selection	First selected item: iteration's lifecycle, or change form's full lifecycle name.
`{ItemReleaseDatetime}`	Selection	First selected item: iteration's (SQL `BasicItemRevision.ReleaseDate`) or change form's (SQL `Change.ReleaseDate`) release date for correctly identifying the file import sequence after release (note 3).
`{ItemReleaseFrom}`	Selection	First selected item: iteration's release marker (SQL `BasicItemRevision.FromNum`) or internal change event number (SQL `Change.ChangeNum`) for correctly identifying the file import sequence after release (note 5).
`{ItemReleaseState}`	Selection	First selected item: iteration's release state (`Pending`, `Released`, `Canceled`) or change form's short lifecycle state enumeration (`ORG, SUB, ..., CMP`).
`{MemberName}`	All	Transform's member name.

Notes:

1. The `{ValueName}` is case-sensitive, and must be used exactly as shown. Use only one instance of a value name in a template.
2. If the user selects items to include in the output, data from the first selected item is inserted. Otherwise, these value names are ignored.
3. You can use standard Windows .NET datetime formats as `{FileDatetime@datetime format}` or, for UTC, `{FileDatetime@datetime formatZ}`. See the [Custom attributes: Date format commands](#) help topic. A date without format is UTC as `@yyMMdd-HHmmss`; for example, `220523-140321` (UTC). An invalid date format causes an empty date. Invalid file system characters (like `/` and `:`) are converted after the .NET format is applied.
4. You can limit the text length as `{ItemName@maximum}`, where maximum value is 1-99. For example: `{ItemName@20}` limits the name *Power Chassis Assembly* to `Power Chassis Assemb`
5. Number of digits is specified using .NET Decimal ("D") formatter; for example, `{ItemReleaseFrom@D6}` formats event 1484 as `001484`. Allowed range is D1 to D9, default value without a formatter (or with invalid format specifier) is D6.

If there's no `fileSaveAs=` setting, then the file name is the first selected item (formatted as `fileSaveAs="{ItemOwnerShort}{ItemNumber} ({ItemTypeShort})"`) or the transform's name (as `fileSaveAs="{MemberName}"`). Use `fileSaveAs=" "` (with space character) to force an empty file name.

Invalid file system characters (such as `/` and `:`) are replaced by an underscore (`_`) character, and leading/trailing space characters are removed. The complete file name is limited to 200 characters, and the operating system may shorten the name further. Try to design the file name for fewer than 80 characters.

<context /> element

The `location="name"` setting defines where the export or report transform is shown. One or more objects (`change`, `document`, `part`, `system`) will show the transform at the named location. Any item that is not specified as `true` is ignored. See examples in the [Exact parameters](#) section of this topic.

> A transform can be added to any location; it's the transform *query*, not the *location*, that defines its output. A transform designed to export released BOM data won't start exporting pending source data after it's added to the `SourcesMarkupList`.

> A parameterized query needs an item as the named location (for example, `part="true"`). Only add bulk queries to locations where `system="true"`.

Location name (note 1)	Description of named location	Shows transform at named location	GUID as SQL parameter @P1
`AdministratorArea`	`Tools` menu (only users with administrator role). Transforms added to this location will not be shown	`system="true"`	none

	in the Report/Export Wizard.		
`AffectedItemsList`	Change form Affected list	`change="true"`	Change item
`AppearsOnBillOfMaterialsList`	Part Appears On: BOM list	`part="true"`	Item's selected iteration
`AppearsOnChangeFormsList`	Document or part Appears On: Changes list	`document="true"` , `part="true"`	Item's selected iteration
`AppearsOnReferencesList`	Document or part Appears On: References list	`document="true"` , `part="true"`	Item's selected iteration
`AppearsOnSourcesList`	Part Appears On: Sources list	`part="true"`	Item's selected iteration
`BillOfMaterialsCurrentList`	Part BOM: Current list	`part="true"`	Assembly's selected iteration
`BillOfMaterialsMarkupList`	Part BOM: Markup list	`part="true"`	Assembly's selected iteration
`MaterialsList`	Part Materials list	`part="true"`	Part's selected iteration
`None`	Report/Export Wizard tool (note 2)	none	none
`ReferencesCurrentList`	Document or part References: Current list	`document="true"` , `part="true"`	Item's selected iteration
`ReferencesMarkupList`	Document or part References: Markup list	`document="true"` , `part="true"`	Item's selected iteration
`ResultsRow`	Item Explorer Recent and Search lists	`change="true"` , `document="true"` , `part="true"` (note 3)	Change item; document or part iteration (note 4)
`SourcesCurrentList`	Part Sources: Current list	`part="true"`	Part's selected iteration
`SourcesMarkupList`	Part Sources: Markup list	`part="true"`	Part's selected iteration
`TasksList`	Document, part, or change form Tasks list	`change="true"` , `document="true"` , `part="true"`	Change item; document or part selected iteration
`TopLevel`	All supported locations on document, part, or change form	`change="true"` , `document="true"` , `part="true"`	Change item; document or part selected iteration
`UserArea`	Tools menu	`system="true"`	none

Notes:

1. The location name is not case-sensitive; for example, you may use `TopLevel` , `toplevel` or `TOPLEVEL` .
2. Optional. This is the same as not including a `<context />` element in the transform.
3. If more than one item is selected in the Item Explorer results list, then only transforms supported by every selected item are shown.
4. If a part or document has several iterations, then the released iteration is selected. If there's no released iteration, the pending iteration is selected. If there's no pending iteration, the most recent canceled iteration is selected. This sequence can be changed in the transform's SQL query by deriving the item from its iteration, and then selecting the preferred iteration.

Bulk (non-parameterized) transforms can be added to any location; `@P1` is declared and a value is assigned, but the query can ignore it.

If the same transform must be shown at several locations, add a copy in the **TRANSFORMS** collection, give it a new name, and update the copy's `location` value.

If an `<context />` element isn't specified or its attributes are empty, then active transforms are available in the Report/Export Wizard. The user's role must Allow Transforms .

PDX export transforms

The PDX file format is defined by industry standard IPC-2570. A PDX export transform defines standard XML elements and attributes that are included or excluded.

The general format contains the `Provider` , `context` , `dataquery` and `settings` elements (exactly as shown). Within the `settings` , there is a set of one or more *key-value pair* `<kvp …>` elements:

```
<Definition>
 <Provider>PDXExport</Provider>
 <context location="PDXConfig" />
 <dataquery parameterized="true" />
 <settings>
  <kvp key="{key name}" value="{value}" >
 </settings>
</Definition>
```

Key-value pairs

A key-value pair consists of:

- **Key** A unique path of IPC elements, followed by an action.
  - The *path* is a series of element names or abbreviations, separated by a period/full stop. For example, an IPC-defined `Document` element has a standard attribute `globalProductTypeCode`, thus the path to the action is `Document.StdAttr.globalProductTypeCode`
    Base path values: `Change` , `Document` , `ManufacturerPart` , `Part` , `PDXPackage`
    Intermediate path values: `AddAttr` , `Attachment` , `BillOfMaterial` , `Custom` , `Material` , `StdAttr`
    > Only paths exported by the ☑ Export PDX Package dialog are supported.
  - The *action* defines a result. For example, the action at the end of path `Document.StdAttr.globalProductTypeCode` can be `:Load` (include the path object), or `:Apply` (replace the path object's standard value).
  Keys are fixed; you can only create a new key as a path to your custom attribute, and that path's action is always `:Load` .
- **Value** The desired result of the path's action. Values are usually one selection from a fixed set of choices, such as `Yes` / `No` , or `Include` / `Exclude` . Some values may be a numeric range (`:Limit` 1 to 20) or user-defined text (`:Apply` My text value).

Key path Actions and Value options

Action	Purpose	Value options
`:Apply`	Assign text to attribute	Any text
`:Enable`	Use feature option	`Yes` `No`
`:Filter`	Specify whether a loaded value includes all, a subset, or none	`Include` `Exclude` `NameOnly` (note 2)
`:Limit`	Defines an integer value for BOM levels	From `1` to `20`
`:Load`	Load path object(s) into package	`Yes` `No`
`:Select`	Specifies the set of objects that will be used by the `:Filter`	Comma-delimited list, such as part type names (note 3) or file types (note 4)

Notes:

1. This table describes PDX transform syntax, but is rarely needed. If you create the template using the instructions below , all values are automatically correct.
2. The `NameOnly` option is used only for file types. It specifies that only the file name and other metadata, not the actual file, is included in the package (the IPC attribute `isFileIn` is `No`).
3. If the object name has an embedded comma (for example, a part type named "Product,Final"), then use one of these characters to separate all items in the list: `!?;|` If you use one of these characters, it must be the first character in the list, and cannot be used within any of the listed items: `;Assembly;Product,Final;Design` The **Export PDX Package** dialog automatically handles this for you.
4. Use file extensions without the "dot" separator: use `pdf,txt,png` not `.pdf,.txt,.png`

Creating a PDX export transform

To create a new PDX export transform:

1. Open an item record, and select the `Export PDX package` command from the context menu.
2. Select a useful starting transform in the `Select PDX starting values` dropdown list at the bottom center of the dialog. Use the settings in the ☑ `Export PDX Package` dialog to add your changes.
3. Click the `Save As…` button to export the settings.
4. Add the file's content as a new **Transforms** collection member (see Adding a new transform , above).

   > Do not change the file's `<kvp key=`*`{path:action}`* text. Assign `value=`*`{option}`* only according to the table above. If the key or option value is unexpected, the export file will use the default value. Default values can be viewed by saving the `— PDX Standard Package — ⌄` transform.

PLMX transforms

> To ensure compatibility with current and future PDXpert releases, convert PLMX-based transforms:
> - For exports and reports that use the `<Provider>`*`8fb9e24b-bbfb-44a0-903e-d526db8e3fd0`*`</Provider>` , use a SQL dataset with a supported provider (`DataGrid` , `Table2` , `Report2` , `Report1`).
> - For CAD BOM importing, use the standard Import file format .

The PLMX transform uses an XML/XSLT format for product data objects. Although PLMX is very flexible, XSLT code complexity and slow performance made these less popular than standard SQL datasets.

PLMX transforms are not actively supported, although some functions remain available for backward compatibility. PLMX example transforms that were included in early PDXpert releases have been replaced with improved SQL-based versions. These replacement transforms are available for download in the PDXpert software release notes.

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Collection Explorer ◢ **GENERAL** group ◢ **VIEWS** collection

Purpose

Defines an administrator-specified SQL Server or SQLite database view for replicating CAD data to the client's local database.

Where used

ODBC database connections for CAD and other local applications.

Data fields

Name

This is the view name that's used by ODBC or SQL Server clients. PDXpert view names always begin with the letters `My…` as in, say, `MyReleasedParts` . The name must conform to the executing database engine's (Microsoft SQL Server or SQLite) guidelines.

> To prevent errors in SQL Server and SQLite views and in ODBC client queries, only Basic Latin alphanumeric and underscore (`_`) characters are allowed. Do not use space or symbol characters (for example, `%~'/\*<>([{+-=}])?`). An invalid name requires deleting (not renaming) the **VIEWS** member, and may require manually dropping the view in the database. Invalid characters are automatically replaced with an underscore.

> The member `Name` defines the order that each view is added to the `PDXpertDB.viewer.` database schema:
> - **VIEWS** members are added to the collection in `Name` alphabetical order.
> - If a member of the **VIEWS** collection refers to another **VIEWS** member, that other member must be added first.
> - Each time you save a **VIEWS** collection member, all **VIEWS** members are dropped and created again in alphabetical order.
>
> Thus, a new **VIEWS** collection member must be named to alphabetically follow all members that it uses in its `FROM` clause.

> It's helpful to apply a suffix to a view that's compatible with only one engine, such as `MyItems_SQLite` or `MyItems_MSSQL` . A view compatible with both databases wouldn't have a suffix: `MyItems` .

Description

This gives the view and its purpose.

SQL SELECT statement

The SQL `SELECT` statement is a **required value** that makes the view.
- For an ODBC client connecting to a **SQL Server** database, the `SELECT` statement must conform to SQL Server syntax.
- For an ODBC client connecting to the **SQLite** database, the `SELECT` statement must (a) conform to SQLite syntax, and (b) select data only from the set of SQLite-compatible public and user-specified views.

> Each time the PDXpert client starts, the client-side views are updated from the server. Minimizing the number of views, and custom attributes within each view, reduces the time required for the client to start.

A set of four part-related public views are copied into the client-side local database: FilePairMasterView , ItemMasterView and ItemView , and SourceItemMasterView . Private views used for local CAD views are executed by the PDXpert client against the local database, and can select data from only these four views. If your view refers to any other table or view, then it will always return zero rows.

The SQL Server public views are copied from the server `viewer` schema into the local views default schema. Do not include the `viewer` prefix in local queries: use `SELECT ... FROM ItemView WHERE ...` and not `SELECT ... FROM viewer.ItemView WHERE ...` If you include the `viewer` schema in your query, the local database will not show the query in the views list.

See also User Settings: Enable local views help topic.

Active: users can select

Default member of collection

See the [Managing collections: Common attributes](#) help topic.

Setup

For information about connecting to views, refer to the [Make an ODBC connection](#) help topic.

> Any change to a view, or to custom attributes in a view, can affect the local views database. Before you change a view and before you add, remove or rename custom attributes used within a view, all other users should exit PDXpert and all ODBC applications that use local views. After making your changes, users should start the PDXpert client before resuming work with the ODBC application.

> After upgrading to a new PDXpert release, always test your views for proper operation.
>
> A view's SQL is not visible to PDXpert's upgrade procedure. A view may require changes to maintain compatibility with PDXpert upgrades.
>
> Views included with your PDXpert system are provided for demonstration purposes, and may not be compatible with future PDXpert releases.

Collection Explorer   ◢ **DOCUMENTS** group   ◢ **MEDIA/LOCATIONS** collection

Purpose

Specifies the medium on which a document has been rendered and/or the physical storage location of a document.

Where used

Document

Data fields

Name
  This is the complete name for the medium or physical location.

Description
  This gives the medium or physical location in more detail.

Active: users can select
Default member of collection
Permanent member of collection
  See the [Managing collections: Common attributes](#) help topic.

Setup

Document media may be broadly specified to include, for example, photographic film, paint color chip, or other physical sample.

If your product management system is entirely electronic, this attribute may be irrelevant. However, if you still maintain some documents or files in some physical form, you can use this to define where they're stored, say, with all large-format drawings or in a specified room, cabinet or drawer.

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Collection Explorer ◢ **DOCUMENTS** group ◢ **DOCUMENT TYPES** collection

> Other users should not be using the system while you're working. Close all item records in your workspace before you begin. close the PDXpert client and start it again when you've finished.

Purpose

Classifies documents according to their usage, and defines their rules and custom properties.

> A document type defines unique business rules and behaviors. It's not useful as a document category or search tag because, once assigned to a document, it can never be changed (the document must be canceled and replaced). If you want a simple category or searchable tag, use the document title or a custom attribute.

Where used

Documents

Data fields

> Some data fields show a character counter in the upper right of the box. This is helpful for editing a custom label, and for data that may be exported to other systems that limit imported text length.

General

Name
: This is the complete name for the document type.

Display name
: The abbreviation used as the display name in lists and reports to save space. It should be as short as possible, preferably fewer than 10 characters.

Description
: This describes the document type and its function.

Show Files list
: When this checkbox is marked, the `Files` lists are visible. Revision files, item files and external links can be added to the document.

> If any files have been attached to documents, and then this checkbox is cleared, the `Files` lists – and attached files – are hidden. The files are not deleted. To ensure visibility and access, this checkbox must remain marked after it is set.

Active: users can select
Default member of collection
Permanent member of collection
: See the Managing collections: Common attributes help topic.

Attributes

Item number
: Use these settings to assign the part's `Number` value.

> Identifier sequence
> : This dropdown list lets you select an identifier (number) sequence for the type. You can choose a single number sequence for all document types, or you can specify a sequence just for specifications, a different sequence for procedures, etc. The selections for this are managed in the **SEQUENCES: IDENTIFIER** collection .

> User cannot edit assigned number

When this checkbox is marked, a new part identifier cannot be modified after it's set. When this checkbox is cleared, the creator/trustee can (a) manually enter an identifier and/or (b) request a new identifier string and edit it after the system sets it.

> See note at Administrator Override command .

Revision/version

These settings define rules for the part's Revision and Version .

Initial revision sequence

This lets you specify the revision format for the document type. The selections for this are managed in the **SEQUENCES: REVISION** collection .

Subsequent revision sequence

This lets you specify a production revision format that's different from the initial revision sequence.

When an item moves to a lifecycle with relative maturity value of 0 or greater (for instance, **Production** or **Service**), the subsequent revision sequence format is assigned.

If one revision format is used for the entire document lifecycle, leave this field empty so that the initial revision continues into production.

> Using a subsequent revision sequence may confuse vendors and employees with unnecessary data changes. Instead of changing the revision when the document's maturity has changed, rely on the lifecycle phase to specify when it's ready for production.

Warn on duplicate revision

When this is marked, a warning is shown if the pending iteration's revision identifier has been used for an earlier revision. Setting this encourages users to assign a unique revision value for all item iterations, even when there's no change to the technical content – for example, the lifecycle has changed.

User cannot edit assigned revision

This checkbox sets whether users can modify the revision given by the system, or whether the value is permanent.

> Let users edit revisions to items owned by partner organizations, since the item revision is not controlled within PDXpert.

Show Version field

When this checkbox is marked, the version attribute is shown on the document window and on reports. When this checkbox is cleared, the version attribute is hidden.

> The item's Revision area expands when this field is not shown.

> Documents have revisions, not versions. However, if the document type is closely related to an electronic file type (such as a **Software** document type), then you may want to enable the version field for the document type.

Default lifecycle phase

The selected **ITEM LIFECYCLE PHASE** collection member is assigned when a new document is made.

Show a Person #1 role

Marking the checkbox lets users identify a person with some responsibility for the document. Each new document iteration can show a different person. For example, you may want users to identify the author of the document.

If this checkbox is cleared, then the person #1 dropdown list isn't shown on the part window.

> These Person #1 / #2 controls are useful if your company has adopted the Institute for the Process Excellence (ipxhq.com) change management process.
>
> Each item is the exclusive responsibility of the item's (1) creator-designer, and (2) consumer-user-implementer (for example, the design engineer and the production supervisor). The goal is that if these two people agree, no others are needed to approve changes, eliminating non-essential change reviewers. These persons are identified for each new iteration.
>
> Maintaining this data can be somewhat burdensome in practice, so consider enabling these fields only for selected types. Reviewing groups can also be limited using the change workflow.

Person #1 role label

This textbox shows the person's function. For example, you can use `Authored by` as the label on the document window.

Show a Person #2 role

Marking the checkbox lets users identify a person with some responsibility for the document. Each new document iteration can show a different person. For example, you may want the editor or user of the document identified.

If this checkbox is cleared, then the person #2 dropdown list is not shown on the document window.

Person #2 role label

This textbox shows the person's function. For example, you can use `Validated by` as the label on the document window.

> The item's `Release description` area expands when both Person #1 and Person #2 fields are not shown.

Document title template

When a new document is first made, its `Document name (title)` field is automatically loaded with this text value, which the user can then edit. Defining a useful document name template enhances consistency, which makes items easier to locate.

> Suggest information that the user should enter as `[hint]`, such as `[model number]`. Consistent document titles are more predictable, and easier to search.

A text template can include custom attribute names as `{custom attribute name}`. After making a new document record, clicking the `Name{a}` button replaces the custom attribute's name with its actual value. For example, a custom attribute named `Customer`, with an actual value of `Acme Company`, can be inserted using a text template like `Requirements, [product], {Customer}` to obtain a document title `Requirements, [product], Acme Company`. See the [Custom attributes: Inserting custom attribute values into an item name](#) help topic.

Custom list

You can define custom attributes (or "properties" or "extensions") to the system-supplied attributes for each document type. When a new document is made, any custom attributes are shown on the document's `Custom` page.

> Before working with custom attributes, refer to the [Custom attributes](#) help topic for important information.

Setup

Although there are many recognized methods for classifying documents, the values you enter are more a matter of preference than requirement.

Users should have a clear idea of what each document type does, and how it's used. To this end, and to prevent unproductive hair-splitting, it's probably best to keep the number of document types well under 30, and ideally fewer than 10.

Several references offer valuable guidance on defining appropriate document types. Information can be found in ASME Y14.24 "Types and Applications of Engineering Drawings". The outdated MIL-STD-100A is a free and useful list of engineering document types and uses (although far too detailed to adopt without careful pruning).

Be sure to make the abbreviations meaningful, since they are used extensively throughout the program. A good rule of thumb is to remove all lowercase vowels (*aeiou*) from the name, and then condense further if necessary: e.g., "Assembly Drawing" becomes "AssyDwg".

Purpose

Classifies an item's typical application when it's used on a bill of materials.

Where used

Parts

Data fields

Name
This is the complete name for the BOM type code.

Description
This gives the BOM type code and its function.

Active: users can select
Default member of collection
Permanent member of collection
See the Managing collections: Common attributes help topic.

Setup

This value tells how the part is aggregated or consumed in production. This collection is not likely to require changes.

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Purpose

Classifies special handling or storage factors to protect the part, people, or surroundings.

Where used

Parts

Data fields

Name
This is the complete name for the part handling/storage category.

Description
This describes the health or safety hazard, or special handling or storage considerations. You may want to add handling/storage procedures appropriate for your environment and procedures.

Active: users can select
Default member of collection
Permanent member of collection
See the Managing collections: Common attributes help topic.

Setup

To choose a list of possible handling hazards, contact your facilities manager, regulatory agency, safety engineer, fire inspector, insurance representative and other professionals who are responsible for monitoring your workplace safety.

Special storage situations will require assistance from inventory managers and possibly the part manufacturers.

In some cases, parts may have multiple attributes. For instance, a chemical in your manufacturing may be both flammable and very expensive; in this case, you'll want to add a new classification with both attributes, rather than forcing the user to choose only one.

2031

Purpose

Classifies how your organization gets parts.

Where used

Parts

Data fields

Name
  This is the complete name for the part make/buy code.

Description
  This gives the part make/buy code and its function.

Active: users can select
Default member of collection
Permanent member of collection
  See the Managing collections: Common attributes   help topic.

Setup

This collection typically shows only a few categories: **Make**, **Buy**, **Consigned**, perhaps **Subcontractor Managed**, and **Unspecified** if the decision is made downstream of your product definition.

2033

Collection Explorer ◢ **PARTS** group ◢ **MATERIAL CATEGORIES** collection

Purpose

Broadly classifies the materials that go into the parts that you buy and build.

Where used

Materials

Data fields

Name
   This is the complete name for the material category.

Description
   This gives the material category in more detail.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Setup

If your organization deals with a wide variety of materials, then you can keep the classifications broad (e.g., "steel") or, at the expense of manageability, more precise (e.g., "high carbon steel"). If your organization only deals with limited types of materials—for instance, polymer resins—then you can have very detailed categories.

Materials declaration reports will use these categories to group materials in your products.

2026

<u>Collection Explorer</u> ◢ **PARTS** group ◢ **MATERIAL CONSTRAINTS** collection

Purpose

Defines the handling, storage, recovery, or legally-imposed constraints on the materials and substances that are used in your parts.

Where used

Materials

Data fields

Name
  This is the name for the material constraint.

Description
  This gives the material constraint.

Application information required
  When this checkbox is marked, a part with this material constraint must be provided with information about the location and/or application of the material used within that part. If the checkbox is cleared, then the application or location information is not required.

Active: users can select
Default member of collection
Permanent member of collection
  See the <u>Managing collections: Common attributes</u> help topic.

Setup

Since the fundamental purpose of this collection is to segregate your materials for reporting purposes, you should define those constraints that are most useful in handling, or which are legally required for reporting.

> Each identified constraint probably requires related steps, such as employee training or special provisions for handling or storage.

Purpose

Defines the materials and chemical substances that are used in your parts.

Where used

Parts

Data fields

General

Name
This is the complete name for the unique material or substance. A material is made up of one or more substances (e.g., copper alloy is a material, which in turn is made up of a number of specified substances, copper, nickel, silver, etc.). Substances are chemical elements and their compounds.

Description
This gives the material or substance. If applicable, this is where you enter information about radioactivity: radioactivity isotope name and code, max activity level (MBq), typical activity level (MBq), etc.

CAS identifier
If available, enter the Chemicals Abstract Service (CAS) number, ISO International Standards number or other reference identification of the material or substance.

Material category
This dropdown list identifies the **MATERIAL CATEGORY** collection member. Reports can group materials by category, so that (for example) all ferrous metals are separated from non-ferrous metals.

Declaration category

This categorizes the material's disclosure requirement as *Level A*, *Level B*, or *None*.

"Level A" materials and substances are subject to laws that:

- Prohibit their use and/or marketing;
- Limit their use and/or marketing; or
- Require reporting, or has other regulatory implications.

"Level B" materials and substances:

- Provide economic value for end-of-life management purposes;
- Are of environmental, health, or safety interest;
- Would trigger hazardous waste management requirements; and/or
- Could have a negative impact on end-of-life management.

Reporting threshold

This number represents the value that triggers reporting of the material. If the total material quantity exceeds this threshold for a particular item, then the material is included on the item's Material Declaration form.

For regulated (Level A) materials that require reporting when intentionally added, regardless of quantity, use "0" as the reporting threshold.

Select the appropriate ratiometric units, such as % (percent), ppm (parts per million), or ppb (parts per billion).

Active: users can select
Default member of collection
Permanent member of collection
See the Managing collections: Common attributes help topic.

Material Constraints

You can construct a list of all constraints (such as safety provisions or special handling considerations) that must be imposed on the material.

Setup

> The Batch Importer tool can import new **MATERIALS** collection members .

Recording every material in each part can be tedious and time-consuming, and in many cases may prove unnecessary. You'll generally want to limit the list of materials to those that

- Have legal rules or reporting requirements,
- Affects health or safety, and/or
- Impact end-of-life management.

2028

Purpose

Categorizes methods for end-of-life part (ELP) recovery, recycling and disposal.

Where used

Parts

Data fields

Name
   This is the complete name for the part recovery method.

Description
   This gives the part recovery method and its function.

Active: users can select
Default member of collection
Permanent member of collection
   See the Managing collections: Common attributes help topic.

Setup

Classify the methods by which an end-of-life part can be handled. Many parts can be disassembled and reused, while others can be broken down for their chemicals.

2034

> Other users should not be using the system while you're working. Close all item records in your workspace before you begin. close the PDXpert client and start it again when you've finished.

Purpose

Classifies parts according to their application, and defines their rules and custom properties.

> A part type defines unique business rules and behaviors. It's not useful as a part category or search tag because, once assigned to a part, it can never be changed (the part must be canceled and replaced). If you want a simple category or searchable tag, use the part name or a custom attribute.

Where used

Parts

Data fields

> Some data fields show a character counter in the upper right of the box. This is helpful for editing a custom label, and for data that may be exported to other systems that limit imported text length.

General

Name
  This is the complete name for the part type.

Display name
  This is the name that is shown in lists and reports to save space. It should be as short as possible, preferably fewer than 10 characters.

Description
  This gives the part type and its function.

> The following four checkboxes show or hide data lists on a part record. After making parts while a list is enabled, don't hide the list. Hiding the list does not delete any data on the part. A part's Appears On lists may identify parent items where the part is used, but hidden.

Show Materials list
  When this checkbox is marked, the Materials information is visible. Materials (chemical substances) can be added to the part.

  > The Part mass (weight) is available only when the Materials page is shown.

Show BOM list
  When this checkbox is marked, the BOM lists are visible. Component parts can be added to the part.

Show Sources list
  When this checkbox is marked, the Sources lists are visible. Approved manufacturer sources can be added to the part.

Show Files list
  When this checkbox is marked, the Files lists are visible. Revision files, item files and external links can be added to the part.

  > If any files have been attached to parts, and then this checkbox is cleared, the Files lists—and attached files—are hidden. The files are not deleted. To ensure visibility and access, this checkbox must remain marked after it is set.

Active: users can select

Default member of collection

Permanent member of collection

See the Managing collections: Common attributes help topic.

Attributes

Item number

Use these settings to assign the part's Number value.

Identifier sequence

This dropdown list lets you select an identifier sequence (number generator) for the part type. You can choose a single number sequence for all part types, or you can designate a separate sequence just for electrical components, a different one for mechanical components, etc. The selections for this are managed in the **SEQUENCES: IDENTIFIER collection** .

User cannot edit assigned number

When this checkbox is marked, a new part identifier cannot be modified after it is set. When this checkbox is cleared, the creator/trustee can (a) manually enter an identifier and/or (b) request a new identifier string and edit it after the system sets it.

> See note at Administrator Override command .

Revision/version

These settings define rules for the part's Revision and Version .

Initial revision sequence

This lets you specify the revision format for the part type. The selections for this are managed in the **SEQUENCES: REVISION** collection .

Subsequent revision sequence

This lets you specify a production revision format that's different from the initial revision sequence.

When an item moves to a lifecycle with relative maturity value of 0 or greater (for instance, **Production** or **Service**), the subsequent revision sequence format is used.

If one revision format is used for the entire part lifecycle, leave this field empty so that the initial revision continues into production.

> Using a subsequent revision sequence may confuse vendors and employees with unnecessary data changes. Instead of changing the revision when the part's maturity has changed, rely on the lifecycle phase to specify when it's ready for production.

Warn on duplicate revision

When this is marked, a warning is shown if the pending iteration's revision identifier has been used for an earlier revision. Setting this encourages users to assign a unique revision value for all item iterations, even when there's no change to the technical content – for example, the lifecycle has changed.

User cannot edit assigned revision

This checkbox sets whether users can modify the revision given by the system, or whether the value is permanent.

> Let users edit revisions to items owned by partner organizations, since the item revision is not controlled within PDXpert.

Show Version field

When this checkbox is marked, the version attribute is shown on the part window, in lists and on reports. When this checkbox is cleared, the version attribute is hidden.

> The item's Revision area expands when this field is not shown.

> A part typically won't have versions. However, if the part type is closely related to an electronic file (for instance, it is a masked ROM), and that file is identified by version, you may want to enable the version field for the related part type.

> Keep in mind that if a part number has multiple versions, all versions may be put into a single inventory bin and freely mixed in production. If versions are not interchangeable, give each version its own unique part number.

Default lifecycle phase

The selected **ITEM LIFECYCLE PHASE** collection member is used when a new part is made.

> Purchased parts and their manufacturer sources are always set at **Production** lifecycle. You cannot alter a source part's technical content, but must accept or disqualify the content offered by the manufacturer.

Show a Person #1 role

Marking the checkbox lets users identify a person with some responsibility for the part. Each new part iteration can show a different person. For example, you may want trustees to identify the designer responsible for the part.

If this checkbox is cleared, then the person #1 dropdown list isn't shown on the part window.

> These Person #1 / #2 controls are useful if your company has adopted the Institute for the Process Excellence (ipxhq.com) change management process.
> Each item is the exclusive responsibility of the item's (1) creator-designer, and (2) consumer-user-implementer (for example, the design engineer and the production supervisor). The goal is that if these two people agree, no others are needed to approve changes, eliminating non-essential change reviewers. These persons are identified for each new iteration.
> Maintaining this data can be somewhat burdensome in practice, so consider enabling these fields only for selected types. Reviewing groups can also be limited using the change workflow.

Person #1 role label

This textbox shows the person's function. For example, you can use `Designer` or `Specified by` as the label on the part window.

Show a Person #2 role

Marking the checkbox lets users identify a person with some responsibility for the part. Each new part iteration can show a different person. For example, you may want trustees to identify the part's production user or field service engineer.

If this checkbox is cleared, then the person #2 dropdown list isn't shown on the part window.

Person #2 role label

This textbox shows the person's function. For example, you can use `Prototyped by` or `Validated by` as the label on the part window.

> The item's `Release description` area expands when both Person #1 and Person #2 fields are not shown.

Default unit of measure

The selected **UNIT OF MEASURE** collection member is used when a new part is made.

Default make/buy

The selected **MAKE/BUY CATEGORY** collection member is used when a new part is made.

User cannot edit assigned make/buy value

When this checkbox is marked, the value given by the `Default make/buy` (above) cannot be modified. For example, standard purchased components will typically be marked (since it's very likely that, say, a standard machine screw will always be bought), while custom fabrications and in-house assemblies will typically be cleared to enable outsourcing.

Show compliance checkbox

For parts that are subject to regulatory requirements, show a checkbox that tells whether the part is in compliance.

Compliance label

This textbox lets you label the compliance standard(s) that must be met by parts based on this type. You can leave it rather generic, such as `Meets regulatory requirements` or more specific to the part type, such as `Meets RoHS/WEEE regulations`.

Part name template

When a new part is first made, the part's `Name (description)` field will automatically be loaded with this text value, which the user can then edit. Defining a useful part name template enhances consistency, which makes items easier to locate.

> Suggest information that the user should enter as `[`*hint*`]` , such as `[power rating]` . Consistent part names are more predictable, and easier to search.

A text template can include custom attribute names as `{custom attribute name}` . After making a new part record, clicking the `Name{a}` button replaces the custom attribute's name with its actual value. For example, a custom attribute named `Length` , with an actual value of `50 mm` , can be inserted using a text template like `SCREW, {Length} {Length++@U}, PLATED` to obtain a part name `SCREW, 50 MM, PLATED` . See the [Custom attributes: Inserting custom attribute values into an item name](#) help topic.

Custom list

You can define custom attributes (or "properties" or "extensions") to the system-supplied attributes for each part type. When a new part is made, any custom attributes are shown on the part's `Custom` page.

> Before working with custom attributes, refer to the [Custom attributes](#) help topic for important information.

Setup

Limit the number of part types to broad easily-distinguished categories. Your users shouldn't have to puzzle over whether to categorize a machine screw as hardware or a fastener, or an LED as a diode or a display device.

Part types should be used to make computer searches easier with distinct names and abbreviations. For example, let users search for the **Assembly** part type using a simpler abbreviation like `Assy` .

2035

Purpose

Classifies how a proposed change impacts the affected items' interchangeability or other business-related aspects.

Where used

Change form

Data fields

Name
This is the complete name for the change class.

Description
This gives the change class along with its application or business rule.

Class code
Provides the required database classification code for EIA-836/MIL-STD-2549 environments. In other environments, this field may be ignored or used for another purpose.

Active: users can select
Default member of collection
Permanent member of collection
See the Managing collections: Common attributes help topic.

Setup

Change classifications are derived from business rules. For example, your company's sales team may need to notify a customer about certain types of changes, or when the change's financial impact exceeds a specified limit.

Commercial organizations may want to show that a document change won't materially affect an existing part because the change (a) releases a new part or (b) is purely clerical. In military environments, **Class I** and **Class II** changes may be used instead, and the **Clerical** member can be deleted or made inactive.

2007

Collection Explorer   ◢   **CHANGES** group   ◢   **CHANGE PRIORITIES** collection

Purpose

Classifies the urgency of a change.

Where used

Change form

Data fields

Name
:   This is the complete name for the change priority.

Description
:   This gives the change priority and its function.

Task priority
:   Select how a change form will be ranked in the Item Explorer's Tasks list when the named change priority is selected.

Requires effectivity date
:   When marked, this checkbox shows that a user should enter the starting date when the change becomes effective.

Requires effectivity serial number
:   When marked, this checkbox shows that a user should enter a starting serial number when the change becomes effective.

Active: users can select
Default member of collection
Permanent member of collection
:   See the Managing collections: Common attributes help topic.

Setup

To ensure crisp execution, this collection should be kept relatively small, typically no more than six members.

2009

Purpose

Classifies the rationale for making a change, so that managers can assess design and development procedures.

> A **CHANGE REASON** tells *why you need to make a change*. A **PROBLEM SOURCE** tells *how an issue was discovered*.

Where used

Change form

Data fields

Name
: This is the complete name for the change reason.

Description
: This gives the change reason in more detail.

Reason code
: Specifies the required change reason database code for EIA-649 environments. In other environments, this field may be ignored or used for another purpose.

Active: users can select
Default member of collection
Permanent member of collection
: See the [Managing collections: Common attributes](#) help topic.

Setup

This collection may need to reflect aerospace/military contractor or regulatory requirements.

Without crisp definitions and clear categories, this collection can become confusingly similar to the **PROBLEM SOURCES** collection. Ensure that your users can easily distinguish between a problem source and its change reason, or simply use only one of these collections.

This collection can grow large and unwieldy. Try to limit the number of members to get "big picture" trends that can help your product management procedure. It's easier to spot trends using several broad categories, rather than offering users many detailed reasons with only a few instances of each.

2011

Purpose

Classifies an item dispositioning activity, which briefly states what needs to be done to support the release or cancellation of an item.

Where used

Change form

Data fields

Name
: This is the complete name for the disposition action.

Display name
: This is the disposition action abbreviation.

Description
: This gives the disposition action and its function.

Is for document release

Is for document cancellation

Is for part release

Is for part cancellation
: These checkboxes identify the disposition action as being appropriate for releasing or canceling various items. In practice, as the user adds an item to a change's Affected list, that item's release status determines which disposition action members are shown.

Recurring activity
: When marked, this checkbox identifies actions that are repeated as necessary after the change is released. Clearing the checkbox shows that the action happens only once, at the time that the change is implemented.

Active: users can select
Default member of collection
Permanent member of collection
: See the Managing collections: Common attributes help topic.

Setup

Disposition actions are those activities that release a new item into production or phase an old item out. When first released, a document needs to be distributed to various users, and a part may require special tooling, expedited shipping, or new equipment for your assembly or test procedures. Similarly, canceled documents need to be recalled or destroyed, and old parts can be scrapped, reworked, or used "as is." Each of these choices has cost implications that are determined by the number of units that must be handled (or "dispositioned") and the cost of dispositioning each one.

Collection Explorer ◢ **CHANGES** group ◢ **DISPOSITION LOCATIONS** collection

Purpose

Classifies an item disposition location (or expense incurred) during the release or cancellation of an item.

Where used

Change form

Data fields

Name
This is the complete name for the disposition location.

Display name
This is the disposition location abbreviation.

Description
This gives the disposition location and its application.

Is for document release

Is for document cancellation

Is for part release

Is for part cancellation
These checkboxes identify the disposition location as being appropriate for releasing or canceling various items. In practice, as the user adds an item to a change's `Affected` list, that item's release status determines which disposition location members are shown.

Active: users can select
Default member of collection
Permanent member of collection
See the Managing collections: Common attributes help topic.

Setup

Disposition locations determine where disposition actions can occur. When first released, a document needs to be distributed to internal and supply chain locations, and a part may require tooling at a supplier location, or must be reworked at a production location. Similarly, canceled documents need to be recalled from where they're used, and obsolete parts can be at your suppliers' warehouse, in transit, in your inventory, on your shop floor or in your product distribution channel.

Identifying your items' locations will help in assessing the cost impact of changing them.

2023

Collection Explorer　◢ **Changes** group　◢ **Problem Sources** collection

Purpose

Classifies how the problem that caused a change was discovered, so that managers can assess design, production, quality and service procedures.

> A **Problem Source** tells *how an issue was found*. A **Change Reason** tells *why you need to make a change*.

Where used

Change form

Data fields

Name
　This is the complete name for the problem source.

Description
　This gives the problem source and its function.

Active: users can select
Default member of collection
Permanent member of collection
　See the Managing collections: Common attributes help topic.

Setup

This collection may need to reflect aerospace/military contractor or regulatory requirements.

Without crisp definitions and clear categories, this collection can become confusingly similar to the **Change Reasons** collection. Ensure that your users can easily distinguish between a problem source and its change reason, or simply use only one of these collections.

This collection can grow large and unwieldy. Try to limit the number of members to get "big picture" trends that can help your product management procedure. It's easier to spot trends using several broad categories, rather than offering users many detailed reasons with only a few instances of each.

2010

> Change forms should be `Completed`, `Canceled` or `Rejected` before editing their related **CHANGE FORMS** member. A new change form's workflow, participants and some collection member attributes are copied from this template to the change form. New settings may not affect previously-created change forms, or may have unexpected results.

> Other users should not be using the system while you're working. Close all item records in your workspace before you begin. Close the PDXpert client and start it again when you've finished.

Purpose

Classifies changes according to their usage; sets or enables options; manages standard approval and email notice lists; defines workflow and custom properties.

Where used

Change form

Data fields

> Some data fields show a character counter in the upper right of the box. This is helpful for editing a custom label, and for data that may be exported to other systems that limit imported text length.

General

Name
  This is the complete name for the change form, such as `Change Notice` or `Production Deviation`.

Display name
  The abbreviation is used extensively in identifying the change form. This is typically `CN`, `Dev` and similar industry terms (up to 10 characters in length).

Description
  This gives the change form and its purpose.

Show Files list
  When this checkbox is marked, the `Files` list is visible. Files and external links can be added to the change form.

  > If any files have been attached to change forms, and then this checkbox is cleared, the `Files` list – and attached files – is hidden. The files are not deleted. To ensure visibility and access, this checkbox must remain marked after it is set.

Active: users can select
Default member of collection
Permanent member of collection
  See the Managing collections: Common attributes help topic.

Attributes

Item number
  These settings define how the change form's `Number` is assigned.

  User assigns number
    When this checkbox is marked, the use must enter the change form's `Number` at the time the change is created.

    The selected `Identifier sequence` is ignored. In most cases, this checkbox is marked only when a different computer system gives the change number, and you must coordinate releases with the other system.

  Identifier sequence

Specify the change number generator for the change form. This selection is disabled if the ☑ User assigns number is marked.

You can choose a single identifier sequence for all ECRs, ECNs, RFDs, etc., or you can designate a separate sequence just for ECRs, a different one for ECNs, etc. For more information, refer to the **SEQUENCES: IDENTIFIER collection** .

> Use a single identifier sequence for all change forms. You'll avoid confusion between overlapping change numbers, such as ECR 1234 and ECN 1234.

Analyst label

This textbox lets you match an analyst's role to the change form. For example, the analyst for a design change may be labeled as `Design Analyst` while the analyst for a purchased part release is `Component Engineer` .

Default analyst

This dropdown list box lets you select an analyst for the change form. The default analyst can be overridden when the originator makes a new change form. If the selection is empty, then the change form's analyst is (a) the originator if that person has an analyst role; or (b) any other person who has an analyst role; otherwise (c) the super administrator. Changing this value will not affect change forms that have been created.

> The persons in the list have a **ROLES COLLECTION** member that includes ☑ Is an analyst . If you later remove the analyst role from this person, update this value with a new analyst.

Affected list accepts documents

Affected list accepts parts

When these checkboxes are marked, items of the specified class may be added to the change's Affected list.

Pause at Released state

When this checkbox is marked, the accepted change is stopped at the Released state before it can be moved to Completed . The Product Team attributes can be edited and items on the Affected list can be dispositioned. After the released data is updated, the analyst can move the change to the Completed state, where it's locked.

If this checkbox is not marked, then the system immediately moves an accepted change to Completed without pausing at Released . Workflow notices are sent only to the email recipients specified in paths 14 and 24 (all email checkboxes for path 25 are cleared).

Release/Cancel iterations on Affected list

> Unless this setting was not set correctly during setup, do not change it after you begin using this collection member. This setting is copied to each change form instance when the change was originated; an existing change form won't use the current value. Before modifying this setting, finish processing all change forms based on this collection member.

When this checkbox is marked, the change form is an executing change form. When (1) all reviewing groups have approved the change and (2) the system or an analyst moves the change to the Released state, then each iteration on the Affected list is released (if previously pending) or canceled (if previously released).

When not marked, the change form shows a future intent (like a Change Request) or temporary status (Deviation, Waiver, Stop Ship) to change an item. It doesn't have any effect on an Affected item.

> A new **CHANGE FORMS** collection member does not show the following two settings. An existing (upgraded) collection member shows these only when they don't match the ☑ Release/Cancel iterations on Affected list value. **These two settings will be removed in a future PDXpert release. Set them to match the** ☑ Release/Cancel iterations on Affected list **value.**

> The following two settings are no longer supported. When the ☑ Release/Cancel iterations on Affected list value is changed, or if all three values match, then the following two settings are immediately and permanently hidden.

Show iterations on Affected tab

Mark this checkbox when you want item iterations to be shown on, and affected by, the change form (notably, releasing and/or canceling iterations using a change notice). Clear the checkbox to provide a general notice about the item, regardless of the iteration (for instance, a Change Proposal or Stop Shipment).

Show releasing/canceling icon

When this checkbox is marked, the `Affected` list shows each iteration as getting *Released* or *Canceled*. When cleared, the released change won't affect the affected item's release status.

This checkbox is automatically marked for executing changes. It's always cleared for information change forms (e.g., change request/proposal, waiver, deviation, stop ship).

Show a Person #1 role

This checkbox shows a principal person for the change form. For example, you may want users to identify the responsible creator, such as design engineer, on the change.

If this checkbox is cleared, then the person #1 dropdown list isn't shown on the change.

Person #1 role label

The textbox lets you label the person's responsibility. For example, you can use `Design Engineer` as the label on the change.

Show a Person #2 role

This checkbox shows another principal person for the change form. For example, you may want to identify the responsible user, such as project manager, on the change.

If this checkbox is cleared, then the person #2 dropdown list isn't shown on the change.

Person #2 role label

The textbox lets you label the additional person's responsibility. For example, you can use `Project Manager` as the label on the change.

Show Problem source selection

When this checkbox is marked, a problem source dropdown list box is shown to the change creator. Manage this list using the **PROBLEM SOURCES** collection.

Display Change reason selection

When this checkbox is marked, a change reason dropdown list box is shown to the change creator. Manage this list using the **CHANGE REASONS** collection.

Show a starting boundary

When this checkbox is marked, user can view and modify the change's starting date and/or serial number fields.

Starting boundary label

This value is shown to identify the starting date as, for example, `Begins on`.

Show an ending boundary

When this checkbox is marked, user can view and modify date, total quantity and serial number fields that show the change's duration or limit. Specifying a completion or expiration point (date, serial number or quantity) is often required for advisory changes, such as deviations and stop-ship orders.

Ending boundary label

This value is shown to identify the ending point as, for example, `Ends after` or `Resume shipments`.

> Clearly indicate whether the change period ends before, or after, the date entered by the change author.

Participants list

Reviewing groups

The `Reviewing groups` list shows who is responsible for reviewing a routed change form. The list is copied to each new change form, where the groups and email order can be edited further.

> If there's no one listed on a group's `Persons` list, then the group can't be added to a change form's `Reviewing groups` list. Read more about reviewing groups in the [Groups: Change form reviewers](#) help topic.

Add to the `Reviewing groups` list by dragging a group from the **GROUPS** collection on the Collection Explorer.

- The `Order` specifies when email notices are sent for a routed change: lower-valued groups (for example, `1:Engineering`) receive an email notice before higher-valued groups (say, `2:Production`) get their email notice. More than one group can have the same `Order` number, and there can be gaps between the values.

The `Order` is a convenience for later reviewers, but it doesn't restrict when reviewers can respond. When the change form is routed, all groups' reviewers immediately see the change in their Item Explorer `Tasks` list. Trailing reviewers can jump ahead and respond before receiving their email notice: for example, to clear review tasks before vacation, or to promptly disapprove the change so earlier reviewers don't waste their time.

> The most efficient review scheme is in parallel; that is, set every group's `Order` to `1`.

- You can specify whether `Participation` is required or optional. The change workflow waits for reviewers who `Must act ⌄`. A reviewer who `Can act ⌄` is free to approve, disapprove or ignore the change. After all required reviewers have responded, the workflow proceeds without waiting for the optional reviewers' responses (unless the `Can act ⌄` reviewer has `Held` the change).

> Groups that are set as `Can act ⌄` should be notified early in the workflow order. If they're notified after all `Must act ⌄` groups, the change is released before they're notified.

- Set the reviewing group to `Locked` so that its participation can't be deleted from the change form.

To delete a reviewing group: select the row ▶ , and press your keyboard's `Delete` key.

Persons with valid email addresses, even those without a user log-in account, can receive email notices during the change workflow. You can designate when these observers are informed of a change's progress using the lifecycle states map in the `Workflow` page. This list is copied to a new change form, and can be further modified on each change form.

- To add a group observer, drag the group's name from the **GROUPS** collection of the Collection Explorer onto this list.
- To add a person observer, drag the person's name from the **PERSONS** collection of the Collection Explorer onto this list.

Delete an observer by clicking on it, and then pressing your keyboard's `Delete` key.

Workflow

The workflow map enables workflow paths between a change's current state and the next enabled state. The map also specifies which groups of users are notified as the change moves through the approval workflow.

The workflow diagram shows all possible lifecycle states. For each lifecycle state, you can (a) enable or disable the workflow paths to other states; and (b) identify the user groups that should receive an email notice when the change moves to that state.

Workflow diagram paths

Workflow paths are buttons `01` to `25` . To enable a path between two workflow states, click on the path button, and set the ☑ Enable workflow path checkbox. If you disable a particular path, then the change can't move to that lifecycle state. The originator and the analyst are shown on the change form's `General` page.

Path definitions:

`01` `[ORG→ORG]` : The originator or the analyst selects a user as new change originator.

`02` `[ORG→SUB]` : The originator or the analyst submits the change form to the analyst who, after a quality check, routes it for approval on path 05.

`03` `[ORG→RTD]` : The originator or the analyst routes the change form to reviewers for approval. If the change has been previously routed, all reviewer responses are reset (comments are retained).

`04` `[SUB→ORG]` : The analyst returns a submitted change form to the originator for further work.

`05` `[SUB→RTD]` : The analyst routes the submitted change form to reviewers for approval. If the change has been previously routed, all reviewer responses are reset (comments are retained).

`06` `[SUB→CAN]` : The analyst cancels the change form, which the analyst can then delete.

`07` `[RTD→ORG/SUB]` : The analyst removes the routed change from review, and returns it for further work. All reviewer responses are reset to pending. (Note 1)

`08` `[RTD.disapprove→ORG/SUB]` : After any reviewer has disapproved the routed change, the system returns it to the originator or analyst. (Notes 1 & 2)

`09` `[RTD.disapprove→REJ]` : After any reviewer has disapproved the routed change, the system rejects it and retains it as a permanent record. (Note 2)

`10` `[RTD.disapprove→STP]` : After any reviewer has disapproved the routed change, the system stops it and waits for the analyst. (Note 2)

`11` `[RTD.disapprove→CAN]` : After any reviewer has disapproved the routed change, the system cancels it, which the analyst can then delete. (Note 2)

12	[RTD.approve→RTD.approve] (always enabled): After all reviewers in the review order (for example, 1) have approved the routed change, the system routes the change form to the reviewers in the next review order (say, 2). Path 12 defines who gets an email notice when the change moves from the previous set of groups to the next set.
13	[RTD.approve→ACC] : After all reviewers have approved the routed change, the system accepts it and waits for the analyst. (Note 3)
14	[RTD.approve→REL] : After all reviewers have approved the routed change, the system immediately releases it. (Note 3)

> Path 14 is a fast-track replacement of paths 13 and 24. The change form is released only if the affected items' relationships remain valid.
>
> However, if the change has an error—for example, an affected item now relies on a canceled reference item —, then the system sets the change form's lifecycle to Accepted , and email notices are sent as specified by path 13. The analyst resolves the error by (a) correcting the problem (say, by releasing a new iteration) and then releasing the change via path 24; or (b) correcting the change form via path 23. Therefore, when using path 14, set emails for path 13 and 24 to respond to errors.

| 15 | [RTD→CAN] : The analyst cancels the routed change form, which the analyst can then delete. |
| 16 | [RTD.pending→HLD] : A "can act" reviewer blocks the release of the routed change form. |

> The analyst (not the reviewer) must move a change form out of the Held state. If the analyst moves the change directly to Routed (path 18), then all previous approvals are retained. The reviewer who held the change remains selected. If the analyst moves the change to Submitted (path 17) and then to Routed , all previous responses are reset.

> Do not enable this path if all of your reviewing groups' participation is set as Must act ⌄ . For Must act ⌄ reviewing groups, the change is always blocked from release until a response is provided. The Hold change ⌄ response is intended for Can act ⌄ reviewing groups, to prevent the Must act ⌄ reviewing groups from releasing the change.

17	[HLD→ORG/SUB] : The analyst takes the held change form from the reviewers. All existing reviewer responses are reset. (Note 1)
18	[HLD→RTD.pending] (always enabled): The analyst returns the held change form to the routed state.
19	[HLD→CAN] : The analyst cancels the held change form, which the analyst can then delete.
20	[STP→ORG/SUB] : The analyst withdraws the stopped change form. All existing reviewer responses are reset. (Note 1)
21	[STP→REJ] : The analyst rejects the stopped change form and retains it as a permanent record.
22	[STP→CAN] : The analyst cancels the stopped change form, which the analyst can then delete.
23	[ACC→ORG/SUB] : The analyst withdraws the accepted change form. All existing reviewer responses are reset. (Note 1)
24	[ACC→REL] (always enabled): The analyst releases the accepted change form, which may update the release status of affected items.
25	[REL→CMP] (always enabled): The analyst completes the released change form after all dispositioning tasks are closed. When the change is completed, all data fields, except the Notes page, are locked.

> Approved changes can be set to automatically move from Released to Completed . In this case, emails are not sent using path 25 . See the Pause at Released state checkbox setting.

Notes

1. When the path ends at [...→ORG/SUB] , the change returns for rework to the selected state:
   - When the ◉ Return to Originated path is selected, then the change form always returns to the Originated state.
   - When ◉ Return to Submitted path is selected, then the change form always returns to the Submitted state.
2. Paths 08/09/10/11 are mutually exclusive; for example, setting path 10 automatically disables the other paths.
3. Paths 13/14 are mutually exclusive; for example, setting path 13 automatically disables path 14 .
4. Some paths are always enabled, and the ☑ Enable workflow path is locked. For example, moving a change into Accepted always requires an exit (path 23 or 24).

Mark the corresponding checkbox to identify the parties who are notified when the change moves to a different lifecycle state.

☑ Originator This is the person who made the change, and has principal authority for modifying (or deleting) it. This role is similar to a document or part trustee.

☑ Reviewers in all groups All authorized approvers of every listed group. The person must be listed in the `Persons` list on the **Groups** member form, and the group must be on the change form's `Reviewers` list. The email notice is sent without regard to the groups' responses (`Pending` , `Approve` , `Hold` , `Disapprove`).

☑ Reviewers in pending group(s) All persons who are authorized to review on behalf of a listed group where the group's current response is `Pending` .

☑ Holding reviewer The person who sets a group's response to `Hold` .

☑ Reviewers in active group All users who are also reviewers for the current reviewer's group.

☑ Observing persons Persons identified on the change form's `Observers` list.

☑ Analyst The analyst who is **named** on the change form. This analyst can edit the change, add/remove file attachments, and change the workflow lifecycle states.

☑ Analysts The group of **all** persons who have been given an analyst role. Analysts may change the change's workflow, and select a different named analyst. Analyst roles are specified within a **Roles** collection member when ☑ Is an analyst is marked, and that role is then selected for a **Persons** collection record.

☑ Reviewers in next group(s) All authorized approvers for the next group(s) as specified by the `Reviewing groups` ' review `Order` . Email notices are only sent where the next group's response is `Pending` .

☑ Disapproving reviewer The person(s) who have set the group response to `Disapprove` .

☑ Product team All members of Product Teams with affected items on the change.

Custom list

You can define custom attributes (or "properties" or "extensions") to the system-supplied attributes for each change form. A change form's custom attributes are on the change's `Custom` page.

> Before working with custom attributes, refer to the [Custom attributes](#) help topic for important information.

Text Templates

Primary discussion label

Label the primary discussion field based on how it's used. For example, you may want to label the field as `Problem description` or `Solution summary` depending on the change form you're defining.

Primary discussion text template

When a new change form is made, the change form's primary discussion field is automatically loaded with this text value, which the user can then edit. Providing your users with a good change discussion template ensures that your change forms are clear, concise and valid. A good template enhances completeness and consistency, which makes finding, reviewing, and releasing a change form easier.

Show secondary discussion

When this checkbox is marked, the change form shows a field (with your label) on the change's `Attributes` page; this is used for auxiliary change information.

Secondary discussion label

This value is shown to label the secondary discussion field based on how it's used. Depending on the change, you may want to label the field as `Rework instructions` or `Production impact` .

Secondary discussion text template

When the change form is made, the change form's secondary discussion field is automatically loaded with this text value, which the user can then edit.

Setup

Executing and advisory change forms

PDXpert distinguishes between two categories of changes. Executing changes (like change notices) will affect the status of documents and parts listed on them. Executing changes cannot be routed if the system finds a problem with an affected item, such as canceling an iteration that's still on a released parent item. Advisory changes (such as change requests) propose changes, yet even upon release won't update the items on the Affected list. See the Processing a change help topic.

You specify an executing change by marking ☑ Release/cancel iterations when change is released . If you make a change based on an executing change form and put a document or part to the change's Affected list, then that item's status is updated when the change form is released.

Workflow states & paths

The diagram shows all change lifecycle states. Each change form moves from one state (say, Originated) to a different state (Routed) along an enabled workflow path (path 03). When the change moves, it can notify persons affected by the new state.

Notes regarding workflow states:

- The Submitted and Accepted states let the analyst confirm that the change form has been reviewed correctly. Submitted provides the opportunity to make sure that the change form meets internal standards for completeness and accuracy, while the Accepted state lets the analyst make sure that reviewers' comments don't conflict with the change form's release. If the organization doesn't require such intermediate reviews, then disabling path 02 and enabling path 14 provides the shortest workflow.

- In smaller organizations, a disapproved change invariably is reworked and then re-routed for approval; it's therefore common to enable path 08. In more complex reviews, the change form can be disapproved for a variety of reasons, and therefore enabling path 10 offers the most flexible recovery.
- Reviewers with participation set as Must act ⌄ should keep the Response in Pending state until they're ready to approve or disapprove. Reviewers with participation set as Can act ⌄ may use the Held state to block the change from leaving the Routed state while they investigate the change. If your Reviewing groups list doesn't include reviewers set as Can act ⌄ , disable path 16 and rely on the Disapprove paths 08 to 11. When enabling path 16, keep in mind that the reviewer requires the analyst's assistance in moving the change back to Routed .
- Moving a change into the Canceled state lets it be permanently deleted from the system. The other terminating states, Completed and Rejected , retain a permanent record of the change.
- In the Released state, the dispositioning attributes can be modified and closed; in the Completed state, these attributes are locked.

2012

Collection Explorer ◢ **Custom** group ◢ Administrator-assigned collection

> Before making any changes to custom collections:
> 1. All users other than the administrator should exit the PDXpert application.
> 2. The administrator should close all open records (Item ➜ Close All).
> Restart the PDXpert application when you've finished your changes.

Purpose

Defines a list of choices that are shown within a custom attribute.

Where used

Custom attributes in documents, parts, change forms

Data fields

Collection

Name
> This is the custom collection's name within the Custom group.
>> Do not use the name of a standard collection, such as **Persons**, for a new custom collection. Although the system lets you use the same name, it's potentially confusing to users. Future PDXpert capabilities may require unique collection names, and custom collections with the same name may need to be renamed later.
>> The collection name is typically plural (**Colors**, **Sizes**, **Categories**, etc.).

Description
> This describes the function or purpose of the collection.

Collection member

Name
> This is the complete name for the collection member.

Abbreviation
> Specifies a short version of the member name. Although not used within the application, that database value may be available for export via a **Transforms** object.

Description
> This describes the function or purpose of the member.

Custom collection
> Identifies the collection that contains the member. When first adding the member, you can move it to a different collection; however, after saving, the member can't be moved.

Active: users can select
Default member of collection
> See the Managing collections: Common attributes help topic.
>> The first member of the collection is set as the default. If the collection has more than one member, the default can be changed to a different member.
>> Making a custom collection member inactive makes it unavailable for new uses, but doesn't remove it from any items where it's used.

Setup

> The Batch Importer tool can [import new **Custom** collections and their members](#) .

A custom collection defines a fixed set of choices that can be selected in your items' [custom attributes](#) .

Custom collections can be made to meet a detailed need, or to be broadly reusable. For example, if you want a list of possible paint colors for a part, the custom collection might be called either **Colors** or, more narrowly, **Paint colors**. The choice affects the number of collections, and how you'll manage each one over time.

Consider whether:

- the collection can be used for different purposes — that is, the collection members are generic (**Red**) or narrow (**Copper Sunset**) —, and
- changes to the custom collection's members — say, new colors — will be appropriate in all the places that the collection is used.

> Consider adding a standard record, such as **Not specified**, as the default collection member. When adding a custom attribute in a part type, document type or change form template, use this standard member as the default. The value is shown until the user gives a useful collection member to the item.

2001

Although PDXpert offers a sophisticated graphical user interface, you can still execute many commands with your keyboard.

In general, the keyboard `Enter` key performs the same function as clicking an on-screen `OK` button.

When pressing more than one key, you should hold down the keyboard keys in the sequence shown, and then release them in reverse sequence. For example, to use the `Ctrl` + `C` shortcut, you'd press the `Ctrl` key, then the `C`, then release the `C`, and finally release the `Ctrl` key. When using the `Alt` and `Ctrl` keys, you do not use the `Shift` key unless noted; there may be a difference between `Ctrl` + `C` and `Ctrl` + `Shift` + `C`.

Control shortcut keys

`Ctrl` + `A`	select All
`Ctrl` + `C`	Copy selected text to clipboard
`Ctrl` + `D`	snapshot Duplicate
`Ctrl` + `F`	view File
`Ctrl` + `I`	check In file
`Ctrl` + `K`	checK out file
`Ctrl` + `R`	open Report/Export Wizard
`Ctrl` + `S`	Save edits
`Ctrl` + `V`	paste text from clipboard
`Ctrl` + `X`	cut highlighted text to clipboard
`Ctrl` + `Y`	redo last edit
`Ctrl` + `Z`	undo last edit

Function keys

`F1`	open the related help topic
`F2`	unlock current item for editing, or lock and save changes
`Ctrl` + `F4`	close the selected form
`Alt` + `F4`	exit PDXpert application
`F5`	refresh data in the selected form
`F8`	make new collection member
`F9`	make new document
`F10`	make new part
`F11`	make new change

* operator

Search wildcard that can be replaced by zero or more characters.

? operator

Search wildcard that can be replaced by exactly one character.

+ operator

Term is required as part of search results.

- operator

Term is excluded from search results.

&& operator

Logical AND search operator that requires both terms in the results.

|| operator

Logical OR search operator that requires at least one of the terms in the results.

[TO]

A range from one item numbers to another, including the range end points.

~ operator

Requires two terms to be within a specified distance: ~3 allows gap of up to 3 words.

( ) group

Makes a logical group of terms for Boolean (AND / && or OR / ||) functions.

" " group

Groups one or more valid characters and spaces to make a search term.

administrator

Role with permissions to manage collections and system rules, and use system tools.

advisory change form

A change form that approves limited or future action without changing any listed items.

affected item

A part or document that is shown on a change form's Affected list.

alphanumeric

Letters A-Z, a-z and their Unicode equivalents, and the digits 0-9.

alternate parts

A set of parts that are interchangeable for a specific use, and not for all uses.

analyst

Role with 'super trustee' permissions and can manage change workflow.

ANSI Basic alphanumeric

ANSI Basic Latin letters A-Z, a-z and the digits 0-9 (ANSI x30-39; x41-5A; x61-7A).

ANSI Basic hexadecimal

ANSI Basic Latin letters A-F, a-f and the digits 0-9 (ANSI x30-39; x41-46; x61-66).

ANSI Basic uppercase alphanumeric

ANSI Basic Latin letters A-Z and the digits 0-9 (ANSI x30-39; x41-5A).

ANSI Extended alphanumeric

Letters A-Z, a-z and the digits 0-9, with extended characters like à.

ANSI Extended uppercase alphanumeric

Letters A-Z and the digits 0-9, with extended characters like À.

assembly

A combination of two or more parts; or, a single part that's modified to create a different part.

attachment

Electronic file saved in PDXpert library.

Basic Latin alphanumeric

Letters A-Z, a-z and the digits 0-9 (ANSI x30-39; x41-5A; x61-7A).

Basic Latin uppercase alphanumeric

Letters A-Z and the digits 0-9 (ANSI x30-39; x41-5A).

bill of materials

The list of all physical items needed for an assembly.

bulk query

A SQL database query that doesn't need the user to select an item.

canceled

Iteration that has been replaced or is obsolete, and cannot be used for any purpose.

canceling

Item revision in process to be canceled.

change form

Approved action that affects part and document records, with supporting details.

change notice

Releases a set of item iterations that are released or canceled.

change request

A proposal to make a future change to an item, without affecting its current release status.

child item

A BOM, source or reference item that is listed on a higher-level parent item.

child part

A part that is on a higher-level parent item's BOM, Sources or References list.

class

The basic Document, Part and Change Form objects managed by PDXpert.

client UDV

A user-designed view that uses SQLite SELECT statements for a client-side ODBC database.

context menu

A set of commands shown by clicking the secondary (usually right) mouse button.

conversion constant

Quantity of UOM Category's default member needed to equal the converted unit of measure.

criteria

The set of all terms and operators used to define the search.

current list

The last set of child iterations approved for use on the selected parent iteration.

custom attribute

An extension to the standard item attributes that is specified by the administrator.

data list

The list of all reference documents for producing an item or other outcome.

date

Number characters and delimiters as YYYY-MM-DD [ISO8601] or MM/DD/YYYY [US].

design part

A part with unique specification that may be made internally or by a contract manufacturer.

deviation

A temporary change to an approved part as the result of a production problem.

document

An item record describing a part or procedure, or related supporting information.

executing change form

A change form that releases and cancels affected iterations.

external link

An item resource on the network or internet that PDXpert doesn't copy or control.

find number

A part's row number on a BOM to track the row's revision history, and to compare similar BOMs.

fit

Can physically mate with, interconnect to, or assembled into another part.

form

Useful physical properties that make a part correct for a specified use.

forward secrecy

Encryption to ensure that session data is secure against future certificate compromise.

full-function user account

Lets users manage items, approve change forms, or edit system settings.

function

Action that a part performs in meeting its designed purpose.

group

Identifies a change review responsibility, and persons who are assigned that responsibility.

home organization

Organization that licenses PDXpert and whose users manage its designs.

identifier set

Class, Owner, Type, and/or Number attributes selected for identifying parts and documents.

interchangeable

Form, fit and function that is equal to another item.

item

A distinct part, document or change form.

item attachment

An electronic file copied and attached to an item as background or history.

item file

File copy or external link attached to an item as background or history.

item number

Given by an organization to uniquely identify its document, part or change form.

iteration

Approved technical content (revision) used for a specified business purpose (lifecycle).

level

Steps between the starting point of a multi-level BOM report and the current BOM part list.

letter character

Any valid character in ranges A to Z, a to z or its local language Unicode equivalent.

library

A PDXpert Application Server file system folder that contains all file attachments.

lifecycle phase
Item's ability to be used for a specified business use.

local views database
A subset of public views and user-defined views used by CAD and other ODBC clients.

localhost client
A PDXpert client automatically installed with the PDXpert Server application on a single computer.

manufacturer source
A part designed and supplied by a partner and approved for use by the home organization.

markup list
First child iterations added to a specified parent iteration, before any interchangeable changes.

material
A chemical substance or compound typically identified for regulatory compliance reporting.

MSU subscription
Perpetual license's maintenance, support and upgrades subscription.

named user account
A log-in name and password assigned to one person that lets that person use PDXpert.

network client
A PDXpert client that is installed on a network computer separate from the PDXpert Server.

number
One or more characters in the range 0 to 9.

operator
A symbol that signals special treatment for the immediately-following term.

OCR
Optical Character Recognition extracts text from an image.

parameterized query
A SQL database query that returns results based on a user selection.

parent item
Item that has items on its BOM, Sources, References, or other lists.

part
Physical item that is made, bought, or assembled as a product for sale or other use.

part unit of measure
UOM category member that is useful for specifying a BOM quantity.

partner organization
Organization providing documents or parts used by the Home organization.

password salt
Unrelated data added to a password to force a unique hash to protect common passwords.

PDX package
File to move product data from PDXpert to partners using the IPC-2570 standards.

pending
Iteration that is being prepared for release.

perpetual license
Software use on one server by the licensed named user accounts without upgrade or renewal.

private view
Private database tables that provide semi-standardized data to internal processes.

public view

Virtual database tables that provide stable, standardized product data to external applications.

purchased part
Home part that uses qualified interchangeable manufacturer source parts without alteration.

queue
A list of items that are waiting to be processed.

read-only user account
Lets users view, report and export data, but not to add, edit or approve data.

reference
A supporting document or process-related part used to make or validate the current item.

reference designator
Links a specific part on a diagram to its unique physical location in an assembly.

relative maturity
Intended use where pre-production < 0, production (fully usable) is 0, post-production > 0.

release state
One of pending (before approval), released (approved for use), or canceled (approval ended).

released
Iteration with technical content that is approved for its selected business purpose.

releasing
Item iteration in process to be released.

reviewer
The user who reviews a change form on behalf of a group.

revision
An identified level of technical content of an item.

revision file
Electronic file attached to a specific revision with controlled technical content.

search term
Valid characters in quotes, or a token, but not including any operator that acts on the term.

search token
A sequence of one or more valid characters.

server UDV
A user-specified view that uses standard Microsoft SQL Server SELECT statements.

snapshot
An existing item copied to a new record that has similar requirements.

source part
A part designed and supplied by a partner and approved for use by the home organization.

source rank
Preferred use of equivalent sources based on technical attributes or performance.

stop word
A common word that won't add value to searches, and is not indexed.

structure
An indented list of parts and supporting references needed to produce an assembly.

subscription license
Software use on one server by the licensed named user accounts that requires periodic payment.

substitute part
A part that's interchangeable as a Source (all uses) or an Alternate (limited use).

super administrator

Default member of the Persons collection with special permissions.

symbol

A character that is not an alphanumeric (A-Z,0-9) character.

title case

Format where the first character of a word is uppercase and all others are lowercase.

type

The attributes and rules for different objects within a class.

user-specified view

A Views member that filters and sorts data from public views and other user-specified views.

valid character

Any user-entered alphanumeric or symbol character, except non-display control characters.

variation

A "family" of parts that share many properties, with each having a unique part number.

version

A label given by another configuration management system to identify an iteration.

Multi-user database software such as PDXpert has demanding communications and infrastructure requirements. They're often more sensitive to software changes.

PDXpert software uses Microsoft Windows and .NET application services. PDXpert also needs a stable installation of the Microsoft SQL Server database engine.

> Start the computer again after an update to Microsoft Windows, .NET or SQL Server.

- On the computer where your PDXpert Application Server is installed, start the computer after every Windows or SQL Server update. If Microsoft Visual Studio development tool is installed on the server computer (**this is not recommended**), start the computer after every VS update.
- On the workstation computer where your PDXpert client is installed, start the computer after every Windows update.

3019

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2.1. All maintenance, support and upgrade services ("MSU Services") for the Product, which shall include without limitation all new versions of the Program and the Documentation, will be provided with all Subscription licenses, but are not provided with Perpetual licenses unless MSU Services are separately purchased. All MSU Services shall be subject to the terms and conditions set forth in the HX3 Policies. MSU services are limited in duration and must be renewed periodically to maintain coverage.

3. License Restrictions

3.1. You may not, and will not permit any other party to: (a) modify, adapt, alter, translate, or create derivative works from the Product; (b) merge the Product with other software except as needed to use the Product for its intended purposes or to use it with other enterprise programs developed or licensed by You; (c) sublicense, distribute, sell, use for service bureau use, lease, rent, loan, or otherwise transfer the Product to any third party other than as expressly provided herein; (d) reverse engineer, decompile, disassemble, or otherwise attempt to derive the source code for the Product, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation (provided, however, that to the extent You intend to engage in any of the foregoing, You will notify HX3 in advance of such activity and will treat the results of such activity as Confidential Information

(defined below) of HX3); (e) remove, alter, or obscure any proprietary notices of HX3, its licensors or suppliers included in the Product; or (f) otherwise use or copy the Product except as expressly permitted under this Agreement.

3.2. In addition, You agree to comply with the following requirements:

3.2.1. You may assign a Named User Account to exactly one person, for that person's exclusive use on no more than three (3) computers/devices during any 12-month period. A Named User Account may not be shared between persons.

3.2.2. You may use the Key issued to You by HX3 for the Subscription or Perpetual Term specified by the Key. You may not use any other Key no matter how acquired. You may not use the Key issued to you by HX3 if You have not fully and completely complied with the terms of this Agreement, or with the payment terms specified by HX3 at the time of purchase.

3.2.3. You may use the Program only on one server.

3.2.4. You must apply Product upgrades issued during the Term promptly following their release, in order to maintain the validity of the warranty set forth below.

3.2.5. You may not separate the Product's component parts for independent use. You may not use a version or an upgrade of this Product independently from the original version supplied to You. All versions and upgrades acquired by You become an integral part of the original Product, and are subject to the terms of this Agreement as it may be updated with future versions of the Product.

3.2.6. You agree that to facilitate technical support services and to improve the Product, the Product may transmit technical and diagnostic information to HX3, and We may transmit technical support notifications, data and code to the Product.

3.2.7. You may transfer the Product to another legal entity, only if (a) You assign all of your rights under this Agreement, cease all use of the Program and Key, erase or destroy any copy (including the hard disk copy) made in support of Your use of this Product, and (b) the other legal entity agrees to the terms of this Agreement. If You transfer an original version of the Program, or any upgrade of the Program, You must transfer all versions and upgrades of the Program as a single Product.

4. Intellectual Property Rights

4.1. For purposes of this Agreement, the term "Intellectual Property Rights" means any and all known or hereafter existing worldwide copyrights, trademarks, service marks, trade secrets, patents, patent products, know-how, moral rights, contract rights, and other proprietary rights, and all registrations, products, renewals, extensions, and combinations of the foregoing. All Intellectual Property Rights, as well as all other rights in the Product, shall remain with HX3 or its licensors, and You hereby waive all claims thereto and will not assert any rights therein. You must reproduce any copyright, patent, or other notice marked on the Product on all copies that You make.

4.2. Any rights not expressly granted to You hereunder are reserved by HX3 or its licensors. If any open source code or third party code or other third party elements are included within the Product, they remain owned by the owners thereof and no rights are transferred to either party herein.

5. Warranty

5.1. During the following specified warranty period, HX3 warrants that the Program will substantially conform to the Documentation accompanying the Program:

5.1.1. If You have paid for a Perpetual license, the warranty period shall be the greater of (a) thirty days from the date of Your company's first installation of the Program, or (b) for the period of time for which You have purchased MSU Services; or

5.1.2. If You have paid for a Subscription license, the warranty period shall be the period of time for which You have purchased a Subscription.

5.2. If HX3 is notified of a warranty failure within the warranty period of such defect as described above, and provided You have paid for a license, at its sole option HX3 will either (a) modify or replace the defective portion of the Product, or (b) refund all license fees You have paid HX3 for the Product in the most recent period. Any action undertaken by HX3 does not extend the warranty period or expand HX3's obligations under this warranty. If a refund is provided, the license is thereby terminated and You shall immediately cease use of the Product.

6. Disclaimer of Warranties and Limitation of Liability

6.1. OTHER THAN THE LIMITED WARRANTY SET FORTH ABOVE, TO THE EXTENT PERMITTED BY APPLICABLE LAWS, THE PRODUCT IS PROVIDED "AS-IS" AND HX3 HEREBY DISCLAIMS ALL OTHER WARRANTIES EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT, AND ANY WARRANTIES ARISING OUT OF COURSE OF DEALING OR COURSE OF PERFORMANCE. HX3 DOES NOT WARRANT THAT THE PRODUCT WILL OPERATE WITHOUT INTERRUPTION OR WILL BE ERROR FREE. YOU ACKNOWLEDGE THAT NO WARRANTIES ARE MADE BY ANY OF HX3'S LICENSORS OR SUPPLIERS WITH REGARD TO THE PRODUCT, USE THEREOF, OR RESULTS YOU MAY OBTAIN FROM USE OF THE PRODUCT.

6.2. TO THE GREATEST EXTENT PERMISSIBLE UNDER APPLICABLE LAW, EVEN IF HX3 HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES: (1) IN NO EVENT WILL HX3 BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, EXEMPLARY, SPECIAL, OR INCIDENTAL DAMAGES, OR FOR ANY LOST DATA, LOST PROFITS OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, ARISING FROM OR RELATING TO THIS AGREEMENT, HOWEVER CAUSED AND UNDER ANY THEORY OF LIABILITY (INCLUDING NEGLIGENCE), AND (2) THE TOTAL CUMULATIVE LIABILITY OF HX3, ITS LICENSORS OR SUPPLIERS, AND ANY OF EITHER OF THEIR OFFICERS OR DIRECTORS (COLLECTIVELY THE "HX3 PARTIES") IN CONNECTION WITH THIS AGREEMENT AND THE PRODUCT, WHETHER IN CONTRACT OR TORT OR OTHERWISE, WILL NOT EXCEED THE LICENSE FEES YOU HAVE PAID HX3 FOR THE PRODUCT IN THE MOST RECENT 12 MONTH PERIOD. THIS LIMITATION OF LIABILITY CLAUSE SHALL BE APPLICABLE IN ADDITION TO ANY OTHER LIMITATION ON THE LIABILITY OF HX3 SET FORTH ELSEWHERE IN THIS AGREEMENT. You acknowledge that this clause reflects the allocation of risk set forth in this Agreement and that HX3 would not enter into this Agreement without these limitations on its liability, and You agree that these limitations will apply notwithstanding any failure of essential purpose of any limited remedy. In addition, HX3 disclaims all liability of any kind of HX3's licensors and suppliers.

6.3. This limitation applies, without limitation, to (a) any claims, demands or liabilities related to the Product, software, services, content (including code) on third party Internet sites, or third party programs; and (b) claims for breach of contract, breach of warranty, guarantee or condition, strict liability, negligence, or other tort to the extent permitted by applicable law. The above limitation or exclusion may not apply to You because Your legal jurisdiction may not allow the exclusion or limitation of incidental, consequential or other damages. In those jurisdictions that do not allow the exclusion or limitation of damages, HX3's liability shall be limited or excluded to the maximum extent allowed within those jurisdictions.

7. Fees and Payment

7.1. You will pay HX3 the Fees, which shall be based on (a) the license type You have selected, (b) whether or not you have purchased separate MSU Services, and (c) the number of Named User Accounts You have licensed. Each invoice from HX3 will state the basis for any Fees included therein. You will pay all amounts set forth on each such invoice in immediately available U.S. funds according to the terms set forth in the invoice and in accordance with the HX3 Policies (including late fees as set forth therein). In addition, You must immediately reimburse HX3 for all costs and expenses (including any attorney fees) it incurs collecting any past due amounts owed by You. Except as otherwise expressly set forth in this Agreement, the Fees are non-refundable.

7.2. In the event You fail to pay HX3 any sum when due, HX3 may, without prior notice and without waiving or limiting any other remedies to which it may be entitled to hereunder, in law or in equity, terminate the license granted herein and discontinue all further MSU Services if applicable, until such time as all amounts due have been paid in full.

7.3. The Fees exclude all applicable sales, use, transfer, import, customs, and other taxes, fees, duties and similar charges imposed by any governmental entity ("Taxes"), and You will be responsible for payment of all such Taxes to the extent applicable and any penalties or charges that accrue with respect to the non-payment of any Taxes.

8. Compliance Audits

8.1. We have the right to verify Your compliance with the terms of this Agreement (including the HX3 Policies) by requesting a compliance audit at any time during, and up to one year after, Your ownership of any Program license granted hereunder. You agree to provide reasonable cooperation in the event of a compliance audit.

8.2. Within 30 days of our written request for an audit, You will perform an audit ("Customer Audit") as follows:

8.2.1. You will conduct an internal audit of your usage of the Program, comparing the number of persons using the Program at the time of our request to the number of Named User Accounts specified by Your license.

8.2.2. You agree to provide us with access to usage information captured by our Program as a tool in conducting the Customer Audit. If we provide any auditing software to You, You agree to use such software, and to return the true and unmodified results to us.

8.2.3. You will provide a written statement by an officer of Your company certifying that each person using the Program at the time of our request has been assigned an individual Named User Account for his/her exclusive use, or that sufficient new Named User Accounts have been ordered for each person using the Program.

8.3. If within such 30 day period You fail to perform all elements of a Customer Audit as described above, then we reserve the right to either (a) perform our own audit by any means we desire, including without limitation the installation of auditing software or the appointment of a third party auditor ("HX3 Audit") in which case the results of the HX3 Audit shall be deemed binding on You, or (b) terminate this Agreement and invalidate all of your Named User Accounts immediately upon written notice to You.

8.4. If the results of a Customer Audit or HX3 Audit, as applicable, do not find a Named User Account shortage of at least 5% ("Material Unlicensed Use"), we will not request or undertake another compliance audit for at least one year.

8.5. If the results of a Customer Audit or HX3 Audit, as applicable, reveal any Material Unlicensed Use, then You agree to purchase sufficient Named User Accounts to restore compliance during each license period during which non-compliance occurred. We will invoice You for such additional Named User Accounts following our determination of the applicable number thereof. If we have not received Your payment of such invoice by the due date set forth therein, we reserve the right to immediately and without further notice, terminate all of your Named User Accounts, this Agreement, and all of Your rights and licenses hereunder.

8.6. By requesting an audit, we do not waive our rights to enforce this Agreement, or to protect our intellectual property by any other means permitted by law.

9. Restricted Rights

9.1. If the Product is acquired by or for the U.S. Government, then it is provided with restricted rights. Use, duplication or disclosure by the United States Government (or any unit, agency or department thereof), is subject to the following provisions (or any applicable successor provisions) which, to the extent applicable, are incorporated by reference herein as if set forth in their entirety: (i) FAR 52.227.19(a) through (c); (ii) in the case of the Department of Defense, DFAR 227.7202-1 through 227.7202-4; (iii) in the case of NASA, the NASA Supplement to the FAR at 18-52.227-86(d); and (iv) all other Federal laws and regulations that protect Licensor's rights in privately developed software. Contractor / Manufacturer is HX3 Solutions, Inc., PO Box 4040, Westford, MA 01886 USA.

10. Term and Termination

10.1. The Term of this Agreement will commence on the date you acquire the Program from HX3, and unless earlier terminated as set forth herein, will continue (a) if a Perpetual license, for so long as HX3 offers the Product for license to the public, or (b) if a Subscription license, for so long as you have paid the applicable Subscription Fees. Notwithstanding the foregoing, if You are subject to a Subscription license and/or You have purchased MSU Services, if and when a new version of this Agreement is released as part of a new version of the Program, You will be required to agree to the new version of this Agreement in order for Your license of the new version of the Program to become effective, at which time the new version of this Agreement will supersede all prior versions of this Agreement You may have previously entered.

10.2. HX3 may terminate the licenses granted herein immediately upon written notice if: (a) You breach any provision of this Agreement, and such breach is not cured within fifteen (15) days following HX3's written notice thereof; (b) You have failed to pay amounts due to HX3 pursuant to the applicable invoice, as described in Section 7.2; or (c) pursuant to the Compliance Audits as described in Section 8.

10.3. Upon expiration or termination of this Agreement for any reason: (a) any amounts owed to HX3 under this Agreement prior to such termination or expiration will be immediately due and payable; (b) all licensed rights granted to You in this Agreement will immediately cease to exist; and (c) You will promptly discontinue all use of the Product and delete any copies of the Product in Your possession or control. Sections 3.1, 4, 6, 8, 10.3, 11, 12, and 13 as well as any payment obligations outstanding as of termination, will survive termination of this Agreement for any reason.

11. Indemnification

11.1. You will defend, indemnify, and hold the HX3 Parties harmless from and against any claim, action, proceeding, liability, loss, damage, cost, or expense (including, without limitation, legal fees and expenses) (collectively a "Claim"), arising out of or in connection with any of the following caused in whole or part by You or someone acting on Your behalf: (a) use of any portion of the Product in violation of the terms of this Agreement, the Documentation, or as otherwise instructed by HX3; (b) breach of any of the provisions of this Agreement, howsoever caused; or (c) any acts, omissions or negligence of You or someone acting on Your behalf.

12. Confidentiality

12.1. The Product, including without limitation, the structure, organization and code of the Program, contains information and valuable trade secrets that are not generally known to the public, and shall be deemed "Confidential Information" of HX3. You will treat as confidential and preserve the confidentiality of the Product and will not disclose any portion of the Product to any third party.

12.2. The foregoing obligation does not apply to any information that: (a) is already in Your possession without obligations of confidentiality, as shown by documentation; (b) is or becomes publicly available through no fault of You; or (c) is obtained by You from a third person without breach by such third person of an obligation of confidence. Information will not be deemed to be within the foregoing exceptions merely because it is: (i) embraced by more general information in the public domain or in the possession of the party receiving such information, or (ii) a combination of individual items of information that could be pieced together to reconstruct such combination from non-confidential information.

13. General Provisions

13.1. This Agreement (including the HX3 Policies) sets forth the entire understanding and agreement for the Product, including the MSU Services, between You and HX3, and supersedes all other prior and contemporary agreements, understandings, and commitments between the parties regarding the subject matter of this Agreement. You may not amend this Agreement unless such amendments are agreed to in writing by both You and HX3. In particular, any provisions, terms, or conditions contained in customer provided documents that are in any way inconsistent with or in addition to the terms and conditions of this Agreement shall not be binding upon HX3.

13.2. This Agreement describes certain legal rights. You may have other rights under the laws of your country. You may also have rights with respect to the party from whom you acquired the Product, if applicable. This Agreement does not change your rights under the laws of your country if the laws of your country do not permit it to do so.

13.3. No waiver of any right under this Agreement will be effective unless in writing, signed by a duly authorized representative of the party to be bound. No waiver of any past or present right arising from any breach, failure or delay to perform, or failure or delay to exercise any right will be deemed to be a waiver of any future right of either party arising under this Agreement.

13.4. If any provision in this Agreement is deemed by a court of law to be invalid or unenforceable, that provision will be construed, limited, modified or, if necessary, severed, to the extent necessary, to eliminate its invalidity or unenforceability, and the other provisions of this Agreement will remain unaffected.

13.5. The laws of the State of Massachusetts, United States of America, govern the interpretation of this Agreement and apply to claims for breach of it, regardless of conflict of laws principles. Any action at law relating to this Agreement may only be brought before the courts of competent jurisdiction of the State of Massachusetts, United States of America, and You hereby agree to the exclusive jurisdiction and venue of such courts.

13.6. The Product is subject to export laws and regulations of the United States of America. You must comply with all domestic and international export laws and regulations that apply to the Product. These laws include restrictions on destinations, end users and end use.

13.7. The Product may incorporate or use other vendors' products to implement its functions. You agree to read and comply with these other vendors' licenses which are either (a) installed as part of the Product's installation process, or (b) identified in the Documentation.

13.8. You will not bring any action against any HX3 Party arising out of or related to this Agreement or the subject matter hereof more than one (1) year after the occurrence of the event which gave rise to such action.

13.9. You acknowledge and agree that HX3 will be irreparably injured if the provisions of Sections 4 or 12 hereof are not capable of being specifically enforced, and agree that HX3 shall be entitled to equitable remedies for any breach of such Sections, in addition to, and cumulative with, any legal rights or remedies, including the right to damages.

13.10. HX3 will not be responsible for any failure in the performance of its obligations under this Agreement to the extent that such failure is due to causes beyond HX3's control including, but not limited to, acts of God, war, acts of any government or agency thereof, fire, explosions, epidemics, quarantine restrictions, delivery services, telecommunication providers, strikes, labor difficulties, lockouts, embargoes, severe weather conditions, delay in transportation, or delay of suppliers or subcontractors.

Your use of this PDXpert Client Application program, associated data and configuration files, and other software, as well as user documentation and the product key (collectively the "Product") is subject to a license agreement ("Agreement", located at `www.buyplm.com/license`) between your company and HX3 Solutions, Inc. ("HX3"). "You" refers to any authorized user of the Product. These end user terms ("Terms") are incorporated into the Agreement, and You are bound by these Terms and the Agreement, which includes HX3's policies ("HX3 Policies", located at `www.buyplm.com/policies`).

You may use the Product only for the Term of the Agreement entered by your company, and only if Your company has provided you with an authorized account ("Named User Account"). BY USING THE PRODUCT, YOU INDICATE YOUR ACCEPTANCE OF THESE TERMS.

You may not allow anyone else to use your Named User Account. You may use your Named User Account on up to three (3) computers/devices during any 12-month period. You agree that the Product may transmit technical and diagnostic information to HX3, and HX3 may transmit technical support notifications, data and code to the Product. You must reproduce any copyright, patent, or other notice marked on the Product on all copies that You make.

You may not: (a) modify, adapt, alter, translate, or create derivative works from the Product; (b) merge the Product with other software except as needed to use the Product for its intended purposes or to use it with other enterprise programs licensed by You; (c) sublicense, distribute, sell, use for service bureau use, lease, rent, loan, or otherwise transfer the Product to any third party other than as expressly provided herein; (d) reverse engineer, decompile, disassemble, or otherwise attempt to derive the source code for the Product, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation (provided, however, that to the extent You intend to engage in any of the foregoing, You will notify HX3 in advance of such activity and will treat the results of such activity as Confidential Information (defined below) of HX3); (e) remove, alter, or obscure any proprietary notices of HX3, its licensors or suppliers included in the Product; or (f) otherwise use or copy the Product except as expressly permitted under the Agreement. Unauthorized reproduction or distribution of the Product may result in civil or criminal penalties. Violators will be prosecuted to the maximum extent permitted by law.

The Product, including without limitation, the structure, organization and code of the Product, contains information and valuable trade secrets that are not generally known to the public, and shall be deemed "Confidential Information" of HX3. You will treat as confidential and preserve the confidentiality of the Product and will not disclose any portion of the Product to any third party.

THE PRODUCT IS PROVIDED WITHOUT ANY WARRANTIES OTHER THAN AS SET FORTH IN THE AGREEMENT. TO THE GREATEST EXTENT PERMISSIBLE UNDER APPLICABLE LAW, EVEN IF HX3 HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES: (1) IN NO EVENT WILL HX3 BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, EXEMPLARY, SPECIAL, OR INCIDENTAL DAMAGES, OR FOR ANY LOST DATA, LOST PROFITS OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, HOWEVER CAUSED AND UNDER ANY THEORY OF LIABILITY, AND (2) THE TOTAL CUMULATIVE LIABILITY OF HX3, ITS LICENSORS OR SUPPLIERS, AND ANY OF EITHER OF THEIR OFFICERS OR DIRECTORS IN CONNECTION WITH THESE TERMS OR THE AGREEMENT AND THE PRODUCT, WILL NOT EXCEED THE LICENSE FEES YOUR COMPANY HAS PAID HX3 FOR THE PRODUCT IN THE MOST RECENT 12 MONTH PERIOD.

To the extent these Terms are inconsistent with the Agreement or the HX3 Policies, the terms of the Agreement will control.

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Any licenses for third-party software that are applicable to the installation and operation of PDXpert may be obtained as described below, or by contacting HX3 Solutions, Inc.

Microsoft SSEE software license

The license(s) for Microsoft SQL Server and its related software are saved during the SSEE installation procedure. The End-User License Agreement (EULA) files are in the Microsoft SQL Server `\EULA` folder, typically located within `C:\Program Files\Microsoft SQL Server\`

Other third-party licenses

Third-party software may be used in the software product. For your convenience, related licenses are included in the application server installation `\website\bin\` path. For example:

- DockPanelSuite (MIT license)
- DotNetZip (BSD, Apache, MIT, zlib licenses)
- Lucene.NET (Apache software license 2.0)
- Microsoft Report Viewer Runtime for SQL Server
- Microsoft System CLR Types for SQL Server
- NLog (BSD license)

The product may also incorporate third-party software that is in the public domain or does not require distribution of a license. Such software may include, for example:

- OpenXML (Microsoft Open Specification Promise)
- SQLite (Public Domain statement)

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Disclaimer

The configuration management, product data management, information technology and security practices discussed in this Help Guide may offer helpful insight into your own organization's practices and decisions. For brevity, many other practices are not discussed. You are solely responsible for deciding whether the concepts presented in this Help Guide can be applied to your situation. If expert assistance is required, the services of qualified professionals should be used.

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