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BUILDING BLOCKS - INSTALLATION

RELEASE 8.4

TECHNICAL MANUAL

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Allen-Bradley • Rockwell Software

Rockwell Automation

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Chapter 1

Introduction

This manual describes the installation of a PharmaSuite Building Block on top of an installed PharmaSuite environment. For all information on installing your PharmaSuite system, please refer to the current PharmaSuite installation documentation (page 13).

Intended Audience

The manual is intended for administrators of a PharmaSuite system.

Due to the nature of the tasks that need to be performed for a building block scenario, the administrator should be familiar with the PharmaSuite platform and its installation.

Typographical Conventions

This documentation uses typographical conventions to enhance the readability of the information it presents. The following kinds of formatting indicate specific information:

Bold typeface Designates user interface texts, such as

- window and dialog titles
- menu functions
- panel, tab, and button names
- box labels
- object properties and their values (e.g. status).

Italic typeface Designates technical background information, such as

- path, folder, and file names
- methods
- classes.

CAPITALS Designate keyboard-related information, such as

- key names
- keyboard shortcuts.

`Monospaced typeface`	Designates code examples.

Chapter 2

Installing a PharmaSuite Building Block

IMPORTANT

PharmaSuite Building Blocks require a pre-installed PharmaSuite system. Please refer to the PharmaSuite installation documentation (page 13) for installation instructions. It will guide you through all required steps to set up the PharmaSuite system.

In the following you will find a description of all system requirements that have to be met and all information you need to know about prior to installing a PharmaSuite Building Block on top of PharmaSuite.

The description covers the installation of a new building block version and the update of an existing building block version.

Installation Prerequisites and Information

The following checklist covers all preparatory steps required for installing PharmaSuite Building Blocks.

Prerequisites Checklist

Before you start the installation, check the prerequisites:

	Prerequisite	Your Notes	Done?
1	PharmaSuite has been installed and configured.		

Information Checklist

Before you start to import DSX objects (page 5), consider the following topics:

	Information	Your Notes	Done?
1	A new version (minor of major) of a building block can be installed in parallel to an older version of the same building block and will not be used automatically in existing recipes or workflows. A building block MR (maintenance release) must replace the already installed building block of the same version. Please refer to the "Technical Manual Developing System Building Blocks" documentation (page 13) for instructions how to create a new building block version.		
2	To overwrite objects that have object revisioning enabled, they must have been checked out first. Overwriting will not be successful in some cases, e.g. if you are trying to remove a cell from an ATDefinition. This kind of change must be reflected in a new version of a building block.		
3	To check out the ReportDesign object of a phase, use the **mes_PS-BatchReportManager** form to locate the report design in the list. To retrieve the name of a phase-specific sub-report, use the **mes_PhaseLibManager** form.		
4	If you have re-installed an existing building block (e.g. by installing an MR of the building block), do not forget to check in its ReportDesign object and compile it by using the **mes_PS-BatchReportManager** form.		
5	After the import, reopen the Universe of Recipe and Workflow Designer to make the new building block versions available for adding them to the Setlist.		
6	After the import, open the **mes_PhaseLibManager** form to verify the installed building block version. The information is provided by the **Internal maintenance version** attribute.		
7	System configuration considers the following settings: The JBoss application server runs with the 64-bit version of Java 1.8.0_144. Building Block Installer runs with the 32-bit version of Java 1.8.0_144.		

Performing the Installation

To install a PharmaSuite Building Block, perform the following steps:

1. Download and expand the Building Block Installer (page 5).
2. Import DSX objects into Process Designer (page 5).
3. Configure audit trail (page 7).
4. Check for duplicate libraries (page 8).
5. Install MR+ revisions of building blocks (page 9).

Downloading and Expanding the Building Block Installer

Each PharmaSuite Building Block Installer is available as an installation package on the Rockwell Automation Download Site.

To download and expand the installation package, proceed as follows:

1. Open Internet Explorer and navigate to the Rockwell Automation Download Site.
2. Navigate to the **PharmaSuite** section.
3. Select the building block package you wish to download.
4. On the Windows machine, expand the file that you have downloaded to extract the Building Block Installer files to a target directory of your choice. From this directory, you will be able to access the building block files.
5. Continue with importing DSX objects (page 5).

Importing DSX Objects

TIP

You can import a single DSX file (page 6) or multiple DSX files (page 7).

To import the building block DSX objects from the downloaded installation package into Process Designer, proceed as follows:

1. In Process Designer, from the **File** menu, select **Import**.
2. Navigate to the building block DSX file.
3. Select all objects of the DSX for importing and start the import.
4. The system displays a tree view of all already available objects. You have to select which objects should be overwritten (see also Information checklist (page 4)). There are two options:

- If you install the building blocks for the first time, select **No to All**. The already existing objects are PharmaSuite objects that are included the DSX file because of dependencies. They must not be overwritten.
- If you re-install the building blocks, select **Yes** for building block-specific objects and **No** for PharmaSuite objects.

5. Start the process with **OK**.
6. Continue with configuring audit trail (page 7).

IMPORTING A SINGLE DSX FILE BY USING PHARMASUITE INSTALLER

You can also import DSX objects without using Process Designer by means of the DSX import mechanism of the PharmaSuite installer. For this purpose, proceed as follows:

1. Copy the building block DSX file to a directory of your choice.
2. Copy the *log4j-importDSX.properties* file from the PharmaSuite installation directory to the directory that contains the Building Block DSX file.
3. Create a *jars* subdirectory and copy all libraries, provided along with the PharmaSuite installation, to the subdirectory. They are located in the <*Installer directory*>*jars* directory.
4. Create a *bin* subdirectory and copy the *jacob.dll*, provided along with the PharmaSuite installation, to the subdirectory. It is located in the <*Installer directory*>*bin* directory.
5. Create an *install.bat* batch file in the directory that contains the building block DSX file and add the following lines to the batch file:

```
SET APP_SERVER=localhost

"c:\Program Files (x86)\Java\jdk1.8.0_144\bin\java.exe" -Xmx1024M -Ddsx.overwrite=false
  -Djava.library.path=%~dp0bin
  -Dcom.rockwell.test.username=pmcadmin -Dcom.rockwell.test.password=pmcadmin
  -DHTTP_ADDRESS=http://%APP_SERVER%:8080 -DJNP_ADDRESS=remote://%APP_SERVER%:8080
  -Dlog4j.configuration=log4j-importDSX.properties -cp jars\*
  com.rockwell.mes.systemsetup.defaultdata.ifc.ImportDSX <Phase name>.dsx
```

6. If required, adapt the APP_SERVER settings, the path to the Java installation, and the DSX file name.

> **TIP**
> The **dsx.overwrite** switch defines the overwrite behavior. Possible values are **false** and **true**.
> To import DSX objects of an MR+ revision of a phase building block with **dsx.overwrite=true**, make sure to check out the objects prior to importing them. Otherwise the import will fail.

7. Continue with configuring audit trail (page 7).

Importing Multiple DSX Files in a Single Step by Using PharmaSuite Installer

You can also import multiple DSX objects without using Process Designer by means of the DSX import mechanism of the PharmaSuite installer. For this purpose, proceed as follows:

1. Copy all building block DSX files to a directory of your choice.
2. Copy the *log4j-importDSX.properties* file from the PharmaSuite installation directory to the directory that contains the Building Block DSX files.
3. Create a *jars* subdirectory and copy all libraries, provided along with the PharmaSuite installation, to the subdirectory. They are located in the *<Installer directory>\jars* directory.
4. Create a *bin* subdirectory and copy the *jacob.dll*, provided along with the PharmaSuite installation, to the subdirectory. It is located in the *<Installer directory>\bin* directory.
5. Create an *install.bat* batch file in the directory that contains the building block DSX files and add the following lines to the batch file:

```
SET APP_SERVER=localhost

"c:\Program Files (x86)\Java\jdk1.8.0_144\bin\java.exe" -Xmx1024M -Ddsx.overwrite=false
  -Djava.library.path=%~dp0bin
  -Dcom.rockwell.test.username=pmcadmin -Dcom.rockwell.test.password=pmcadmin
  -DHTTP_ADDRESS=http://%APP_SERVER%:8080 -DJNP_ADDRESS=remote://%APP_SERVER%:8080
  -Dlog4j.configuration=log4j-importDSX.properties -cp jars\*
  com.rockwell.mes.systemsetup.defaultdata.ifc.ImportDSX -dir <directory of the DSX files>
```

6. If required, adapt the APP_SERVER settings, the path to the Java installation, and the name of the directory of the DSX files.

   TIP
   The **dsx.overwrite** switch defines the overwrite behavior. Possible values are **false** and **true**.
   To import DSX objects of an MR+ revision of a phase building block with **dsx.overwrite=true**, make sure to check out the objects prior to importing them. Otherwise the import will fail.

7. Continue with configuring audit trail (page 7).

Configuring Audit Trail

By default, PharmaSuite is configured to store audit trail data for all object types. To avoid collecting unnecessary data and to reduce database growth, PharmaSuite allows to disable the collection of audit trail data on a per-object level.
Related to building blocks, audit trail has been switched off for certain application table objects (AT objects).

In order to switch off audit trail for all phase-related tables, add their table names to the **XFR_AUDIT_OVERRIDE** table in the database.

The scripts listed below switch off audit trail for all phases and parameters with the **RS** as ATDefinition prefix. Adapt the **where** clause according to your needs.

Script for Oracle databases:

```
insert into XFR_AUDIT_OVERRIDE (object_name, object_type, audit_type)
select 'AT_' || at_name, 'Table', 0 FROM APP_TABLE
WHERE ((at_name LIKE 'RS_PhDat%')
OR (at_name LIKE 'RS_PhOut%')
OR (at_name LIKE 'RS_Param%')
OR (at_name LIKE 'RS_RtPar%'))
AND 'AT_' || at_name NOT IN
  (SELECT object_name FROM XFR_AUDIT_OVERRIDE
  );
 declare begin dsResetAuditTriggers(); end;
```

Script for SQL database:

```
insert into XFR_AUDIT_OVERRIDE (object_name, object_type, audit_type)
select 'AT_' + at_name, 'Table', 0 FROM APP_TABLE
WHERE ((at_name LIKE 'RS_PhDat%')
OR (at_name LIKE 'RS_PhOut%')
OR (at_name LIKE 'RS_Param%')
OR (at_name LIKE 'RS_RtPar%'))
AND 'AT_' + at_name NOT IN
  (SELECT object_name FROM XFR_AUDIT_OVERRIDE
  )
exec dsResetAuditTriggers
```

Continue with checking for duplicate libraries (page 8).

Checking for Duplicate Libraries

TIP

When you install the very first phase building block, there are no duplicate libraries. In all other cases, duplicate libraries may exist.

The final step of the installation process is to check for duplicate libraries in different versions within Process Designer.
We highly recommend to perform this step to clean up your system installation.

- If the 1st or 2nd digit of the version number of a JAR file available in Process Designer is increased, the libraries can exist in parallel (e.g. eqm-phase-shared-ai-1.0.0.9.jar and eqm-phase-shared-ai-1.1.0.9.jar).
  This does not apply to files of the DCS Adapter. The old Library object must be deleted in any case.
- If the 3rd or 4th digit of the version number of a JAR file available in Process Designer is increased (e.g. eqm-phase-shared-ai-1.0.0.9.jar and eqm-phase-shared-ai-1.0.1.5.jar), you must delete the old Library object.

Which of the installed libraries are affected, depends on your installation. To retrieve the affected libraries, use the phase manager tool.

1. In Process Designer, run the **mes_PhaseLibManager** form to start the phase manager.
2. Navigate to the **Manage Basic Phases** tab.
3. Click the **Info (installed phases)** button to display detailed information about all installed basic phases and libraries. The system displays the following information:
   - In case there are no duplicate libraries installed:
     No issues with duplicate libraries found.
   - In case there are duplicate libraries installed:
     Potential duplicate library issues found for:
     <Library name> with version: [<old version>], [<new version>]
   - The output always provides a list of all installed phase building blocks and libraries including their versions.

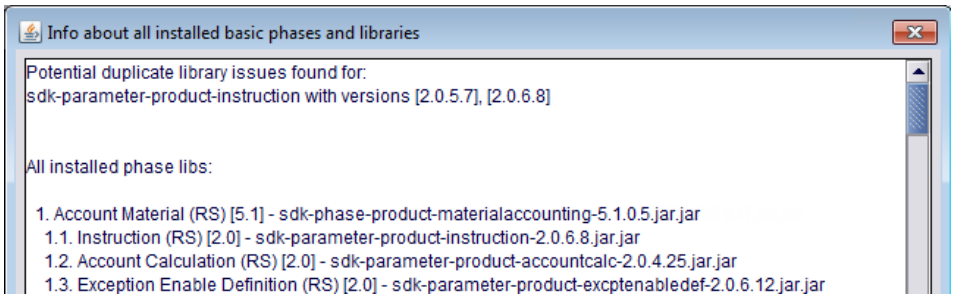

Figure 1: Example of a duplicate library

   - If you wish to retain the information listed in the output, click the **Copy to clipboard** button to copy the information and then paste it into a system-external text editor.
4. Close the phase manager, then close the form.

Continue with installing MR+ revisions of phase building blocks (page 9).

Installing MR+ Revisions of Building Blocks

TIP

An MR+ revision of a building block is an Extended Maintenance Release of a building block. For a detailed definition, see "PharmaSuite Building Blocks - Compatibility Matrix" of the PharmaSuite installation documentation (page 13).

MR+ revisions may require an update of phase-specific DSX files (e.g. report designs, message packs).

The following phase building blocks are affected:

DCS Package - Phase building block	DSX object
Create DCS batch	Report (page 11)
Get DCS alarms	Message (page 10)

Dispense Package - Phase building block	DSX object
D Edit BOM	Message (page 10)

EBR Package - Phase building block	DSX object
Upload image	Report (page 11)
Upload PDF	Report (page 11)

Equipment Automation Package - Phase building block	DSX object
Show historical data chart	Report (page 11)

Updating Phase-specific Message Packs

This task is only relevant for a **migrated** PharmaSuite 8.4 system if the following phase building blocks were already installed along with the update of the source PharmaSuite system, since the building block installers contain updated phase-specific message packs.

- DCS package
  Get DCS alarms 1.0 MR3
- Dispense package
  D Edit BOM 2.0 MR2

If the phase-specific message packs are installed into a **new** PharmaSuite 8.4 system, no additional steps are required.

If previous (MR) versions of the phase was already installed in the source system of a **migrated** PharmaSuite 8.4 system, the building block installer does not update the available message packs. To install the new message packs, perform the following steps:

1. In Process Designer, from the **File** menu, select **Import**.
   For each phase, navigate to its building block installer DSX file and select the message packs for the import
   - Get DCS alarms: **PhaseDCSGetDCSAlarms0100**
   - D Edit BOM: **PhaseWDEditBom0200**

   Make sure that there are no other objects selected. Select **Show Log** to display the **Import Summary** when the import is completed. Double-check that only the message packs have been updated.

2. Close Process Designer.

Updating Phase-specific Report Designs

This task is only relevant for a **migrated** PharmaSuite 8.4 system if the following phase building blocks were already installed along with the update of the source PharmaSuite system, since the building block installers contain updated phase-specific report designs.

- DCS package
  Create DCS batch 1.0 MR1
- EBR package
  Upload image 1.0 MR7
  Upload PDF 1.0 MR6
- Equipment Automation package
  Show historical data chart 1.0 MR5

If the phase-specific report designs are installed into a **new** PharmaSuite 8.4 system, no additional installation steps are required.

If previous (MR) versions of the phases were already installed in the source system of a **migrated** PharmaSuite 8.4 system, the building block installer does not update the available report designs. To install the new report designs, perform the following steps:

1. In Process Designer, expand the **Report Designs** node. Check out the
   - Create DCS batch: **PS-BatchReport-PhaseCreateDCSBatch_0100.1**
   - Upload image: **PS-BatchReport-PhaseUploadImage_0100.1**
   - Upload PDF: **PS-BatchReport-PhaseUploadPdf_0100.1**, **PS-BatchReport-PhaseUploadPdfEmbedded_0100.1**
   - Show historical data chart: **PS-BatchReport-PhaseShowHistoricalDataChart_0100.1**, **PS-BatchReport-PhaseShowHistoricalDataChartPlot_0100.1**

   report designs. For each report design, right-click the report design, select **Access Control <report design>** and **Check out**.
2. From the **File** menu, select **Import**.
   For each phase, navigate to its building block installer DSX file and select the corresponding report design for the import. Make sure that there are no other objects selected. Select **Show Log** to display the **Import Summary** when the import is completed. Double-check that only the report design has been updated.
3. Again, expand the **Report Designs** node. Perform the check-in on the
   - Create DCS batch: **PS-BatchReport-PhaseCreateDCSBatch_0100.1**
   - Upload image: **PS-BatchReport-PhaseUploadImage_0100.1**

- Upload PDF: **PS-BatchReport-PhaseUploadPdf_0100.1**, **PS-BatchReport-PhaseUploadPdfEmbedded_0100.1**
- Show historical data chart: **PS-BatchReport-PhaseShowHistoricalDataChart_0100.1**, **PS-BatchReport-PhaseShowHistoricalDataChartPlot_0100.1**

report designs. For each report design, right-click the report design, select **Access Control <report design>** and **Check in**.

4. Expand the **Forms** node and run the **mes_PS-BatchReportManager** form to start the batch report manager.
   Re-compile the updated report designs. The re-compile process must not lead to a compilation error.
5. Close the batch report manager, then close the form.
6. Close Process Designer.

Chapter 3

Reference Documents

The PharmaSuite documentation is available from the Rockwell Automation Download Site.

TIP

To access the Rockwell Automation Download Site, you need to acquire a user account from Rockwell Automation Sales or Support.

Appendix A

Revision History

The following table describes the history of this document.

Changes related to the document:

Object	Description	Document
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Changes related to "Introduction" (page 1):

Object	Description	Document
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Changes related to "Installing a PharmaSuite Building Block" (page 3):

Object	Description	Document
Information Checklist (page 4)	Java version update to 1.8.0_144.	1.0
Importing a Single DSX File by Using PharmaSuite Installer (page 6)	Java version update to 1.8.0_144.	1.0
Importing Multiple DSX Files in a Single Step by Using PharmaSuite Installer (page 7)	Java version update to 1.8.0_144.	1.0
Checking for Duplicate Libraries (page 8)	List of affected libraries updated.	1.0
Installing MR+ Revisions of Building Blocks (page 9)	Overview of affected phase building blocks updated. Message packs of the **D Edit BOM** phase and the **Get DCS alarms** phase have been changed. Report designs of the **Upload image** phase, the **Upload PDF** phase, and the **Show historical data chart** phase have been changed.	1.0
Checking for Duplicate Libraries (page 8)	To retrieve the affected libraries, use the phase manager tool (**mes_PhaseLibManager** form).	1.1

Object	Description	Document
Installing MR+ Revisions of Building Blocks (page 9)	Report design of the **Create DCS batch** phase has been changed.	1.2
Updating Phase-specific Report Designs (page 11)	Report design of the **Create DCS batch** phase has been changed.	1.2

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