The following guide contains the necessary instructions for product installation, a brief description of the major innovations introduced by SIMATIC® IT Production Suite 5.0 SP3, suggestions for optimized product use and other general information. Therefore, we recommend that you carefully read the contents herein.

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Welcome!!!

Welcome to the world of SIMATIC® IT.

In modern plants, coordinating and synchronizing different parts of the enterprise is what determines success. The manufacturing process is distributed where it is convenient (outside the plant or even outside of the enterprise). Managing the growing complexity is therefore a key factor for successful installation.

SIMATIC® IT is the software environment that allows managing such complex systems.

A Framework models the whole Supply Chain and then directly synchronizes and coordinates the activities of all the components defined in the model. A group of several components is dedicated to performing specific actions in order to achieve the manufacturing goals (scheduling, batch management, data manipulation and archiving and so on).

Since the first release of SIMATIC® IT in 1993 (original name was CUBE), development has been centred on improving the product’s core, introducing new features and new components, as well as exploiting up-and-coming, innovative technologies in step with the frenetic evolution of Information Technology.

We strongly believe in continuously developing our software environment and we strongly believe that such development must include all of our customers’ requirements. For this reason, we kindly ask that you please provide any suggestions or comments you feel may aid us in improving our platform.

Thank you very much, from the SIMATIC® IT Marketing and Development Teams.

The upcoming pages illustrate the major features that characterize SIMATIC® IT Production Suite 5.0 SP3, as well as the innovations and enhancements that have been added with respect to the product’s previous versions.

In order to better represent the complete integration of our suite of MES products within the architecture and philosophy of the SIMATIC® family, which has had much success in the world of automation, as of October 2001, all products constituting the CUBE and CUBE Industrial Framework family have assumed the name SIMATIC® IT. This 5.0 SP3 version has been completely upgraded to be fully compliant with the new naming and versioning policy deriving from the above-mentioned change. However, we would like to remind all clients that the architecture and strategy of the product have not been modified, but have remained intact.
Before You Start

As of October 2001, all products constituting the CUBE and CUBE Industrial Framework family have assumed the name SIMATIC® IT. As a consequence of this change, new names were assigned to most of the components of the SIMATIC® IT suite.

For a complete guide to installation, please refer to the various Installation manuals included in the \Documentation folder of the setup CD-ROMs. For Example, for Components Installation refer to manual “Components_InstallationManual.pdf”. To read .PDF files, the installation of Acrobat Reader is provided on installation CD-ROMs (see folder “\\Acrob_Reader_4.0”).

Installing the software

Every provided CD-Rom contains an Autorun file that allows you to automatically launch the Setup program upon inserting the CD into its Drive. In any case, a Setup program (INSTi386.bat) can be found in “\i386\setup\disk1”.

Before installing the product, we strongly recommend you close all open applications and save all important data and programs, even though all necessary precautions have been taken to render the software that has been provided safe.

Production Suite Components:

SIMATIC® IT Production Suite 5.0 SP3 is composed by:
- SIMATIC® IT Production Modeler 4.3 SP2 HF2
- PM COM Interface 4.3 SP2 HF2
- SIMATIC® IT Services 4.4 SP1 HF2
- SIMATIC® IT Components:
  - BPM, POPR: 4.3 SP2 HF2
  - MM 4.3 SP3 HF4
  - POM 4.3 SP2 HF3
  - PRM: 1.0 SP1 HF2
  - BSM: 1.0
- SIMATIC® IT COM Interface for SIMATIC® BATCH 1.1 HF4

The above Components are distributed on the installation media in the following way:
- SIMATIC® IT Framework 5.0 SP2 CD, including:
  - SIMATIC® IT Services 4.4 SP1 HF2
  - SIMATIC® IT Production Modeler 4.3 SP2 HF2 (Server, Developer Client, Display and GSI-RTDS)
  - SIMATIC® IT COM Interface for SIMATIC BATCH 1.1 HF4
• SIMATIC® IT Components 5.0 SP2 CD, including:
  • SIMATIC® IT Basic Services 4.4 SP1 HF2
  • SIMATIC® IT BPM 4.3 SP2 HF2
  • SIMATIC® IT PM COM Interface 4.3 SP2 HF2
  • SIMATIC® IT POM 4.3 SP2 HF3
  • SIMATIC® IT POPR 4.3 SP2 HF2
  • SIMATIC® IT PRM 1.0 SP1 HF2
  • SIMATIC® IT BSM 1.0

• MS SQL Server 2000 for SIMATIC® IT CD

Software Requirements

The basic software requirements for all Production Suite Components are:
• Windows 2000 SP4, Windows 2000 Server SP4 or Windows XP SP1 (¹)
• Internet Explorer 5.5 or later
• TCP/IP networking protocol

(¹) In case of XP Platform interface for SIMATIC® BATCH (CIB), PCS7 tag browsing and IVAR2 driver are not supported

The additional software requirements for Production Suite Components Servers are:
• MS SQL Server 2000 SP3 Standard/Personal Edition
• MDAC 2.8 or later, locally installed
• MS XML 4.0 SP2

All Windows operating system versions prior to the ones specified above are not supported.

The following table represents the specific software requirements for each Production Suite Component

<table>
<thead>
<tr>
<th>Required Software</th>
<th>Sentinel Hardware Key Driver</th>
<th>Services 4.4 SP1/ Historian 6.0</th>
<th>Word 97 or Later</th>
<th>MDAC / MS XML</th>
<th>SQL Server (*)</th>
<th>Java Runtime 1.4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM, POM, BPM, POPR, PM COM Interface</td>
<td>X(***))</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POMD, BPOMD, POPRD, PM</td>
<td>X (**))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Required Software**

<table>
<thead>
<tr>
<th>Components</th>
<th>Sentinel Hardware Key Driver</th>
<th>Services 4.4 SP1/ Historian 6.0</th>
<th>Word 97 or Later</th>
<th>MDAC / MS XML</th>
<th>SQL Server (*)</th>
<th>Java Runtime 1.4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client, PMD</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSI-RTDS</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

(*) When MS SQLServer is required, the authentication mode must be set to “SQL Server and Windows” (authentication mode “Windows only” is not supported)

(**) Minimum requirements: SIMATIC® IT Basic Services 4.4 SP1 HF2

(***) With the exception of BPM and PM COM Interface

It is important to highlight that it is not possible to use mixed versions of SIMATIC® Production Suite components in the same application: e.g. it is not possible to integrate Material Manager 4.3 with Production Modeler 4.2

**Use of SIMATIC® IT Production Suite with other Siemens products**

SIMATIC® IT Production Suite 5.0 SP3 has been tested with the following Siemens products:

- PCS7 version is 6.0 SP3 HF1 (post-SP3): K06.00.03.01_01.04.00.01
- SCI version 1.1 HF4: K01.01.00.04_01.01.00.01
- SB version 6.0 SP4 HF5: K06.00.04.05_01.01.00.01

The Siemens components embedded in the SIMATIC IT installation setup are:

- ACE 6.0 SP2 HF2: K06.00.02.02_01.01.00.02
- PCS7COMITF 1.2: V01.02.00.00_01.09.00.08

Siemens will provide customer support only if the product is installed according to this configuration.

Note: it’s recommended to install PCS7 and SIMATIC® IT products on different PCs. If a single computer configuration is chosen, PCS7 must be installed before any other SIMATIC® IT product.

**Microsoft Security Hotfixes**

The following table contains the list of Microsoft Security Hotfixes that have been used in SIMATIC® IT Production Suite System Tests.
Siemens will provide customer support only if the product is installed according to this configuration; if additional security patches are installed, SIMATIC® IT Production Suite will run out of legal warranty.
Siemens will anyhow provide support for all the problems that are not related to the new Microsoft patches installed.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>MS Windows Security Bulletin Number</th>
<th>Article number</th>
<th>Windows 2000</th>
<th>Windows XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/10/2003</td>
<td>Vulnerability in Authenticode Verification Could Allow Remote Code Execution</td>
<td>MS03-041</td>
<td>KB823182</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>09/07/2003</td>
<td>Buffer Overrun In HTML Converter Could Allow Code Execution</td>
<td>MS03-023</td>
<td>KB823559</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10/9/2003</td>
<td>Buffer Overrun in RPC may allow code execution</td>
<td>MS03-026</td>
<td>KB823980</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>03/09/2003</td>
<td>Flaw in NetBIOS Could Lead to Information Disclosure</td>
<td>MS03-034</td>
<td>KB824105</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>14/10/2003</td>
<td>Buffer Overrun in the ListBox and in the ComboBox Control Could Allow Code Execution</td>
<td>MS03-045</td>
<td>KB824141</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10/09/2003</td>
<td>Buffer Overrun In RPCSS Service Could Allow Code Execution</td>
<td>MS03-039</td>
<td>KB824146</td>
<td>X</td>
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</tr>
<tr>
<td>14/10/2003</td>
<td>Buffer Overrun in Windows Help and Support Center Could Lead to System Compromise</td>
<td>MS03-044</td>
<td>KB825119</td>
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<tr>
<td>29/10/2003</td>
<td>Buffer Overflow in Windows Troubleshooter ActiveX Control Could Allow Code Execution</td>
<td>MS03-042</td>
<td>KB826232</td>
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<tr>
<td>15/10/2003</td>
<td>Rollup 1 for Windows XP</td>
<td>KB826939</td>
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<td>X</td>
<td></td>
</tr>
<tr>
<td>14/7/2004</td>
<td>Write operations to an external storage device take a long time to complete</td>
<td>KB828012</td>
<td></td>
<td>X</td>
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<tr>
<td>09/02/2004</td>
<td>ASN.1 Vulnerability Could Allow Code Execution</td>
<td>MS04-007</td>
<td>KB828028</td>
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<tr>
<td>29/10/2003</td>
<td>Buffer Overrun in Messenger Service Could Allow Code Execution</td>
<td>MS03-043</td>
<td>KB828035</td>
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<tr>
<td>13/4/2004</td>
<td>Cumulativa update for Microsoft RPC/DCOM</td>
<td>MS04-012</td>
<td>KB828741</td>
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<tr>
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<td>Buffer Overrun in the Workstation Service Could Allow Code Execution</td>
<td>MS03-049</td>
<td>KB828749</td>
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<tr>
<td>15/6/2004</td>
<td>Security update for Microsoft Windows</td>
<td>MS04-011</td>
<td>KB835732</td>
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<tr>
<td>16/6/2004</td>
<td>Vulnerability in DirectPlay could allow Denial of Service</td>
<td>MS04-016</td>
<td>KB839643</td>
<td>X</td>
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<tr>
<td>14/7/2004</td>
<td>Vulnerability in Windows Shell could allow remote code execution</td>
<td>MS04-024</td>
<td>KB839645</td>
<td>X</td>
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<tr>
<td>13/7/2004</td>
<td>Vulnerability in HTML Help could allow code execution</td>
<td>MS04-023</td>
<td>KB840315</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>MS Windows Security Bulletin Number</th>
<th>Article number</th>
<th>Windows 2000</th>
<th>Windows XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/5/2004</td>
<td>Vulnerability in Help and Support Center could allow remote code execution</td>
<td>MS04-015</td>
<td>KB840374</td>
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<tr>
<td>13/7/2004</td>
<td>Vulnerability in POSIX could allow code execution</td>
<td>MS04-020</td>
<td>KB841872</td>
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<tr>
<td>19/7/2004</td>
<td>Vulnerability in Task Scheduler could allow code execution</td>
<td>MS04-022</td>
<td>KB841873</td>
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<tr>
<td>13/7/2004</td>
<td>Vulnerability in Utility Manager could allow code execution</td>
<td>MS04-019</td>
<td>KB842526</td>
<td>X</td>
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<tr>
<td>12/7/2004</td>
<td>Update for Background Intelligent Transfer Service (BITS) 2.0 and WinHTTP 5.1</td>
<td></td>
<td>KB842773</td>
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<tr>
<td>2/7/2004</td>
<td>Critical update for Microsoft Data Access Components – Disable ADOObjectStream object from Internet Explorer</td>
<td></td>
<td>KB870669</td>
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<tr>
<td>14/04/2003</td>
<td>Cumulative Patch for Outlook Express</td>
<td>MS03-014</td>
<td>Q330994</td>
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<td>13/7/2004</td>
<td>Cumulative Security Update for Outlook Express</td>
<td>MS04-018</td>
<td>Q823353</td>
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<tr>
<td>10/2/2004</td>
<td>Critical update for Windows Media Player</td>
<td></td>
<td>KB828026</td>
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<tr>
<td>6/10/2003</td>
<td>Cumulative patch for Internet Explorer</td>
<td>MS04-040</td>
<td>KB828750</td>
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<tr>
<td>7/2/2004</td>
<td>Update for Internet Explorer 6 Service Pack 1</td>
<td></td>
<td>KB831167</td>
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<tr>
<td>11/11/2003</td>
<td>Certificate validation flaw might permit identity spoofing</td>
<td>MS02-050</td>
<td>KB329115</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Use of AntiVirus Software**

SIMATIC® IT Production Suite 5.0 SP3 has been tested with the “Trend Micro“ antivirus software in the following configuration:
- On client machine: Office Scan version 5.5
- On server machine: Server Protection 5.56

The scanning must be configured to periodically run and must be disabled on all product and project directories of the system.

Note: This activity could heavily influence the system performances and behaviours.

Siemens will provide customer support only if the product is installed according to this configuration; if a different antivirus software is used, SIMATIC® IT Production Suite will run out of legal warranty.
Use of .NET based 3rd party software

SIMATIC® IT Components uses COM Technology to establish the communication with third-party applications. The communication between COM and .NET technology is performed throughout a software layer provided by Microsoft within its .NET framework. After a series of testing sessions, our System Test department detected some problems in this software layer if .NET framework version is previous than 1.1. If you want to establish a communication between your .NET component and one of SIMATIC® IT Components via COM (for example with PM COM Interface to send events to PM) you must first ensure to use .NET framework 1.1.

Further details and symptoms are described in this Microsoft article: Q325699 (please see Q articles at http://support.microsoft.com).

3rd party software

VNC (Virtual Network Computing) software is currently not supported. Please refer to technical support service (tss.simatic-it@siemens.com) for any questions regarding this issue.

Note on SIMATIC® IT Report Manager:

SIMATIC® IT Report Manager V1.0 (based on BusinessObjects 6.1.a) must be used together with this version of SIMATIC® IT Production Suite.

SIMATIC® IT Report Manager is the SIMATIC® IT component for reporting on the SIMATIC® IT product portfolio:

- · SIMATIC® IT Production Suite
- · SIMATIC® IT Unilab
- · SIMATIC® IT Interspec

SIMATIC® IT Report Manager provides out-of-the-box 3 universes and a set of reports to speed up project implementations. Customization for specific industries and individual projects can be done by:

- customization of the 3 above universes to include project specific objects
- customization of existing reports or creation of new reports

Note: SIMATIC® IT Report Manager embeds a BusinessObjects license restricted for reporting on SIMATIC® IT. This means the embedded BusinessObjects license can only be used for reporting on above SIMATIC® IT datasources. Inclusion of non-SIMATIC® IT data in SIMATIC® IT Report Manager reports can occur easily by making sure the non-SIMATIC® IT data is available within the 4 above SIMATIC® IT datasources. Creating additional universes on non SIMATIC® IT datasources is NOT allowed by the SIMATIC® IT Report Manager license and the embedded BusinessObjects license.
Note on Components database management:

Database creation or update during the installation

Since SQL Server is a mandatory prerequisite, thus, if you don't have a SQL Server already installed, just run the setup program available on the “MS SQLServer 2000 for SIMATIC® IT Personal Edition” setup CD-ROM or “MS SQLServer 2000 for SIMATIC® IT Standard Edition” setup CD-ROM, and then come back to this CD of the “SIMATIC® IT Components” setup.

During the installation, you have the opportunity to either create a new empty database or to update a set of existing ones (for details see the “SIMATIC® IT Components Installation Manual”).

You can also select the login to use for the connection to the database.

Note: the login must be configured with the English language and must be a standard login, not a Windows user.

Important

We strongly recommend that you backup your existing production databases before updating them.

The suggested procedure for doing so is the detach/attach mechanism made available by SqlServer

Database management

A new tool named SITDBUtil (SITDBUtil.exe) is available in the directory %ICUBEPATH%\MES\DATA (i.e. c:\icubesys\mes\data) to create empty database structures for SIMATIC® IT Components (MM, POM, BPM, POPR, PRM) or to update the existing ones.

It requires that Microsoft Data Access Components 2.8 be already installed locally and MS SQLServer 2000 SP3 be already installed on the same machine or on a remote workstation.

The SITDBUtil tool allows you to create or update one database at a time.

You need to logon to SqlServer as a database administrator and select either the “create” or the “update” button.

In case of creation you are prompted to insert the name for the new database (it must not be already existing) and the login for the connection. You can indicate an existing login (it must have the English language and must be a standard login, not a Windows user) or to accept the default one: SITMesUsr.

In case of update you are prompted to choose the database to upgrade.

This utility stores in the table SITDBUTIL_LOG the incremental log of the operations performed on the databases. In order to dump this log in a file you should run the SITDBUtil.exe with the option log (i.e. SITDBUtil.exe log).
If performing an upgrade of the database by means of the SITDBUTIL utility, thus also during normal installation, please take into consideration that this operation may take a certain amount of time, and that it has to be executed offline.

**Important**
We strongly recommend that you backup your database before updating it. The suggested procedure for doing so is the detach/attach mechanism made available by SqlServer.

*Login Password change in Ini files or registry*

The login and its password (encrypted) are present in the respective INI file for MM, POM, BPM and POPR Components, whereas for PRM they are located in the registry.

If you want to change the login and/or password in SQL Server you need to have the related items updated in the correct INI file (for PRM: in the registry). Using the button “Change password”, provided by the Components server modules (BPM, MM, POM, POPR) or by the PRM Admin tool, you can update the Ini file (for PRM: the registry) settings with the right encryption for the new password.

*Default login*

If the user chose to create the database with the default settings (creating the login SITMesUsr with a secure password that is not published) and made manual changes to the Login Password section in the Ini file (for PRM: in the registry), the initial settings can be restored by typing SITMesUsr in the Login Password section of the INI file (for PRM: in the registry). In this case, the SIMATIC® IT Components recognize the intention to restore the original settings and will restore them.

*When Restoring a Backup Database*

When restoring a database backup made on a different SQL Server, the database owner must be changed by executing the following system stored procedure (changing the login name according the right settings):

```
EXEC sp_changedbowner @loginame='SITMesUsr', @map=true
```

*Single Database vs. Separate Databases*

Starting from this release of Components, it is possible to have a single unique SqlServer database containing the data of all the Components (POM, MM, BPM, POPR, PRM). However, the following information must be taken into account:

- the configuration with a single unique database can be selected without any particular additional check if installing the Components for the first time
- if a previous installation exists already, i.e. with two separate databases, then the installation will proceed confirming the configuration with two separate databases and updating them to the new version
- no utility and no tool is supplied that automatically executes the transition from the “two separate databases” to the “single unique database” configuration
Should SQL SERVER Database Reside on a Separate Machine?

From the purely functional point of view it is possible to have SqlServer Database Server running on the same machine as SIMATIC® IT Production Suite. However, based on our experience on typical MES applications, we strongly recommend not to do so, i.e. to keep the Database Server on a separate machine. If the single machine installation is a strong requirement from the customer, it is recommended to validate this choice through a consultancy activity with Siemens.

Very important Caveats regarding SQLServer Configuration

The “Priority Boost” option must be left to its default value (zero). Although apparently it may seem this option increases SqlServer performance, changing this value can cause more harm than benefit, as other processes pay the cost. In the case of SqlServer running on the same machine as the rest of the SIMATIC® IT Production Suite, it is very likely that Production Modeler and Components do suffer the consequences of this setting.

This setting may also cause connection errors.

For more information, please refer to related articles at Microsoft Support website

The replication configurations of SqlServer are not supported in this version.

SQL Server must be configured to use a fixed amount of memory.

Note on MS SQLServer Installation

The following MS SQLServer 2000 editions are available:
- Standard Edition
- Personal Edition

The software requirements for MS SQLServer are available at http://www.microsoft.com/sql/evaluation/sysreqs/2000/default.asp

The installation CD “MS SQLServer 2000 for SIMATIC® IT” is intended only for the Siemens SIMATIC® IT Suite products purpose.

Only the default instance is installed and no other instances can be added.

The system administrator login ‘sa’ is installed without password: it’s strongly recommended to insert a password for ‘sa’, after the installation.

If other employments are intended, MS SQLServer 2000 has to be installed from the official Microsoft CD.

Hardware Requirements

Depending on the user’s requirements, several workstation and server configurations are available.
However, as a rule, the following types of server can be identified:

<table>
<thead>
<tr>
<th>Server</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Modeler</td>
<td>Production Modeler is running on this server</td>
</tr>
<tr>
<td>Components</td>
<td>Components are running on this server</td>
</tr>
<tr>
<td>SQL Server</td>
<td>SQL Server is running on this server</td>
</tr>
</tbody>
</table>

### Minimum and recommended requirements for satisfactory performance

<table>
<thead>
<tr>
<th>Category</th>
<th>Minimum configuration</th>
<th>Recommended Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Modeler</td>
<td>• Intel processor ≥ 1 GHz</td>
<td>• Intel processor &gt; 1 GHz</td>
</tr>
<tr>
<td></td>
<td>• 512-Mb RAM</td>
<td>• RAM &gt; 512-Mb</td>
</tr>
<tr>
<td>Components</td>
<td>• Intel processor ≥ 1 GHz</td>
<td>• Intel processor &gt; 1 GHz</td>
</tr>
<tr>
<td></td>
<td>• 512-Mb RAM</td>
<td>• RAM &gt; 512-Mb</td>
</tr>
<tr>
<td>SQL Server</td>
<td>• Intel processor ≥ 1 GHz</td>
<td>• (*)</td>
</tr>
<tr>
<td></td>
<td>• 512-Mb RAM</td>
<td></td>
</tr>
<tr>
<td>Common Requirements</td>
<td>• Disk space required for installation: approx. 100 MB.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SVGA monitor card with minimum 800x600 resolution (recommended: 1024x768 resolution or higher)</td>
<td></td>
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<td>• CD-Rom drive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mouse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Network adapters</td>
<td></td>
</tr>
<tr>
<td>Optional Hardware</td>
<td>Printer</td>
<td></td>
</tr>
</tbody>
</table>

(*) It strictly depends on the type of application. An appropriate tuning and administration of SQL Server machine can manage high number of transactions. For more information look at the Microsoft SQL Server home page: [http://www.microsoft.com/sql/default.asp](http://www.microsoft.com/sql/default.asp)

A configuration with three Server computers, one for Production Modeler, one for Components and one for SQL, is highly recommended.

**N.B.:** The disk space and RAM indicated above refer only to the Suite system files and documents.

### Online Documentation

It is possible to access the online documentation (manuals and helps) for the whole SIMATIC IT Production Suite from the shortcut **Start > Programs > SIMATIC IT Online Documentation**.

In addition, all online helps can be accessed from the **Help** menu of the user interface. Manuals can be also found in the \Documentation folder of each setup CD-ROM.
**Documentation languages**

Documentation is available in English, Italian, French and Spanish.
Documentation for Messaging Manager is not available in French and Spanish.

**SIMATIC® IT Production Suite system documentation**

SIMATIC® IT Production Suite V5.0 SP3 comes provided with:
- A FAQs Online Help (English)
- A Getting Started Online Help (both in English and German)
- A Guide to typical installation use cases (Installation Guidelines) (English)

**Components Technical Overview manual (English)**

The description of methods / events exposed by the Components (MM, POM, BPM, POPR) has been extracted from the manual (which is no longer provided) and is now available as separate online helps, which can be called up:
- From Start > Programs > SIMATIC® IT Online Documentation > Production Suite > Components COM Interfaces
- From within an Editor (VB / VC++) by clicking F1.

**Components Installation manual (English)**

Detailed instructions about installing SIMATIC® IT Components are available in the Components Installation Manual. You can also find this manual in the `\Documentation` folder of the Components Setup CD-ROM.

**Framework Installation manual (English)**

Detailed instructions about installing SIMATIC® IT Framework are available in the Framework Installation Manual. You can also find this manual in the `\Documentation` folder of the Framework Setup CD-ROM.

**Known Issues**

- **SIMATIC® IT Production Suite Getting Started online help:** The German version still contains some bitmaps and commands in English.
- **SIMATIC® IT Production Modeler Help menu:** when displaying the user interface in ITA, ESP, FRA, if you open documents from the Help menu, they are displayed in English, since documentation in ITA, ESP and FRA is not available in this version. When displaying the user interface in GER, the BATCH COM Interface and Barcode Scanner Manager online helps are displayed in English (they are not available in German in this version).
SIMATIC® IT Production Modeler

In the following PM is used as abbreviation for SIMATIC® IT Production Modeler

Directory structure

The directory structure where PM is installed is described in detail in the Production Modeler User Manual.

Environment variables

The environment variables created by the PM installation are:

- CUBEMESAD (default = %ICUBEPATH%\PM\Bin)
- CUBEMESAD-USR (default = %ICUBEPATH%\PM\Userkbs)
- CUBEMESAD-DOC (default = SIMATICIT\PM\Docs)

Supported configurations

This version of PM works with the following software:

- Windows 2000 SP4, Windows 2000 Server SP4 and Windows XP SP1
- TCP/IP networking protocol (for Windows NT or Windows 2000)
- Microsoft Word 97 or later
- SIMATIC® IT Services 4.4 SP1 HF2 or SIMATIC® IT Historian 6.0
- SIMATIC® IT XBatch 4.3 SP1
- PM COM Interface 4.3 SP2 HF2
- SIMATIC® IT Components: BPM 4.3 SP2 HF2, POPR 4.3 SP2 HF2, POM 4.3 SP2 HF3, MM: 4.3 SP2 HF4 and PRM 1.0 SP1 HF2

Note that only these Operating Systems and Components versions are supported and certified.

Notes on using the Setup program

The PM Setup program provides five options:

- SIMATIC® IT Services
- SIMATIC® IT Production Modeler Server
- SIMATIC® IT Production Modeler Developer Client
- SIMATIC® IT Production Modeler Display
- SIMATIC® IT COM Interface for SIMATIC® BATCH
In the CD of this release appears the installation of SIMATIC® IT Services; therefore, in order to run SIMATIC® IT Production Modeler, the installation of SIMATIC® IT Historian & Management Console is no longer mandatory.

Note that SIMATIC® IT Services 4.4 can be installed:
- On a machine without any SIMATIC® IT Historian version installed
- Over a SIMATIC® IT Historian 5.1 installation (even with official Hotfixes)

SIMATIC® IT Services 4.4 cannot be installed over a SIMATIC® IT Historian version older than 5.1.

SIMATIC® IT GSI-RTDS setup (that in the 5.0 SP1 version was managed through a separate option), is now included in SIMATIC® IT Services.

For info related to SIMATIC® IT COM Interface for SIMATIC® BATCH, please refer to the related chapter.

**Hardware Requirements**

Depending on the user’s requirements, several workstation configurations are available. However, as a rule, the following types of workstations can be identified:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Server</td>
<td>Is a workstation, on which the PM is running</td>
</tr>
<tr>
<td>PM Developer Client</td>
<td>Is a workstation, connected to the one on which PM is running</td>
</tr>
<tr>
<td>PM Display</td>
<td>Is a workstation on which the Java PM Display is running.</td>
</tr>
</tbody>
</table>

**Minimum and recommended requirements for satisfactory performance**

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<td></td>
</tr>
<tr>
<td></td>
<td>• Network adapters</td>
<td></td>
</tr>
</tbody>
</table>

**Optional Hardware**

- Printer
**Notes on General Use**

**Libraries**

With the SIMATIC® IT Production Modeler installation, some libraries are available. The following contains templates for object-classes that use COM technology:

- **Cube-Com-Industry-Library**: contains a COM-LOGICAL-UNIT object template to be used for any external application
- **Cube-Components-Library**: contains CUBE-TRACK-LOGICAL-UNIT and PDE-LOGICAL-UNIT defined for CUBE-TRACK and PDE.
- Another library is available to use SIMATIC® IT XBatch to be seen as a SIMATIC® IT PRODUCTION MODELER object (Cube-Xbatch-Industry-Library)
- **S95-INDUSTRY-LIBRARY**
- **SIMATIC® BATCH LIBRARY**, to interact with SIMATIC® BATCH 6.0 SP3
- **CARRIER-INDUSTRY-LIBRARY**
- **BSM** to interact with SIMATIC® IT Barcode Scanner Manager

**KPIs assigned to objects shared with SIMATIC® BATCH**

It is possible to defined in PM plant model objects that are defined also in SIMATIC® BATCH, and to assign them KPIs. Examples of those objects are Pcells (included in SIMATIC-BATCH-LIBRARY) and all units defined inside a Pcell.

In Version 4.3SP2 of PM, a new attribute has been added to units: sb-unit-name. This attribute identify the name of units defined in SIMATIC® BATCH inside a Pcell.

The Pcell object itself has an attribute (pcell-name) that identify the name of the Pcell in SIMATIC® BATCH.

To avoid misunderstandings, a strong control has been added in PM on the value of those attributes compared with the name of the objects in PM.

For Pcell objects:
- If the Pcell-name attribute is blank then the name of the Pcell in PM can be freely set.
- If the Pcell-name attribute contains the name of a Pcell in SIMATIC® BATCH then the name of the Pcell in PM must be equal to the Pcell-Name

For units inserted inside a Pcell:
- If the sb-unit-name attribute is blank then the name of the unit in PM can be freely set.
- If the sb-unit-name attribute contains the name of a unit in SIMATIC® BATCH then the name of the unit in PM must be equal to the SB-Unit-Name

Please note that names of objects defined in SIMATIC® BATCH can contain special characters (e.g.: @, blanks,..) that cannot be used in PM objects names.

For this reason, it is better not to define names including special characters for units and Pcells in SIMATIC® BATCH that will be seen by PM too.

**Plant download on BPM**

When the user decides to download an entire plant on BPM, he/she can choose to clean the existing saved plant on BPM before downloading it. Although this will assure to have exactly
the same structure in both data storage, it is strongly recommended not to clean the BPM
plant, for the following reasons:

- All historical data saved on plant (log of attribute changes) will be lost
- The plant model imported by PPA will not be anymore valid, and a totally new import
  must be done, loosing the previous configuration

**Authorizing PM**

SIMATIC® IT Production Modeler is now sold at different prices on the basis of how many
units are to be defined by the user in his/her application.
This policy requires that, in order to run PM, you must insert additional codes regarding the
number of units allowed, via SIMATIC® IT Services

PM licenses are based on the total number of units that can be created by the user.
Three different license types are provided:

- PM-100: 100 Units
- PM-400: 400 Units
- PM-800: 800 Units

To count the total number of units, count the number of plant objects that do not contain other
objects. In this manner, the following objects are counted for the sake of authorization:

- Any site, area, unit, or cell not containing anything counts as one unit
- A site, area, cell, or unit containing other objects is not counted
- Library objects are not counted

*Note: In the previous versions the following license types were provided:*
- PM-25: 25 Units
- PM-100: 100 Units
- PM-Unl: Unlimited Units

**License insertion**

Authorization is based on SIMATIC® IT Services licenses and the hardware key used to
authorize SIMATIC® IT Services. License authorization will be checked by PM using its
launcher. This means that the launcher will not run if SIMATIC® IT Services is not installed
and running on the computer. The user must insert codes using standard SIMATIC® IT
Services mechanisms and interfaces.

**License check in PM launcher**

PM launcher will check licenses at start time and in run time.
Refer to documentation for additional details.

**License check in PM**

PM will check licenses in the following cases:

- At start-up
• During editing
• Before saving the application
• Upon explicit request (see section “new tools menu” in this document)
Refer to documentation for additional details.

New Functions and Operational Features in PM 4.3 SP2 HF1

SIMATIC® Batch Library

The following areas have been updated to reflect changes done on CIB 1.1 HF1:
• Connection/Disconnection Management
• Unload/Load-Other-Version Management
• PCELL Host-Name Management
• PCELL Menus Consistency Management

New browser for sb-unit-name unit attribute allow the user to browse the PCELL units defined in SIMATIC® BATCH (calling a BPM method).

New Functions and Operational Features in PM 4.3 SP2

General performances improvement

The overall implementation of PM rules and PO rules execution has been optimised as follows.
• Avoid making permanent each object as soon as it is executed
• Optimizing colour management
• Optimizing tree-list search procedures
• Optimizing arguments expression evaluation
• Optimizing final operations on rule execution
• Optimizing BPM interaction at rule starting

Furthermore, the step compilation option is now available.
All objects that can be inserted in a rule, when executed, start their execution procedure (whose name is set in the attribute procedure name). The execution procedure acts like a method (i.e.: there is a fixed execution procedure for each object class that is the same for all instances).
For objects belonging to meta-class executor-with-arguments the execution implies evaluating all input arguments values before using them. This stage may involve a call to G2 compiler (if arguments expressions are not “simple”); calling the compiler causes approximately a 10milliseconds delay (on common PCs under normal workload) for each call. In addition, the execution procedure is forced to make a set of controls and indirect references to find objects using the configuration made by user.
To speed up the execution, instead of calling a generic procedure that uses the indirect references specified by user, for each single object a dedicated execution procedure is created.
Such dedicated procedure does the same things the generic one does, but in a quicker way, since it does not calculate in run-time objects where actions have to be executed.

**Controlled Shutdown enhancements**

Allow changing PM version or user library version resuming all POs running in a plant. A customer can issue a controlled shutdown by a number of needs that can be roughly summarized as follows:

- Any reason that does not imply changes in the installed application
- A change in the version of one or more library upon which the customer plant is based
- Installation of a new version of PM component, and upgrade it without losing production

The previous implementation fulfills only the first of the three points.

**System Components organization**

A different organization of System Component is provided. In previous version the configuration of System Components was part of “system” modules. This means that it wasn’t possible to move the configuration changes from a PM to another one, and that it wasn’t possible to update a system component having a new interface (e.g. a new method, a new event) without update system modules. To solve these problems system components are managed in a “user” module.

**KPI management on single step**

In previous version only CPO_ID was passed to PPA during scheduling action. STEP_ID is now passed to PPA for KPI scheduled on steps, which have the following type:

- “On event” KPIs: “Compute” (at step’s start, stop, or both)
- “On event-over time” with activation type “Step-Life” (an Activate action is executed at the beginning of the step and a Deactivate action is executed at the end of the step)

**Class management enhancements**

Is now possible to:

- Move a class from one library to another
- Copy of a class from one library to another
- Change the superior of an user defined class (in previous version, once a class was defined, if the user wanted to let it inherit from another class, he/she had the only choice to delete the class and re-create from scratch)

**Usability enhancements**

It is now possible to move and zoom workspace using keyboard; the allowed commands are listed in the following table:
To move a workspace, it is possible to use arrows. Warning: using arrows to move workspaces causes the workspace to be shown on top of all other interface elements (like tree-list or tool bar). Since moving workspace on this way can cause a workspace to cover all other interface elements, a couple of pop up menus were added to workspaces:

- Shrink-to-fit: rescales the workspace to be completely visible in the scope pane area
- Drop-to-bottom: maintaining the current workspace scaling, put the workspace under the other interface elements

**Alarms enhancements**

In previous versions, when an element failed execution and the action-on-failure was configured to ask user, a modal dialog was shown; in PM sp3, it is possible to configure if such requests have to be sent to alarm interface (and then saved on SIMATIC® IT log); pay attention, anyway, because doing so you risk to have rules waiting an user intervention.

**Engineering enhancements**

Selecting “continue” from an active breakpoint, non confirmation is longer needed to resume execution; this will reduce the number of mouse clicks needed.

**New function**

A new function has been added

Synopsis

**Functions and Operational Features available in previous versions**

This section provides a list of the main functionalities introduced in PM 4.3 and PM 4.3 SP1 with respect to PM 4.2.

Internal improvements:

- Rule Caching
- Inheritance improvements
- Object Finder
• Methods and Event broker
• Global System Objects
• Business Process Modeler Configurator Optional Field
• KPI
• Show / Hide names
• Navigability
• Call Stacks
• Layout and GUI enhancements
• Class Wizard
• New external link area organization
• Short names in tree list
• Utility functions
  • Functions to retrieve parent object
  • Functions to retrieve site, area or cell
  • Functions to retrieve previously executed object
  • Functions to retrieve executor or caller of an object
  • Functions to manage sequences
• Debugging Tools
• MED Monitoring
• Common Messages View
• Events triggered by System Components
• Controlled shut-down
• G2 Upgrade
  • PM Version 4.3 SP1 uses G2 6.2

Integration with Production Components
The integration with production components and generic COM applications made by users has been improved in many aspects:
• Managing the status of these objects
• Showing which plant objects are defined on a host (as described in the “New Components Configuration Area” section)
• Enhancing objects that can manage materials

PM COM Interface
• Optimizations
• Integrated Configuration Panel and GUI
• LOG File enhancements
• Systray support

FDA Management
• Plant/Library versioning
• File Directories
• Compatibility with previously done applications
• Electronic Signature
• Audit configuration
PM Display
• Plant-model design and management
• Visualization of Production Operations running in the plant
• Management of user commands
• Configuration panel
• Navigation without tree-list
• Messaging Manager interaction
• POPRD interaction
• On-line help

Fixed Technical Issues in PM 4.3 SP2 HF2

PM Server

Rule Local List fails when there is a limitation on the max nr of executed rules
There was a Rule-Local-List reset problem during the rule-caching reuse of a rule. The problem occurred when an input argument of the mesad-event force the current-value of the rule-local-list.

Problems with KPI tracing attribute of mesad-event
There were some problems configuring the kpi-tracing-attribute attribute for mesad-events, now corrected

Cube-event with reset-mode=after-activation
If the cube-event were reset exactly in the same moment when the value was read from RTDS, the old value was erroneously read, and the event re-triggered a second time

GSI error for network problems
In case of serious network problems, the request form PM to stop a Polling Set will fail, producing the following error: “AdiStopPollingSet - PollStopOK Sem. Err. (258)” This error could lead to a subsequent failure in restarting the same polling set, causing a failure in read data.
To avoid this, in this version, a retry mechanism has been defined for starting polling sets.

Problems with PCELL names
In Simatic Batch, PCELL names are considered valid even if they are composed only by numbers. That kind of name is not valid for PM objects.
For this reason in PM, during the configuration of a PCELL or a unit inside the PCELL, the names control has been changed as follows:
If the Simatic Batch name cannot be converted in a PM name (numeric names, names containing spaces or special characters), then the PM name can be different from the SB name (no control is made).

If the SB name can be converted, then the PM name must be equal.

**Problems with KPI**

KPIs set with key different from CPO_ID were not correctly Reset

**Max-Number-of-Attemps of a method-check**

Subsequent attempts to perform the method in case of errors were not correctly managed

**Comment of an object-finder**

The field Comment was not present in object finder object

**Port number in the log of PM**

Host name and port number information have been added to PM log on Event viewer

**PM COM Interface**

**.log files are fragmented**

Enabling log on PM COM interface may cause, after some time, a high disk fragmentation, which is now avoided.

**Type Mismatch in arguments**

PM COM Interface 4.3 SP2, that has been rewritten using C++, introduced a “type mismatch error” in the following case:

A COM component written in Visual Basic defines some arguments of a method as String (or Float or Int) Array passed by reference.

An example of the signature of such a method is:

```vbnet
Public Function GetLotsByLocation(ByVal strEquipId As String, ByRef astrLotsFound() As String) As Long
```

While calling such a method through PMCOMServer 4.3 SP2 a type mismatch error arises and the method call fails.

A workaround for this problem is to define such arguments either as passed by value (ByVal) or as VARIANT.

**Example:**

```vbnet
Public Function GetLotsByLocation(ByVal strEquipId As String, ByRef astrLotsFound() As VARIANT) As Long
```
The cause of this behavior is that VBScript will pass parameters to a method by value if the argument's data type is NOT declared as a variant and the parameter is passed by reference if the argument's data type is declared as variant by the method.

For further details on this issue, please see Microsoft Knowledge Base Article – 197956 (PRB: Passing Parameters By Reference to a VB COM Object)

This problem is not present in previous versions of PM COM Server, and it is solved in this version of PM COM Interface

Fixed Technical Issues in PM 4.3 SP2 HF1

**PM Server**

**KPI**

Steps configured to manage OnEvent KPIs that were all with Activation=START or all with Activation=END did not work correctly.

**Equipment-Name management for PCELL and units imported by PPA from SIMATIC® Batch objects.**

When both PM and SIMATIC® BATCH plant models are imported in PPA, shared objects (i.e.: process cells and units defined under a process cell) will be accessed in PPA using the name set in SIMATIC® Batch.

Doing so, all KPIs defined in PM were activated passing PPA the PM name, that can be different from the SIMATIC® BATCH name known by PPA, causing the KPI schedule to fail.

In HF1, the following changes have been done:

1. a new attribute (sb-unit-name) has been added to units; this attribute will contain the name of the unit in SIMATIC® BATCH, if it is different form the one defined in PM; this attribute can be modified only for units inserted inside a process-cell
2. a browser will list all SIMATIC® BATCH units inserted under a pcell, to help PM engineer setting the correct name; the constraint is that there cannot be defined two units with the same sb-unit-name inside the same pcell
3. when PM schedules a KPI assigned to an object shared with SIMATIC® BATCH, it sends PPA the SIMATIC® BATCH name (saved in the dedicated attribute: pcell-name for process cell and sb-unit-name for units)

The following table lists some possible combinations of those attributes

<table>
<thead>
<tr>
<th>PM name:</th>
<th>Id:</th>
<th>pcell-name:</th>
<th>sb-unit-name:</th>
<th>equipment-name passed to PPA:</th>
</tr>
</thead>
<tbody>
<tr>
<td>area-1.pcell-1</td>
<td>pcell-1</td>
<td>&quot;SB_PCELL_1&quot;</td>
<td></td>
<td>area-1\SB_PCELL_1</td>
</tr>
<tr>
<td>area-1.pcell-1.sb-unit-1</td>
<td>sb-unit-1</td>
<td>&quot;SB_UNIT_1&quot;</td>
<td></td>
<td>area-1\SB_PCELL_1\SB_UNIT_1</td>
</tr>
<tr>
<td>area-1.pcell-1.unit-2.sb-unit-1</td>
<td>sb-unit-1</td>
<td>&quot;SB_UNIT_1&quot;</td>
<td></td>
<td>area-1\SB_PCELL_1\unit-2\SB_UNIT_1</td>
</tr>
</tbody>
</table>
Warning! It is strongly recommended to fill in the additional attribute sb-unit-name only if SIMATIC® BATCH is installed and the integration with it is needed in the application.

**Method-Caller looses arguments during COM method execution.**

In sp2, each execution of a method caller will overwrite saved arguments using those returned by the called method; in case of errors in the called component, that can return back wrong arguments, the correct configuration were lost.
In HF1, the argument configuration of method caller is maintained, even in case of errors in external component.

**COM Method Return Value of type structure (COM-VARIANT-ARRAY)**

This bug occurred while using PM 4.3 SP2 together with PM COM interface 4.3 SP1, in case of calling a COM method that returned a matrix value (i.e.: a method that returned a VARIANT array of arrays). In such a case, the returned value was incorrectly kept by PM. The same error did not happen if the VARIANT array was declared as a method argument passed by reference.

**Attributes Configuration for Library Class causes Plant objects wrong changes:**

Modifying attribute definitions in classes defined by the user caused a reset of all instances of that class.
Note: this bug happened in SP2 only

**Controlled shutdown fix for loops calling other loops.**

In case of a nested loop, when the controlled shutdown occurred while closing the inner loop, the subsequent restart of the application were not always able to restore correctly the loop execution.

**Shared Objects wrong relation between copied library objects.**

This bug occurred in the following situation:
1. A library object has one or more images defined in the same library;
2. one of these images is copied
In such a situation, the copy of the image were incorrectly linked to the image itself; this bug had no effect during run time, but it caused problems during instantiation (basically, PM was not able to automatically find the original for the image to be created and made an unnecessary question to the operator, to let him decide it).

**Plant not correctly saved**

Saving a plant while rules or PO were running, might fail in previous PM versions, especially if the plant itself is very big.
To avoid this problem, the saving mechanism has been changed: during the saving operation all other operations inside PM are temporarily suspended, and they are resumed as soon as the save has been completed.

**Online help**

The Help menu command from the PM user interface is now fully managed in the following languages: English, French, German, Spanish, and Italian. However, online helps in French, Spanish and Italian are not available in this version.

**VARIANT ARRAY type management**

If some argument of a COM method is defined as a VARIANT ARRAY, its default-value in PM is now of type sequence (= sequence()); in previous versions of PM, the default value was an integer (=0). This caused the failure of any method-caller of that method that does not override the default value.

**Fixed Technical Issues in PM 4.3 SP2**

Upon releasing version 4.3 SP2, the following problems (in relation to version 4.2) were eliminated.

**PM Server**

**Controlled Shutdown**

In some situations (e.g.: rules/PO started just while PM is doing a controlled shutdown), the subsequent restore was not able to completely restore the PM status, and the newly executed rules were not resumed.

**Keyword resolution**

The keyword the-product, was not correctly assigned to the current PO in execution when the PO rules were re-used for caching mechanism, but the PO that started them was cancelled.

**Cube-Variable**

**Bug: AP00115423**

The new cube-data-types “PC” and “FC” were treated as data-type Quantity causing the reading and writing operations to fail. The configuration bug has been corrected and an upgrade mechanism fixes all of the bad cube-variables.

**New Feature**

The cube-name attribute of the cube-variables, in Library, contains an expression that is evaluated during the instantiation in Plant, giving the correct RTDS TAG-name.
In order to avoid possible errors, all of the TAG-name characters not alphanumeric, are changed in “_”. From this version, the Cube-Name Characters "@[" and "@]" (in Library and “[“ “]” in Plant) are no more replaced with "_".

The use of these characters allows the user to map a cube-variable on a RTDS array element.

**Bug: AP00126742**

In the old versions of PM, all of the non-alphanumeric characters (found in the unit and cube-name attributes of any plant cube-variable) were converted into the character “_”.

It is now possible to skip this conversion by switching off the following new option: **Tools > Options… > Generic-Parameters > Rtds Tag Names "_" Conversion Is Active**

Due to keep the compatibility with old RTDS DB, no upgrade mechanism is provided.

In any case (on/off) it is now possible to use the characters “[“ and “]” (for plant cube-variables or “@[“ and “@]” for library cube-variables) to map a single RTDS array element. The tag constructor can’t create RTDS tags for this kind of tag names.

**Object Finder**

**Bug: AP00118294**

The function-definition: desc (expression) can be used again into the Ordering-Expression field.

**Bug: AP00115524**

This is a brief description about the Ordering-Expression field:

The object-finder can prepare a list of results, starting from a group of objects, doing the following steps:
1. Searches the objects in the plant according to the search options
2. Filters the objects founded according to the Filter-Expression field
3. Orders the objects filtered according to the Ordering-Expression field
4. Extracts a value from each of the ordered objects according to the Result Expression Field

The syntax of the Ordering-Expression field is similar to an SQL ORDER BY clause:
<value expression>
<value expression 1>, … , <value expression N>

The obtained values are ordered from left to right in ascending or descending order as specified.

To specify the order it is possible to use the following syntax:
<value expression> Ascending by default
asc (<value expression>) Ascending
desc (<value expression>) Descending

The <value expression> can be any of the possible PM expressions (textual, quantitative, …) and can include the keywords the-item and the-item-position

Examples:
the class of the item, the name of the item
the item x-position of the item, desc (the item y-position of the item)

**New Feature**

New Keyword: the-item-position
This keyword can be used in the following object-fined expressions:
- Filter-Expression
- Ordering-Expression
- Result-Expression
It is an integer value representing the current position of the item during the expression evaluation (the first position is 0).

**User-Mode Observer/End-User**

**Bug: AP00118908**
The same restrictions are applied to both the Observer and the End-User user modes.

These Menus Have Been Removed:
- Tools > Options...
- Tools > Network-Operations

These Users Can Only See Visualization Menus.
The OK Button Has Been Removed From All The Parameters Dialogs

Left-Click Automatic Action Has Been Inhibited For The Following Classes:
- COM-HOST-DEFINITION (Components Area)
- NEW CONTENTS (Library Area)

**Mesad-Goal**

**Bug: AP00116871**
The Expression of the Mesad-Goal in Library will be no longer evaluated.
An automatic upgrade mechanism deactivates all of the Library Mesad-Goals.

**Ifserver Events**

**Bug: AP00120044**
Error Processing Com Events Coming From IT_SERVER Solved

**Float Management**

**Bug Checking Forced Float Values**
This bug caused some Set-Variable failures while setting big float values on Cube-Variables.

**Wrong Float Values Displayed On Dialog**
Example:
the float value 10.1237 was displayed as 10.123699999999999

**Event-Broker**
Synchronization Problems Solved
The problem was caused synchronizing the event pointed by the event-broker.

**Plant/Library Directory Browser**
Short Name Files Bug Solved ("PM")
If there were a file whose name was shorter than 3 characters, this caused the load-plant/load-library browsers to fail.

**Kb-Workspace**
Corrected Bug On Show->Sub Menus (Related To The Superior Item)
The Show menu of a kb-workspace correctly displayed the superior item menus, but they didn’t work at all.

**Production Operation Menu**
The menu Pause, activated selecting a Master Production-Operation, has been corrected.

**Wait-For-Event Timeout**

**Bug: AP00120581**
The wait-for-event condition timeout was set to 2 seconds and it was not configurable. Now the timeout can be configured changing the following parameter: **Tools > Options… > Time Parameters > Condition Evaluation Timeout**

**COM-SERVER Reconnection**
The connection-check/reconnection mechanism has been corrected.

**Copy Versioned Plant/Library**
A new control allows copying a plant/library and related documentation directories without copying the version directories.

**PM COM Interface**

**Arguments default value for imported COM methods**
The new organization of system-method-callers for SIMATIC® IT Components sets default value for the arguments of any method. with correspondence to ones defined by the components.

**SIMATIC® BATCH LIBRARY**

"Parameters" of PCELL locked and uncontrollable after “cancel”
In Sp1, when “windows like configuration” is set, clicking cancel from the parameters dialog may cause a lock of the dialog itself.
**Problems with “windows like configuration”**

In Sp1, when “windows like configuration” is set, it is not possible to browse pcell name and project name in parameters dialog.

**Synchronize Instance of a Pcell**

Synchronizing a Pcell while it is connected to SIMATIC® BATCH caused the following errors:
- the attributes "Host-Name", "Project-Name", and "PCell-Name" are empty.
- It's not possible to set the "Project-Name" and the "PCell-Name" to the old values, because the drop-down-list is empty.
- The PCell in the "Working Area" is correctly configured, but a second "Synchronize Instance" will transfer the empty attributes to the "Working Area".

**Known Technical Issues**

**PM Server**

**MESAD-local-variables**

In a Production Operation (or in a rule assigned to a plant-object class) in a library, if you define a Mesad-local-variable and a set-variable object that changes the variable value to something, when you create an instance of the Production Operation, the variable actually set is the one specified in the library (and not the one created).

Since mesad-local-variable is an “old” PM object present here for compatibility with previous versions, we strongly suggest that you not use it in libraries; instead, use mesad-rule-local-variables which covers all mesad-local-variables features and works properly.

**Object palette**

Mesad-event and mesad-event-deduction do not appear with the new layout in the Production Operation (or rule) palette, even if the object created from the palette has the correct layout. This is only an aesthetic problem and does not result in malfunctioning in run-time.

**PM COM Interface**

**Argument restrictions**

Using this version on PM COM Interface it’s not possible to use:
- Methods with optional arguments
- Methods with Enum arguments
- Events having argument passed by reference

Furthermore it’s not possible to use arguments of the following type:
- Object
- User Defined Type
- Currency
**Use of components with modeless forms**

Version 4.3SP2 of PM COM Interface has been rewritten in Visual C++ instead than Visual Basic, for performances reasons.
Due to limitations of Microsoft Visual C++ anyway, it is not anymore permitted to use components written in Visual Basic and compiled as dll, that use non-modal forms (for further details on this issue, please see Microsoft PRB n.247791 (PRB: Modeless Forms in VB ActiveX DLL's Don't Display in VC++ Clients)
The behaviour of such components in PM COM Interface is the following:
Any method not involving visualization of non-modal forms works correctly, while methods that visualize such forms don’t work; if the non-modal form is visualized in the class _initialize of the component, the component cannot be created by PM COM Interface.

**PM Display**

**Item-to-show**

At present, the possibility of filtering plant objects visualized by the PM Display (e.g.: “show only Physical objects”) does not function properly and so is currently disabled.

**Short Production Operations**

If you run Production Operations at a fast rate (ex. one every few seconds), the display gets overloaded.

---

**SIMATIC® IT Business Process Modeler**

In the following BPM is used as abbreviation for SIMATIC® IT Business Process Modeler

**Supported configurations**

The following software is required:
- Operating System Windows 2000 SP4 or Windows XP SP1 or Windows 2000 Server SP4
- SIMATIC® IT Production Modeler 4.3 SP2 HF2
- SIMATIC® IT Production Modeler COM Interface 4.3 SP2 HF2 to communicate with SIMATIC® IT Production Modeler 4.3 SP2 HF2
- MS SQLServer 2000 SP3 Standard/Personal Edition (also remote installed) with authentication mode set to “SQL Server and Windows” (authentication mode “Windows only” is not supported)
- ADO 2.8 (or later) locally installed
- SIMATIC® IT Services 4.4 SP1 HF2 or SIMATIC® IT Historian 6.0 SP1
- SCI 1.1 HF4 locally installed (only in a scenario including SIMATIC® BATCH)
• MS XML 4.0 SP2 (only in a scenario including SIMATIC® BATCH)

BPM Server uses the PM License (in a scenario with SIMATIC® IT Production Modeler) or the Historian License (in a scenario with SIMATIC® BATCH and SIMATIC® IT Historian)

**Notes on using Setup program**

The BPM setup program consists of four options:

- **Server**
  SIMATIC® IT Business Process Modeler 4.3 SP2 HF2

- **Client**
  SIMATIC® IT Business Process Modeler Display 4.3 SP2 HF2

- **Configurator**
  SIMATIC® IT Business Process Modeler Configurator 4.3 SP2 HF2

- **Database**
  Please refer to general section “Notes on Components database management”

The environment variables created are:

- **BPMPATH** (default = %ICUBEPATH%\BPM)
- **BPMDPATH** (default = %ICUBEPATH%\BPMD)
- **BPMCPATH** (default = %ICUBEPATH%\BPMC)

Where ICUBEPATH is the environment variable as created or updated or inherited during Services 4.4 SP1 setup (default = C:\ICUBESYS).

**Important notes of BPM 4.3. SP2 HF2**

- In SIMATIC® IT Production Modeler, the sub UNITs of a PCell linked to a SIMATIC® BATCH PCell (through the SIMATIC® IT COM Interface for SIMATIC® Batch) can also be linked with the UNITs in SIMATIC® BATCH. This link is performed through the attribute “SB-UNIT-NAME”. To modify the link to another SIMATIC® BATCH UNIT, it is strongly recommended to perform these steps:
  1) Clean the attribute by removing the link;
  2) Save the Production Modeler Plant also in Business Process Modeler Database;
  3) Import the Plant Model in Plant Performance Analyzer;
  4) Define the new value for the SB-UNIT-NAME attribute and perform 2) and 3) again;
- It’s not recommended to transfer any equipment present under any PCell level to another parent equipment. It's better to remove it/them and then re-insert it/them
New Functions and Operational Features of BPM 4.3 SP2

- Integration with PPA for SIMATIC® BATCH and import of SIMATIC® BATCH plant model
- BPM Config instantiated directly by PM

Functions and Operational Features available in previous versions

This section provides a list of the main functionalities introduced in BPM 4.3 with respect to BPM 4.2.
- Controlled Shutdown

Known Technical Issues of BPM 4.3 SP2 HF2

At the time when BPM version was released, the following severe and minor technical issues were known and not yet fixed.

- The BPM and BPM Ini files have to be modified manually. Only the Password needs to be changed by means of the tool available in the Server dialog window. Please follow the instruction in the Ini files themselves or read the appropriate section in the Components Installation Manual, available in the \Documentation folder of the setup CD-ROM.
- MS Office is not required as a prerequisite for BPM Display, however if you decide to install it you are required to install SP2 as well. In the case where SP2 is not installed launching BPM Display will automatically call the MS Windows MS Office 2000 Installation screen to appear and you will be asked to install certain components included in SP2.
- PM manages unlimited lengths for its string fields, on the contrary BPM has limitations for the related database fields. For instance:
  - Equipment full name length: 255
  - POs name length: 300
  - Properties/Parameters name length: 255
- BPM supports only the default name of the Production Operation Rules of Rules (INITIALIZE, EXECUTION, END). If you rename them, BPM cannot work properly.
- BPM builds the hierarchy of the Production Operations through the configuration of the Start-Product steps in SIMATIC® IT Production Modeler. If you want to create the hierarchy among POs, you should take care to browse only the instances of the production operations.
- If you don’t succeed in obtaining a hierarchy among POs in SIMATIC® IT Production Order Manager, download again the root PO (download-objects starting from the root PO). It depends on the order of the child POs download in the database.
- You have to make permanent the elements (equipment and production operations) exported in other SIMATIC® IT Components or in the SIMATIC® IT Historian, saving, in SIMATIC® IT Production Modeler, the Plant (or the Library) where these elements
are present. Otherwise you could refer to some temporary objects that can be deleted from the database.

- Using BPMC and performing a material configuration on a step, if some raw or intermediate material definitions are equal to the final material of the PO/Rule which the step belongs to, these materials are hidden and cannot be selected as input or output materials for that step.

- The method SetEquipProperty updates the default value of a persistent property. Currently the supported G2 types for the persistent properties are the following:
  - SYMBOL
  - TEXT
  - INTEGER
  - QUANTITY
  - TRUTH-VALUE
  - FLOAT

- If you restore a database backup made on a different SQL Server, remember to change the database owner executing the following system stored procedure (changing the login name according the right settings):
  ```
  EXEC sp_changedbowner @loginame='SITMesUsr', @map=true
  ```

- Since version 4.3 Pilot, BPM stored procedures are encrypted. If you try to import data from a database version 4.3 Pilot, 4.3, 4.3 SP1 or 4.3 SP2 (also HF1 and HF2) those stored procedure are not transferred. You need to restore those stored procedures launching BPM server, stopping the database connection and choosing the button “Restore encrypted stored procedures”.

- If BPM server starts and doesn’t succeed in connecting to the database, a possible reason may be a wrong database upgrade started in a previous session. You can check if there is a correct version string (in this version 4.3 SP2 HF2) in field `db_core_version` of table `MCOCORe_VERSION`. In the latter case, you can run the SITDBUtil tool to update the database

**Fixed Technical Issues**

Upon releasing this version 4.3 SP2 HF2, the following problems have been fixed:

- During the same configuration session in SIMATIC® IT Production Modeler, if you insert a new object and then remove it without saving the PM module (Library or Plant), the object remains by mistake in the database as a permanent element.

- If the server and the configurator(s) are on remote machines, the DCOM configuration has to be manually set

- In case BPM is used in conjunction with the PPA Component, when BPM is stopped (command Exit from the taskbar menu) but PPA is still running, the BPM process does not close and remains active, as PPA keeps the connection alive

- Every time you move an equipment having KPIs from a position to another one, the KPIs lose any already present association to tags in SIMATIC IT Plant Performance Analyzer.

- When you are working in a mixed scenario with SIMATIC IT Production Modeler and SIMATIC Batch, if you import the plant model in SIMATIC IT Plant Performance Analyzer without the link between a PM PCell and a SB PCell and only in a second
time you link the two PCells, you can obtain a resulting Plant Model in PPA with the SB PCell present two times: one as a root equipment and one inside the PM hierarchy.

SIMATIC® IT Production Operation Recorder

In the following POPR is used as abbreviation for SIMATIC® IT Production Operation Recorder

Supported configurations

The following software is required:

- Operating System Windows 2000 SP4 or Windows XP SP1 or Windows 2000 Server SP4
- SIMATIC® IT Production Modeler 4.3 SP2 HF2 (also remote installed)
- SIMATIC® IT Business Process Modeler 4.3 SP2 HF2
- SIMATIC® IT Production Modeler COM Interface 4.3 SP2 HF2 to communicate with SIMATIC® IT Production Modeler 4.3 SP2 HF2
- MS SQL Server 2000 SP3 Standard/Personal Edition (also remote installed) with authentication mode set to “SQL Server and Windows” (authentication mode “Windows only” is not supported)
- SIMATIC® IT Services 4.4 SP1 HF2 or SIMATIC® IT Historian 6.0 SP1

NOTE: SIMATIC® IT Production Operation Recorder Display ActiveX can’t be run in standalone mode, so it must be installed together with SIMATIC® IT Production Operation Recorder Display, SIMATIC® IT Production Order Manager Display or with SIMATIC® IT Production Modeler Display. SIMATIC® IT Production Operation Recorder Display must be installed together with SIMATIC® IT Production Operation Recorder Display ActiveX.

Notes on using Setup program

The POPR setup program consists of four options:

- Server
  SIMATIC® IT Production Operation Recorder 4.3 SP2 HF2
- Client
  SIMATIC® IT Production Operation Recorder Display 4.3 SP2 HF2
- Client ActiveX
  SIMATIC® IT Production Operation Recorder Display ActiveX 4.3 SP2 HF2
- Database
  Please refer to general section Notes on Components database management

The environment variables created are:
• POPRPATH (default = %ICUBEPATH%\POPR)
• POPRDPATH (default = %ICUBEPATH%\POPRD)
• POPRDXPATH (default = %ICUBEPATH%\POPRDX)

Where ICUBEPATH is the environment variable as created or updated or inherited during Services 4.4 SP1 setup (default = C:\ICUBESYS).

**New Functions and Operational Features of POPR 4.3 SP2**

Performances enhancement

**Functions and Operational Features available in previous versions**

This section provides a list of the main functionalities introduced in POPR 4.3 with respect to POPR 4.2.

• Controlled Shutdown

**Known Technical Issues of POPR 4.3 SP2 HF2**

At the time when POPR version was released, the following severe and minor technical issues were known and not yet fixed:

• The POPR, POPR Display and POPR Display ActiveX Ini files have to be modified manually. Please follow the instruction in the Ini files themselves or read the appropriate section in the Components Installation Manual, available in the \Documentation folder of the setup CD-ROM.

• In particular situations, with a lot of Production Operations managed by SIMATIC® IT Production Modeler, POPR could have problems to manage its internal queues.

• MS Office is not required as a prerequisite for POPR Display, however if you decide to install it you are required to install SP2 as well. In the case where SP2 is not installed launching POPR Display will automatically call the MS Windows MS Office 2000 Installation screen to appear and you will be asked to install certain components included in SP2.

• In POPR Display can be shown no more than 500 nodes in the TreeView, if these nodes represent Steps.

• If you restore a database backup made on a different SQL Server, remember to change the database owner executing the following system stored procedure (changing the login name according the right settings):
  EXEC sp_changedbowner @loginame='SITMesUsr', @map=true

Since version 4.3 Pilot, POPR stored procedures are encrypted. If you try to import data from a database version 4.3 Pilot, 4.3, 4.3 SP1 or 4.3 SP2 those stored procedure are not transferred. You need to restore those stored procedures launching POPR server, stopping the database connection and choosing the button “Restore encrypted stored procedures”.

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• If POPR server starts and doesn’t succeed in connecting to the database, a possible reason may be a wrong database upgrade started in a previous session. You can check if there is a correct version string (in this version 4.3 SP2) in field db_core_version of table MCOCORe_VERSION. In the latter case, you can run the SITDBUtil tool to update the database.

**SIMATIC® IT Material Manager**

In the following MM is used as abbreviation for SIMATIC® IT Material Manager

**Supported configurations**

The following software is required:
- Operating System Windows 2000 SP4 or Windows XP SP1 or Windows 2000 Server SP4
- MS SQL Server 2000 SP3 Standard/Personal Edition (also remotely installed) with authentication mode set to “SQL Server and Windows” (authentication mode “Windows only” is not supported); please refer to the “Notes on Components Database Management” general section in this document for configuration recommendations
- SIMATIC® IT Services 4.4 SP1 HF2 or SIMATIC IT Historian 6.0 SP1
- SIMATIC® IT Business Process Modeler 4.3 SP2 HF2
- MDAC 2.8

**Notes on using Setup program**

The MM setup program consists of three options:
- **Server**
  SIMATIC® IT Material Manager 4.3 SP2 HF4
- **Client**
  SIMATIC® IT Material Manager Display 4.3 SP2 HF4
- **SQL Script**
  Please refer to general section Notes on Components database management

The environment variables created are:
- MMDPATH (default = %ICUBEPATH%\MMD)
- MMPATH (default = %ICUBEPATH%\MM)

Where ICUBEPATH is the environment variable as created or updated or inherited during Services 4.4 SP1 setup (default = C:\ICUBESYS).
**Database Upgrade from previous versions**

The upgrade of database from previous version is to be executed manually by means of the specific utility made available for this purpose at installation. Please refer to the general section “Notes on Components Database Management” for more detailed information.

**New Functions and Operational Features of MM 4.3 SP2 HF1**

- New method `ExportHistoryData` allows the user to export the material history and material property history contents in order to import them into another Material Manager database and eventually clear the on-line and history tables. It produces two export files (one for lot/sublot history and one for lot/sublot property history) putting them into a new subfolder in the path specified with `strExpPath` and `strClientPC` parameters. If necessary, these files can be opened with Microsoft Excel or any other text editor programs (if the files dimension allows it).
- New method `ImportHistoryData`: This method allows the user to import into the material history and material property history table the contents of the export files obtained through the `ExportHistoryData` method.

**New Functions and Operational Features of MM 4.3 SP2**

- Management of Database creation/update is performed by means of a dedicated tool (SITDBUTIL.EXE) that is installed in the %ICUBESYS%\MES\DATA directory.
- Load Partial Lot/Sublot to Handling Unit: capability to load into a Handling Unit part of an existing Lot or Sublot.
- Unload Partial Lot/Sublot from Handling Unit: capability to perform a partial dischargement of a Lot or Sublot from a Handling Unit.
- Transform Lot/Sublot per Handling Unit: allowing the association among destination Lots / Sublots and Handling Units.
- Lots/Sublots Operations Review: some methods become capable of managing lots and sublots also belonging to Handling Unit, releasing the constraint they previously had.
- New methods for Handling Units available: `LoadAllHUTs()` returns data about all Handling Units; `LoadHUTsByDefID` (ByVal `strDefID` As String) returns data about all Handling Units containing material belonging to the specified Material Definition. It is strongly recommended to use these methods in a controlled way, as they may involve a huge amount of data, and thus a significant amount of time, for their execution.
- Automatic Custom Code Generation for Material Objects: a DLL is being provided in order to allow the user to implement a custom logic for the code generation; the function is `GenerateCode` (please refer to specific technical documentation for implementation details).
- Material Sublot Property extension: the capability for sublots to have Properties has been added, together with a set of methods for management.
- Material Lot/Sublot Custom Status Management: custom material lot/sublot status can be defined that extend the set already available. Also transitions can be defined between.
a status and the status that logically follows, thus in practice handling a custom state machine

- If a backup operation is being executed, the user has the opportunity to browse a directory where the backup is to be placed, but anyway the files will be placed into a subdirectory having a predefined name in the format YYYYMMDDhhmmss, where YYYY=year [4 digits], MM=month of the year [2 digits], DD=day of the month [2 digits], hh=hour of the day [2 digits], mm=minute of the hour [2 digits], ss=second of the minute [2 digits]

- Actions can now be flagged with a timestamp that is different from the current time; a property exists that can be set to the desired timestamp; the default value is the current time at the moment the method is called

Functions and Operational Features available in previous versions

This section provides a list of the main functionalities introduced in MM 4.3 and MM 4.3 SP1 with respect to MM 4.2.

- Controlled Shutdown and Restart from Production Modeler. If the PM is down the Material Manager enter in “freeze” mode and it don’t interact with him.
- Synchronization of Material Master Data between SIMATIC® BATCH and SIMATIC® IT Material Manager.
- Material Manager Search tuning and optimization.
- Connection pooling support.
- New IPC communication support.
- Trace and Locations view have been rewritten.
- The following new methods have been added to the Material Manager server:
  - SetDefQntThresholds
  - SetDefPropThresholds
  - GetDefQntThreshold
  - GetDefPropThreshold
  - DownloadDefinitions

Known Technical Issues

At the time when MM version 4.3 SP2 was released, the following severe and minor technical issues were known and not yet fixed:

- If the SIMATIC® IT Material Manager Display > Plant Model > Common Locations tool is invoked, the SIMATIC® IT Business Process Modeler needs to be already running
- The SIMATIC® IT Material Manager and SIMATIC® IT Material Manager Display INI files have to be modified manually. Please follow the instructions in the INI files themselves. Only the password cannot be changed by manually editing the file, as it is encrypted; in order to change it you need to “show” the MM Server dialog screen and
use the “change password” button. Please note that if upgrading from a previous installation of MM the password is automatically upgraded, i.e. it is retrieved from the previous INI file and rewritten encrypted to the new one

- The SIMATIC® IT Material Manager Display combo boxes, tree views and listviews can load a maximum of 32767 items to avoid overflow. The limitation on these controls is set by Microsoft. The exceeding items will not be loaded into the combo box.

- The backup operation needs a directory on which to create and save the backup file, the restore operation needs a directory to restore the file from. In both cases, if the directory is on a remote workstation, the Windows user logged onto the workstation where the backup and restore operations are performed from needs to have the right permissions to access this remote directory, otherwise the desired operation cannot take place. The path is expressed in UNC format.

- A Bill of Material (BoM) that contains another Bill of Material as child item has the following constraint: a BoM can appear only once as child in a BoM

- Attention must be paid when using the methods “AddLot” and “AddSublot” specifying the id of the Lot/Sublot as input. If this id is purely numeric and is equal to any of the error return codes, you may have a wrong behaviour in the calling client, as it has no way to distinguish the error from a successful insertion returning the id of the item inserted. As a consequence, error codes should not be used as id values

- When calling MM methods from “method-caller” objects in rules / production operations within SIMATIC® IT Production Modeller, please pay attention to each of the input parameters of the called method, and in particular to the default “initial value” that is automatically set, as this may lead to behaviour different from what expected (e.g. the “mode” parameter in a MoveSublot call)

- When calling MM methods from “method-caller” objects in rules / production operations within SIMATIC® IT Production Modeller, please consider that optional parameters must always be explicitly indicated when configuring the “method-caller” object in Production Modeller; if the parameter is of no interest for the specific call, it must be set to the default value expected by MM (this value is available in the reference documentation). Here is a tentative list of the most commonly used methods that require this kind of attention:

<table>
<thead>
<tr>
<th>Method</th>
<th>Parameter Name</th>
<th>Default value</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSQLServerDateTime</td>
<td>blnUTC</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
<tr>
<td>CopyClass</td>
<td>copy_also_defs</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>AddClassProp</td>
<td>Inherit</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>AddDefAndSetProperties</td>
<td>matl_def_process_scope</td>
<td>14000</td>
<td>Long</td>
</tr>
<tr>
<td>UpdateBoM</td>
<td>vdblQuantity</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>CopyBom</td>
<td>vlngCopyAlsoItem</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>AddBoMItem</td>
<td>vintMatlBomItemPct</td>
<td>100</td>
<td>Integer</td>
</tr>
<tr>
<td>AddBomItemEx</td>
<td>vintMatlBomItemPct</td>
<td>100</td>
<td>Integer</td>
</tr>
<tr>
<td>UpdateBoMItem</td>
<td>vdblQuantity</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>UpdateBoMItem</td>
<td>vintPct</td>
<td>-1</td>
<td>integer</td>
</tr>
<tr>
<td>LoadMaterialBoMItems</td>
<td>vblnBomItemWithParent</td>
<td>FALSE</td>
<td>boolean</td>
</tr>
<tr>
<td>FindBomItem</td>
<td>vblnWholeWord</td>
<td>TRUE</td>
<td>boolean</td>
</tr>
<tr>
<td>CopyBomVer</td>
<td>vlngCopyAlsoItem</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>Method</td>
<td>Parameter Name</td>
<td>Default value</td>
<td>Type</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------</td>
<td>---------------</td>
<td>--------</td>
</tr>
<tr>
<td>DeleteBoMVer</td>
<td>lngVerNum</td>
<td>-1</td>
<td>Long</td>
</tr>
<tr>
<td>DeleteBoMVerForced</td>
<td>lngVerNum</td>
<td>-1</td>
<td>Long</td>
</tr>
<tr>
<td>AddBomVerItem</td>
<td>intItemPct</td>
<td>100</td>
<td>Integer</td>
</tr>
<tr>
<td>UpdateBoMVerItem</td>
<td>intItemPct</td>
<td>100</td>
<td>Integer</td>
</tr>
<tr>
<td>LoadMaterialBoMPrpVal</td>
<td>lngVerNum</td>
<td>-1</td>
<td>Long</td>
</tr>
<tr>
<td>LoadMaterialBoMPrpVal</td>
<td>lngPrpValKey</td>
<td>-1</td>
<td>Long</td>
</tr>
<tr>
<td>LoadMaterialBoMPreVal</td>
<td>blnIncludeDeleted</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
<tr>
<td>LoadMaterialBoMVer</td>
<td>lngVerNum</td>
<td>-1</td>
<td>Long</td>
</tr>
<tr>
<td>LoadMaterialBoMVerItems</td>
<td>lngVerNum</td>
<td>-1</td>
<td>Long</td>
</tr>
<tr>
<td>LoadMaterialBoMVerItems</td>
<td>blnIncludeDeleted</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
<tr>
<td>GetMaterialBoMDefList</td>
<td>blnOnlyUsed</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
<tr>
<td>GetMaterialBoMDefList</td>
<td>blnOrderByKeyName</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
<tr>
<td>FindMaterialBoM</td>
<td>datRevFrom</td>
<td>0</td>
<td>Date</td>
</tr>
<tr>
<td>FindMaterialBoM</td>
<td>datRevTo</td>
<td>0</td>
<td>Date</td>
</tr>
<tr>
<td>FindMaterialBoMWithItem</td>
<td>datRevFrom</td>
<td>0</td>
<td>Date</td>
</tr>
<tr>
<td>FindMaterialBoMWithItem</td>
<td>datRevTo</td>
<td>0</td>
<td>Date</td>
</tr>
<tr>
<td>AddLot</td>
<td>matl_lot_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>AddSublot</td>
<td>matl_sublot_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>AddLotAndSetProperties</td>
<td>matl_lot_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>AddSublotAndSetProperties</td>
<td>matl_sublot_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>ConsumeLotQty</td>
<td>vdblconsumed_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>ConsumeSublotQty</td>
<td>vdblconsumed_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>MoveSublot</td>
<td>moved_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>TransformLot</td>
<td>dest_transformed_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>TransformLot</td>
<td>ovrd_dest_lot_qty</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>TransformLotEx</td>
<td>ovrd_dest_lot_qty</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>TransformLotEnh</td>
<td>ovrd_dest_lot_qty</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>TransformSublot</td>
<td>dest_transformed_qty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>TransformSublot</td>
<td>ovrd_dest_sublot_qty</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>TransformSublotEx</td>
<td>ovrd_dest_sublot_qty</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>TransformSublotEnh</td>
<td>ovrd_dest_sublot_qty</td>
<td>1</td>
<td>Long</td>
</tr>
<tr>
<td>FindSublots</td>
<td>vdblMinQty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>FindSublots</td>
<td>vdblMaxQty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>FindLots</td>
<td>vdblMinQty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>FindLots</td>
<td>vdblMaxQty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>LoadMaterialSublotByLoc</td>
<td>vdblMinQty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>LoadMaterialSublotByLoc</td>
<td>vdblMaxQty</td>
<td>-1</td>
<td>Double</td>
</tr>
<tr>
<td>ExportHistoryData</td>
<td>blnOverwriteExistingFile</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
<tr>
<td>BackupHistory</td>
<td>blnDeleteRecords</td>
<td>FALSE</td>
<td>Boolean</td>
</tr>
</tbody>
</table>

- For some MM exposed methods the structure of the return parameter has been increased in order to contain additional information; these additional information have been
 appended to the structure, and the previously returned data have been kept with same structure and position. The list of methods affected by this modification is the following:

- FindLots
- FindSublots
- LoadHistorySublot
- LoadSublotGenealogyEx
- TraceForward
- TraceBackward

**Fixed Technical Issues**

Upon releasing this version 4.3 SP2, the following issues are fixed:

- A client is not forced any more to pay attention to calling the OpenConnection method only once at application start-up. In case a second OpenConnection call is issued, the same already open is used automatically, thus avoiding excessive use of resources
- SIMATIC® IT Material Manager Display is now capable of managing also the Material Locations, either common or private, that begin with a numeric character

**SIMATIC® IT Production Order Manager**

In the following POM is used as abbreviation for SIMATIC® IT Production Order Manager

**Supported configurations**

The following software is required:

- Operating System Windows 2000 SP4 or Windows XP SP1 or Windows 2000 Server SP4
- MS SQLServer 2000 SP3 Standard/Personal Edition (also remotely installed) with authentication mode set to “SQL Server and Windows” (authentication mode “Windows only” is not supported); please refer to the “Notes on Components Database Management” general section in this document for configuration recommendations
- SIMATIC® IT Services 4.4 SP1 HF2 or SIMATIC® IT Historian 6.0 SP1
- SIMATIC® IT Material Manager 4.3 SP2 HF4
- MDAC 2.8
- MSXML 4.0 SP2
Notes on using Setup program

The POM setup program consists of three options:

- **Server**
  SIMATIC® IT Production Order Manager 4.3 SP2 HF3

- **Client**
  SIMATIC® IT Production Order Manager Display 4.3 SP2 HF3

- **SQL Script**
  Please refer to general section ”Notes on Components Database Management”

The environment variables created are:

- **POMPATH** (default = %ICUBEPATH%\POM)
- **POMDPATH** (default = %ICUBEPATH%\POMD)

Where ICUBEPATH is the environment variable as created or updated or inherited during Services 4.4 SP1 setup (default = C:\SIMATICIT.SYS).

Database Upgrade from previous versions

The upgrade of database from previous version is to be executed manually by means of the specific utility made available for this purpose at installation. Please refer to the general section “Notes on Components Database Management” for more detailed information.

New Functions and Operational Features of POM 4.3 SP2 HF3

- Some new methods for Campaign and Template management were added. Please refer to help-on line for a detailed description.

New Functions and Operational Features of POM 4.3 SP2 HF1

- POMD enhancement of Gantt visualization: it’s possible to invoke the method DragSubtTree to drag and drop a subtree using the shortcuts CTRL+X and CTRL+V.

The actions to be performed are:

1. Selection of a row cell (which identify all the row)
2. CTRL+X
3. Selection of a new row cell (which must be sibling or father of the previously memorized with CTRL+X)
4. CTRL+V

The CTRL+X action memorizes the row correspondent to the row cell selected (RowId According to Xml schema).

The CTRL+V action shifts the row in memory after the row identified by the row cell selected (RowId According to Xml schema).
New Functions and Operational Features of POM 4.3 SP2

- The main changes in this release can be summarized as follows:
- The product has changed its internal architecture, as described in the Help files; however, the external interface has not been affected by this change, and so do clients
- In comparison with previous versions, POM Display client (POMD) has changed its look & feel in order to reflect the changes and the new concepts that have been introduced
- The performance of both POM Server and POM Display client (POMD) have been increased
- The following configurations on the SIMATIC® IT Services have to be correctly set: (i) Network Configuration; (ii) Foundation Server Configuration. The purpose is for allowing the communications among the various modules of POM to take place correctly. This configuration action is mandatory for the stations where the Server module and the standard client (POMD) are installed and running, whereas it is not required for the custom clients connecting to POM Server via COM/DCOM (in this case a standard Microsoft DCOM configuration must be done to allow server/client communication)
- In case for any reason the connection to the SqlServer database is lost (e.g. the database shut down), POM remains active and tries to reconnect; the number of trials is configurable. To deal with this situation when calling methods from SIMATIC® IT Production Modeller (PM) please pay attention to the timeout parameter in the “method caller” object compared to the delay of the network+database missing response
- The concept of Campaign has been introduced, and any Order now has to belong to a Campaign. For ease of use, a “Default” Campaign is defined having all the Orders not assigned to any other Campaign, e.g. in application fields where the Campaign concept is not used
- The concept of Order has changed:
  - If an upgrade took place, data have been adapted to match the new concept without loss of information
  - An Order does not identify any more with its root-Entry, as Orders and Entries have been functionally separated
  - Orders can be grouped into Types and/or Families
  - Order has its own specific system attributes, separated from the system attributes of Entries
  - Order has its own specific Custom Fields, separated from custom fields associated to Entries
  - Order has its own specific Control-BOM, separated from the Control BOM associated to Entries
  - Order has its own status, which is independent from the status of its Entries
  - The idea of Order Template has been introduced to allow for creation of Orders with identical structure, e.g. same set of custom fields associated, although values may differ among orders
- The concept of Entry has changed:
  - If an upgrade took place, data have been adapted to match the new concept without loss of information
  - It is not any more mandatory that only one single root Entry exists; many Entries may exist that are defined as a direct ‘child’ of the Order
An Entry can have other Entries as ‘children’ in a hierarchical structure that is defined by the configurator of the Order, e.g. by defining an Order Template. An Entry can contain a hierarchy of “child-PO” in case it is associated to a PO in SIMATIC® IT Production Modeller which in turn calls/starts other PO’s (by means of the “Start Product” object).

The hierarchies ‘Entry to child Entries’ and ‘Entry to Child POs’ are separated. Entry has its own specific system attributes. Entry has its own specific Custom Fields. Entry has its own status, which is independent from the status of the Order it belongs to. The idea of Entry Template has been introduced to allow for creation of Entries with identical structure. An Entry may have one specific Control BOM associated; the association of the Control BOM to the Entry can be defined only when creating the Entry either by means of the related method exposed by the POM Server or by means of the import-file function; it is not possible to perform this action in the POM Display (POMD).

Entries may be linked to one another; the following types of link are supported: second can start after first has started, second can start after first has finished, second can finish after first has started, second can finish after first has finished. It is possible to define ‘Sequences’ of Entries for sequential execution. An Entry can be “split” into many Entries (please refer to documentation for details); after having been split, an Entry still appears in the hierarchical tree displayed, but only for reference purposes: it can not be used as a normal Entry entity, e.g. dispatched.

The concept of a state machine has been introduced; the usual way of managing statuses is the default state machine, then custom statuses can be defined. Custom state machines can be created and associated to: Campaigns, Orders, Entries. Each Campaign item (including Templates) must have a unique identifier. The same rule applies to Order items and to Entry items. It is mandatory for Order and Entry entities to have a plant equipment associated. The functionality for importing from XML files has been increased and improved. Importing from CSV files is still supported in this version, but for the future it cannot be guaranteed, thus it is recommended to use (and if necessary to switch to) XML. A visualisation of data by means of a Gantt chart is now available in POM Display (POMD) client.

Some methods are flagged as “Obsolete” as they are still existing in the interface but they do not work any more. Please refer to the Help File POMCOMENG.HLP, located in the %POMPATH%\BIN directory, to check whether a method belongs to this category. Warning: some internal methods used in previous versions of POM still exist in this version but the compatibility in the next SP’s and versions is not guaranteed. Please refer to the Help File POMCOMENG.HLP, located in the %POMPATH%\BIN directory, to check whether a method belongs to this category.
Functions and Operational Features available in previous versions

This section provides a list of the main functionalities introduced in POM 4.3 and POM 4.3 SP1 with respect to POM 4.2.

The main changes can be summarized as followings:
1. New Bulk Methods for Custom Fields Management.
   A new version of GetMaterialQty.
   Management of a secure stop of critical activities if Production Modeler is shutting down.
   In details:
   - The New GetOrderCustomFieldsValue and SetOrderCustomFieldsValue methods have been added.
   - New OrderCustomFieldsChanged Event will be raised when the SetOrderCustomFieldsValue is used.
   - The GetCustomFieldValue, SetOrderCustomFieldValue and SetOrderCustomFieldValueEx old methods are been changed to speed up custom fields operations.
   - A new GetMaterialQuantity method has been added.
   - In this version a new “Close Session” resource has been added: to Exit from POM the current user must have this resource.
   - When The Production Modeler executes a Controlled Shut Down The POM remains alive but all methods that raising events will be inhibit.
   - New Online Help for POM Methods (POMCOMENG.HLP).

Known Technical Issues of POM 4.3 SP2 HF1

At the time when POM version was released, the following severe and minor technical issues were known and not yet fixed.
- Regional settings of the server must have year configured with four digits (yyyy) on the short date format configuration dialog.

Known Technical Issues of POM 4.3 SP2

At the time when POM version was released, the following severe and minor technical issues were known and not yet fixed.
- Warning: if you are applying changes to plant configuration and/or Production Operations within SIMATIC® IT Production Modeller (PM) while SIMATIC® IT Business Process Modeller (BPM) is active and running, the corresponding items within BPM are considered as in “edit mode” until a Save operation is executed within PM. Thus POM is not able to access these data until the Save operation is performed.
- Warning: if you are applying changes to plant configuration and/or Production Operations within SIMATIC® IT Production Modeller (PM) while SIMATIC® IT Business Process Modeller (BPM) is NOT active and running, the changes are not reflected into BPM; in this situation, POM is able to access data and work, but of course
it will see only the last saved version of these data. In order for these changes to be usable also for POM, it is necessary to (i) run BPM; (ii) download the changed data (libraries + plant) or the whole structure from PM to BPM; (iii) execute a Save operation within PM

- The Production Operation Dispatch functionality is performed on the entire production operation rule of rules (Initialize, Execution and End).
- The non-Modelled Production Operations can be managed only manually; an automatic management is possible only for the Modelled Production Operation.
- The SIMATIC® IT Production Order Manager and SIMATIC® IT Production Order Manager Display INI files have to be modified manually. Please follow the instructions in the INI files themselves. Only the password cannot be changed by manually editing the file, as it is encrypted; in order to change it you need to “show” the MM Server dialog screen and use the “change password” button. Please note that if upgrading from a previous installation of MM the password is automatically upgraded, i.e. it is retrieved from the previous INI file and rewritten encrypted to the new one
- The backup operation needs a directory on which to create and save the backup file, the restore operation needs a directory to restore the file from. In both cases, if the directory is on a remote workstation, the Windows user logged onto the workstation where the backup and restore operations are performed from needs to have the right permissions to access this remote directory, otherwise the desired operation cannot take place. The path is expressed in UNC format.
- The dispatch mechanism for an entry works only if BPM is running.
- The actual version of POM cannot manage Object name (like Production Operation, Equipment, PO parameters) containing a single quote character (’).
- In case for any reason the connection to the SqlServer database is lost (e.g. the database shut down), POM remains active and tries to reconnect; the number of trials is configurable. When calling methods from SIMATIC® IT Production Modeller (PM) please pay attention to the timeout parameter in the “method caller” object compared to the delay of the network+database missing response, as the consequence may be the PM object timing out and/or failing.
- If a client (e.g. POMD) cannot connect to POM Server due to reached maximum number of admitted connections, please check the number of current connections displayed by the POM Server dialog in the status bar, and compare it with the actual number of clients connected, paying special attention to count correctly the connections from PM. Please consider that in case POMD had previously exited in anomalous way the counter on the Server may have not decremented; in this case, you have to restart POM Server in order to have the count work correctly again
- The following methods are not included any more in the interface of the "system" POM object in Production Modeller:
  - `getMaterialQty` replaced by the method `GetMaterialQuantity`
  - `getMaterial` replaced by the method `FindEntries`

**Fixed Technical Issues**

Upon releasing this version 4.3 SP2, the following issues are fixed:
• The logic for upgrading from previous version of the database has changed; please refer to the general section “Notes on Components Database Management”
• The way hierarchy of Orders, Entries and PO’s is managed in this version eliminates potential problems in previous versions
• The constraint of calling the OpenConnection method only once in order to avoid excessive use of resources is not there any more. In case a second call to this method is executed, the previously existing connection is used
• When visualizing a huge amount of orders in POM Display client (POMD) it is not any more necessary that you avoid any other operation

SIMATIC® IT Personnel Manager

In the following PRM is used as abbreviation for SIMATIC® IT Personnel Manager

Supported configurations

The following is the minimum requirement for each module:

Server
• Operating systems: Windows 2000 SP4 / Windows XP SP1 / Windows 2000 Server SP4
• SIMATIC® IT Services Version 4.4 SP1 HF2
• SQL Server 2000 SP3 or SQL Server 2000 Client on the same machine if Backup / Restore Functionality is required
• MDAC 2.8
• Explorer 5.5

Common Data Configuration / Definition / Runtime Clients
• Windows 2000 SP4 / XP SP1
• Basic Services
• SIMATIC® IT Services Version 4.4 SP1 HF2
• Explorer 5.5

Admin Client
• Windows 2000 SP4 / XP SP1
• Basic Services
• SIMATIC® IT Services Version 4.4 SP1 HF2
• Explorer 5.5

COM Wrapper
• Windows 2000 SP4 / XP SP1
• Basic Services
Notes on using Setup program

The PRM setup program consists of three options:

- **Server**
  SIMATIC® IT Personnel Manager Server 1.0 HF2

- **Client**
  SIMATIC® IT Personnel Manager Common Data Configuration 1.0 HF2
  SIMATIC® IT Personnel Manager Configuration 1.0 HF2
  SIMATIC® IT Personnel Manager Presentation Client 1.0 HF2

- **COM Wrapper**
  SIMATIC® IT Personnel Manager COM Wrapper 1.0 HF2

- **Administration Tool**
  SIMATIC® IT Personnel Manager Administration Tool 1.0 HF2

**Important**

- The PRM COM Wrapper can be installed as a stand-alone module but there must be a PRM Server installed on one of the machines belonging to the SIMATIC® IT network. In any cases the PRM COM Wrapper is automatically installed together with the PRM Server module. The PRM Server has to be launched before instantiate the PRM COM Wrapper.

The environment variables created are:

- PRMPATH (default = `%ICUBEPATH%\PRM`)

Where ICUBEPATH is the environment variable as created or updated or inherited during Services 4.4 SP1 setup (default = `C:\ICUBESYS`).

New Functions and Operational Features of PRM 1.0 SP 1

**Improved Work Schedule Management**

The following new methods have been added to the Personnel Manager COM Wrapper.

- **PRMGetWorkSchedulesByEquipment**
  The PRMGetWorkSchedulesByEquipment method retrieves the work schedules list associated to an equipment.

- **PRMGetGroupWorkSchedAssignment**
  The PRMGetWorkSchedulesByEquipment method retrieves the work schedules list associated to a group.
**Capability of modifying already generated Work Schedules**

It is possible to customize the Work Schedule for only a single person. Starting with this version, it is possible to change previously generated Work Schedules. The user can select a single day or multiple days at the same time (from…to..) in order to quickly change the Schedule.

**PRMInsertWorkSchedDay**
The PRMInsertWorkSchedDay method inserts a new work schedule day into an already defined work schedule.

**PRMUpdateWorkSchedDay**
The PRMUpdateWorkSchedDay method updates an existing work schedule day.

**PRMDeleteWorkSchedDay**
The PRMDeleteWorkSchedDay method deletes a work schedule day.

**Improved Shift / Period management**

**Work Schedule Periods**

There is the option to create template periods (the same shift for one week, etc) that could be assembled to more efficiently compose complex periods.

This option is available either on the Personnel Manager Configuration Module or on the Personnel Manager COM Wrapper. To do this, an additional pane, named Day/Shift Period template, is added to the ‘Days/Shifts’ form of the PSM Configuration Module.

There is also a configuration dialog box that displays the following controls:

- The Template ID edit box
- The Template multi-language description grid
- A grid that is filled with the already configured days/shifts
- A second grid, where the user copies the days/shift to make a template.

**PRMInsertMacroPeriod**
The PRMInsertMacroPeriod method inserts a new macro period.

**RMUpdateMacroPeriod**
The PRMUpdateMacroPeriod method updates a macro period that already exists.

**PRMGetMacroPeriodList**
The PRMGetMacroPeriodList method retrieves a macro periods list.

**PRMInsertPeriodTemplate**
The PRMInsertPeriodTemplate method inserts a new period template.

**PRMUpdatePeriodTemplate**
PRMGetPeriodTemplateList
The PRMGetPeriodTemplateList method retrieves a period templates list.

Person Work Schedule and Shifts
It’s possible to modify the Work schedule when an individual is unable to work the
dates/times indicated in the generated Work Schedule due to illness, training, vacation,
maternity, or other reasons but there

Functions and Operational Features available in previous versions
SIMATIC® IT Personnel Manager 1.0 manages personnel resources for production
scheduling purposes, shift models for scheduling and tracking and tracing.

Known Technical Issues
SIMATIC® IT Personnel Manager Common Data Configuration / Configuration and
Presentation Client:
• Almost every grid of the PSM Clients includes a filter bar as part of the standard header
control. This bar allows users to conveniently apply a filter to the display. Sometimes
the grid loses the synchronization with the filter bar. It’s necessary to resize the module
to synchronize again the grid with the filter bar.
• If for any reason the client loses communication with the server, a warning message box
should appear. The client must be close and launched again to re-establish the
communication.
• It is possible to associate a multiassign group to a workshedule. This lead to the
generation of a wrong workshedule for a person related to groups derived from the same
multiassign group. As workaround user must avoid to insert multiassign group into
workshedules.

SIMATIC® IT Messaging Manager
In the following MSM is used as abbreviation for SIMATIC® IT Messaging Manager
SIMATIC® IT Messaging Manager is now included in the Services 4.4 setup and there is no
need of a specific license.
Notes on installing SIMATIC® IT MSM

The MSM consists of 4 modules:

- **Server**
  It is installed by SIMATIC® IT Services 4.4 Sp1 HF2

- **Template Editor**
  It is installed by SIMATIC® IT Services 4.4 Sp1 HF2

- **Configurator**
  It is installed by SIMATIC® IT Services 4.4 Sp1 HF2

- **Display**
  It is installed by SIMATIC® IT Services 4.4 Sp1 HF2 or by SIMATIC® IT Basic Services 4.4 Sp1 HF2 as an additional option.

New Functions and Operational Features of MSM 4.4 sp1

New Template Editor:
- New Template editor is provided as MDI application.
- Area management is improved.
- Import – Export of frozen templates/areas

New graphical features:
- Font management.
- Option buttons.
- Comment button.
- Check buttons.
- New validation rules.

Known Technical Issues

Groups of radio buttons may have some problem if the buttons are not vertical or horizontal aligned
On Template Editor, template or area doesn’t refresh correctly scrolling.

Fixed Technical Issues

Upon releasing this version 4.3 SP1, the following issues are fixed:
- In some circumstances the Dialog Editor was not able to load the template list so it was not possible to select a template.
Notes on installing SIMATIC® IT Services

The SIMATIC® IT Services consists of 2 parts:
- SIMATIC® IT Services included in the SIMATIC® IT cd-rom that provides all the functionality.
- SIMATIC® IT Basic Service 4.4 SP1 HF2 included in SIMATIC® IT Components cd-rom which provides:
  - Core functionality (inter process communication, localization management and SIMATIC® IT User Logon)
  - MSM Display Client
  - Compliance Service Viewer

The Compliance Service 1.0 Sp1 is part of Service setup.

New Functions and Operational Features of Services 4.4 SP1

Management Console
A new wizard that helps to introduce the ICP Mode is added.
A new method for naming resolution in IPC services (Lean and Fat) is introduced.
The management for Plant Performance Analyzer is changed.

User Manager
Some new functionalities are added in the User Manager:
- Audit Trail records are generated in order to keep trace of each configuration change;
- a special configuration for Regulated Industries;
- a new Policy Configuration.
- disabling of SHIFT+ESC shortcut

New functions in the RACAPI library are added in order to:
- allow to modify UM configurations of Users, Groups.
- browse scenario configurations
- access to UM configuration in a simpler way

Moreover, some new fields are introduced in the Digital Signature Scenario:
Description of the object; Information about request mode (default, multiple request, single request); New Rule for scenario validation.

Compliance Service
The new version of this module contains the following:
- secure store;
- enable/disable of Audit Trail;
• database compression;
• custom forms in Electronic Signature requests;
• new function to use Electronic Signature without MSM;
• hiding Electronic Signature forms in MSM (custom browser);
• new Scenario template format;
• Electronic Signature integration with the Production Modeler.
• configuration extension for Regulated Industries (see User Management) RN
• new visualization options in the CS viewer

**SOP (Proxy Object Server)**
It is now possible to instantiate COM objects using an isolated process, to boost performance (SOP server if overloaded can be a bottleneck) or avoid problems on main applications if the COM objects used present some critical faults.

**RTDS**
A new driver, called IVAR2, is added in order to read/write data and variables from/to WinCC Data Manager.
The user fields on Data Dictionary are extended to 255 characters.

**New Functions and Operational Features of Basic Services 4.4**
• New UM features available: SHIFT + ESC management to logon
• Access Control functionality

**Known Technical Issues**
The Priority Boost option of SQL Server can interfere with smooth server operations, as it degrades the performance of other applications in the system leading to undesired and unexpected side effects whose cause (namely boosting priority of SQL Server) can be hardly found. Therefore, we strongly recommend that you do not modify its default value (i.e. 0 - Not Enabled). The priority boost should be used only on a computer dedicated to SQL Server, and with a symmetric multiprocessor (SMP) configuration. You have to pay attention because boosting the priority too high may drain resources from essential operating system and network functions, resulting in problems shutting down SQL Server or using other Windows NT 4.0 or Windows 2000 tasks on the server.

IPC Services uses by default port 3002 for TCP transmission. If you are accessing the network through a firewall, your firewall administrator will need to authorize this port or change, by IPC Configuration wizard, Ris port number in accordance with opened port on firewall.
If you change the default please verify that all workstation in SIMATIC® It configuration have the same port number configured.
Services 4.4 Sp1 are not compatible with previous installation of the complete Management Console included in the Historian setup until version 5.0, to upgrade this version is necessary to install the new Historian version 6.0

The Lock Object Server is not integrated in the Management Console to use this server it’s necessary to load the file LockObject.adn contained inside the %ICUBECNF% from the MMC > System Configuration as Third Part application.

Compliance Service.
The format the Database of Audit Trails is changed: the old Databases are no more usable.

About secure store management, the reference between the ER and the AT is performed in a more strong way using the “ObjectID” field of the AT managed with specific functions. If no secure store is required this field can be managed by the application. In this case the ‘#’ character is no allowed in the “ObjectID” field.

In the AT Repository only the records with GMPRelevant=1 are valid Audit & Trail.

Fixed Technical Issues

Upon releasing this version 4.4, the following issues are fixed:

- Crash of DBSERVER on exit:
  Performing “Exit to Operating System” from Management Console DBSERVER now close correctly even if RTDS interfaces have not yet finished to load the data.
- Log file viewer shows only 255 characters in the message column.
  Now messages are displayed correctly (1024 characters).

SIMATIC® IT COM Interface for SIMATIC® BATCH

Batch Library

In order to properly run, SIMATIC® IT COM Interface for SIMATIC® BATCH 1.1 HF4 requires an update of the corresponding library of SIMATIC® IT Production Modeler that is available in the SIMATIC® IT COM Interface V1.1 setup CD (Framework CD).

The installation procedure will install the right library version according to the selected CIB version.

It’s important to synchronize the existing PCell instances (created with previous versions of CIB) in order to be aligned with the new version of the Library. This can be done opening the pop-up menu of the PCell Class (in the Library) and clicking on “Synchronize-Instances”
menu-item; in the “Synchronizable Item” browser that appears, it's suggested to select all the items (attributes, methods, tasks, rules, contents, rulesofrules).

For a complete guide to installation, please refer to the correspondent chapters in the Installation Manual, included in the \Documentation folder of the Setup CD-Rom. To read .PDF files, the installation of Acrobat Reader is provided on installation CD-ROMs (see directory “\Acrob_Reader_4.0”).

Online Help

By default, the CIB online help displayed from the Production Modeler Help menu is relative to CIB V1.1
If you want to display the CIB online help relative to V1.0 SP2 HF2 from the PM Help menu:
1. Locate the ICUBESYS\SBCOMInterface\BIN folder on the workstation where CIB V1.0 SP2 HF2 has been installed.
Copy all .hlp and .cnt files
Paste them to the ICUBESYS\PM\BIN folder of the workstation where PM has been installed.
You will be asked if you want to overwrite the already existing files with the same name. Answer YES.

Software Requirements

The basic software requirements for SIMATIC® IT COM Interface for SIMATIC® BATCH 1.1 HF4 are:
- Operating systems: Windows 2000 SP4 / Windows XP SP1 / Windows 2000 Server SP4
- SIMATIC® IT Services Version 4.4 SP1 HF2
- SIMATIC® IT Production Suite 5.0 SP3
- SIMATIC® BATCH Base 6.0 SP4 HF5 (*)
- SCI v1.1 HF4

(*) It’s mandatory to install at least the Batch BASE API with the right license; license is mandatory too for the write through operation like ‘create’ something as an order category or an order or of course a batch.
All Windows operating system versions prior to the ones specified above are not supported.

Note on Setup

Refer to Installation Manual.
**Hardware Requirements**

Depending on the user’s requirements, several workstation and server configurations are available.

However, as a rule, the following types of server can be identified:

**Production Modeler**
Production Modeler is running on this server

**SIMATIC® IT COM Interface for SIMATIC® BATCH**
On this server runs only one instance of SIMATIC® IT COM Interface for SIMATIC® BATCH, which can manage more Batch Servers. This means that if n Batch Servers have to be managed, n server of this type have to be used. (compatibility mode ?)

<table>
<thead>
<tr>
<th>Category</th>
<th>Minimum configuration</th>
<th>Recommended Configuration</th>
</tr>
</thead>
</table>
| Production Modeler | • Intel processor = 1 GHz  
• 512-Mb RAM | • Intel processor > 1 GHz  
• RAM > 512-Mb |
| SIMATIC® IT COM Interface for SIMATIC® BATCH | • Intel processor ≥ 1 GHz  
• 512-Mb RAM | • Intel processor > 1 GHz  
• RAM > 512-Mb |
| Common Requirements | • SVGA monitor card with minimum 800x600 resolution  
(recommended: 1024x768 resolution or higher)  
• CD-Rom drive  
• Mouse  
• Network adapters | |
| Optional Hardware | Printer | |

**Directory structure**

The default path on which the SIMATIC® IT COM Interface for SIMATIC® BATCH folder is installed is `C:\ICUBESYS\SBCOMInterface`

**Environment variables**

The SIMATIC® IT COM Interface for SIMATIC® BATCH installation doesn’t create any environment variables.

**New Functions and Operational Features in CIB 1.1**

- **Redesigned Interface**. The new application interface of CIB 1.1 (visible through the SIMATIC-BATCH-LIBRARY for Production Modeler) contains
enriched and unified information about SIMATIC® BATCH process parameters. GetBatchParameters and the events all use the same format for the parameters now. Important attributes like Unit of Measurement, high limit, low limit and many others are passed. The SIMATIC-BATCH-LIBRARY offers comfortable functions to provide easy access to parameters via their names.

many methods have enriched signatures

Support for Multiple PCells. With CIB and SIMATIC® BATCH LIBRARY 1.1 you can manage multiple Process Cells, represented by one SIMATIC® BATCH Server each from one Production Modeler workstation. You can have n object instances in Production Modeler that each represents a PCell. Method and event flow are completely decoupled between PCells.

Improved performance. Performance of key methods like SetBatchParameters have performance improvements of up to 50%.

True multithreading. Method calls do no longer cue up, they are executed truly in parallel. Thus accumulating execution times of methods are avoided. However, the feature can be easily switched off in case serial semantics are desired.

Improved diagnostics. Erroneous syntax in method calls can now be easily recognized by the user, looking at the returned error text. Rich logging capabilities

Compatibility Mode. If you have an existing application that you don't want to modify upgrading to Production Suite 5.0 SP3, you simply install CIB in "compatibility mode 1.0". However, you won't have the benefits of the new interface.

Functions and Operational Features in previous version

SIMATIC® BATCH 6.0 SP3 provides an Application Programming Interface (API) that can be used for accessing the data management of this system. The SIMATIC® BATCH V6.0 SP3 API COM interface provides function calls to

- Access Batch objects and data
- Navigate through Batch object hierarchies
- Notify of events in connection with Batch objects.

Note on SP2:
SIMATIC® IT COM Interface for SIMATIC® BATCH SP2 access to SIMATIC® BATCH 6.0 SP3 through a new interface, named SCI (v. 1.0). There's no impact on the architecture of version 1.0 SP1, because this interface maps all the methods and events already defined in SIMATIC® BATCH COM API.

The main functions of this component version are described in the following paragraphs.

User Documentation

Updated user documentation (online helps) is available from the Help menu of:

- SIMATIC® IT COM Interface for SIMATIC® BATCH
- SIMATIC® IT Production Modeler
Methods' names and signatures changed (SP2)

GetFormulaHeader has been changed into GetFormulaParameter
GetMRHeader has been changed into GetRecipeHeaderParameter
GetBatchState has a new parameter array, containing the extended state bits

Material Download to SB (SP2)

In this release is assumed that the SIMATIC® IT Material Manager is the master of data and SIMATIC® BATCH is the slave. This means that the Material definitions can be exported from SIMATIC® IT Material Manager into SIMATIC® BATCH and not vice-versa. The material data in SIMATIC® BATCH has to be initialized and then be automatically kept up to date according to the master definition in the MM.

Import of material definition to SIMATIC® BATCH can be done in two different ways, using two new buttons on the toolbar of the GUI of SIMATIC® IT COM Interface for SIMATIC® BATCH:
- Full Import
- Delta Import

A report of the import operation is built and shown by SIMATIC® IT COM Interface for SIMATIC® BATCH.

Events Date Format (SP2)

In this version whenever an event expose a Date parameter, it will be passed in Unix Time Format (seconds since 01/01/1970 00:00)

Recovery Management (SP2)

There are several failure / maintenance situations that need to be treated, and the main requirements are:
- No loss of data between SB and PM
- MES Engineers must know how long PM has been offline relating to events stream coming from SB, in order to adopt (if needed) special strategies (e.g. filter some “old” events)
- MES engineers on PM side must be informed about a situation when the event coming from SB are far from being “current”, in order to update important states (e.g. list of active batches, list of deleted batches)

Solutions that satisfy these requirements consist in communicate to the PM the recovery state by two events named OnRecoveryStart and OnSynchronized, one at the beginning of the recovery phase, one at the end. Decision when these events have to be fired is entirely based on timestamp comparison, being independently from the failure source, guaranteeing and covering all possible situations.

OnRecoveryStart is fired when the current event is older than a threshold value (High)
OnSynchronizing is fired when the current event is newer that an other threshold value (Low)
Between these two events, events are delivered with a parametrically delay, to avoid possible PM overload in the recovery phase. During this phase a new **OnRecovery** attribute of the PCell instances in PM is automatically set to TRUE.

A third event **OnRecoveryWarning** will be provided, in order to allows MES engineers to update the list of active batches and their current status, without waiting for the delivery of the complete event history. This event is fired in a situation when the event stream is far from being up to date, and signals to PM a “possible” recovery phase.

**SIMATIC-BATCH-LIBRARY modifications (SP2)**

SIMATIC-BATCH-LIBRARY has to be updated with the new events and methods.

New attributes are added to PCell class of the SIMATIC-BATCH-LIBRARY in order to manage the SCI recovery and the event Dequeueing:

- RecoveryThresholdHigh \([\text{sec}]\)
- RecoveryThresholdLow \([\text{sec}]\)
- MinEventDelay \([\text{msec}]\)
- OnRecovery (Boolean, set by OnRecoveryStart and OnSynchronized events)

These class attributes (except the last one) will be passed as additional arguments of the Connect method and will be used internally by the CIB.

An additional event PCell-Status-Changed is added to the BATCH-LIBRARY, This event must be triggered when the Status attribute of the PCell class change its value at runtime.

SIMATIC® IT COM Interface for SIMATIC® BATCH uses these two attributes internally.

**Fixed Technical Issues**

**1.0 SP2**

- Memory leak in CreateBatch
- GetAllMasterRecipe returns empty list
- Wrong status/name in RUP/ROP events
- Wrong materials in Move-OUT

**1.0 SP2 HF1**

- Improved performance of event processing
- Order of attributes in GetFormulaParameters is well-defined now
- ReadDeletedBatches is now functional
- Process SBCOMWrapper.exe did not exit after CIB shutdown
- Improved performance of SetBatchParameters
1.0 SP2 HF2

- Deleting materials in SIMATIC® IT Material Manager caused problems if they were used in SIMATIC® BATCH recipes
- ReadDeletedBatches returned only batch name, not order name and order cat name
- General update of Online Help
- Documented: Delta update does not delete materials in SIMATIC® BATCH.

Known Issues

- Closing the whole project will not close the CIB.
- Problems with Synchronize PCell. It could happen that the Synchronize operation on a PCell object in Production Modeler creates problems. In this case, please restart the CIB. ("Exit" from the CIB menu.)
- process in task list: It can happen that not all process die if you exit the CIB. Watch out for processes named "sciappc.exe", "sciappihostx.exe", "SBCOMSrv.exe", "SBCOMWrapper.exe" in the process list of the task manager and kill them manually.

SIMATIC® IT Barcode Scanner Manager

In the following BSM is used as abbreviation for SIMATIC® IT Barcode Scanner Manager

Supported configurations

The following software is required for the Barcode Scanner Manager:
- Java Runtime Engine 1.4.1 (available on the SIMATIC® IT Components CD)
- When using MCL-based Scanners (Symbol Technologies), the MCL protocol suite (e.g. as part of the Symbol MCL Collection) must be installed on the system

Notes on using Setup program

The user only has to specify an installation directory for the BSM setup. Other than that no user interaction is required.

Important: the file

`%windir%\system32\drivers\etc\services`

must be updated with the following info:
New Functions and Operational Features of BSM 1.0

This is a new component in the SIMATIC® IT Framework. Its main features are:

• Provide uniform access to barcode scanning devices, regardless of scanner type or connection protocol.
• MCL Driver to connect scanners via the Symbol MCL Collection Suite
• Telnet Driver to connect scanners that support the Telnet protocol (VT100 terminal emulation)
• COM-Port driver to connect scanners via serial communication.

For details please refer to the online documentation for the BSM.

Known Technical Issues

• Due to possible incompatibilities it is recommended not to have any other versions of the Java Runtime Environment installed (other than the required version 1.4.1)

Fixed Technical Issues

Not applicable