User Manual

DELMIA Process Engineer®

ENOVIA Manufacturing Hub Migration Documentation and Checklist

Foreword

This describes Process Engineer operation and basic functions you need to be familiar with when dealing with MCM Installation.

While developing these functions we have made every effort to create a clearly organized, easy-to-understand program structure.

A user-friendly interface as well as a clear menu guide will enable you to quickly learn how to operate the program and to get familiar with its functions so that you can carry out your planning tasks in a quick and reliable way.

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1. Introduction

This manual explains how to use the Process Engineer Migration Document and Checklist for your planning purposes.

1.1 How to Use this Manual

This manual enables you to get familiar with the operation and functions of the Migration Document and Checklist. This manual briefly describes:

- Configuration Database Updates
- Update of Registry Settings
- Manual Update of Textual Information
- V5 data and detailing and Update of Indices

1.2 Documentation Conventions and Symbols

The symbols used in this manual are intended to provide you with keys to the contents in an immediately understandable manner.

This symbol is used to introduce key concepts that are covered in the sections immediately following this symbol. As a result, this symbol most frequently appears at the beginning of chapters or sections.

Note

*This symbol is used to mark notes, which provide you with additional information you need to have for further work. You will either find the Note sign at the beginning of a chapter or in a particular text passage in the chapter. Texts bearing this sign are additionally marked with **Note**. The text is always in italics.*

Caution

*This symbol indicates that the text that follows describes particular circumstances that you must avoid to avoid potential errors with the operation of the program or harm to data. You will either find the Caution sign at the beginning of a chapter or near a particular text passage in the chapter. Texts that are introduced by this sign are additionally marked with **Caution**. The text is always in italics.*

Example

This symbol marks examples which serve to illustrate a certain situation.

1

This symbol marks the individual operational steps involved in a particular operating instruction. Operating instructions describe operational steps, for example, how to open a menu or execute a function.

This symbol marks listed subjects. The symbol for listed subjects can be either used to structure a continuous text or to list main subject keywords.

➢ This symbol marks list inside a bulleted or numbered list.

This symbol marks cross reference information that is available in another manual.

1.3 New Functions in Migration Document and Checklist

No new functionality has been added for this release.

2. Preface

DELMIA Solutions V5R16 based on ENOVIA Manufacturing Hub is highly customizable software which allows a customer to adapt the software to the companies needs. However, this advantage has strong impact on the complexity of the database migration from one release to another.

Each upgrade consists of a number of steps that have to be executed.

1) Schematic database upgrade – upgrade of internal database structures.
2) Semantic database upgrade – upgrade due to data model changes.
3) Environmental update (e.g. additional files, bitmaps, graphics, and licensing).
4) Configuration database update.
5) Update of user settings, client settings, and global system settings.
6) Manual update of textual information that relies on the data model (scripts, macros, print forms).
7) Update of customer and third party software which make use of the ENOVIA Manufacturing Hub API.
8) Update of V5 data and detailing.

The steps 1, 2, and 3 are executed automatically and the customer should not be concerned about what is going on during this part of the upgrade. Step 4, 5 and 6 are semi-automatic steps to some extent. Although these steps are executed automatically, a manual adaptation is required and the expense depends on the degree of customization. Especially in the case of scripts and macros, the data model and/or logical changes in the implementation will force the customer to carefully test and in some cases revise existing code. Changes in the API (Step 7) are rare, but sometimes inevitable. Step 8 is not executed automatically, because the upgrader would need a running V5 application prior, so this step has to be started manually.

Finally it should be taken into account, that although we permanently try to increase the robustness and usability of the software there are some remaining issues in the migration process that in principal *could not* be resolved automatically. Furthermore due to errors and imperfect handling some data is lost and must be renewed manually. The tool DBAnalyser can detect existing DB corruptions which may hinder the upgrade to run error free. If you experience problems in upgrade, please check the database consistency with this tool. See also the respective documentation for this tool in the user manual.

This document focuses on the steps 4, 5 and 6 and provides a guideline for a reliable and predictable (in terms of time and cost) database migration.

The document covers versions V5R16, V5R17, and V5R18, i.e. it assumes that a customer is going to migrate from a source version prior V5R18 to a target version after V5R16.

3. Configuration Database Update

The configuration database update is one of the most critical features and it requires some experience to understand what must be taken into account during the migration process.

3.1 Configuration File (ergoplan.ini, dpe.ini)

The content of the configuration database is provided by means of a text file (ergoplan.ini). The standard version of this file is maintained by DELMIA R&D.

It contains:

1) Data model related information

a) Types

b) Type inheritance

c) Attributes of types

d) Relationships between types

2) Layout related information

a) Layout (pages, groups, attributes) of the generic properties dialog for each type

i) Visibility

ii) Permissions

iii) Control types

b) Visibility of relationships and types dependent on the client

c) Editors for each type dependent on the client

A configuration database updates does not update the content of *.ini files spread across the file system and different servers. Before upgrading PE we strongly recommend to save the content of the configuration database. Existing **.ini* files have to be manually modified or should otherwise be deleted.

3.2 Plantype Set Files

Plantype sets (PTS) are described in additional text files (plantypesetxxx.ini). Plantypes inherit from PPR types or WSC (work system components). The PTS files have a format which is only supported by the release they have been exported with. Hence to migrate them, it is necessary to import them into a database, migrate the database and then export them again. Although DELMIA does provide examples, maintenance and migration of PTS is not provided. Exception is the V5 PTS delivered from DELMIA. *Please refer to the* 'Update of V5 data and detailings'.

Attributes which are overwritten at plantypes can cause problems, whenever such an attribute has been removed from the configuration database. The list of removed attributes is in the Appendix A. The known issues in a latter chapter affect as well the configuration as the plantype sets.

3.3 Configuration Update Modes

3.3.1 Target Version since V5R12

Configuration data base import modes:

1) Customer update (Default)
2) Customer update - make entries invisible
3) Update all

Description of the modes:

1) Mode 1 is the default and this default is used during the update. *Theoretically* all customized data should remain.
2) Similar to 1, but new pages, groups and attributes are set to disabled, so that properties dialogs should appear unchanged. To make the new features visible, the administrator has to manually enable configuration items.
3) All changes to the configuration are overwritten, independent of customized or not. The references between configuration types and plan types remain however, hence the derived plantypes are still valid after the update.

As described, the automatic update option is “Customer update” and theoretically, all customized configuration data should remain unchanged. However, there are some known issues and permanent restrictions. Some data must be changed manually or renewed after the configuration update. Customers, who have heavily changed the configuration database, have the option to *stop* the installation routine before the DELMIA provided new ergoplan.ini file is going to be imported. After stopping the upgrade they can manually introduce all their former changes into this file and import it using mode “Update all”.

We strongly *discourage* everybody to stop the automatic upgrade from CD, since additional semantic update steps are executed *after* the ergoplan.ini import. In case you are stopping the automatic upgrade you have to make sure to manually execute these additional steps.

3.3.2 Target Version greater than V5R11

For that reason, DELMIA has removed the setup option beginning with V5R12. Now the setup automatically upgrades the configuration database using the mode ‘Customer update’.

All customized data should remain. However, there are some known issues and permanent restrictions. Some data must be changed manually or renewed after the configuration update. Customers, who have heavily changed the customization database should compare the updated data with their customization in the source version using the Checklist 1.

3.4 Known Issues

This is a list of known issues. You should check your configuration database for entries that are subjected to these issues and do the corrections.

Nr.	1

Applies to	Always when using update mode 1 (customer update).
Description	Properties dialog layout has changed.
Example	A new attribute is displayed on the page “General”
Reason	DELMIA has added new attributes (typically used for new features) and these attributes are visible by default.
TODO	If you would like these attributes not to be displayed, uncheck the visibility flag or use configuration import mode 2.
Effort	
Nr.	**2**
Applies to	Always when using update mode 1 (customer update).
Description	Context menu layout has changed.
Example	An additional menu entry appears in the editors section.
Reason	DELMIA has added new editors (typically used for new features) and these editors are visible by default.
TODO	If you would like these editors not to be displayed, remove the entry(ies) or uncheck the flags “Browser”/”On Single Select” and “Browser”/”On Multi Select”. Or, use configuration import mode 2.
Effort	
Nr.	**3**
Applies to	Always
Description	Replace a page (group) with another page (group). Deleting a page does not remove the groups associated with the page. Deleting a group does not remove the attributes associated with the page.
Example	Customer wants to remove a page and replace it with another page. Groups and attributes associated with this page are still available in the configuration. The keys are the group number (on attributes) and the page number (on groups) If the page number of a page has changed, the relation from the groups to the page does not exist anymore. Therefore it is to check if new references are needed.
Reason	Pages are referenced by groups, groups are referenced by attributes. The link is not bi-directional.
TODO	This is a bit nasty but not really critical problem
Effort	
Nr.	**4**
Applies to	Always
Description	Pages and groups are removed by the update although they contain user-defined attributes.
Example	Customer added userdefined plantype attributes to

	a group defined in the standard ergoplan.ini-file.
Reason	The user-defined flag is not “passed” to the attribute containing element (group).
TODO	Optionally create a new group and page and re-link the attribute to this (or another) group.
Effort	
Nr.	**5**
Applies to	Always
Description	Although an attribute is considered to be user-defined, unit categories are overwritten.
Example	
Reason	Unit categories are assumed to be private (DELMIA defined) and thus they will be always overwritten.
TODO	Reset the unit category after update.
Effort	
Nr.	**6**
Applies to	Always
Description	Deleted overwritten attributes will be created during import of standard *.ini-file
Example	Customer has deleted an attribute on a derived class which is available on the base class, too.
Reason	The attribute on the derived class is DELMIA defined and thus the attribute will be created during the import of the standard *.ini.
TODO	Delete the overwritten attribute after import of the *.ini-file
Effort	
Nr.	**7**
Applies to	Target Version greater or equal V5R15
Description	To display the selection list the attribute ‘configured name’ is used instead of name.
Example	If this is not desired some changes are needed in configuration.
Reason	With a new feature, the displayed name is no longer statically the attribute 'name', but it shows now a combination of several attributes depending on their property 'displayedname'.
TODO	Adapt the property ‘displayedname’ on attributes for the type ‘crcalcmodel’.
Effort	

3.5 Tools

DELMIA provides in the configuration tool a comparison tool to support customization management.

Since V5R12 we have introduced a comparison tool which is very suitable to detect and evaluate small changes between actual content of the configuration database and a configuration file.

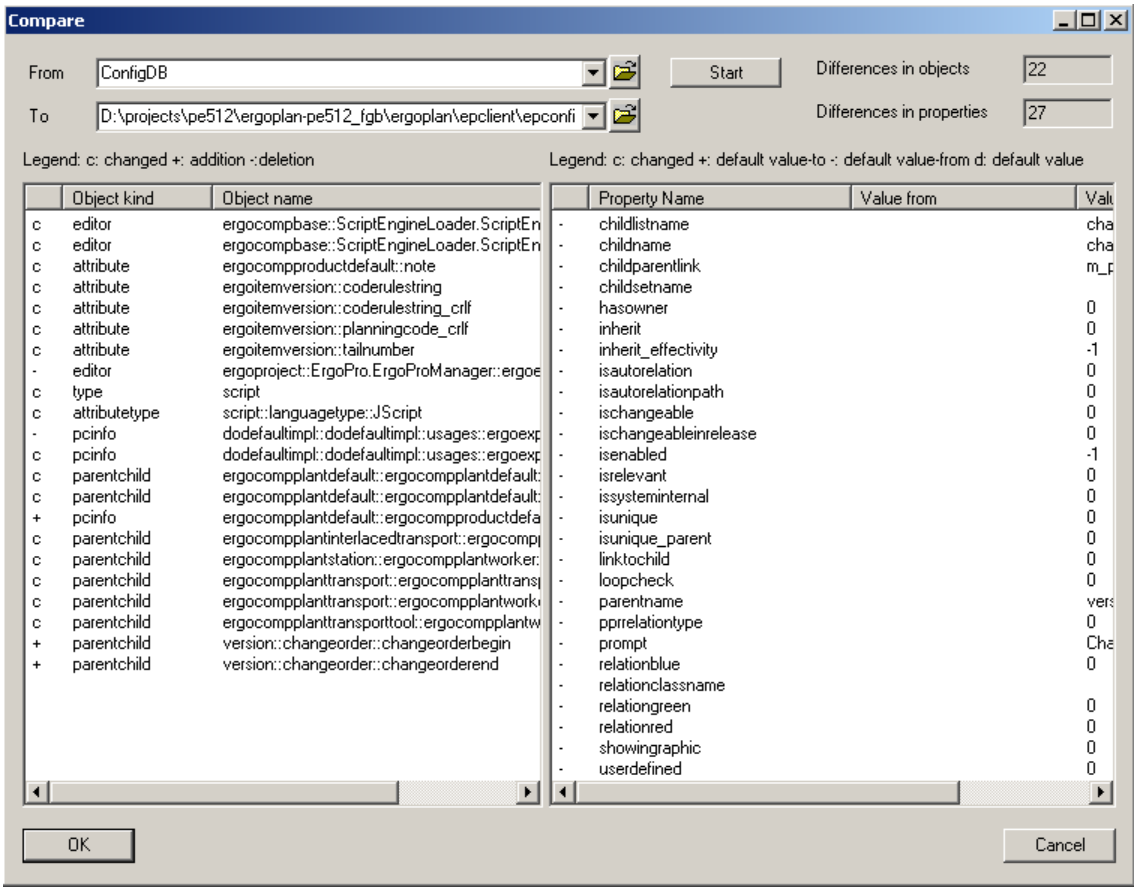

Figure 1: Comparison Tool

3.5.1 Checklist 1 – Configuration Changes to be Approved

Table 1: Configuration Changes

C1	**Pages, Groups and Attributes**	
C1.1	New Pages, Groups and Attributes	Do the Pages, Groups and Attributes appear on the right place? Does the customer need the new Pages, Groups and attributes (customer workflow, ...)?
C1.2	Overwritten Pages, Groups and Attributes	Are the overwritten Pages, Groups and Attributes still available?
C1.3	Already customized Pages, Groups and Attributes	Is the position of the already customized Pages, Groups and Attributes still correct?
C2	**Parent Child Relationships**	
C2.1	New Parent Child Relationships	Does the customer need the new relationships (customer workflow, ...)?

C1	**Pages, Groups and Attributes**	
C2.2	Overwritten Parent Child Relationships on Types.	Did the migration of the overwritten Parent Child Relationships work correctly?
C2.3	Already customized Parent Chid Relationships	Are the Parent Child Relationship properties still correct (is relevant-, is enabled-, is unique-flag; Parent Child Informations, ...)?
C3	**Editors for Context (Popup) Menus**	
C3.1	New Editors for Popup menus	Does the customer need the new editors (licensing, customer workflow, ...)?
C3.2	Already customized Editors for Popup menus	Is the configuration of the Editors still correct?

4. Update of Registry Settings

4.1 Update of User Settings, Client Settings, and Global System Settings

Categories
User settings are stored in four persistence categories, dependent on the context. These categories are:

1) Operation system user dependent – Registry HKEY_CURRENT_USER/Software/Delmia/Ergoplan
2) Operation system client dependent – Registry HKEY_LOCAL_MACHINE/Software/Delmia/Ergoplan
3) Database Process Engineer user dependent
4) Database global (all PE Users)

Category 3 and 4 are available since PE Release 12, but category 3 is currently not used by any Process Engineer Client.

The following settings are currently stored globally, i.e. belonging to category 4:

Location of default print forms and printing related stuff
printing\genformame

printing\genformbargraph

printing\graficwindowform

printing\formbin

printing\genformstationsheetname

printing\genformbalancinglistname

printing\genformergotimename

Location of graphic resources
graphic_editor\product_cadpath

graphic_editor\cadpath

graphic\view_bitmaps

All other settings entries are currently stored in the HKCU and HKLM sections for DELMIA/ergoplan of the registry.

4.2 Update of Registry Settings

The HKLM path is automatically updated during the automated setup. The HKCU content depends – of course – on the OS user that is actually logged in and thus it cannot be automatically updated during the setup. However, on launching PE for the first time after the upgrade, a special tool runs automatically, which deletes some information from HKCU that would lead to problems because the information is not valid for the new release of the program. The by far largest part of the information stored in HKCU remains however unchanged. This can be verified due to exporting the **HKCU/Software/Delmia/Ergoplan** key before and after the upgrade and compare both registry export files.

4.3 Maintenance of Column Orders in Browser List Views

4.3.1 Checklist

Table 2: Checklist: Maintenance of Column Orders in Browser List Views

CS	Customer Settings	
CS1	New settings entries	Are the default values for the new settings (e.g. paths, files, check boxes) correct?
CS2	Existing settings entries	Are the customized settings values still available? If not, they may have shifted from the settings dialog to the database and hence are to maintain using the maintenance tool.
CS3	List view column order	Are the user-defined column orders in list views still the same compared to the situation before the upgrade?
CS4	Maintenance Tool (R12)	Is the maintenance tool accessible and is it possible to create, edit and delete keys.
CS5	Path related information	Some of the settings entries contain absolute or relative paths. Is the information still correct? (IP addresses, file servers may have changed …)

5. Manual Update of Textual Information

Manual update of textual information includes one that relies on the Data Model (Scripts, Macros, Print Forms, API Clients).

5.1 Scripting and VBA Macros

The PE base functionality can be extended by means of two different, autonomous macro interpreters. The first one, already introduced with V5R7 uses Microsoft's scripting host (a runtime dll that ships e.g. with Internet Explorer, including interpreters for the default languages VBScript and JScript (Microsoft's Java script version)). The other one is Visual Basic for Applications (VBA) which has been provided with the event of PE5.10. Both mechanisms connect to the Manufacturing Hub using wrapper objects – the so-called script items – which cover a part of the Process Engineer API.

The code of existing scripts or macros is stored in the database. In case of scripts this is simply one large text container per script, for VBA macros the whole content of a VBA project is stored as a binary large object (BLOB). Neither script nor macro code is changed during an upgrade. However, after upgrade existing scripts or macros might not work correctly anymore or even not at all. The reasons for this potential failure can be different and are discussed in the following chapter.

5.2 Potential Risks on Updating Scripts and Macros

5.2.1 API and Data Model Changes

It happens rarely, but it cannot be excluded that the scripting API or - which is more frequent - the underlying server API or even the data model is subjected to a change. In that case the user must change the script according to the new situation.

5.2.2 Functional Changes in the Server or Scripting Host Implementation

Sometimes, a server or scripting host function has to be changed or reimplemented. Although the interface itself remains unchanged, the function behaves different in the new release.

One reason for such supplementations could be performance advantages.

Problems and related bugfixes are discussed in the *Program Directory* of the appropriate release.

The DBAnalyser tool supports the customer to find out such relevant scripting changes.

It is possible to adapt the 'mission description' or to run the DBAnalyser with the "md_check_scripts.ini" ini file to find such changes. The newest version of the DBAnalyser on the ftpserver ftp://e5ftp1dei.dei.ds/DBAnalyser/ contains an example for such a mission description.

Additional information are in the document ‚DBAnalyser.pdf' in the chapter, *Operating mode\The error types\The (Specific) tests\blob content*'.

5.3 Checklist for Script and Macro Update

Table 3: Checklist: Script and Macro Update

S	Scripting	
S1	Scripting Documentation Release Notes	Is the documentation available and if yes, are the release notes read and understood? Do I have to adapt the scripts according to the described issues?
S2	Program directory	Does the program directory for the new release contain script/macro related information (known bugs, new features) that could be relevant for the scripts the company is using
S3	Scripts	How many scripts do I have to maintain, what is the mean number of lines of code (LOC)? Are we (extensively using automated script execution (script actions)?
S4	Estimation of effort	Depends on • number of scripts • average LOC • complexity of algorithms • experience of reviewer

5.4 Print Forms

Print form upgrade is more or less an easy task. Potential problems can arise from:

1) Attributes that are contained in the print form for a distinct plantype which do not exist anymore or have been renamed in the new version (see configuration update).
2) For PE5.10 and later releases, the content of a print form can be partially or completely generated using script variables/fields and tables. For script code used in this area the same rules as described in the former part of this paragraph are to be applied.
3) For PE5.10 and later releases, print forms for object printing are related to (master) plantypes. Each plantype can have 0 – n print forms. In former releases print scripts could be associated to configuration types as well, but this concept has been refused.

5.5 Checklist for Print Forms

Table 4: Checklist: Print Forms

P	Printing	
P1	Print forms	Are the print forms still available (is the blob size of

P	Printing	
		Oracle DB correctly set)?
P2	Print forms - Attributes	Are the attributes used in the print form still available in the new configuration?
P3	Print forms - Scripts	Do the print forms contain script generated information and if yes, are there any changes, issues that have to be taken into account?

5.6 ENOVIA Manufacturing Hub API client programs

Client programs written by the customer or third party using the ENOVIA Manufacturing Hub API have also to involve the changes that have been incorporated in a new release. These changes can heavily inflict even the structure of the client program to optimally make use of the new features delivered in a new release.

Even, if no changes have to be done on the client program, the client program has to be recompiled with the new release of the API.

The documentation of these changes are not part of this documentation but are only shipped to the customers having a contract about this.

5.6.1 Subsequent Changes to Target Version V5R15

5.6.1.1 Detailed Specifications for Single Sign-on

External View/Behavior

Once a user has logged in to any of the PLM Hubs (Engineering Hub or Manufacturing Hub) it is expected that no more authentication is required whenever another DS product is launched. Therefore a single sign-on (SSO) component will be provided by ENOVIA which has to be used in all clients (V5 and E5).

Starting PE from ENOVIA or V5 Client:

ENOVIA or V5 client will start PE via a Batch file.

Starting ENOVIA or V5 client from PE:

PE starts ENOVIA or V5 Clients via a ShellExcute command that usually starts a batch file. Some information needed by V5 Clients, like username, user password or user credentials are set in environment variables.

Following table describes the the environmentvariables:

Table 5: Environmentvariables Description

Environment-Variable	Flag Describes that
/username:=	Defines the username (e.g. admin)
/userpwd:=	Defines the user password, not encrypted (e.g. <E5_PWD> admin </E5_PWD>

Environment-Variable	Flag Describes that
/usercred:=	Defines the credential string (e.g. (e.g. <E5_CRED> <SSOCredential name="SSOCredential" applicationType="SSO_Server_Application" applicationID="" owner="acj"><SSOCredentialDescriptor name="" type="" validator="" hiddenState="true" passwordState="true"/>LtpaToken=0ZMTB+ZwDA3wPsc901xzVDJT81KeElBHEMpNJX0oBfLzB9a386BALgoHbYh9VPdFgBfkcu6nsgpqDVfmHhVEQCVhqdBIaozS0F21aVlgZV8bG7V3Fqr2yQRokD6VBE2a5wkAvsSYtTxnpd4+DiFi9hdVb8beUNmvvBLFsUAsHk7jNN9o85/64/s0E4A1DgNuo6KPx7N0r9aAoeXF3Y9d7OB+s5lkVkuwWDAQtloA71kbCgFhyAbY7t+Pi9Rfj8QjGqmxWsOSAaYbPZtowFDSBDqlsMFzq48cp9guuKncOh63sppOFIPZHQUaWM/aGOzEVwUxmXaBrvs0FHHkxXAewL0NteFG31T1l5bfqKW1n+J9+6B3SRjev3Ic7Klp5U61;Path=/</SSOCredential> </ E5_CRED > <EXPAND2OBJID>id(0:0-6411#0, 218) </E5_CRED>

Process Engineer takes care that only (Username and password) or (Username and Credential) are passed to the Batch file and that credential is only used if SSO is active.

5.6.1.2 External View/Behavior

This highlight is related to a set of highlights planned in R15 to provide a common change management mechanism in the Engineering and Manufacturing Hub contexts. In particular it will be possible to assign processes from the Manufacturing Hub to ENOVIA actions (as affected objects).

Selecting the “Open in Process Engineer” command of the ENOVIA Action Editor on a process will open Process Engineer and automatically expand a project tree up to node(s) referencing the selected process. If the transmitted PLM ID is invalid (for instance, the object may have been deleted), an appropriate error message will be displayed.

Starting via Batch file means that a new instance of Process Engineer will be created each time the Batch will be called.

The Batch file will receive one parameter defined as string. The caller of the Batch can encode following information inside this string:

- PLM ID
- (Username and password) or (Username and Credential)

The caller of the Batch should take care of following items:

- He should use (Username and password) **or** (Username and Credential). If he uses both in one string an error message will be displayed and Process Engineer will popup the login dialog (Fig.1).
- He should use (Username and Credential) only if SSO is activated. If SSO is not activated an exception will be thrown and E5 will not be started.

Description of the Batch file's parameter string:

The information inside the string parameter are enclosed inside tags. Following table describes the valid tags.

Table 6: Tags Description

Flag	Flag describes that
< EXPAND2OBJID> </ EXPAND2OBJID>	Tags enclose PLM ID of object that should be selected inside tree
<USERNAME> </USERNAME>	Tags enclose username
<E5_PWD> </E5_PWD>	Tags enclose user password (not encrypted)
<E5_CRED> </E5_CRED>	Tags enclose credential
< STARTOBJECT> </ STARTOBJECT>	Tags enclose COM Prog.ID of start object
< DPFRES> </DPFRES>	Tag enclose name of resource dll to be used e.g. c:\dpfres.dll
< CATEGORY> </CATEGORY>	?
< PATH> </PATH>	?

Note

If you use dpfframe parameters enclose them inside quotation marks.

Here are some examples of possible parameter strings:

- "<USERNAME>admin</USERNAME> <E5_PWD>admin</E5_PWD> <EXPAND2OBJID>id(0:0-6411#0, 218) </EXPAND2OBJID>"
- "<USERNAME>admin</USERNAME> < E5_CRED > <SSOCredential name="SSOCredential" applicationType="SSO_Server_Application" applicationID="" owner="acj"><SSOCredentialDescriptor name="" type="" validator="" hiddenState="true" passwordState="true"/>LtpaToken=0ZMTB+ZwDA3wPsc901xzVDJT81KeElBHEMpNJX0oBfLzB9a386BALgoHbYh9VPdFgBfkcu6nsgpqDVfmHhVEQCVhqdBIaozS0F21aVlgZV8bG7V3Fqr2yQRokD6VBE2a5wkAvsSYtTxnpd4+DiFi9hdVb8beUNmvvBLFsUAsHk7jNN9o85/64/s0E4A1DgNuo6KPx7N0r9aAoeXF3Y9d7OB+s5lkVkuwWDAQtIoA71kbCgFhyAbY7t+Pi9Rfj8QjGqmxWsOSAaYbPZtowFDSBDqIsMFzq48cp9guuKncOh63sppOFIPZHQUaWM/aGOzEVwUxmXaBrvs0FHHkxXAewL0NteFG31T1I5bfqKW1n+J9+6B3SRjev3Ic7KIp5U61;Path=/</SSOCredential> </ E5_CRED > <EXPAND2OBJID>id(0:0-6411#0, 218) </EXPAND2OBJID>"

Effectivity Settings:

It is up to the user to set a specific filter via the projects properties dialog after the expansion.

6. Update of V5 data and Detailings

6.1 Source Version R12

We recommend that before updating your Process Engineer database from V5R12 to V5R13, you run the "CATIPDDetailingUpdate.exe" tool on all your projects. This should insure that all the V5 detailings of your databases are up-to-date before the upgrade starts. This tool can be found under the intel_a\code\bin directory of your V5 installation. Please use this tool on a machine where a DELMIA Process Engineer client is installed. Refer to the help (use the command "CATIPDDetailingUpdate.exe - help" in a console window) to see how to use this executable. Please use the R12 SP2 (or later SP) version of this tool for this operation.

If you try to open in R13 a detailing created in V5R12-GA or V5R12-SP1 and receive an error message ("*Detailing XXXXX cannot be loaded. Activity references need to be updated. Please contact your Administrator*"), you need to run in R13 (or R12 SP2 or later SP) the "CATIPDDetailingUpdate.exe" tool on all your projects to be able to re-open these processes with detailing. This tool can be found under the intel_a\code\bin directory of your V5 installation. Please use this tool on a machine where an DELMIA Process Engineer client is installed. Refer to the help (use the command "CATIPDDetailingUpdate.exe -help" in a console window) to see how to use this executable.

Default-PRO-DPM-IGRIP_V5RXX Plantypeset delivered by DELMIA is the default plantypeset (PTS) which is required for V5 PPRHub to work correctly. This plantypeset contains necessary customization required for V5 PPRHub to work correctly for all the applications like, BIW, Machining etc. The customer wants also to work with V5 without the DELMIA PTS, but with his existing PTS. Maybe customer used in the past only E5 and did not need the DELMIA PTS, so we are documenting all the customization which is in the PTS, on which the V5 clients rely. E.g. DPM relies on the existence of a plantype Manufacturing Assembly with the nameshort 'mbomnode'.

6.2 Target Version R14

Default-PRO-DPM-IGRIP_V5R14 Plantypeset delivered by DELMIA is the default plantypeset (PTS) which is required for V5 PPRHub to work correctly.

Please refer to the Appendix C - Customization of PTS for V5 PPRHub for details.

Background
Fastener model in R14 has changed from R13. One of the major changes in the fastener model is to accommodate the definition of unique manufacturing position for fasteners with respect to the process. R13 or older version fasteners had manufacturing position as a set of attributes. Planning involved modification in manufacturing position of fasteners, this modification was reflected in these attributes. These data has to be upgraded to the R14 level, conforming to the R14 fastener model.

Todo
This requires a migration of the legacy fastener data from R13 (or the levels before) to R14. The application UpgradeFastenerData.exe serves this purpose of migrating the old fasteners' manufacturing data from older levels to the R14 level

conforming to the R14 fastener model. The executable file UpgradeFastenerData.exe is available in the following location ..\PPRServer\program\bin\. This executable can be launched by double clicking on the file or can be launched from the command line. Enter the admin login and password at the login prompt.

This executable should be launched after the upgradation of the old database to R14 and before modifying any projects in the database. Care must be taken to ensure that no project is opened through any client because, that would interfere with the migration of the fastener data.

Result

Upon termination of this executable, a log file UpgradeFastenerData.log is generated at the location ..\PPRServer\log\. The last line of the file will report overall success\failure of the last run of the executable. Success is reported as,“OK : Upgradation completed successfully”. Failure is reported as, “ERROR!: Upgradation Failed”.

This executable will either upgrade all the projects in the database or will not upgrade the database at all.

A success will be reported if all the projects could be upgraded completely for their legacy fastener data.

A failure will be reported if the upgradation did not succeed for at least one project. In case of failure to upgrade any one project, the executable will terminate without upgrading all the projects in the database.

If the fastener data in a project is already upgraded, that project will not be upgraded. This can be overridden by using the command line option ‘-f’, which will force the upgradation of the already upgraded projects too.

Apart from the last line notifying the overall success\failure of the application, the log file will also have the information about the upgradation for every project. NOT MODIFIED means the project was already upgraded or did not contain fasteners to upgrade. UPGRADED means successfully upgraded. FAILED means there were failures during upgrade.

In case of failure, please check if the projects are opened through any clients. Close all the open clients. Shut down all PPR Servers. Then launch this executable. Also check if your database has been upgraded successfully to R14 or if it is still an old release. Also try to restart your database to ensure no PPR server accesses or locks the data.

7. Update of Indices

7.1 Updates to Target Version more than R16SP3

It is possible to avoid the deletion of customized indices caused from the update process. Indices with the prefix ‘CI_’ are realized from the upgrade as customized and will not deleted.

It is essential that the indices have the same effect in the next release. Schema changes can drop nevertheless customized indices if the indexed columns were dropped. It is also possible, that an index is not necessary anymore or even has a negative effect in the next release. Therefore care and attention is necessary in this area of activity.

8. Appendix A – Removed, Renamed, and Changed Attributes

The physical names of some attributes have changed. Therefore, it is necessary to delete all these overwritten attributes at types and plantypes and to overwrite these attributes again. It is also necessary to use these new names in scripts.

8.1 Upgrade Step R17 to R18

Table 7: Upgrade Stpes R17 to R18

Type	Attribute	Description
Ergocompplant	maintenance	Moved from ergocompplant to base class ergo-compplantdefault.
Ergocompplant	investment	Moved from ergocompplant to base class ergo-compplantdefault.

8.2 Upgrade Steps R18 to R19

Table 8: Upgrade Steps R18 to R19

Type	Attribute	Description
Ergocomporgplant	hasfootprint	MovedAVSet attribute to new physical member
Ergocomporgplant	footprintblob	Moved AVSet attribute to new physical member. Strings with more than 4000 characters can be stored as blob object now.
Ergocompprocessdefault	calculated_begin_time	Moved AVSet attribute to new physical member
Ergocompprocessdefault	productionline	Moved AVSet attribute to new physical member
Ergocompplantdefault	showresourceinmsd	Moved AVSet attribute to new physical member
Relation-ship_plant_provides_prod	cust_sbf	Moved AVSet attribute to new physical member
Relation-ship_plant_provides_prod	cust_colourcode	Moved AVSet attribute to new physical member
Relatio-ship_plant_provides_prod	cust_tfnumber	Moved AVSet attribute to new physical member
Relation-ship_plant_provides_prod	cust_chargepart	Moved AVSet attribute to new physical member
Relation-ship_plant_provides_prod	cust_leadpart	Moved AVSet attribute to new physical member
Relation-ship_plant_provides_prod	cust_containerprinciple	Moved AVSet attribute to new physical member

Type	Attribute	Description
Relation-ship_plant_provides_prod	cust_numbercontainerpart	Moved AVSet attribute to new physical member

9. Appendix B: Customization of PTS for ALB

9.1 Target Version V5R18

With this release, Automatic Line Balancing (ALB) produces results that can be displayed and read in V5 for stations and workplaces that have been created with Automatic Line Balancing. To obtain these types of results, it was necessary to change relationships and provide new plantypes for Automatic Line Balancing.

To get the most out of the ALB with the assistance of new plantypes, such as the *Logical Part Bin* (which works as the storage medium that creates the link between the material area and the container), or the plantype *DNBBehavior* (which is used to display *TSA* – resource dependant processes), the appropriate settings must first be made in the plantype set and in the ALB-customization.

For further information *please refer to the* Administration Manual, under 'Preparing ALB plantype sets'.

10. Appendix C: Customization of PTS for V5 PPRHub

Default-PRO-DPM-IGRIP_V5RXX Plantypeset delivered by DELMIA is the default plantypeset (PTS) which is required for V5 PPRHub to work correctly. This plantypeset contains necessary customization required for V5 PPRHub to work correctly for all the applications like, BIW, Machining etc.

The customer wants also to work with V5 without the DELMIA PTS, but with his existing PTS.
Maybe customer used in the past only E5 and did not need the DELMIA PTS, so we are documenting all the customization which is in the PTS, on which the V5 clients rely.
E.g. DPM relies on the existence of a plantype with name Manufacturing Assembly.
Or, DPM Faster&Features needs an attribute '_numberspecifiedpointfasteners' at the plantype which is used for welding points.
Or the plantype for weldingpoints should have the name 'BIWActivitySpotWelding'.

10.1 Target Version V5R16

PROCESS MODELER Customization
Following are the plantypes corresponding to logical activities of process model. It is optional for user to use these plantype.
User CANNOT modify the names of plantype. **(Do not derive Logical Activity Types from other Plantypes!)**

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Orln	Process Component	orin	-	-	User cannot modify name and nameshort
Start	Process Component	start	-	-	
Stop	Process Component	stop	-	-	
Switch	Process Component	switch	-	-	
Andin	Process Component	andin	-	-	
Andout	Process Component	andout			

BIW Customization
Following plantypes are required to support BIW solutions in PPRHub. If user is not going use the BIW solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype objects
Please note : All the necessary attributes for product plantypes are added at the class level

(E5 Base type level)					
Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
BIWActivityAdhesiveApplication	Process Component	biwactivityadhesiveapplication	Curve Fastening Rate (_curvefasteningrate)	Float	User cannot modify name and nameshort
			Length Specified Curve Fastners (_lengthspecifiedcurvefasteners)	Float	
BIWActivityArcWelding	Process Component	biwactivityarcwelding	Curve Fastening Rate (_curvefasteningrate)	Float	
			Length Specified Curve Fastners (_lengthspecifiedcurvefasteners)	Float	
BIWActivityClamping	Process Component	biwactivityclamping	-	-	
BIWActivityClinching	Process Component	biwactivityclinching	Number Specified Piont Fastners (_numberspecifiedpointfasteners)	Float	
			Time Per Fastner (_timeperfastening)		
BIWActivityDrilling	Process Component	1cf0d9be-2408-4d4c-89fe-9fd3844d1dc0	-	-	
BIWActivityGrouping	Process Component	biwactivity-grouping	Goal Investment Cost (_goalinvestmentcost)	Float	
			Goal Length of Curve Fastner (_legthspecifiedcurvefasteners)		

			Goal Number of Point Fastener (_numberspecified numberfasteners)		
			Max. Allowable Cycle Time (_timebetweenproductexits)		
BIWActivityHemming	Process Component	cedf2f9c-8c8e-40b5-a853-7dbca4e93bca			
BIWActivityInlineInspection	Process Component	c611a0df-375e-4270-a2c8-239fa04059ce			
BIWActivityLoading	Process Component	biwactivityloading			
BIWActivityRiveting	Process Component	db80d5b1-1fd7-44a7-9bab-9f0e32c1eb3a			
BIWActivityScrewing	Process Component	beecc4bc-e4b3-4f31-912b-a067da9a3475			
BIWActivitySealantApplication	Process Component	biwactivitysealantapplication	Curve Fastening Rate (_curvefasteningrate)	Float	
			Length Specified Curve Fastners (_lengthspecifiedcurvefasteners)	Float	
BIWActivitySpotGluing	Process Component	biwactivityspotgluing	Number Specified Piont Fastners (_numberspecified pointfasteners)	Float	
			Time Per Fastner (_timeperfastening)	Float	
BIWActivitySpotWelding	Process Component	biwactivityspotwelding	Number Specified Piont Fastners (_numberspecified pointfasteners)	Float	
			Time Per Fastner (_timeperfastening)	Float	
BIWActivityStation	Process Component	biwactivitystation	Estimated Investment Cost (_estimatedinvestmentcost)	Float	
			Goal Length of Curve Fastner (_legthspecifiedcurvefasteners)	Float	

			Goal Number of Point Fastener (_numberspecified numberfasteners)	Integer	
			Max. Allowable Cycle Time (_timebetweenproductexits)	Float	
			Station Type(_stationtype) POSSIBLE VALUES AdhesiveApplication Arc Welding Bending Buffering Clinching Drilling Generic Geo Spot Welding Hemming Lesar Welding Measurement Net-running Respot Welding Riveting Screwing Sealant Application Spot Gluing Stud Welding Transfer	String	
BIWActivityStudwelding	Process Component	biwacticitystudwelding	Number Specified Piont Fastners (_numberspecified pointfasteners)	Float	
			Time Per Fastner (_timeperfastening)	Float	
BIWActivityUnclamping	Process Component	biwactivityunclamping	-	-	
BIWActivityUnloading	Process Component	biwactivityunloading	-	-	
BIWActivityWelding	Process Component	046f01fc-d4e1-4cf8-9c65-326c435c636a	Number Specified Piont Fastners (_numberspecified pointfasteners)	Float	
			Time Per Fastner (_timeperfastening)	Float	

Product Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Adhesive Curve	Curve Fastener	adhesivecurve	-	-	

Adhesive Point	Point Fastener	adhesivepoint	-	-	
Arc Weld	Curve Fastener	arcweld	-	-	
Assembly Joint(s)	Organizational Product	assemblyjoints	-	-	
Clamping Point	Product Feature Clampingpoint Component	clampingpoint	-	-	
Clamping Point(s)	Organizational Product	clampingpoints	-	-	
Clinch	Point Fastener	clinch	-	-	
Curve Fastener	Product Feature Fastener Curve Component	curvefastener	-	-	Common Plan-Type, specific curve fastener types are derived from it
Drill	Point Fastener	drill	-	-	
Fastener	Welding Point	WP	Length of The Curve (length)	Float	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
			Process Type (process_type) POSSIBLE VALUES adhesive arc weld Clinch drill rivet screw sealant spot glue spot weld stud weld	String	
Fastener Group	Product Feature Fastener Group Component	fastenergroup	-	-	
Glue Bead	Curve Fastener	gluebead	-	-	
Glue Drop	Point Fastener	gluedrop	-	-	
List of Fasteners	Organizational Product	WPG	-	-	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
List of Locators	Organizational Product	New Type (1)	-	-	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
Locating Feature	Product Feature Locationpoint Component	locatingfeature	-	-	Common Plan-type, Locating Hole/Point/Slot are derived from it

Locating Hole	Locating Feature	locatinghole	-	-	
Locating Point	Locating Feature	locating point	-	-	
Locating Point(s)	Organizational Product	locating points	-	-	
Locating Slot	Locating Feature	locatingslot	-	-	
Locator	Welding Point	New Type	Process Type (process_type) POSSIBLE VALUES Clamping Fixing	String	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
Point Fastener	Product Feature Fastener Point Component	pointfastener	-	-	Common Plantype, specific point fastener plantypes are be derived from it
Rivet	Point Fastener	rivet	-	-	
Screw	Point Fastener	screw	-	-	
Sealant Curve	Curve Fastener	sealantcurve	-	-	
Sealant Point	Point Fastener	sealantpoint	-	-	
Spot Weld	Point Fastener	spotweld	-	-	
Stud	Point Fastener	stud	-	-	

MACHINING Customization
Following plantypes are required to support MACHINING solutions in PPRhub. If user is not going use the MACHINING solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corresponding plantype objects Some plantype

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Manufacturing Program	Process Component	manufacturingprogram	Link To Drawing (link_to_drawing)	String	User cannot modify name and nameshort
			NC Program (mfg_output_file)		

Manufacturing Setup	Process Component	manufacturingsetup	Link To Drawing (link_to_drawing)	String	
Product Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
IPM	Product Component	ipm	-	-	User can modify name but not nameshort
MBOM Customization Following plantypes are required to support MBOM solutions in PPRhub. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corresponding plantype objects Some plantype					
Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
Manufacturing Assembly	Product Component	mbomnode	manufacturingproduct	Bool	User can modify name but not nameshort
Manufacturing Kit	Manufacturing Kit	manufacturingkit	-	-	
DPM STRUCTURE Customization Following plantypes are required to support integration of DPM Structure solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any					
Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
DSTUnitProcess	Process Component	dstunitprocess	-	-	User cannot modify name and nameshort, This has to be child of organization process (ProcessPlan)
DpmStrFabricationProcess	Process Component	dpmstrfabricationprocess	-	-	User cannot modify name and nameshort, This has to be child of DSTUnitProcess

DpmStrJoiningPro-cess	Process Compo-nent	dpmstrjoiningprocess		-	User cannot modify name and nameshort, This has to be child of DSTU-nitProcess
ELECTRIC HARNESS Customization Following plantypes are required to support integration of Electric Harness solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any					
Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
DNBEH-MInsertio-nActivity	Process Compo-nent	dnbehminsertionac-tivity	-	-	User cannot modify name and nameshort, This has to be child of process (Workplan)

10.2 Target Version V5R16SP4

WORK INSTRUCTION Customization Following plantypes are required to support integration of Work Instruction solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any					
Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
Annota-tionExt	Simulation Feature	annotationext			User cannot modify name and nameshort,
Viewpoin-tExt	Simulation Feature	viewpointext			
Visibili-tyExt	Simulation Feature	visibilityext			
WIBuyOff	Work Instruction	wibuyoff			
WIData-Collection	Work Instruction	widatacollection			
WINotifi-cation	Work Instruction	winotification			

WIText	Work Instruction	witext			
DELMIA Drill Work Instruction	WIText	delmiadrillwi			

10.3 Target Version V5R17

PROCESS MODELER Customization
Following are the plantypes corrosponding to logical activities of process model. It is optional for user to use these plantype.
User CANNOT modify the names of plantype. **(Do not derive Logical Activity Types from other Plantypes!)**

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Orln	Process Component	orin	-	-	User cannot modify name and nameshort
Start	Process Component	start	-	-	
Stop	Process Component	stop	-	-	
Switch	Process Component	switch	-	-	
Andin	Process Component	andin	-	-	
Andout	Process Component	andout	-	-	

BIW Customization
Following plantypes are required to support BIW solutions in PPRHub. If user is not going use the BIW solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype objects
Please note : All the necessary attributes for product plantypes are added at the class level (E5 Base type level)

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
BIWActivityAdhesiveApplication	Process Component	biwactivityadhesiveapplication	Curve Fastening Rate (_curvefasteningrate)	Float	User cannot modify name and nameshort

			Length Specified Curve Fastners (_lengthspecifiedcurvefasteners)	Float	
BIWActivityArcWelding	Process Component	biwactivityarcwelding	Curve Fastening Rate (_curvefasteningrate)	Float	
			Length Specified Curve Fastners (_lengthspecifiedcurvefasteners)	Float	
BIWActivityClamping	Process Component	biwactivity-clamping		-	
BIWActivityClinching	Process Component	biwactivityclinching	Number Specified Piont Fastners (_numberspecifiedpointfasteners)	Float	
			Time Per Fastner (_timeperfastening)	Float	
BIWActivityDrilling	Process Component	1cf0d9be-2408-4d4c-89fe-9fd3844d1dc0	-	-	
BIWActivityGrouping	Process Component	biwactivitygrouping	Goal Investment Cost (_goalinvestmentcost)	Float	
			Goal Length of Curve Fastner (_legthspecifiedcurvefasteners)	Float	
			Goal Number of Point Fastener (_numberspecifiednumberfasteners)	Integer	

			Max. Allowable Cycle Time (_timebetweenproductexits)	Float	
BIWActivityHemming	Process Component	cedf2f9c-8c8e-40b5-a853-7dbca4e93bca	-	-	
BIWActivityInlineInspection	Process Component	c611a0df-375e-4270-a2c8-239fa04059ce	-	-	
BIWActivityLoading	Process Component	biwactivityloading	-	-	
BIWActivityRiveting	Process Component	db80d5b1-1fd7-44a7-9bab-9f0e32c1eb3a	-	-	
BIWActivityScrewing	Process Component	beecc4bc-e4b3-4f31-912b-a067da9a3475	-	-	
BIWActivitySealantApplication	Process Component	biwactivitysealantapplication	Curve Fastening Rate (_curvefasteningrate)	Float	
			Length Specified Curve Fastners (_lengthspecifiedcurvefasteners)	Float	
BIWActivitySpotGluing	Process Component	biwactivityspotgluing	Number Specified Piont Fastners (_numberspecifiedpointfasteners)		
			Time Per Fastner (_timeperfastening)	Float	
BIWActivitySpotWelding	Process Component	biwactivityspotwelding	Number Specified Piont Fastners (_numberspecifiedpointfasteners)		
			Time Per Fastner (_timeperfastening)	Float	

BIWActiv-ityStation	Process Compo-nent	biwactivitystation	Estimated Investment Cost (_estimatedinvestment-cost)	Float	
			Goal Length of Curve Fastner (_legthspecifiedcurvefas-teners)	Float	
			Goal Num-ber of Point Fastener (_numberspecifiednum-berfasten-ers)	Integer	
			Max. Allow-able Cycle Time (_timebetweenproduc-texits)	Float	

			Station Type(_stationtype) POSSIBLE VALUES Adhesive Application Arc Welding Bending Buffering Clinching Drilling Generic Geo Spot Welding Hemming Lesar Welding Measurement Net-running Respot Welding Riveting Screwing Sealant Application Spot Gluing Stud Welding Transfer	String	
BIWActivityStudwelding	Process Component	biwacticitystudwelding	Number Specified Point Fasteners (_numberspecifiedpointfasteners)		
			Time Per Fastner (_timeperfastening)	Float	
BIWActivityUnclamping	Process Component	biwactivityunclamping	-	-	
BIWActivityUnloading	Process Component	biwactivityunloading	-	-	

BIWActiv-ityWelding	Process Compo-nent	046f01fc-d4e1-4cf8-9c65-326c435c636a	Number Specified Piont Fast-ners (_numbersp ecifiedpoint-fasteners)		
			Time Per Fastner (_timeperfas tening)	Float	
Assem-blyOpera-tion	Process Compo-nent	assemblyopera-tion			
DNBBe-havior	Behavior Process	Behavior		-	
Product Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
Adhesive Curve	Curve Fastener	adhesivecurve		-	
Adhesive Point	Point Fastener	adhesivepoint		-	
Arc Weld	Curve Fastener	arcweld		-	
Assembly Joint(s)	Organizational Product	assemblyjoints		-	
Clamping Point	Product Feature Clampingpoint Component	clampingpoint		-	
Clamping Point(s)	Organizational Product	clampingpoints			
Clinch	Point Fastener	clinch			
Curve Fastener	Product Feature Fastener Curve Component	curvefastener	-	-	Common Plan-Type, specific curve fastener types are de-rived from it
Drill	Point Fastener	drill	-	-	
Fastener	Welding Point	WP	Length of The Curve (length)	Float	Plantype only needed for mi-gration to new

			Process Type (process_type) POSSIBLE VALUES adhesive arc weld Clinch drill rivet screw sealant spot glue spot weld stud weld	String	fastener model Depricated from R14 Onwards
Fastener Group	Product Feature Fastener Group Component	fastenergroup			
Glue Bead	Curve Fastener	gluebead			
Glue Drop	Point Fastener	gluedrop			
List of Fasteners	Organizational Product	WPG	-	-	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
List of Locators	Organizational Product	New Type (1)		-	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
Locating Feature	Product Feature Locationpoint Component	locatingfeature	-	-	Common Plantype, Locating Hole/Point/Slot are derived from it
Locating Hole	Locating Feature	locatinghole	-		
Locating Point	Locating Feature	locating point	-		
Locating Point(s)	Organizational Product	locating points			
Locating Slot	Locating Feature	locatingslot			
Locator	Welding Point	New Type	Process Type (process_type) POSSIBLE VALUES Clamping Fixing	String	Plantype only needed for migration to new fastener model Depricated from R14 Onwards

Point Fastener	Product Feature Fastener Point Component	pointfastener	-	-	Common Plantype, specific point fastener plantypes are be derived from it
Rivet	Point Fastener	rivet			
Screw	Point Fastener	screw			
Sealant Curve	Curve Fastener	sealantcurve			
Sealant Point	Point Fastener	sealantpoint			
Spot Weld	Point Fastener	spotweld	Min Range(min_range)	Float	Angle
			Max Range(max_range)	Float	Angle
Stud	Point Fastener	stud		-	

MACHINING Customization
Following plantypes are required to support MACHINING solutions in PPRhub. If user is not going use the MACHINING solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corrosponding plantype objects Some plantype

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Manufacturing Program	Process Component	manufacturing-program	Link To Drawing (link_to_drawing)	String	User cannot modify name and nameshort
			NC Program (mfg_output_file)	String	
Manufacturing Setup	Process Component	manufacturingsetup	Link To Drawing (link_to_drawing)	String	

Product Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
IPM	Product Compo-	ipm	-	-	User can modify name but not

	nent				nameshort
IPMPro-duct	Product Compo-nent	ipmproduct	-	-	User can modify name but not nameshort IPMProduct is recursive and child of SubAs-sembly and fa-ther of IPM

MBOM Customization
Following plantypes are required to support MBOM solutions in PPRhub. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corrosponding plantype objects Some plan-type

Product Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Manufac-turing As-sembly	Manufacturing Assembly	mbomnode	manufactur-ingproduct	Bool	User can modify name but not nameshort
Manufac-turing Kit	Manufacturing Kit	manufacturingkit	-	-	

DPM STRUCTURE Customization
Following plantypes are required to support integration of DPM Structure solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
DSTUnit-Process	Process Compo-nent	dstunitprocess	-	-	User cannot modify name and nameshort, This has to be child of organi-zation process (ProcessPlan)
DpmStrFa brication-Process	Process Compo-nent	dpmstrfabrica-tionprocess	-	-	User cannot modify name and nameshort
DpmStrJoi ningNode	Process Compo-nent	dpmstrjoin-ingnode		-	User cannot modify name and nameshort, This has to be child of DSTU-nitProcess

DpmStrPlateFabrication-Node	Process Component	dpmstrplatefabricationnode	-	-	User cannot modify name and nameshort, This has to be child of DSTUnitProcess
DpmStrProfileFabrication-Node	Process Component	dpmstrprofilefabricationnode	-	-	User cannot modify name and nameshort, This has to be child of DSTUnitProcess
DpmStrJoiningProcess	Process Component	dpmstrjoiningprocess	-	-	User cannot modify name and nameshort, This has to be child of DpmStrJoiningNode
DpmStrPlateFabrication-Process	Process Component	dpmstrplatefabricationprocess	-	-	User cannot modify name and nameshort, This has to be child of DpmStrPlateFabricationNode
DpmStrProfileFabrication-Process	Process Component	dpmstrprofilefabricationprocess			User cannot modify name and nameshort, This has to be child of DpmStrProfileFabricationNode
ELECTRIC HARNESS Customization Following plantypes are required to support integration of Electric Harness solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any					
Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
DNBEHMInsertionActivity	Process Component	dnbehminsertionactivity	-	-	User cannot modify name and nameshort, This has to be child of process (Workplan)
WORK INSTRUCTION Customization Following plantypes are required to support integration of Work Instruction solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any					
Process Plantypes					

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Annotationext	Simulation Feature	annotationext			User cannot modify name and nameshort,
Viewpointext	Simulation Feature	viewpointext			
Visibilityext	Simulation Feature	visibilityext			
WIBuyOff	Work Instruction	wibuyoff			
WIDataCollection	Work Instruction	widatacollection			
WIChangeNotification	Work Instruction	wichangenotification			
WIText	Work Instruction	witext			
DELMIA Drill Work Instruction	WIText	delmiadrillwi	-	-	

Manufacturing Change Management
Process Plantypes are customized to be in the scope of the MCM in the Max. Configuration mode.
Relationships: nodes (Target Owner), process_runsbefore_process (Common Parent Owner) and process_processes_prod (Source Owner) are in the scope the MCM

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
MCM Process View	Organizational Process	mcmoprocv	-	-	User should not modify anything
MCM Process Plan	Organizational Process	mcmoprocpl	-	-	
MCM Workplan	Process Component	mcmwplan	-	-	
MCM Operation	Process Component	mcmproc			

Manufacturing Change Management
Product Plantypes are customized **not** to be in the scope of the MCM.
MCM Manufacturing Assembly is only configurable.

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute	Data Type	Comments

			name)		
MCM Manufacturing Assembly	Manufacturing Assembly	mcmmbomnode	-		User should not modify anything
MCM Product View	Organizational Product	mcmoprodv	-		
MCM Design View	Organizational Product	mcmodprod	-		
MCM Production View	Organizational Product	mcmoprod			
MCM Subassembly	Product Component	mcmsubassy			
MCM Part	Product Component	mcmpart			
Manufacturing System Definition					
Resource Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
All Resource Plantype			calculateoutput (Calculate Output)	Bool	Default value false, except for Station
			isfasteningresource (Is Fastening Resource)	Bool	Default value false, except for Machine

10.4 Target Version V5R18

Same as ***Target version V5R17***. Apart from the additional plantype **(AssemblyStation):**

MACHINING Customization Following additional plantypes are required to support MACHINING solutions in PPRhub. If user is not going use the MACHINING solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corrosponding plantype objects Some plantype
Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Manufac-turing Program	Process Compo-nent	manufacturing-program	Link To Drawing (link_to_drawing)	String	User cannot modify name and nameshort
			NC Pro-gram (mfg_output_file)	String	
Manufac-turing Setup	Process Compo-nent	manufactur-ingsetup	Link To Drawing (link_to_drawing)	String	
Assem-blyStation	Process Compo-nent	assemblystation	Link To Drawing (link_to_drawing)	String	

10.5 Target Version V5R19

PROCESS MODELER Customization

Following are the plantypes corrosponding to logical activities of process model. It is optional for user to use these plantype.
User CANNOT modify the names of plantype.**(Do not derive Logical Activity Types from other Plantypes!)**

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
Orln	Process Component	orin	-	-	User cannot modify name and nameshort
tart	Process Component	start	-	-	
Stop	Process Component	stop	-	-	
Switch	Process Component	switch	-	-	
Andin	Process Component	andin	-	-	
Andout	Process Component	andout	-	-	

BIW Customization
Following plantypes are required to support BIW solutions in PPRHub. If user is not going use the BIW solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype objects
Please note : All the necessary attributes for product plantypes are added at the class level (E5 Base type level)

Process Plantypes					
Plantype Name	**Derived From E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
BIWActi-vityAd-hesi-veAppli-cation	Process Component	biwactivi-tyadhesi-veapplica-tion	Curve Fas-tening Rate (_curvefast eningrate)	Float	User cannot modify name and name-short
			Length Specified Curve Fastners (_lengthspe cifiedcurve-fasteners)	Float	
BIWActi-vityArc-Welding	Process Component	biwactivi-tyarcweld-ing	Curve Fas-tening Rate (_curvefast eningrate)	Float	
			Length Specified Curve Fastners (_lengthspe cifiedcurve-fasteners)	Float	
BIWActi-vityC-lamping	Process Component	biwactivi-tyclamping	-	-	
BIWActi-vityC-linching	Process Component	biwactivi-tyclinching	Number Specified Piont Fast-ners (_numbers pecified-pointfas-teners)	Float	
			Time Per Fastner (_timeperfa stening)	Float	
BIWActi-vityDril-ling	Process Component	1cf0d9be-2408-4d4c-89fe-9fd3844d1dc0	-	-	
BIWActi-vity-Grouping	Process Component	biwactivity-grouping	Goal In-vestment Cost (_goalinves tmentcost)	Float	
			Goal Length of	Float	

			Curve Fastner (_legthspecifiedcurve-fasteners)		
			Goal Number of Point Fastener (_numberspecified-numberfasteners)	Integer	
			Max. Allowable Cycle Time (_timebetweenproductexits)	Float	
BIWActivity-Hemming	Process Component	cedf2f9c-8c8e-40b5-a853-7dbca4e93bca	-	-	
BIWActivityInlineInspection	Process Component	c611a0df-375e-4270-a2c8-239fa04059ce	-	-	
BIWActivityLoading	Process Component	biwactivity-loading	-	-	
BIWActivityRiveting	Process Component	db80d5b1-1fd7-44a7-9bab-9f0e32c1eb3a	-	-	
BIWActivity-Screwing	Process Component	beecc4bc-e4b3-4f31-912b-a067da9a3475	-	-	
BIWActivitySealantApplication	Process Component	biwactivity-sealantapplication	Curve Fastening Rate (_curvefasteningrate)	Float	
			Length Specified Curve Fastners (_lengthspecifiedcurve-fasteners)	Float	

BIWActi-vityS-potGluing	Process Component	biwactivi-tyspotgluing	Number Specified Piont Fast-ners (_numbers pecified-pointfas-teners)	Float	
			Time Per Fastner (_timeperfa stening)	Float	
BIWActi-vityS-potWeld-ing	Process Component	biwactivi-tyspotweld-ing	Number Specified Piont Fast-ners (_numbers pecified-pointfas-teners)	Float	
			Time Per Fastner (_timeperfa stening)	Float	
BIWActi-vitySta-tion	Process Component	biwactivi-tystation	Estimated Investment Cost (_estimated invest-mentcost)	Float	
			Goal Length of Curve Fastner (_legthspec ifiedcurve-fasteners)	Float	
			Goal Num-ber of Point Fastener (__number specified-pointfas-teners)	Integer	
			Max. Al-lowable Cycle Time (_timebetw eenproduc-texits)	Float	

			Station Type(_stationtype) POSSIBLE VALUES Adhesi-veApplica-tion Arc Welding Bending Buffering Clinching Drilling Generic Geo Spot Weld-ing Hem-ming Lesar Welding Mea-surement Net-running Respot Welding Riveting Screwing Sealant Application Spot Gluing Stud Welding Transfer	String	
BIWActi-vityStud-welding	Process Component	biwactici-tystudweld-ing	Number Specified Piont Fast-ners (_numbers pecified-pointfas-teners)	Float	
			Time Per Fastner (_timeperfastening)		
BIWActi-vityUn-clamping	Process Component	biwactivi-tyunclamp-ing	-	-	
BIWActi-vityUn-loading	Process Component	biwactivi-tyunloading	-	-	

BIWActivityWelding	Process Component	046f01fc-d4e1-4cf8-9c65-326c435c636a	Number Specified Piont Fasteners (_numbers pecified-pointfasteners)	Float	
			Time Per Fastner (_timeperfastening)	Float	
AssemblyOperation	Process Component	assemblyoperation	-	-	
DNBBehavior	Behavior Process	behavior	-	-	
Product Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
Adhesive Curve	Curve Fastener	adhesive-curve	-	-	
Adhesive Point	Point Fastener	adhesive-point	-	-	
Arc Weld	Curve Fastener	arcweld	-	-	
Assembly Joint(s)	Organizational Product	assembly-joints	-	-	
Clamping Point	Product Feature Clampingpoint Component	clamping-point	-	-	
Clamping Point(s)	Organizational Product	clamping-points	-	-	
Clinch	Point Fastener	clinch	-	-	
Curve Fastener	Product Feature Fastener Curve Component	curvefastener	-	-	Common Plan-Type, specific curve fastener types are derived from it
Drill	Point Fastener	drill	-	-	
Fastener	Welding Point	WP	Length of The Curve (length)	Float	Plantype only needed for migration to new

			Process Type (process_type) POSSIBLE VALUES adhesive arc weld Clinch drill rivet screw sealant spot glue spot weld stud weld	String	fastener model Depricated from R14 Onwards
Fastener Group	Product Feature Fastener Group Component	fastener-group	-	-	
Glue Bead	Curve Fastener	gluebead	-	-	
Glue Drop	Point Fastener	gluedrop	-	-	
List of Fasten-ers	Organizational Product	WPG	-	-	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
List of Locators	Organizational Product	New Type (1)	-	-	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
Locating Feature	Product Feature Locationpoint Component	locatingfea-ture	-	-	Common Plantype, Lo-cating Hole/Point/Slot are derived from it
Locating Hole	Locating Feature	locating-hole	-	-	
Locating Point	Locating Feature	locating point	-	-	
Locating Point(s)	Organizational Product	locating points	-	-	
Locating Slot	Locating Feature	locatingslot	-	-	

Locator	Welding Point	New Type	Process Type (process_type) POSSIBLE VALUES Clamping Fixing	String	Plantype only needed for migration to new fastener model Depricated from R14 Onwards
Point Fastener	Product Feature Fastener Point Component	pointfastener	-	-	Common Plantype, specific point fastener plantypes are be derived from it
Rivet	Point Fastener	rivet	-	-	
Screw	Point Fastener	screw	-	-	
Sealant Curve	Curve Fastener	sealantcurve	-	-	
Sealant Point	Point Fastener	sealantpoint	-	-	
Spot Weld	Point Fastener	spotweld	Min Range(min_range)	Float	Angle
			Max Range(max_range)	Float	Angle
Stud	Point Fastener	stud	-	-	

MACHINING Customization
Following plantypes are required to support MACHINING solutions in PPRhub. If user is not going use the MACHINING solutions then it is not required to add these plantypes to customer PTS. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corrosponding plantype objects Some plantype

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Name-short	Attribute Names Prompt (Attribute name)	Data Type	Comments
Manufacturing Program	Process Component	manufacturingprogram	Link To Drawing (link_to_drawing)	String	User cannot modify name and name-short
			NC Program (mfg_output_file)	String	
Manufacturing Setup	Process Component	manufacturingsetup	Link To Drawing (link_to_drawing)	String	
AssemblyStation	Process Component	assemblystation	Link To Drawing (link_to_draw	String	

			ing)		
Product Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Name-short**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
IPM	Product Component	ipm	-	-	User can modify name but not nameshort
IPMProduct	Product Component	ipmproduct	-	-	User can modify name but not nameshort IPMProduct is recursive and child of SubAssembly and father of IPM

MBOM Customization
Following plantypes are required to support MBOM solutions in PPRhub. User CANNOT modify the names and nameshort of the plantypes (exception for few, see comment column) and also user has to add all the attributes for the corrosponding plantype objects Some plantype

Product Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Name-short**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
Manufacturing Assembly	Mnaufacturing Assembly	mbomnode	manufacturingproduct	Bool	User can modify name but not nameshort
Manufacturing Kit	Manufacturing Kit	manufacturingkit	-	-	

DPM STRUCTURE Customization
Following plantypes are required to support integration of DPM Structure solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any

Process Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Name-short**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
DSTUnitProcess	Process Component	dstunitprocess	-	-	User cannot modify name and nameshort, This has to be child of organization process (ProcessPlan)

DpmStrFabricationProcess	Process Component	dpmstrfabricationprocess	-	-	User cannot modify name and nameshort
DpmStrJoiningNode	Process Component	dpmstrjoiningnode	-	-	User cannot modify name and nameshort, This has to be child of DSTUnitProcess
DpmStrPlateFabricationNode	Process Component	dpmstrplatefabricationnode	-	-	User cannot modify name and nameshort, This has to be child of DSTUnitProcess
DpmStrProfileFabricationNode	Process Component	dpmstrprofilefabricationnode	-	-	User cannot modify name and nameshort, This has to be child of DSTUnitProcess
DpmStrJoiningProcess	Process Component	dpmstrjoiningprocess	-	-	User cannot modify name and nameshort, This has to be child of DpmStrJoiningNode
DpmStrPlateFabricationProcess	Process Component	dpmstrplatefabricationprocess	-	-	User cannot modify name and nameshort, This has to be child of DpmStrPlateFabricationNode
DpmStrProfileFabricationProcess	Process Component	dpmstrprofilefabricationprocess			User cannot modify name and nameshort, This has to be child of DpmStrProfileFabricationNode

WORK INSTRUCTION Customization
Following plantypes are required to support integration of Work Instruction solutions in PPRHub. User CANNOT modify the names and nameshort of the plantypes and also user has to add all the attributes for the corresponding plantype if there are any

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
AnnotationExt	Simulation Feature	annotationext	-	-	User cannot modify name and nameshort,
ViewpointExt	Simulation Feature	viewpointext	-	-	

VisibilityExt	Simulation Feature	visibilityext	-	-	
WIBuyOff	Work Instruction	wibuyoff	-	-	
WIDataCollection	Work Instruction	widatacollection	-	-	
WIChangeNotification	Work Instruction	wichangenotification			
WIText	Work Instruction	witext			
DELMIA Drill Work Instruction	WIText	delmiadrillwi	-	-	

Manufacturing Change Management
Process Plantypes are customized to be in the scope of the MCM in the Max. Configuration mode.
Relationships: nodes (Target Owner), process_runsbefore_process (Common Parent Owner) and process_processes_prod (Source Owner) are in the scope the MCM

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
MCM Process View	Organizational Process	mcmoprocv	-	-	User should not modify anything
MCM Process Plan	Organizational Process	mcmoprocpl	-	-	
MCM Workplan	Process Component	mcmwplan	-	-	
MCM Operation	Process Component	mcmproc			

Manufacturing Change Management
Product Plantypes are customized **not** to be in the scope of the MCM.
MCM Manufacturing Assembly is only configurable.

Process Plantypes

Plantype Name	Derived From (E5 Base Type/Plan Type)	Nameshort	Attribute Names Prompt (Attribute name)	Data Type	Comments
MCM Manufacturing Assembly	Mnaufacturing Assembly	mcmmbomnode	-	-	User should not modify anything
MCM Product View	Organizational Product	mcmoprodv	-	-	

MCM Design View	Organizational Product	mcmodprod			
MCM Production View	Organizational Product	mcmoprod			
MCM Subassembly	Product Component	mcmsubassy			
MCM Part	Product Component	mcmpart			

Manufacturin System Defination Product Plantypes are customized **not** to be in the scope of the MCM. MCM Manufacturing Assembly is only configurable.					
Resource Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Name-short**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
All resource plantypes	-	-	calculateoutput (CalculateOutput)	Bool	Default value false, except for Station
			isfasteningresource (IsFasteningResource)	Bool	Default value false, except for Machine

Production System Simulation Data					
Resource Plantypes					
Plantype Name	**Derived From (E5 Base Type/Plan Type)**	**Nameshort**	**Attribute Names Prompt (Attribute name)**	**Data Type**	**Comments**
Decision Point	Resource Component	decpoint	–	–	User should not modify anything
Source	Resource Component	source	–	–	User should not modify anything
Sink	Resource Component	sink	–	–	User should not modify anything

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