BMC Impact Solutions
Installation Guide

Supporting

BMC Event Manager version 7.3
BMC Service Impact Manager version 7.3

February 2009
Contacting BMC Software

You can access the BMC Software website at http://www.bmc.com. From this website, you can obtain information about the company, its products, corporate offices, special events, and career opportunities.

United States and Canada

Address
BMC SOFTWARE INC
2101 CITYWEST BLVD
HOUSTON TX 77042-2827
USA

Telephone
713 918 8800 or 800 841 2031

Fax
713 918 8000

Outside United States and Canada

Telephone
(01) 713 918 8800

Fax
(01) 713 918 8000
Customer support

You can obtain technical support by using the BMC Software Customer Support website or by contacting Customer Support by telephone or e-mail. To expedite your inquiry, see “Before contacting BMC.”

Support website

You can obtain technical support from BMC 24 hours a day, 7 days a week at http://www.bmc.com/support_home. From this website, you can

- read overviews about support services and programs that BMC offers
- find the most current information about BMC products
- search a database for issues similar to yours and possible solutions
- order or download product documentation
- download products and maintenance
- report an issue or ask a question
- subscribe to receive proactive e-mail alerts when new product notices are released
- find worldwide BMC support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

Support by telephone or e-mail

In the United States and Canada, if you need technical support and do not have access to the web, call 800 537 1813 or send an e-mail message to customer_support@bmc.com. (In the subject line, enter SupID:<yourSupportContractID>, such as SupID:12345). Outside the United States and Canada, contact your local support center for assistance.

Before contacting BMC

Have the following information available so that Customer Support can begin working on your issue immediately:

- product information
  - product name
  - product version (release number)
  - license number and password (trial or permanent)
- operating system and environment information
  - machine type
  - operating system type, version, and service pack or other maintenance level such as PUT or PTF
  - system hardware configuration
  - serial numbers
  - related software (database, application, and communication) including type, version, and service pack or maintenance level
- sequence of events leading to the issue
- commands and options that you used
- messages received (and the time and date that you received them)
  - product error messages
  - messages from the operating system, such as file system full
  - messages from related software
License key and password information

If you have questions about your license key or password, contact BMC as follows:

- **(USA or Canada)** Contact the Order Services Password Team at 800 841 2031, or send an e-mail message to ContractsPasswordAdministration@bmc.com.
- **(Europe, the Middle East, and Africa)** Fax your questions to EMEA Contracts Administration at +31 20 354 8702, or send an e-mail message to password@bmc.com.
- **(Asia-Pacific)** Contact your BMC sales representative or your local BMC office.
Contents

Chapter 1 Before you install 15
Summary of the installation workflow ......................................................... 16
Obtaining the needed software ................................................................. 16
Reviewing installation documents .............................................................. 18
Gathering installation information ............................................................. 19
Before starting the installation program ...................................................... 21
During the installation .............................................................................. 22

Chapter 2 Installing components on Windows computers the first time 23
Installation task maps ................................................................................ 23
Event management only ............................................................................ 24
Event and service impact management without the BMC Atrium CMDB .... 25
Event and service impact management including the BMC Atrium CMDB ... 26
Step-by-step instructions for installing individual components and products 28
Order of installation .................................................................................. 28
Installing BMC SIM CMDB extensions ....................................................... 29
Installing BMC Impact Solutions components on a Windows computer .... 32
Installing the SNMP MIB libraries ............................................................ 44
Installing the SNMP Adapter Configuration Manager ............................... 44

Chapter 3 Installing components on UNIX computers the first time 51
Installation task maps ................................................................................ 51
Event management only ............................................................................ 52
Event and service impact management without the BMC Atrium CMDB .... 53
Event and service impact management including the BMC Atrium CMDB ... 54
Step-by-step instructions for installing individual components and products 56
Order of installation .................................................................................. 56
Installing BMC SIM CMDB extensions ....................................................... 57
Installing BMC Impact Solutions components on a UNIX computer ....... 60
Installing the SNMP MIB libraries ............................................................ 74
Installing the SNMP Adapter Configuration Manager ............................... 74
Uninstalling the SNMP Adapter Configuration Manager ........................................ 144
Uninstalling a licensed Oracle database ............................................................... 145

Chapter 8 Uninstalling BMC Impact Solutions components from UNIX computers ........................................ 147
Uninstalling BMC Impact Solutions ................................................................. 148
Uninstalling the BMC Impact Portal and its components ................................. 150
Uninstalling the SNMP Adapter Configuration Manager ................................. 150
Uninstalling a licensed Oracle database ............................................................ 150

Appendix A Environment variables ............................................................... 151
Microsoft Windows environment variables ..................................................... 152
Re-creating environment variables on Windows .............................................. 152
UNIX environment variables ........................................................................... 153
Re-creating environment variables on UNIX .................................................. 153

Index .................................................................................................................. 155
Figures

Event management installation task map for Windows environments .............. 24
Event and service impact management without the BMC Atrium CMDB
  installation task map for Windows environments ................................. 25
Event and service impact management with the BMC Atrium CMDB
  installation task map for Windows environments ................................... 27
Example of the setup.properties file for a silent mode installation on Windows
  computers ................................................................................................. 42
Event management installation task map for UNIX environments .............. 52
Event and service impact management without the BMC Atrium CMDB
  installation task map for UNIX environments .......................................... 53
Event and service impact management with the BMC Atrium CMDB
  installation task for UNIX environments .................................................. 55
Example of the setup.properties file for a silent mode installation on UNIX
  computers ................................................................................................. 71
Example output file without commit ............................................................. 131
Example verify.log file ............................................................................. 132
Example output file with commit ............................................................... 133
# Tables

Required kits for event management versus service impact management  
Contents of each kit 
Installation documents 
Installation planning sheet 
Custom Install options 
Fields for all installation scenarios 
Silent mode installation properties 
Custom Install options 
Fields for all installation scenarios 
Silent mode installation properties 
Windows services for BMC products and components 
BMC UNIX processes 
Identifying components in the BMC Atrium CMDB 
Key slots in reconciliation rules for management data 
Possible import results 
sim2cmdb.conf file 
sim2cmdb command options 
error exit codes for sim2cmdb CLI command 
Microsoft Windows environment variables 
UNIX environment variables
Part 1 Installing BMC Impact Solutions

This part presents the following topics:

Chapter 1
Before you install ................................................. 15

Chapter 2
Installing components on Windows computers the first time .................. 23

Chapter 3
Installing components on UNIX computers the first time .................... 51
Before you install

This chapter contains information on tasks that you must perform before running the installation program. It includes the following topics:

Summary of the installation workflow ......................................................... 16
Obtaining the needed software ................................................................. 16
Reviewing installation documents ............................................................... 18
Gathering installation information ............................................................ 19
Before starting the installation program ..................................................... 21
During the installation .............................................................................. 22
Summary of the installation workflow

To install BMC Impact Solutions, you must perform the following tasks:

1. Obtain the needed software.
2. Review the installation documents.
3. Gather installation information.
4. Install the products and components.
5. Configure the products and components.

Obtaining the needed software

Table 1 lists the software that you need for installing event management (EM) or service impact management (SIM). Table 2 on page 17 lists the contents of each kit or software package. Software packages are available electronically for download from the BMC Software Electronic Product Distribution (EPD) site, http://webapps.bmc.com/epd. You need a valid BMC Software Customer Support ID to download the software package.

If you already have BMC Atrium Configuration Management Database (BMC Atrium CMDB) installed, you can use that installation, but you must upgrade it to version 2.1 patch 003 or version 7.5. If you are upgrading on Solaris computers, you must upgrade to version 2.1 patch 004 or version 7.5.

If you already have BMC Remedy Action Request System (BMC Remedy AR System) installed, you can use that installation, but you must upgrade it to version 7.1 patch 002 or version 7.5.

Table 1  Required kits for event management versus service impact management

<table>
<thead>
<tr>
<th>Event management</th>
<th>Service management</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Impact Solutions 7.3 kit</td>
<td>BMC Atrium Shared Components 7.1 kit or</td>
</tr>
<tr>
<td></td>
<td>BMC Atrium Shard Components 7.5 kit</td>
</tr>
<tr>
<td>(optional) BMC Impact Portal 7.3 kit</td>
<td>BMC Impact Solutions 7.3 kit</td>
</tr>
<tr>
<td></td>
<td>BMC Impact Portal 7.3 kit</td>
</tr>
</tbody>
</table>
### Table 2  Contents of each kit (part 1 of 2)

<table>
<thead>
<tr>
<th>Kit</th>
<th>Software contents</th>
<th>Used to</th>
<th>Needed for SIM</th>
<th>Needed for EM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMC Atrium Shared Components 7.1 or 7.5</strong></td>
<td>BMC Remedy AR System and BMC Atrium CMDB installation DVDs</td>
<td>install the following components:</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Remedy AR System</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Remedy Administrator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Remedy User</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Atrium Configuration Management Database (BMC Atrium CMDB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reconciliation Engine</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Impact Solutions 7.3 kit</strong></td>
<td>BMC Event and Impact Management Base installation DVD</td>
<td>install the following components:</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Administration Server (BMC IAS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Publishing Server</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Manager (BMC IM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Explorer (BMC IX)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Integration Web Services Server (BMC II for Web Services Server)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Event Adapters (BMC IEA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Event Log Adapter for Windows (BMC IELA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <em>(optional)</em> SNMP Adapter Configuration Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC SIM CMDB extensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Notify ARDBC plugin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Integration for PATROL Enterprise Manager (BMC II for PATROL EM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Integration for PATROL (BMC II for PATROL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Integration for PATROL - Configuration Utility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <em>(optional)</em> Integration for BMC Remedy Service Desk (IBRSD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <em>(optional)</em> BMC Impact Service Model Integration for HP OVO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Solutions Documentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <em>(optional)</em> SNMP libraries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reviewing installation documents

Review the documents listed in Table 3 before you start installing. The documents are available on the documentation CDs located in the associated kits. In addition, check the BMC Software website at http://www.bmc.com/support_home for any updated information about installation.

Table 3  Installation documents (part 1 of 2)

<table>
<thead>
<tr>
<th>Document</th>
<th>Found in kit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMC Impact Solutions Read Me First</strong></td>
<td>BMC Impact Solutions 7.3 kit</td>
</tr>
<tr>
<td><strong>BMC Impact Solutions Release Notes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Impact Solutions Planning and Implementation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Impact Solutions Installation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Event Management Quick Start Guide</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Event and Impact Reporting Installation, Configuration, and User Guide</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Portal Release Notes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Portal Getting Started</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Portal Installation Guide</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Datastore Release Notes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BMC Datastore Installation Guide</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 2  Contents of each kit (part 2 of 2)

<table>
<thead>
<tr>
<th>Kit</th>
<th>Software contents</th>
<th>Used to</th>
<th>Needed for SIM</th>
<th>Needed for EM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Impact Solutions 7.3 kit</td>
<td>BMC Event and Impact Reporting installation DVD</td>
<td>install the BMC Reporting Foundation Express product and import the BMC Event and Impact Reporting report templates</td>
<td>optional</td>
<td>optional</td>
</tr>
<tr>
<td>BMC Impact Portal 7.3 kit</td>
<td>BMC Impact Portal installation DVDs</td>
<td>install the following components:</td>
<td>yes</td>
<td>optional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Portal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- application server</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- web server</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BMC Impact Service Model Editor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>(optional)</strong> BMC Datastore</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>(optional)</strong> BMC Performance Manager Portal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4  Installation planning sheet (part 1 of 3)

<table>
<thead>
<tr>
<th>Decision or requirement</th>
<th>Your entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>port number for the Notification Service ARDBC Plugin</td>
<td></td>
</tr>
<tr>
<td>The default is 1840.</td>
<td></td>
</tr>
<tr>
<td>The Notification Service ARDBC Plugin is for automated publishing. If you need to go</td>
<td></td>
</tr>
<tr>
<td>through a firewall between BMC Remedy Action Request System and BMC Impact Portal,</td>
<td></td>
</tr>
<tr>
<td>specify the port number here.</td>
<td></td>
</tr>
<tr>
<td>base directory for BMC Impact Administration Server, BMC Impact Publishing Server,</td>
<td></td>
</tr>
<tr>
<td>BMC Impact Manager, and BMC Impact Explorer</td>
<td></td>
</tr>
<tr>
<td>The default directory is</td>
<td></td>
</tr>
<tr>
<td>- Windows: C:\Program Files\BMC Software\Impact</td>
<td></td>
</tr>
<tr>
<td>- UNIX: /opt/bmc/Impact</td>
<td></td>
</tr>
</tbody>
</table>
Gathering installation information

### Table 4  Installation planning sheet (part 2 of 3)

<table>
<thead>
<tr>
<th>Decision or requirement</th>
<th>Your entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>cell-naming convention</td>
<td>The default cell name is the name of the computer, except for the Impact Administration Cell, which uses the default <strong>Admin</strong>. Every cell in the enterprise must have a unique name. If the default cell-naming convention does not work in your environment, establish and use a naming convention that ensures unique cell names. Best practice for test cells: The names that you assign should clearly indicate <strong>test</strong> (as a prefix or suffix) because in BMC Impact Explorer views, you cannot distinguish between test and production cells other than by the by cell name.</td>
</tr>
<tr>
<td>naming convention for the Impact Administration Server (BMC IAS)</td>
<td>The default naming convention is <strong>Admin</strong>. If you plan to install only a single master server, then the default name will suffice. However, if you plan to install a master and one or more standard servers, use a naming convention that differentiates the servers.</td>
</tr>
<tr>
<td>server host name for master server</td>
<td>If you install at least one standard server, provide the host name where the master server is installed.</td>
</tr>
<tr>
<td>host names for primary and secondary servers in a high availability pair</td>
<td>A high availability cell requires two servers, one to function as the primary server and a second to function as secondary server in a failover situation. These two servers must run on separate logical operating system images of the same type. Additionally, only one of the two servers should be active at any time.</td>
</tr>
<tr>
<td>cell encryption key</td>
<td>The default key is <strong>mc</strong>. Each cell requires an encryption key that is used to control access to the cell by BMC Impact Explorer and BMC Impact Portal users. You can control access to a group of cells by using the same key for the group.</td>
</tr>
</tbody>
</table>
Before starting the installation program

Except where specified, the following items apply to both Windows and UNIX environments.

- Close all applications that are running.

  Failure to close active applications before starting the installation can cause unpredictable results.

- Clean out your temporary directories.

  Start with the temporary folder in your home folder, and, in Windows environments, if present, also clean out C:\Temp, C:\Tmp, and C:\WINNT\Temp or C:\Windows\Temp. You might not be able to delete all the files, but BMC Software recommends that you remove any files or directories that begin with IS.

- Though not required, BMC Software recommends disabling any anti-virus software on each host computer on which you are installing a solution component.

### Table 4  Installation planning sheet (part 3 of 3)

<table>
<thead>
<tr>
<th>Decision or requirement</th>
<th>Your entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Impact Portal installation directory</td>
<td></td>
</tr>
<tr>
<td>The default directory is</td>
<td></td>
</tr>
<tr>
<td>- Windows: C:\BMC Software\BMCPortalKit</td>
<td></td>
</tr>
<tr>
<td>- UNIX: /opt/bmc/BMCPortalKit</td>
<td></td>
</tr>
<tr>
<td>TCP/IP port numbers for connections between products or components:</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Administration Server default is 3084.</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Administration Cell default is 1827.</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Publishing Server to the BMC Impact Manager default is 1839.</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Publishing Server to the BMC Impact Portal are 9378, 9379, 9385, 9386.</td>
<td></td>
</tr>
<tr>
<td>- BMC Impact Service Model Editor to the BMC Impact Portal are 443, 9378, 9379, 9385, 9386</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Manager default is 1828.</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Portal to the web server default is 443.</td>
<td></td>
</tr>
<tr>
<td>- The BMC Impact Portal to the BMC Impact Manager is 3783.</td>
<td></td>
</tr>
<tr>
<td>- The BMC Datastore default is 1521.</td>
<td></td>
</tr>
</tbody>
</table>

For the BMC Impact Portal, even if you specify HTTP, HTTPS is used.
During the installation

- (Windows only) If data execution protection (DEP) is enabled, add setup.exe to the list of excluded applications or set DEP on for essential Windows programs and services only.

- If you plan to install the BMC Impact Manager cells or the BMC Impact Administration Server with failover capabilities, disable any firewall protection programs on the target computer, such as McAfee Host Intrusion Prevention Service (HIPS), so that the Primary and Secondary servers can be synchronized properly.

- Ensure that the computers on which you are installing the products meet all requirements listed in the BMC Impact Solutions Release Notes and BMC Portal Release Notes.

- Ensure that you are installing from a local copy of the installation image and not from a network drive.

- (Windows only) Ensure that your system is up-to-date.

  Use Microsoft Update (or Windows Update) to bring your system up to the most recent patch level. Some Microsoft patches are known to cause problems with InstallShield-based installers.

- (UNIX only) Ensure that you have root authority on the computers on which you are installing the products and components.

During the installation

- Do not try to run two installations on the same computer concurrently.

- Do not cancel the installation after file copying begins. Selecting Quit on the Cancel Installation confirmation page does not permit you to restart the installation utility and continue it successfully. Cleaning up the computer manually after a canceled installation is difficult.

- (Windows only) While running the installation, if you open the Services window to start a service or to check whether a service is running, close it after checking the service. If you leave the Services window open, the installation might not install services properly.
Installing components on Windows computers the first time

This chapter includes the following topics:

Installation task maps ................................................. 23
  Event management only ........................................... 24
  Event and service impact management without the BMC Atrium CMDB ...... 25
  Event and service impact management including the BMC Atrium CMDB . . . . . . . . . 26
Step-by-step instructions for installing individual components and products . . . . 28
  Order of installation .............................................. 28
  Installing BMC SIM CMDB extensions ................................ 29
  Installing BMC Impact Solutions components on a Windows computer .... 32
  Installing the SNMP MIB libraries .................................. 44
  Installing the SNMP Adapter Configuration Manager ...................... 44

Installation task maps

The following sections provide flowcharts of the tasks that you must perform to install event and service impact management components for each of the following deployment scenarios:

- event management only
- event and service impact management without the BMC Atrium CMDB
- event and service impact management with the BMC Atrium CMDB

For details about these scenarios, see the BMC Impact Solutions Planning and Implementation Guide.
**Event management only**

Figure 1 provides an overview of the tasks that you must perform for this scenario.

**Figure 1  Event management installation task map for Windows environments**

1. **Prepare host computers for installation.**
   - Review system requirements, prerequisites, and installation considerations.
   - For hardware and software requirements, see the BMC Impact Solutions Release Notes. For implementation guidelines and considerations, see the BMC Impact Solutions Planning and Implementation Guide.

2. **Plan your installation.**
   - Choose your installation scenario and collect installation information.
   - See the BMC Impact Solutions Planning and Implementation Guide and Table 4 on page 19.

3. **Install the BMC Impact Solutions components.**
   - Using the BMC Impact Solutions installation program, install the BMC Impact Solutions components on the designated host computer.
   - See “Installing BMC Impact Solutions components on a Windows computer” on page 32.

4. **Do you want to do reporting for event management?**
   - If yes, install the BMC Impact Portal on the designated host computer.
     - For requirements and detailed instructions, see the BMC Portal Release Notes and the BMC Portal Installation Guide.
   - If no, install Reporting for BMC Service Assurance and the BMC Event and Impact Reporting templates on a different computer than the one on which you install the BMC Impact Portal.
     - For requirements and detailed instructions, see the BMC Event and Impact Reporting Release Notes and the BMC Event and Impact Reporting Installation, Configuration, and User Guide.

Installation begins.

Installation ends.
Figure 2 provides an overview of the tasks that you must perform for this scenario.

**Figure 2** Event and service impact management without the BMC Atrium CMDB installation task map for Windows environments

1. **Prepare host computers for installation.**
   - Review system requirements, prerequisites, and installation considerations.
   - For hardware and software requirements, see the BMC Impact Solutions Release Notes. For implementation guidelines and considerations, see the BMC Impact Solutions Planning and Implementation Guide.

2. **Plan your installation.**
   - Choose your installation scenario and collect installation information.
   - See the BMC Impact Solutions Planning and Implementation Guide and Table 4 on page 19.

3. **Install the BMC Impact Solutions components.**
   - Using the BMC Impact Solutions installation program, install the BMC Impact Solutions components on the designated host computer.
   - See “Installing BMC Impact Solutions components on a Windows computer” on page 32

4. **Install the BMC Datastore.**
   - Using the BMC Datastore installation program, install the BMC Datastore on the designated host computer.
   - For requirements and detailed instructions, see the BMC Datastore Release Notes and the BMC Datastore Installation Guide.

5. **Install the BMC Impact Portal.**
   - Using the BMC Portal installation program, install the BMC Impact Portal module of the BMC Portal on the designated host computer.
   - For requirements and detailed instructions, see the BMC Portal Release Notes and the BMC Portal Installation Guide.

6. **Install BMC Event and Impact Reporting.**
   - Do you want to do reporting for event and service impact management?
     - **Yes:** Install Reporting for BMC Service Assurance and the BMC Event and Impact Reporting templates on a different computer than the one on which you install the BMC Impact Portal.
     - For requirements and detailed instructions, see the BMC Event and Impact Reporting Installation, Configuration, and User Guide.
     - **No:** Installation ends.
Event and service impact management including the BMC Atrium CMDB

Figure 3 on page 27 provides an overview of the tasks that you must perform for this scenario.
Figure 3  Event and service impact management with the BMC Atrium CMDB installation task map for Windows environments

1. Prepare host computers for installation.
   - Review system requirements, prerequisites, and installation considerations.
   - For hardware and software requirements, see the BMC Impact Solutions Release Notes. For implementation guidelines and considerations, see the BMC Impact Solutions Planning and Implementation Guide.

2. Plan your installations.
   - Choose your installation scenario and collect installation information.
   - See the BMC Impact Solutions Planning and Implementation Guide and Table 4 on page 19.

   - Install an Oracle database. You can use the BMC Datastore for both the BMC Remedy AR System and the BMC Impact Portal.
   - For detailed instructions, see the BMC Remedy Action Request System Installing guide.

   - Using the AR System installer, install the BMC Remedy AR System Server components on the designated host computer.
   - For detailed instructions, see the BMC Remedy Action Request System Installing Guide.

5. Install the BMC Atrium CMDB.
   - Using the BMC Atrium CMDB installer, install the BMC Atrium CMDB components on the designated host computer.
   - For detailed instructions, see the BMC Atrium Core Installation guide.

6. Install the BMC SIM CMDB Extensions.
   - Using the BMC Impact Solutions installation program, install the BMC SIM CMDB Extensions on the designated host computer.
   - For detailed instructions, see “Installing BMC SIM CMDB extensions” on page 29.

7. Install the BMC Impact Solutions components.
   - Using the BMC Impact Solutions installation program, install the BMC Impact Solutions components on the designated host computer.
   - See “Installing BMC Impact Solutions components on a Windows computer” on page 32.
   - If you are not using the BMC Datastore for the BMC Remedy AR System, using the BMC Datastore installation program, install the BMC Datastore on the designated host computer.
   - For requirements and detailed instructions, see the BMC Datastore Release Notes and the BMC Datastore Installation Guide.

8. (optional) Install the BMC Datastore.
   - Using the BMC Portal installation program, install the BMC Impact Portal module of the BMC Portal on the designated host computer.
   - For requirements and detailed instructions, see the BMC Portal Release Notes and the BMC Portal Installation Guide.

9. Install the BMC Impact Portal.
   - Do you want to do reporting for event and service impact management?
     - yes: Install Reporting for BMC Service Assurance and the BMC Event and Impact Reporting templates on a different computer than the one on which you install the BMC Impact Portal.
     - For requirements and detailed instructions, see the BMC Event and Impact Reporting Release Notes and the BMC Event and Impact Reporting Installation, Configuration, and User Guide.
     - no: Installation ends.

10. Install BMC Event and Impact Reporting.
Step-by-step instructions for installing individual components and products

This section has step-by-step installation instructions (or refers you to another document) for each of the individual BMC Impact Solutions components and products.

For installation scenarios and guidelines for planning your installation, see the BMC Impact Solutions Planning and Implementation Guide.

Order of installation

Install the components in the following order:

1. \textit{(optional)} datastore for BMC Impact Portal (BMC Datastore or other Oracle® database) (required for service impact management scenarios only). For instructions, see the \textit{BMC Datastore Installation Guide}.

2. BMC Remedy AR System, BMC Remedy Administrator, and BMC Remedy User (required for service impact management scenarios only). For instructions, see the \textit{BMC Remedy AR System Installing} guide.

3. BMC Atrium CMDB (required for service impact management scenarios only). For instructions, see the \textit{BMC Atrium CMDB Installation and Configuration} guide.

4. BMC SIM CMDB extensions (required for service impact management scenarios only). For instructions, see “Installing BMC SIM CMDB extensions” on page 29.

5. BMC Impact Solutions components:
   - BMC Impact Administration Server
   - BMC Impact Manager
   - BMC Impact Publishing Server
   - Integration module for Integration for Remedy Service Desk
   - BMC Impact Explorer
   - BMC Impact Event Adapters
   - BMC Impact Event Log Adapter for Windows
   - BMC Impact Integration Web Services
   - BMC Impact Solutions Documentation

   For instructions, see “Installing BMC Impact Solutions components on a Windows computer” on page 32.

7. BMC Impact Manager enabling components (SNMP). See “Installing the SNMP MIB libraries” on page 44.

8. (optional) SNMP Adapter Configuration Manager. See “Installing the SNMP Adapter Configuration Manager” on page 44.

9. BMC Impact Integrations. See one of the following documents, depending on the integration product that you are installing:
   - BMC Impact Integration for PATROL Enterprise Manager Installation and Configuration Guide
   - BMC Impact Integration for PATROL Installation and Configuration Guide
   - Integration for BMC Remedy Service Desk User Guide


**Installing BMC SIM CMDB extensions**

After the BMC Atrium CMDB is successfully installed, install the SIM extensions as described in this section. There are two separate installation programs for the BMC SIM CMDB extensions, one that installs the extensions that support BMC Atrium CMDB 2.1 and one that installs the extensions that support BMC Atrium CMDB 7.5.

---

**WARNING**

Installing the SIM extensions over a network can cause the installation to fail. Copy the extensions to the local BMC Atrium CMDB computer and run the extensions installation from it, or install from the CD or DVD mounted locally on the BMC Atrium CMDB computer.
Installing BMC SIM CMDB extensions

To install the SIM extensions

1 Start the installation program using one of these methods:

   - DVD: Insert the installation DVD labeled BMC Event and Impact Management Base DVD. In the SIM_CMDB_Extensions directory, open the CMDB_2.1 or CMDB_7.5 directory, depending on what version of the BMC Atrium CMDB that you installed. Double-click the simExtLoader.exe file.

   - [http://webapps.bmc.com/epd](http://webapps.bmc.com/epd) (BMC Software EPD website): Select BMC Service Impact Manager, select the current version for the platform that you are installing to, and then select BMC Impact Extensions for Atrium CMDB. Download the .zip file that corresponds to the version of the BMC Atrium CMDB that you installed (either 2.1 or 7.5), unzip the file, and double-click the simExtLoader.exe file.

2 On the Welcome page, click Next.

3 On the Software License Agreement page, click I Agree.

4 On the AR Server Connection Information page, accept the default or enter a local BMC Remedy AR System server name (not the fully qualified host name or IP address) and, if necessary, the TCP port number and RPC port number, and click Next.

   If you accepted the default values for the TCP and RPC port numbers during the BMC Atrium CMDB installation, you can leave those values blank.

5 On the Administrator Login Information Request page, enter an administrator user name (the default is Demo) and password (if necessary), and click Next.

6 On the Notification Service Plugin page, accept the default (1840) or enter a port for the plugin, and click Next.

   If you recorded installation decisions in the installation planning sheet, see Table 4 on page 19.

   After you click Next, the plugin is installed, the BMC Remedy AR System server is restarted, and the SIM CMDB extensions are loaded. Loading the extensions usually takes about one hour.

7 On the Package Load Summary page, verify that each line displays Success and click Next.
8 On the Setup Complete page, click **Finish**.

**WARNING**
If you install BMC Atrium CMDB 2.1 and if the BMC Remedy ITSM product, or any of its component products, are installed after the BMC SIM CMDB extensions have been installed, you must apply a patch to the BMC Atrium CMDB by using the cmdbdriver script. This script is located on the *BMC Event and Impact Management Base* DVD in the *SIM_CMDB_Extensions\patches* directory. For directions for applying the patch, see the *readme.txt* file included with the script.

**To reinitialize the BMC Atrium CMDB**
If you installed the BMC Impact Portal before you installed the BMC Atrium CMDB, follow these steps:

1 In the BMC Impact Portal, as a **superadmin** user, update the BMC Remedy AR System settings.

2 In a text editor such as Notepad, open the *pserver.conf* file.

The file is located in the *MCELL_HOME\etc* directory.

3 Verify that the following information is correct and update it if it is not:

- CMDB name
- port number
- password
- name of the default cell used to publish the service model

   The password is encrypted, so if you are unsure if it is correct or if it has changed, enter the correct password in plain text. The password will be encrypted when you start the BMC Impact Publishing Server.

4 Close and save the file.

5 Start the BMC Impact Publishing Server service.
Installing BMC Impact Solutions components on a Windows computer

1. Start the installation program by using one of these methods:
   - DVD: Insert the installation DVD labeled *BMC Event and Impact Management Base* DVD, locate the platform-specific subdirectory of the *Impact_Solutions* directory, and then double-click the *setup.exe* file.

2. On the Welcome page, click Next.

3. On the End User License Agreement page, acknowledge that you reviewed and agree to the terms of the License Agreement and click Next.

4. On the product selection page, choose the software package that you want to install and click Next:
   - Event Management
   - Service Impact Management
   - Both

5. On the installation type page, choose one of the following options and click Next:
   - **Minimal Install**: This option is recommended for a first-time installation. Selecting this option installs the BMC Impact Administration Server, Impact Integration Web Services, the BMC Impact Manager, and the BMC Impact Explorer using default configuration values. The only option that you will need to specify during the installation is the installation directory.
   - **Complete Install (Recommended)**: This option installs all the components for the software package that you selected on the product selection installation page.
   - **Custom Install**: This option displays a secondary installation page that enables you to select which components from the software package you want to install. Make one or more selections from the choices explained in Table 5 on page 33 and click Next:
Installing BMC Impact Solutions components on a Windows computer

Table 5  Custom Install options

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Impact Administration Server</td>
<td>The BMC Impact Administration Server (IAS) handles logon and administrative functions for BMC IX; it supports failover functionality. (The BMC IAS provides much of the functionality of the BMC Impact Portal of prior 5.x and 7.x releases.)</td>
</tr>
<tr>
<td>BMC Impact Manager (cell)</td>
<td>The BMC Impact Manager (BMC IM) is the event-processing engine for BEM and SIM; it supports high-availability functionality. To install the integration module for IBRSD, select Integrate with Remedy Service Desk. This option is selected by default when you select BMC Impact Manager. The AR module for IBRSD is installed separately. For details, see the Integration for BMC Remedy Service Desk User Guide.</td>
</tr>
<tr>
<td>BMC Impact Publishing Server</td>
<td>The BMC Impact Publishing Server is the component that is used to publish service model data from the BMC Atrium CMDB to the BMC Impact Manager.</td>
</tr>
<tr>
<td>BMC Impact Explorer</td>
<td>The BMC Impact Explorer (BMC IX) provides a cross-platform operator and administrator interface for defining and managing events and for viewing service models.</td>
</tr>
<tr>
<td>BMC Impact Event Adapters</td>
<td>Event Adapters prepare the source event data for processing by BMC IM so that they can be displayed in the BMC IX Events View.</td>
</tr>
<tr>
<td>BMC Impact Windows Event Log Adapter</td>
<td>The BMC Impact Event Log Adapter for Windows (BMC IELA) monitors the system, security, and application events generated by a Windows operating system, translates the events, and forwards the events to BMC IM.</td>
</tr>
<tr>
<td>BMC Impact Solutions Documentation</td>
<td>The BMC Impact Solutions Documentation is a .pdf of all manuals that support the BMC Impact Solutions components. The file is installed in the BMC Impact Solutions installation directory and can be accessed by choosing Start =&gt; Programs =&gt; BMC Software =&gt; BMC Impact Solutions Documentation.</td>
</tr>
</tbody>
</table>


- **Impact Explorer Console Install**: Select this option to install a BMC Impact Explorer console only.

6  On the destination directory page, the installation script checks the current drive for available space and prompts you if insufficient space is available. If the current drive has sufficient space, accept the default directory or choose a different directory and click **Next**.

The default directory is **C:\Program Files\BMC Software\Impact**
After you accept the destination directory, the remainder of the installation pages that you encounter and their content change dynamically, based on the choices you make throughout the installation process. For example, if you choose Event Management only with the Impact Explorer Console Install option, the remainder of the installation information that you must provide comprises only a server host name and port number on a single installation page. In contrast, if you choose to install both Event Management and Service Impact Management using the Simple Install All option and you want to integrate with the BMC Atrium CMDB, you can expect to supply more installation information and encounter more installation pages.

Rather than detail this dynamic installation process in more than a dozen different linear scenarios, Table 6 provides an alphabetical list of all the choices and the information required to complete any installation scenario that you can encounter. Follow the instructions on each page of the installation script and see Table 6 for explanations of choices or descriptions of the information that you must provide to complete a page.

When you reach the summary information installation page, continue with step 7 on page 37.

**Table 6  Fields for all installation scenarios (part 1 of 4)**

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR System Password</td>
<td>password for the BMC Remedy AR System user name</td>
</tr>
<tr>
<td>Confirm Password</td>
<td>Add the same password in the confirmation field.</td>
</tr>
<tr>
<td>AR System Server Name</td>
<td>name of the computer where the BMC Remedy AR System Server is installed</td>
</tr>
<tr>
<td>AR System User Name</td>
<td>valid user ID for the BMC Remedy AR System Server</td>
</tr>
<tr>
<td>Cell Encryption Key</td>
<td>encryption key used for communication authentication between Impact Solutions components</td>
</tr>
<tr>
<td></td>
<td>The default encryption key for a cell is mc.</td>
</tr>
<tr>
<td>Cell Instance Name</td>
<td>name of this instance of the cell being installed or the cell to which the installed modules should connect</td>
</tr>
<tr>
<td></td>
<td>The default name for an installed cell is the computer name. The name for installed modules is available from the list box.</td>
</tr>
<tr>
<td></td>
<td>For more information about cell naming conventions, see BMC Impact Solutions Infrastructure Administration guide.</td>
</tr>
<tr>
<td>Cell Port</td>
<td>port number for this cell</td>
</tr>
<tr>
<td></td>
<td>The default port number depends on the type of cell:</td>
</tr>
<tr>
<td></td>
<td>- standard BMC IM cell - 1828</td>
</tr>
<tr>
<td></td>
<td>- BMC IAS master server cell - 1827</td>
</tr>
</tbody>
</table>
Table 6  Fields for all installation scenarios (part 2 of 4)

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
</table>
| Configure server as: | how to configure the BMC IAS server for this installation  
The server can be a master server or a standard server, but you must select one of the following options:  
- **Standalone**: A single server with no high-availability capability  
- **Primary**: The primary server for a server pair with high-availability capability  
- **Secondary**: The secondary server for a server pair with high-availability capability |
| Default Cell to which to publish model | the default cell to which the publishing server will publish the BMC Impact service model. Appears only if you select to install the BMC Impact Publishing Server. |
| Do you want to integrate with a BMC Atrium Configuration Management Database? | configure integration with the BMC Atrium CMDB during installation or after installation  
If you choose to configure during the installation, select **Yes** and the BMC Remedy AR System information appears on the installation page. |
| Enable Event Reporting | creates a policy that configures the BMC Impact Manager cells to send events to the BMC Event and Impact Reporting product. This option replaces the manual configuration steps that were required in earlier versions of BMC Event and Impact Reporting. |
| Enable Web Services for Event Integration | enable BMC Impact Manager to receive events from external event sources such as BMC Performance Manager or other third-party event monitoring software, or to allow other applications to query for events and data |
| Host Name of BMC Impact Portal | host name where the BMC Impact Portal is installed and to which the BMC Impact Publishing Server should connect |
| Hostname of IAS Server | host name where the BMC IAS is installed and to which this cell should connect |
| IAS Administrative Password | password for the BMC IAS  
The default password is **IASSAdmin**. If you use a different password, you must remember the password that you chose. |
| IAS Instance Name | name of the instance of the BMC IAS to install on this computer |
| IAS Port | port number for the BMC IAS  
The default port number is 3084. |
Table 6   Fields for all installation scenarios (part 3 of 4)

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact Manager (cell) that is being installed</td>
<td>function of BMC Impact Manager cell to install</td>
</tr>
<tr>
<td></td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td>■ Cell with Standalone Cell Server:</td>
<td>Installs a stand-alone cell that has no high-availability capability</td>
</tr>
<tr>
<td>■ Cell and Primary Cell Server of a failover pair:</td>
<td>Installs a cell and the primary cell server that enables high-availability capability</td>
</tr>
<tr>
<td>■ Secondary Cell Server of a failover pair:</td>
<td>Installs the secondary cell server of a pair that enables high-availability capability</td>
</tr>
<tr>
<td>Instance Name of Cell</td>
<td>cell instance name of the primary cell server of this high-availability pair</td>
</tr>
<tr>
<td></td>
<td>If the list box is unpopulated, no primary cell server has been installed.</td>
</tr>
<tr>
<td>JNLP Port Number</td>
<td>The Java™ Network Launch Protocol port number to use to connect the BMC Impact Publishing Server to the BMC Impact Portal.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>9379</strong>.</td>
</tr>
<tr>
<td>Master Cell Encryption Key</td>
<td>encryption key used for communication authentication between BMC Impact Solutions components</td>
</tr>
<tr>
<td></td>
<td>The default encryption key for the master administration server cell is <strong>mc</strong>.</td>
</tr>
<tr>
<td>Master IAS Hostname</td>
<td>host name where the master BMC IAS server is installed and to which this standard BMC IAS server should connect</td>
</tr>
<tr>
<td>Primary Server Hostname</td>
<td>host name where the primary server of this high-availability pair is installed</td>
</tr>
<tr>
<td>Secondary Cell Server Hostname</td>
<td>host name where the secondary cell server of this high-availability pair is installed</td>
</tr>
<tr>
<td>Secondary Server Hostname</td>
<td>host name where the secondary server of this high-availability pair is installed</td>
</tr>
<tr>
<td>Server Encryption Key</td>
<td>encryption key for the BMC Impact Publishing Server that you are installing. Appears only if you select to install the BMC Impact Publishing Server.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>mc</strong>.</td>
</tr>
<tr>
<td>Server Port Number</td>
<td>the port number that the BMC Impact Publishing Server will use to connect to the BMC Impact Manager cell. Appears only if you select to install the BMC Impact Publishing Server.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>1839</strong>.</td>
</tr>
</tbody>
</table>
On the installation summary page, verify the settings that you chose during the installation process.

- To change the settings, click Previous.
- To start the installation, click Install.

**WARNING**
After you click Install and file copying begins, do not attempt to cancel the installation. Canceling the installation during file copying can prevent use of the uninstallation script and require manual cleanup of the computer. Cleaning up the computer manually after an canceled installation is difficult.

If the package is installed successfully, the installation process displays the following message:

The installation of BMC Impact Solutions 7.3.00 was completed successfully.

If a different message is displayed, the installation was not successful. For more information, see “Troubleshooting the BMC Impact Solutions installation” on page 43.

8 On the installation confirmation page, click View Log to view the installation log files or click Done to exit the installation program.
Installing BMC Impact Solutions in silent mode

You can use silent mode to install the BMC Impact Solutions as a background task. To install in silent mode, perform the following steps:

1. In a text editor, create a file called `setup.properties` and enter the options shown in Table 7.

You will use this file to make your installation selections to pass parameters to the installation script. Use the information in “Installing BMC Impact Solutions components on a Windows computer” on page 32 to guide your installation selection decisions.

### Table 7  Silent mode installation properties (part 1 of 4)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTALLER_UI=silent</td>
<td>mode of the installation program, in this case, silent</td>
</tr>
<tr>
<td>USER_INSTALL_DIR=installationDirectory</td>
<td>the installation directory where you want to install the BMC Impact Solutions</td>
</tr>
<tr>
<td></td>
<td>The default is <code>C:\Program Files\BMC Software\Impact</code>.</td>
</tr>
<tr>
<td>INSTALL_PACKAGE=EM</td>
<td>SIM</td>
</tr>
<tr>
<td></td>
<td>- EM: event management</td>
</tr>
<tr>
<td></td>
<td>- SIM: service impact management</td>
</tr>
<tr>
<td></td>
<td>- BOTH: event and service impact management</td>
</tr>
<tr>
<td></td>
<td>The default is BOTH.</td>
</tr>
<tr>
<td>CHOSEN_INSTALL_FEATURE_LIST=featureList</td>
<td>the BMC Impact Solutions components that you want to install separated by commas:</td>
</tr>
<tr>
<td></td>
<td>- IAS: BMC Impact Administration Server</td>
</tr>
<tr>
<td></td>
<td>- IM: BMC Impact Manager</td>
</tr>
<tr>
<td></td>
<td>- IX: BMC Impact Explorer</td>
</tr>
<tr>
<td></td>
<td>- IEA: BMC Impact Event Adapters</td>
</tr>
<tr>
<td></td>
<td>- IELA: BMC Impact Event Log Adapter for Windows</td>
</tr>
<tr>
<td></td>
<td>- IBRSD: Impact Integration for BMC Remedy Service Desk</td>
</tr>
<tr>
<td></td>
<td>- PS: BMC Impact Publishing Server</td>
</tr>
<tr>
<td></td>
<td>- DOC: All-in-one documentation PDF</td>
</tr>
<tr>
<td>IAS_NAME=instanceName</td>
<td>the instance name of the BMC IAS</td>
</tr>
<tr>
<td>IAS_PORT=portNumber</td>
<td>the port number that the BMC IAS should use to connect to the BMC IX.</td>
</tr>
<tr>
<td></td>
<td>The default is 3084.</td>
</tr>
</tbody>
</table>
Installing BMC Impact Solutions components on a Windows computer

Chapter 2 Installing components on Windows computers the first time

Table 7   Silent mode installation properties (part 2 of 4)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAS_PASSWORD=adminPassword</td>
<td>the administrative password for the BMC IAS.</td>
</tr>
<tr>
<td></td>
<td>The default is IAS$Admin$.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: You must enter the dollar signs as $DOLLAR$ in the setup.properties file, so your entry for this field would be IAS$DOLLAR$Admin$DOLLAR$.</td>
</tr>
<tr>
<td>IAS_TYPE=MASTER</td>
<td>STANDARD</td>
</tr>
<tr>
<td></td>
<td>Enter one of the following values:</td>
</tr>
<tr>
<td></td>
<td>■ MASTER: creates a login server and installs the infrastructure administration functions of BMC IX, including the Impact Administration Cell (IAC); you must install a master server before you install a standard server</td>
</tr>
<tr>
<td></td>
<td>■ STANDARD: creates a login server only</td>
</tr>
<tr>
<td></td>
<td>The default is MASTER.</td>
</tr>
<tr>
<td>IAS_MODE=Standalone</td>
<td>Primary</td>
</tr>
<tr>
<td></td>
<td>Enter one of the following values:</td>
</tr>
<tr>
<td></td>
<td>■ Standalone: single IAS with no failover capability</td>
</tr>
<tr>
<td></td>
<td>■ Primary: the primary IAS in a high-availability pair</td>
</tr>
<tr>
<td></td>
<td>■ Secondary: the secondary IAS in a high-availability pair</td>
</tr>
<tr>
<td></td>
<td>The default is Standalone.</td>
</tr>
<tr>
<td>ADMIN_CELL_KEY=encryptionKey</td>
<td>The master administration cell encryption key.</td>
</tr>
<tr>
<td></td>
<td>The default is mc.</td>
</tr>
<tr>
<td>IAS_PRIMARY_HOST=hostName</td>
<td>host name of the computer where you will install the primary IAS</td>
</tr>
<tr>
<td>IAS_SECONDARY_HOST=hostName</td>
<td>host name of the computer where you will install the secondary IAS</td>
</tr>
<tr>
<td>MASTER_IAS_HOST=hostName</td>
<td>host name where the master BMC IAS is installed and to which a standard BMC IAS should connect</td>
</tr>
<tr>
<td>MASTER_IAS_PORT=portNumber</td>
<td>port number that the master IAS uses to connect to the standard IAS</td>
</tr>
<tr>
<td></td>
<td>The default is 3084.</td>
</tr>
<tr>
<td>MASTER_IAS_PASSWORD=password</td>
<td>administrative password for the master IAS</td>
</tr>
<tr>
<td>ADMIN_CELL_PRIMARY_PORT=portNumber</td>
<td>if you are installing a master IAS, the port number that the IAS uses to connect to the master administration cell</td>
</tr>
<tr>
<td></td>
<td>The default is 1827.</td>
</tr>
</tbody>
</table>
Installing BMC Impact Solutions components on a Windows computer

USER_HAS_ARS_SERVER=TRUE | FALSE indicates if a BMC Atrium CMDB is installed

Enter one of the following values:

- **TRUE**: CMDB is installed
- **FALSE**: CMDB is not installed

The default is **TRUE**.

CMDB_HOSTNAME=hostName the host name where the BMC Atrium CMDB is installed

CMDB_PORT=portNumber the port number for the BMC IX to use to connect to the BMC Atrium CMDB

CMDB_LOGIN=userName the AR System Server administrative user name.

The default is **Demo**.

CMDB_PASSWORD=password the AR System Server administrative password

CELL_NAME=cellName cell instance name

CELL_TYPE=SIM | EM type of cell that you want to install

Enter one of the following values:

- **SIM**: service impact management cell, which includes event management
- **EM**: event management cell only

CELL_MODE=Standalone | Primary | Secondary how you want the BEM or SIM cell configured

Enter one of the following values:

- **Standalone**:
- **Primary**: the primary cell in a high availability pair
- **Secondary**: the secondary cell in a high availability pair

The default is **Standalone**.

CELL_PORT=portNumber the port number for the cell to use to connect to the BMC IX

The default is **1828**.

CELL_KEY=encryptionKey the cell encryption key

The default is **mc**.

CELL_PRIMARY_HOST=hostName the host name where the primary cell server is installed

CELL_PRIMARY_PORT=portNumber the port number for the primary cell to use to connect to the secondary cell in a high-availability pair

The default is **1828**.

CELL_SECONDARY_HOST=hostName the host name where the secondary cell server is installed

**Table 7** Silent mode installation properties (part 3 of 4)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>USER_HAS_ARS_SERVER=TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>CMDB_HOSTNAME=hostName</td>
<td>the host name where the BMC Atrium CMDB is installed</td>
</tr>
<tr>
<td>CMDB_PORT=portNumber</td>
<td>the port number for the BMC IX to use to connect to the BMC Atrium CMDB</td>
</tr>
<tr>
<td>CMDB_LOGIN=userName</td>
<td>the AR System Server administrative user name.</td>
</tr>
<tr>
<td>CMDB_PASSWORD=password</td>
<td>the AR System Server administrative password</td>
</tr>
<tr>
<td>CELL_NAME=cellName</td>
<td>cell instance name</td>
</tr>
<tr>
<td>CELL_TYPE=SIM</td>
<td>EM</td>
</tr>
<tr>
<td>CELL_MODE=Standalone</td>
<td>Primary</td>
</tr>
<tr>
<td>CELL_PORT=portNumber</td>
<td>the port number for the cell to use to connect to the BMC IX</td>
</tr>
<tr>
<td>CELL_KEY=encryptionKey</td>
<td>the cell encryption key</td>
</tr>
<tr>
<td>CELL_PRIMARY_HOST=hostName</td>
<td>the host name where the primary cell server is installed</td>
</tr>
<tr>
<td>CELL_PRIMARY_PORT=portNumber</td>
<td>the port number for the primary cell to use to connect to the secondary cell in a high-availability pair</td>
</tr>
<tr>
<td>CELL_SECONDARY_HOST=hostName</td>
<td>the host name where the secondary cell server is installed</td>
</tr>
</tbody>
</table>
### Table 7  Silent mode installation properties (part 4 of 4)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELL_SECONDARY_PORT=portNumber</td>
<td>the port number for the primary cell to use to connect to the secondary cell in a high-availability pair. The default is 1828.</td>
</tr>
<tr>
<td>PS_KEY=serverEncryptionKey</td>
<td>encryption key for the BMC Impact Publishing Server that you are installing. Appears only if you select to install the BMC Impact Publishing Server. The default is mc.</td>
</tr>
<tr>
<td>PS_PORT=portNumber</td>
<td>the port number that the BMC Impact Publishing Server will use to connect to the BMC Impact Manager cell. Appears only if you select to install the BMC Impact Publishing Server. The default is 1839.</td>
</tr>
<tr>
<td>PORTAL_HOST=hostName</td>
<td>host name where the BMC Impact Portal is installed and to which the BMC Impact Publishing Server should connect.</td>
</tr>
<tr>
<td>PORTAL_PORT=portNumber</td>
<td>The Java Network Launch Protocol (JNLP) port number to use to connect the BMC Impact Publishing Server to the BMC Impact Portal. The default is 9379.</td>
</tr>
<tr>
<td>IX_IAS_HOST=hostName</td>
<td>the host name where the IAS is installed that the BMC IX should connect to.</td>
</tr>
<tr>
<td>IX_IAS_PORT=portNumber</td>
<td>the port number that the BMC IX should use to connect to the IAS. The default is 3084.</td>
</tr>
</tbody>
</table>

**NOTE**

Include only those options for which you want to specify a value. If you want to use default values, do not include the option in the `setup.properties` file.

Figure 4 on page 42 shows an example of the `setup.properties` file.
Figure 4  Example of the setup.properties file for a silent mode installation on Windows computers

```
INSTALLER_UI=silent
USER_INSTALL_DIR=C:\Program Files\BMC Software\Impact
INSTALL_PACKAGE=BOTH
CHOSEN_INSTALL_FEATURE_LIST=IAS,IM,IX
IAS_NAME=Admin
IAS_PORT=3084
IAS_PASSWORD=IAS$DOLLAR$Admin$DOLLAR$
IAS_TYPE=Master
IAS_MODE=standalone
IAS_PRIMARY_HOST=localhost
IAS_SECONDARY_HOST=
MASTER_IAS_HOST=
MASTER_IAS_PORT=3084
MASTER_IAS_PASSWORD=
ADMIN_CELL_PRIMARY_PORT=1827
#
USER_HAS_ARS_SERVER=true
CMDB_HOSTNAME=localhost
CMDB_PORT=0
CMDB_LOGIN=Demo
CMDB_PASSWORD=
#
CELL_NAME=
CELL_TYPE=SIM
CELL_MODE=standalone
CELL_PORT=1828
CELL_KEY=mc
IX_IAS_HOST=localhost
IX_IAS_PORT=3084
```

---

**NOTE**

Pay close attention to the syntax used in the file. Backslash signs (\) must be entered as \\ and dollar signs ($) must be entered as `$DOLLAR$` in the `setup.properties` file.

---

If you are unsure how to edit the file, use the standard installation program instead of silent mode.

**2** After you complete your entries to the `setup.properties` file, close and save the file locally.

**3** Open a command prompt and enter the following command:

```
Setup -f full_path/setup.properties
```

The variable `full_path` is the full path to where you saved the `setup.properties` file locally.

To check the status of the installation, view the installation log file.
Where to go from here

To create additional cells, such as secondary server cells for high availability, see the *BMC Impact Solutions Getting Started* guide.

To enable BMC Impact Explorer users to access the data defined to cells, you must register the cell with the BMC Impact Portal. For more information, see the *BMC Impact Solutions Getting Started* guide.

Troubleshooting the BMC Impact Solutions installation

You can troubleshoot a failed installation by reviewing the `impact_install_log.txt` log file that is created during installation. This log file lists the installation and uninstallation of components, as well as specific versions of some key files (binaries, .jar files, and so on). This log file is in the `temp` directory. The path for the installation log file is `%TEMP%`. In addition, the `mcell.trace` file is located in the `%MCELL_HOME%\tmp\cellName` directory. If you need assistance with a failed installation, call your Customer Support representative.

Postinstallation tasks for BMC IX

Before you can use BMC IX, you must perform the following tasks:

- Obtain a user account for BMC IX in the BMC IAS or in the BMC Impact Portal. See “To obtain a user account for BMC IX” on page 43.

- Verify that BMC IX was installed successfully. See “To verify the successful installation of BMC IX” on page 44.

- Configure BMC IX to communicate with other BMC Impact Solutions products and components in your environment. See *BMC Impact Solutions Getting Started Guide*.

To obtain a user account for BMC IX

1. From a command line, enter the following command to request a user account in the IAS:

   `iadmin -aru` *(Add Remote User)*

   If you define a user account in the BMC Impact Portal, you can select the *Synchronize Users with IAS* function from the *Superadmin->Portal* tab to synchronize the Portal users and groups with those of the BMC IAS.

   Users are added to the BMC IAS with the default password *user*. 

   

Chapter 2  Installing components on Windows computers the first time  

43
2 Make the user a member of the Service Administrators group.

For information about requesting a user account in the BMC IAS, see *BMC Impact Solutions Infrastructure Administration*. For information about defining a user account in the BMC Impact Portal, see the *BMC Portal Getting Started* guide.

**To verify the successful installation of BMC IX**

1 Choose *Start => Programs => BMC Software => BMC Impact Explorer*.

2 In the Logon dialog box, enter a valid user name and password, and click **OK**.

The BMC Impact Explorer window opens, indicating that installation was successful.

---

### Installing the SNMP MIB libraries

This section explains how to install the SNMP MIB libraries on a Windows computer the first time.

1 Navigate to the *net-snmp* directory on the installation CD labeled *BMC Impact Solutions Enabling Components*.

2 Unzip the *.zip* file to a temporary directory.

For more information about using the net-snmp package, see *BMC Impact Solutions Event Adapters User Guide*.

---

### Installing the SNMP Adapter Configuration Manager

If you install the SNMP Adapter Configuration Manager, you must install it on the same computer where BMC Impact Event Adapters are installed.

**Before you begin**

- Ensure that you have administrative authority on the computer where you will be installing the SNMP Adapter Configuration Manager

- Ensure that the *PATH* environment variable has been set for JDK version 1.6 (for example, \jdk1.6\bin).
1 Copy the files from the installation DVD to a directory on the computer or download the BMC Impact Solutions from the BMC Software EPD site.

   - DVD: Insert the installation DVD labeled *BMC Event and Impact Management Base*, locate the platform-specific subdirectory of the *Impact_Event_Adapters* directory, and copy the contents of that directory.


2 Double-click the `EAConf_win.exe` file.

3 In the SNMP Adapter Configuration Manager - InstallShield Wizard page, click Next.

4 Accept the license agreement, and click Next.

5 Accept the default directory or select the directory where you want to install the product, and click Next.

6 Enter the paths where JDK and Perl are installed, and click Next.

7 Perform one of the following actions for the Tomcat installation, and click Next:

   - If you want to install the Tomcat server that is bundled with the SNMP Adapter Configuration Manager, select Install TOMCAT. Accept the default listen and shutdown ports or enter different ports.

   - If the Tomcat server is already installed, select Do not Install TOMCAT. You must enter the path where the Tomcat server is already installed.

**NOTE**

BMC recommends that you install the Tomcat server that is bundled with the SNMP Adapter Configuration Manager. If you use an existing Tomcat server, you must manually configure it. For details, see “Configuring the Tomcat server” on page 47.

8 Perform the appropriate action for the Net-SNMP library installation:

   - If you want to install the Net-SNMP library, select Install Net-SNMP Library. The Net-SNMP library is installed in the `installationDirectory\ucd-snmp-4.2.3` directory.

   The variable `installationDirectory` is the path to the SNMP Adapter Configuration Manager configuration and executable files (for example, `C:\Program Files\BMC Software\SNMPAdapter`).

   - If a Net-SNMP library is already installed, select Don't Install Net-SNMP Library. You must enter the existing Net-SNMP `bin` and MIB paths.
In the Net-SNMP bin Path box, append the following folder to your Net-SNMP library path:

\usr\bin

In the Net-SNMP mibs Path box, append the following folder to your Net-SNMP library path:

\usr\mibs

9 Click Next.

10 Review the summary information carefully to ensure that it is correct.

- If you want to change your selections, click Back.
- If the selections are correct, click Install.

11 After the product has been successfully installed, select Start Tomcat Server to automatically start the Tomcat server.

If you do not select to start the Tomcat server automatically, you must manually start it before you can use the SNMP Adapter Configuration Manager. For more information, see “Starting the Tomcat server” on page 47.

12 At the end of the installation, click Finish.

Where to go from here

After you have installed the SNMP Adapter Configuration Manager, you must perform certain post-installation tasks. For details, see “Postinstallation tasks for the SNMP Adapter Configuration Manager.”

Postinstallation tasks for the SNMP Adapter Configuration Manager

This section describes the postinstallation tasks that you must perform after you have installed the SNMP Adapter Configuration Manager.

Enabling the JDK 1.6 plug-in

1 Open Internet Explorer.

2 Choose Tools => Internet Options.

3 Click the Advanced tab.
4 Under Microsoft VM, select the following options:

- Java console enabled (requires restart)
- JIT compiler for virtual machine enabled (requires restart)

5 Under Java (Sun), select Use Java 2 vx.x.x for <applet> (requires restart).

NOTE

If Java (Sun) is not visible, the Java plug-in is not installed on the computer. In that case, install Java™ SE JRE™ from http://java.sun.com/javase/downloads/index.jsp.

---

Starting the Tomcat server

Perform this procedure if you chose not to automatically start the Tomcat server during installation of the SNMP Adapter Configuration Manager. You must start the Tomcat server before you can use the SNMP Adapter Configuration Manager.

1 At a command prompt, navigate to the installationDirectory\jakarta-tomcat-5.0.25\bin directory or the Catalina_Home\bin directory.

   Catalina_Home is the path where the Tomcat server is installed.

2 Run the following command:

   startup -security

WARNING

You have to restart the Tomcat server each time you modify a configuration file related to the SNMP Adapter Configuration Manager. Until you restart the Tomcat server, the changes made to the configuration files are not reflected in the SNMP Adapter Configuration Manager.

---

Configuring the Tomcat server

If you did not install the Tomcat server that is bundled with the SNMP Adapter Configuration Manager, you must manually configure your existing Tomcat server.

1 At the beginning of the Catalina.bat file that is located in the Catalina_Home\bin directory, add the following line:

   SET PATH=Perl_Home\bin;NET_SNMP_EXEC;%PATH%
Perl_Home is the path where Perl is installed. NET_SNMP_EXEC is the Net-SNMP bin path that you specified when you installed the SNMP Adapter Configuration Manager (for example, C:\net-snmp\usr\bin).

2 In the startup.bat file that is located in the Catalina_Home\bin directory, set the JAVA_HOME variable by adding the following line at the beginning of the file:

```
SET JAVA_HOME=JDK_Home
```

JDK_Home is the path where the JDK is installed.

3 At the beginning of the Catalina.bat file that is located in the Catalina_Home\bin directory, add the following lines:

```
set LOG_PROPERTIES="MCELL_HOME\etc\snmpAdapter\logging.properties"
set JAVA_OPTS=%JAVA_OPTS% -Xms128m -Xmx512m
```

4 In the Catalina.bat file that is located in the Catalina_Home\bin directory, perform the following actions:

A add the java.util.logging.config.file and the MCELL_HOME system properties for all the EXECJAVA commands under the doSecurity label by adding the following lines:

```
-Djava.util.logging.config.file=%LOG_PROPERTIES%
-DMCELL_HOME="MCELL_HOME"
```

B Ensure that the following java.security.policy system property has been set:

```
-Djava.security.policy="%SECURITY_POLICY_FILE%"
```

--- EXAMPLE ---

```
%_EXECJAVA% %JAVA_OPTS% %CATALINA_OPTS% %DEBUG_OPTS%
-Djava.endorsed.dirs="%JAVA_ENDORSED_DIRS%"
-Djava.util.logging.config.file=%LOG_PROPERTIES%
-DMCELL_HOME="C:\Program Files\BMC Software\MasterCell\server"
-classpath "%CLASSPATH%"
-Djava.security.manager
-Djava.security.policy="%SECURITY_POLICY_FILE%"
-Dcatalina.base="%CATALINA_BASE%"
-Dcatalina.home="%CATALINA_HOME%"
-Djava.io.tmpdir="%CATALINA_TMPDIR%" %MAINCLASS% %CMD_LINE_ARGS% %ACTION%
```
5 In the `setClasspath.bat` file that is located in the `Catalina_Home\bin` directory, add the `SnmpAdapterClient.jar` file to the `CLASSPATH` variable by adding the following line:

```bash
set CLASSPATH=%JAVA_HOME%\lib\tools.jar;installationDirectory\lib\SnmpAdapterClient.jar;%CLASSPATH%
```

6 In the `server.xml` file that is located in the `Catalina_Home\conf` directory, specify the `Connector port` and the `Server port`.

Ensure that the ports you have specified are not being used by any other application.

--- EXAMPLE ---

```xml
<Server port="8005" shutdown="SHUTDOWN" debug="0">
    <Connector port="8080" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
        enableLookups="false" redirectPort="8443" acceptCount="100" debug="0" connectionTimeout="20000" maxPostSize="0"
        disableUploadTimeout="true" />
</Server>
```

--- EXAMPLE ---

```xml
<Connector port="8080" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" redirectPort="8443" acceptCount="100" debug="0" connectionTimeout="20000" maxPostSize="0"
    disableUploadTimeout="true" />
```

7 In the `server.xml` file that is located in the `Catalina_Home\conf` directory, set the value of `maxPostSize` to 0.

--- EXAMPLE ---

```xml
<Connector port="8080" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" redirectPort="8443" acceptCount="100" debug="0" connectionTimeout="20000" maxPostSize="0"
    disableUploadTimeout="true" />
```

8 At the end of the `catalina.policy` file that is located in the `Catalina_Home\conf` directory, add the contents of the `Client_Windows.policy` file.

The `Client_Windows.policy` file is located in the product installation directory.

**Stopping the Tomcat server**

You must stop and then restart the Tomcat server each time you modify a configuration file related to the SNMP Adapter Configuration Manager. Until you restart the Tomcat server, the changes made to the configuration files are not reflected in the SNMP Adapter Configuration Manager. You must also stop the Tomcat server before you uninstall the SNMP Adapter Configuration Manager.
1 At a command prompt, navigate to the \installationDirectory\jakarta-tomcat-5.0.25\bin directory or the \Catalina_Home\bin directory.

2 Enter the following command:

   shutdown

**Where to go from here**

For instructions for configuring the components after the installation is complete, see the *BMC Impact Solutions Getting Started Guide*. 
Installing components on UNIX computers the first time

This chapter includes the following topics:

- Installation task maps ................................................................. 51
- Event management only ............................................................. 52
- Event and service impact management without the BMC Atrium CMDB ........................................... 53
- Event and service impact management including the BMC Atrium CMDB ........................................... 54
- Step-by-step instructions for installing individual components and products ........................................... 56
- Order of installation ................................................................. 56
- Installing BMC SIM CMDB extensions ........................................... 57
- Installing BMC Impact Solutions components on a UNIX computer ........................................... 60
- Installing the SNMP MIB libraries ........................................... 74
- Installing the SNMP Adapter Configuration Manager ........................................... 74

Installation task maps

The following sections provide flowcharts of the tasks that you must perform to install event and service impact management components for each of the following deployment scenarios:

- event management only
- event and service impact management without the BMC Atrium CMDB
- event and service impact management with the BMC Atrium CMDB

For details about these scenarios, see the *BMC Impact Solutions Planning and Implementation Guide*. 
Event management only

Figure 6 provides an overview of the tasks that you must perform for this scenario.

Figure 5  Event management installation task map for UNIX environments

1. Prepare host computers for installation.
   - Review system requirements, prerequisites, and installation considerations.
     - For hardware and software requirements, see the BMC Impact Solutions Release Notes. For implementation guidelines and considerations, see the BMC Impact Solutions Planning and Implementation Guide.
   
2. Plan your installation.
   - Choose your installation scenario and collect installation information.
     - See the BMC Impact Solutions Planning and Implementation Guide and Table 4 on page 19.
   
3. Install the BMC Impact Solutions components.
   - Using the BMC Impact Solutions installation program, install the BMC Impact Solutions components on the designated host computer.
     - See “Installing BMC Impact Solutions components on a UNIX computer” on page 60.
   
4. Install BMC Event and Impact Reporting.
   - Do you want to do reporting for event management?
     - yes: Install the BMC Impact Portal on the designated host computer.
       - For requirements and detailed instructions, see the BMC Portal Release Notes and the BMC Portal Installation Guide.
     - no: Install Reporting for BMC Service Assurance and the BMC Event and Impact Reporting templates on a different computer than the one on which you install the BMC Impact Portal.
       - For requirements and detailed instructions, see the BMC Event and Impact Reporting Release Notes and the BMC Event and Impact Reporting Installation, Configuration, and User Guide.
   
5. Installation ends.
Figure 6 provides an overview of the tasks that you must perform for this scenario.

**Figure 6** Event and service impact management without the BMC Atrium CMDB installation task map for UNIX environments

1. **Prepare host computers for installation.**
   - Review system requirements, prerequisites, and installation considerations.
   - For hardware and software requirements, see the BMC Impact Solutions Release Notes. For implementation guidelines and considerations, see the BMC Impact Solutions Planning and Implementation Guide.

2. **Plan your installation.**
   - Choose your installation scenario and collect installation information.
   - See the BMC Impact Solutions Planning and Implementation Guide and Table 4 on page 19.

3. **Install the BMC Impact Solutions components.**
   - Using the BMC Impact Solutions installation program, install the BMC Impact Solutions components on the designated host computer.
   - See “Installing BMC Impact Solutions components on a UNIX computer” on page 60.

4. **Install the BMC Datastore.**
   - Using the BMC Datastore installation program, install the BMC Datastore on the designated host computer.
   - For requirements and detailed instructions, see the BMC Datastore Release Notes and the BMC Datastore Installation Guide.

5. **Install the BMC Impact Portal.**
   - Using the BMC Portal installation program, install the BMC Impact Portal module of the BMC Portal on the designated host computer.
   - For requirements and detailed instructions, see the BMC Portal Release Notes and the BMC Portal Installation Guide.

6. **Install BMC Event and Impact Reporting.**
   - **Do you want to do reporting for event and service impact management?**
     - **yes**
       - Install Reporting for BMC Service Assurance and the BMC Event and Impact Reporting templates on a different computer than the one on which you install the BMC Impact Portal.
       - For requirements and detailed instructions, see the BMC Event and Impact Reporting Release Notes and the BMC Event and Impact Reporting Installation, Configuration, and User Guide.
     - **no**
      - Installation ends.
Event and service impact management including the BMC Atrium CMDB

Figure 7 on page 55 provides an overview of the tasks that you must perform for this scenario.
Event and service impact management including the BMC Atrium CMDB

Chapter 3 Installing components on UNIX computers the first time

Figure 7 Event and service impact management with the BMC Atrium CMDB installation task for UNIX environments

1. Prepare host computers for installation.
   - Review system requirements, prerequisites, and installation considerations.
   - For hardware and software requirements, see the BMC Impact Solutions Release Notes. For implementation guidelines and considerations, see the BMC Impact Solutions Planning and Implementation Guide.

2. Plan your installations.
   - Choose your installation scenario and collect installation information.
   - See the BMC Impact Solutions Planning and Implementation Guide and Table 4 on page 19.

   - Using the AR System installer, install the one of the supported databases on the designated host computer.
   - For detailed instructions, see the BMC Remedy Action Request System Installing guide.

   - Using the AR System installer, install the BMC Remedy AR System Server components on the designated host computer.
   - For detailed instructions, see the BMC Remedy Action Request System Installing Guide.

5. Install the BMC Atrium CMDB.
   - Install an Oracle database. You can use the BMC Datastore for both the BMC Remedy AR System and the BMC Impact Portal.
   - For detailed instructions, see the BMC Atrium CMDB Installation and Configuration guide.

6. Install the BMC SIM CMDB Extensions.
   - Using the BMC Impact Solutions installation program, install the BMC SIM CMDB Extensions on the designated host computer.
   - For detailed instructions, see “Installing BMC SIM CMDB extensions” on page 57.

7. Install the BMC Impact Solutions components.
   - Using the BMC Impact Solutions installation program, install the BMC Impact Solutions components on the designated host computer.
   - See “Installing BMC Impact Solutions components on a UNIX computer” on page 60.

8. (optional) Install the BMC Datastore.
   - If you are not using the BMC Datastore for the BMC Remdy AR System, using the BMC Datastore installation program, install the BMC Datastore on the designated host computer.
   - For requirements and detailed instructions, see the BMC Datastore Release Notes and the BMC Datastore Installation Guide.

9. Install the BMC Impact Portal.
   - Using the BMC Portal installation program, install the BMC Impact Portal module of the BMC Portal on the designated host computer.
   - For requirements and detailed instructions, see the BMC Portal Release Notes and the BMC Portal Installation Guide.

10. Install BMC Event and Impact Reporting.
    - Do you want to do reporting for event and service impact management?
      - yes: Install Reporting for BMC Service Assurance and the BMC Event and Impact Reporting templates on a different computer than the one on which you install the BMC Impact Portal.
      - no: Installation ends.

For requirements and detailed instructions, see the BMC Event and Impact Reporting Release Notes and the BMC Event and Impact Reporting Installation, Configuration, and User Guide.
Step-by-step instructions for installing individual components and products

This section has step-by-step installation instructions (or refers you to another document) for each of the individual components and products that together provide service impact management.

For a description of the installation scenarios, see the *BMC Impact Solutions Planning and Implementation Guide*.

Order of installation

Install the components in the following order:

1. *(optional)* datastore for BMC Impact Portal (BMC Datastore or other Oracle® database) (required for service impact management scenarios only). For instructions, see the *BMC Datastore Installation Guide*.

2. BMC Remedy AR System, BMC Remedy Administrator, and BMC Remedy User (required for service impact management scenarios only). For instructions, see the *BMC Remedy AR System Installing* guide.

3. BMC Atrium CMDB (required for service impact management scenarios only). For instructions, see the *BMC Atrium CMDB Installation and Configuration* guide.

4. BMC SIM CMDB extensions (required for service impact management scenarios only). For instructions, see “Installing BMC SIM CMDB extensions” on page 57.

5. BMC Impact Solutions components:
   - BMC Impact Administration Server
   - BMC Impact Manager
   - BMC Impact Publishing Server
   - Integration module for Integration for Remedy Service Desk
   - BMC Impact Explorer
   - BMC Impact Event Adapters
   - BMC Impact Event Log Adapter for Windows
   - BMC Impact Integration Web Services
   - BMC Impact Service Model Integration with HP OVO
   - BMC Impact Solutions Documentation
For instructions, see “Installing BMC Impact Solutions components on a UNIX computer” on page 60.


7. BMC Impact Manager enabling components (SNMP). See “Installing the SNMP MIB libraries” on page 74.

8. (optional) SNMP Adapter Configuration Manager. See “Installing the SNMP Adapter Configuration Manager” on page 74.

9. BMC Impact Integrations. See one of the following documents, depending on the integration product that you are installing:
   - BMC Impact Integration for PATROL Enterprise Manager Installation and Configuration Guide
   - BMC Impact Integration for PATROL Installation and Configuration Guide
   - Integration for BMC Remedy Service Desk User Guide


**Installing BMC SIM CMDB extensions**

After the BMC Atrium CMDB is successfully installed, install the SIM extensions as described in this section. There are two separate installation programs for the BMC SIM CMDB extensions, one that installs the extensions that support BMC Atrium CMDB 2.1 and one that installs the extensions that support BMC Atrium CMDB 7.5.

**WARNING**

Installing the SIM extensions over a network can cause the installation to fail. Copy the extensions to the local BMC Atrium CMDB computer and run the extensions installation from it, or install from the CD or DVD mounted locally on the BMC Atrium CMDB computer.
To install the SIM extensions

1. Log on as `root`.

2. Start the installation program by using one of the following methods:
   - DVD: Insert the installation DVD labeled *BMC Event and Impact Management Base* DVD. In the `SIM_CMDB_Extensions` directory, open the `CMDB_2.1` or `CMDB_7.5` directory, depending on what version of the BMC Atrium CMDB that you installed.
   - [http://webapps.bmc.com/epd](http://webapps.bmc.com/epd) (BMC Software EPD website): Select BMC Service Impact Manager, select the current version for the platform that you are installing to, and then select BMC Impact Extensions for Atrium CMDB. Download and extract the `simExtLoader.tar` file that corresponds to the version of the BMC Atrium CMDB that you installed (either 2.1 or 7.5).

3. Run the following commands:
   ```
   chmod +x simExtLoader
   ./simExtLoader
   ```

4. At the License Agreement prompt, press `Enter` to read the entire license, or type `q` to skip to the end.

5. At the BMC Remedy AR System server prompt, either choose your BMC Remedy AR System server from the list and press `Enter`, or specify the local server name (not the fully qualified host name or IP address) of your BMC Remedy AR System server (if not installed in the default location) and press `Enter`.

6. At the prompt to specify the directory where the BMC Remedy AR System server is currently installed, press `Enter` to accept the default path.

7. At the prompt to set the BMC Remedy AR System server port number, accept the existing portmapper settings (leaving 0 as the port number to use portmapper if that matches your previous settings) by pressing `Enter`.

8. At the prompt to confirm the TCP/IP port settings, press `Enter`.

9. At the prompt to enter the BMC Remedy AR System Administrator ID and password, type the AR System Administrator ID (usually Demo) and press `Enter`.

10. Type the BMC Remedy AR System Administrator password (if necessary) and press `Enter`. 


---

**BMC Impact Solutions Installation Guide**

58
### 11 At the Notification Service Plugin prompt, accept the default (1840) by pressing *Enter*, or enter a port for the plugin and press *Enter*.

After you press *Enter*, the plugin is installed, the BMC Remedy AR System server is restarted, and the SIM CMDB extensions are loaded. Loading the extensions usually takes about 1 hour, but can take up to 4 hours if BMC Remedy Asset Management is installed.

---

### WARNING

If you install BMC Atrium CMDB 2.1 and if the BMC Remedy ITSM product, or any of its component products, are installed after the BMC SIM CMDB extensions have been installed, you must apply a patch to the BMC Atrium CMDB by using the cmdbdriver script. This script is located on the *BMC Event and Impact Management Base* DVD in the `SIM_CMDB_Extensions\patches` directory. For directions for applying the patch, see the `readme.txt` file included with the script.

### To reinitialize the BMC Atrium CMDB

If you installed the BMC Impact Portal before you installed the BMC Atrium CMDB, follow these steps:

1. In the BMC Impact Portal, as a superadmin user, update the BMC Remedy AR System settings.

2. In a text editor such as Notepad, open the `pserver.conf` file.

   The file is located in the `MCELL_HOME\etc` directory.

3. Verify that the following information is correct and update it if it is not:

   - CMDB name
   - port number
   - password
   - name of the default cell used to publish the service model

   The password is encrypted, so if you are unsure if it is correct or if it has changed, enter the correct password in plain text. The password will be encrypted when you save the file.


5. Start the BMC Impact Publishing Server service.
Installing BMC Impact Solutions components on a UNIX computer

1. Log on as root.

2. Copy the files from the installation DVD to a directory on the computer or download the BMC Impact Solutions from the BMC Software EPD site.
   - DVD: Insert the installation DVD labeled *BMC Event and Impact Management Base*, locate the platform-specific subdirectory of the *Impact_Solutions* directory, and copy the contents of that directory.

3. Run the *setup.bin* script.

4. On the Welcome page, click Next.

5. On the End User License Agreement page, acknowledge that you reviewed and agree to the terms of the License Agreement, and click Next.

6. On the product selection page, choose the software package that you want to install and click Next:
   - Event Management
   - Service Impact Management
   - Both

7. On the installation type page, choose one of the following options and click Next:
   - Minimal Install: This option is recommended for a first-time installation. Selecting this option installs the BMC Impact Administration Server, Impact Integration Web Services, the BMC Impact Manager, and the BMC Impact Explorer using default configuration values. The only option that you need to specify during the installation is the installation directory.
   - Complete Install (Recommended): This option installs all the components for the software package that you selected on the product selection installation page.
   - Custom Install: This option displays a secondary installation page that enables you to select which components that you want to install. Make one or more selections from the choices explained in Table 8 and click Next:
Table 8  Custom Install options

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Impact Administration Server</td>
<td>The BMC Impact Administration Server (IAS) handles logon and administrative functions for BMC IX; it supports failover functionality. (The BMC IAS provides much of the functionality of the BMC Impact Portal of prior 5.x and 7.x releases.)</td>
</tr>
<tr>
<td>BMC Impact Manager (cell)</td>
<td>The BMC Impact Manager (BMC IM) is the event-processing engine for BEM and SIM; it supports high-availability functionality. To install the integration module for IBRSD, select Integrate with Remedy Service Desk. This option is selected by default when you select BMC Impact Manager. The AR module for IBRSD is installed separately. For details, see the Integration for BMC Remedy Service Desk User Guide.</td>
</tr>
<tr>
<td>BMC Impact Publishing Server</td>
<td>The BMC Impact Publishing Server is the component that is used to publish service model data from the BMC Atrium CMDB to the BMC Impact Manager.</td>
</tr>
<tr>
<td>BMC Impact Explorer</td>
<td>The BMC Impact Explorer (BMC IX) provides a cross-platform operator and administrator interface for defining and managing events and for viewing service models.</td>
</tr>
<tr>
<td>BMC Impact Event Adapters</td>
<td>Event Adapters prepare the source event data for processing by BMC IM so that they can be displayed in the BMC IX Events View.</td>
</tr>
<tr>
<td>BMC Impact Service Model Integration with HP OVO</td>
<td>The BMC Impact Service Model Integration with HP OVO is an integration that retrieves node and node group information from the HP OpenView Operations product, maps the node attributes to BMC Impact Manager slots, and creates component instances and relationships in the SIM cell that will create the service model.</td>
</tr>
<tr>
<td>BMC Impact Solutions Documentation</td>
<td>The BMC Impact Solutions Documentation is a .pdf of all manuals that support the BMC Impact Solutions components. The file is installed in the BMC Impact Solutions installation directory.</td>
</tr>
</tbody>
</table>


- **Impact Explorer Console Install**: This option installs a BMC Impact Explorer console only.

8 On the destination directory page, the installation script checks the current drive for available space and prompts you if insufficient space is available. If the current drive has sufficient space, accept the default directory or choose a different directory and click **Next**.

The default directory is `/opt/bmc/Impact`.

---

Chapter 3  Installing components on UNIX computers the first time  61
After you accept the destination directory, the remainder of the installation pages that you encounter and their content change dynamically, based on the choices you make throughout the installation process. For example, if you choose Event Management only with the Impact Explorer Console Install option, the remainder of the installation information that you must provide comprises only a server host name and port number on a single installation page. In contrast, if you choose to install both event management and service impact management using the Simple Install All option and you want to integrate with the BMC Atrium CMDB, you can expect to supply more installation information and encounter more installation pages.

Rather than detail this dynamic installation process in more than a dozen different linear scenarios, Table 9 provides an alphabetical list of all the choices and the information required to complete any installation scenario you can encounter. Follow the instructions on each page of the installation script and see Table 9 for explanations of choices or descriptions of the information you must provide to complete a page.

When you reach the summary information installation page, continue with step 9 on page 65.

**Table 9 Fields for all installation scenarios (part 1 of 4)**

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR System Password</td>
<td>password for the BMC Remedy AR System user name</td>
</tr>
<tr>
<td>Confirm Password</td>
<td>Add the same password in the confirmation field.</td>
</tr>
<tr>
<td>AR System Server Name</td>
<td>name of the computer where the BMC Remedy AR System Server is installed</td>
</tr>
<tr>
<td>AR System User Name</td>
<td>valid user ID for the BMC Remedy AR System Server</td>
</tr>
<tr>
<td>Cell Encryption Key</td>
<td>encryption key used for communication authentication between Impact Solutions components</td>
</tr>
<tr>
<td></td>
<td>The default encryption key for a cell is <strong>mc</strong>.</td>
</tr>
<tr>
<td>Cell Instance Name</td>
<td>name of this instance of the cell being installed or the cell to which the installed modules should connect</td>
</tr>
<tr>
<td></td>
<td>The default name for an installed cell is the computer name. The name for installed modules is available from the list box.</td>
</tr>
<tr>
<td></td>
<td>For more information about cell naming conventions, see the BMC Impact Solutions Infrastructure Administration Guide</td>
</tr>
<tr>
<td>Cell Port</td>
<td>port number for the cell that you are installing</td>
</tr>
<tr>
<td></td>
<td>The default port number depends on the type of cell:</td>
</tr>
<tr>
<td></td>
<td>■ standard BMC IM cell - 1828</td>
</tr>
<tr>
<td></td>
<td>■ BMC IAS master server cell - 1827</td>
</tr>
<tr>
<td></td>
<td>■ HP OVO adapter cell - 1838</td>
</tr>
</tbody>
</table>
### Table 9  Fields for all installation scenarios (part 2 of 4)

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure server as:</td>
<td>how to configure the BMC IAS server for this installation</td>
</tr>
<tr>
<td></td>
<td>The server can be a master server or a standard server, but you must select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Standalone</strong>: A single server with no high-availability capability</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Primary</strong>: The primary server for a server pair with high-availability capability</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Secondary</strong>: The secondary server for a server pair with high-availability capability</td>
</tr>
<tr>
<td>Default Cell to which to publish model</td>
<td>the default cell to which the publishing server will publish the BMC Impact service model. Appears only if you select to install the BMC Impact Publishing Server.</td>
</tr>
<tr>
<td>Do you want to integrate with a BMC Atrium Configuration Management Database?</td>
<td>configure integration with the BMC Atrium CMDB during installation or after installation</td>
</tr>
<tr>
<td></td>
<td>If you choose to configure during the installation, select <strong>Yes</strong> and the BMC Remedy AR System information appears on the installation page.</td>
</tr>
<tr>
<td>Enable Web Services for Event Integration</td>
<td>enable BMC Impact Manager to receive events from external event sources such as BMC Performance Manager or other third-party event monitoring software, or to allow other applications to query for events and data</td>
</tr>
<tr>
<td>Encryption Key</td>
<td>encryption key for the BMC Impact Publishing Server</td>
</tr>
<tr>
<td></td>
<td>Specify this value only if you are installing the BMC Impact Service Model Integration for HP OVO adapter cell on a different computer than the one on which the publishing server is installed.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>mc</strong>.</td>
</tr>
<tr>
<td>Host Name of BMC Impact Portal</td>
<td>host name where the BMC Impact Portal is installed and to which the BMC Impact Publishing Server should connect</td>
</tr>
<tr>
<td>Hostname of IAS Server</td>
<td>host name where the BMC IAS is installed and to which this cell should connect</td>
</tr>
<tr>
<td>Host name of Publishing Server</td>
<td>host name of the BMC Impact Publishing Server if different from the one on which you are installing the BMC Service Model Integration for HP OVO adapter cell</td>
</tr>
<tr>
<td>IAS Administrative Password</td>
<td>password for the BMC IAS</td>
</tr>
<tr>
<td></td>
<td>The default password is <strong>IASSAdmin$</strong>. If you use a different password, you must remember the password that you chose.</td>
</tr>
<tr>
<td>IAS Instance Name</td>
<td>name of the instance of the BMC IAS to install on this computer</td>
</tr>
<tr>
<td>IAS Port</td>
<td>port number for the BMC IAS</td>
</tr>
<tr>
<td></td>
<td>The default port number is <strong>3084</strong>.</td>
</tr>
</tbody>
</table>
### Installing BMC Impact Solutions components on a UNIX computer

#### Table 9 Fields for all installation scenarios (part 3 of 4)

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
</table>
| Impact Manager (cell) that is being installed | function of BMC Impact Manager cell to install  
Select one of the following options:  
- **Cell with Standalone Cell Server**: Installs a stand-alone cell that has no high-availability capability  
- **Cell and Primary Cell Server of a failover pair**: Installs a cell and the primary cell server that enables high-availability capability  
- **Secondary Cell Server of a failover pair**: Installs the secondary cell server of a pair that enables high-availability capability |
| Instance Name of Cell                      | cell instance name of the primary cell server of this high-availability pair  
If the list box is unpopulated, no primary cell server has been installed. |
| JNLP Port Number                           | The Java Network Launch Protocol port number to use to connect the BMC Impact Publishing Server to the BMC Impact Portal.  
The default is **9379**. |
| Master Cell Encryption Key                 | encryption key used for communication authentication between BMC Impact Solutions components  
The default encryption key for the master administration server cell is **mc**. |
| Master IAS Hostname                        | host name where the master BMC IAS server is installed and to which this standard BMC IAS server should connect |
| OVO Administrator Userid                   | user name used to access HP OVO |
| OVO Password                               | password for the HP OVO Userid |
| Primary Server Hostname                    | host name where the primary server of this high-availability pair is installed |
| Port Number                                | port number to use to connect the BMC Impact Service Model Integration for HP OVO adapter cell to the BMC Impact Publishing Server if you are installing the adapter cell on a different computer than the one on which the publishing server is installed  
The default is **1838**. |
| Secondary Cell Server Hostname             | host name where the secondary cell server of this high-availability pair is installed |
| Secondary Server Hostname                  | host name where the secondary server of this high-availability pair is installed |
Table 9  Fields for all installation scenarios (part 4 of 4)

<table>
<thead>
<tr>
<th>Field</th>
<th>Options/description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Encryption Key</td>
<td>encryption key for the BMC Impact Publishing Server that you are installing. Appears only if you select to install the BMC Impact Publishing Server. The default is mc.</td>
</tr>
<tr>
<td>Server Port Number</td>
<td>the port number that the BMC Impact Publishing Server will use to connect to the BMC Impact Manager cell. Appears only if you select to install the BMC Impact Publishing Server. The default is 1839.</td>
</tr>
<tr>
<td>Type of cell to create</td>
<td>type of cell, either BEM or SIM, to create during installation when installing both packages</td>
</tr>
<tr>
<td>Type of server to create</td>
<td>type of BMC IAS server to create during this installation</td>
</tr>
<tr>
<td></td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>■ Master: Creates a login server and installs the infrastructure administration functions of BMC IX; you must install a master server before you install a standard server</td>
</tr>
<tr>
<td></td>
<td>■ Standard: Creates a login server only</td>
</tr>
</tbody>
</table>

---

**TIP**

For more detailed information about the components and their functions as listed in Table 8 on page 61 and in Table 9 on page 62, see the BMC Impact Solutions Infrastructure Administration Guide, the BMC Impact Solutions Event Management Guide, and the BMC Impact Solutions Event Adapters User Guide.

---

9  On the installation summary page, verify the settings that you chose during the installation process.

- To change the settings, click Previous.
- To start the installation, click Install.

---

**WARNING**

After you click Install and file copying begins, do not attempt to cancel the installation. Canceling the installation during file copying can prevent use of the uninstallation script and require manual cleanup of the computer. Cleaning up the computer manually after a canceled installation is difficult.

---

If the package is installed successfully, the installation process displays the following message:

The installation of BMC Impact Solutions 7.3.00 was completed successfully.
Installing BMC Impact Solutions components on a UNIX computer

If a different message is displayed, the installation was not successful. For more information, see “Troubleshooting the BMC Impact Solutions installation” on page 72.

10 On the installation confirmation page, click View Log to view the installation log files or click Done to exit the installation program.

Installing in silent mode

You can use silent mode to install the BMC Impact Solutions as a background process. To install in silent mode, follow these steps:

1 In a text editor, create a file called setup.properties by entering the options shown in Table 10 on page 66.

You will use this file to make your installation selections to pass parameters to the installation script. Use the information in “Installing BMC Impact Solutions components on a UNIX computer” on page 60 to guide your installation selection decisions.

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTALLER_UI=silent</td>
<td>mode of the installation program, in this case, silent</td>
</tr>
<tr>
<td>USER_INSTALL_DIR=installationDirectory</td>
<td>the installation directory where you want to install the BMC Impact Solutions</td>
</tr>
<tr>
<td></td>
<td>The default is /opt/bmc/Impact.</td>
</tr>
<tr>
<td>INSTALL_PACKAGE=EM</td>
<td>SIM</td>
</tr>
<tr>
<td></td>
<td>■ EM: event management</td>
</tr>
<tr>
<td></td>
<td>■ SIM: service impact management</td>
</tr>
<tr>
<td></td>
<td>■ BOTH: event and service impact management</td>
</tr>
<tr>
<td></td>
<td>The default is BOTH.</td>
</tr>
</tbody>
</table>

Table 10  Silent mode installation properties (part 1 of 5)
CHOSEN_INSTALL_FEATURE_LIST=
the BMC Impact Solutions components that you want to install separated by commas:
- IAS: BMC Impact Administration Server
- IM: BMC Impact Manager
- IX: BMC Impact Explorer
- IEA: BMC Impact Event Adapters
- IELA: BMC Impact Event Log Adapter for Windows
- IBRSD: Impact Integration for BMC Remedy Service Desk
- PS: BMC Impact Publishing Server
- DOC: All-in-one documentation PDF
- IOVOA: BMC Impact Service Model Integration with HP OVO

IAS_NAME=instanceName
the instance name of the BMC IAS

IAS_PORT=portNumber
the port number that the BMC IAS should use to connect to the BMC IX.
The default is 3084.

IAS_PASSWORD=adminPassword
the administrative password for the BMC IAS.
The default is IAS$Admin$.

Note: You must enter the dollar signs as $DOLLAR$ in the setup.properties file, so your entry for this field would be IASSDOLLAR$Admin$DOLLAR$.

IAS_TYPE=MASTER|STANDARD
type of IAS that you want to install
Enter one of the following values:
- MASTER: creates a login server and installs the infrastructure administration functions of BMC IX, including the Impact Administration Cell (IAC); you must install a master server before you install a standard server
- STANDARD: creates a login server only
The default is MASTER.

IAS_MODE=Standalone|Primary|Secondary
how you want the IAS configured
Enter one of the following values:
- Standalone: single IAS with no failover capability
- Primary: the primary IAS in a high-availability pair
- Secondary: the secondary IAS in a high-availability pair
The default is Standalone.
Installing BMC Impact Solutions components on a UNIX computer

Table 10  Silent mode installation properties (part 3 of 5)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMIN_CELL_KEY=encryptionKey</td>
<td>The master administration cell encryption key.</td>
</tr>
<tr>
<td>IAS_PRIMARY_HOST=hostName</td>
<td>host name of the computer where you will install the primary IAS</td>
</tr>
<tr>
<td>IAS_SECONARY_HOST=hostName</td>
<td>host name of the computer where you will install the secondary IAS</td>
</tr>
<tr>
<td>MASTER_IAS_HOST=hostName</td>
<td>host name where the master BMC IAS is installed and to which a standard BMC IAS should connect</td>
</tr>
<tr>
<td>MASTER_IAS_PORT=portNumber</td>
<td>port number that the master IAS uses to connect to the standard IAS</td>
</tr>
<tr>
<td>MASTER_IAS_PASSWORD=password</td>
<td>administrative password for the master IAS</td>
</tr>
<tr>
<td>ADMIN_CELL_PRIMARY_PORT=portNumber</td>
<td>if you are installing a master IAS, the port number that the IAS uses to connect to the master administration cell</td>
</tr>
<tr>
<td>USER_HAS_ARC_SERVER=TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>CMDB_HOSTNAME=hostName</td>
<td>the host name where the BMC Atrium CMDB is installed</td>
</tr>
<tr>
<td>CMDB_PORT=portNumber</td>
<td>the port number for the BMC IX to use to connect to the BMC Atrium CMDB</td>
</tr>
<tr>
<td>CMDB_LOGIN=userName</td>
<td>the AR System Server administrative user name.</td>
</tr>
<tr>
<td>CMDB_PASSWORD=password</td>
<td>the AR System Server administrative password</td>
</tr>
<tr>
<td>CELL_NAME=cellName</td>
<td>cell instance name</td>
</tr>
<tr>
<td>CELL_TYPE=SIM</td>
<td>EM</td>
</tr>
<tr>
<td></td>
<td>Enter one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- TRUE: CMDB is installed</td>
</tr>
<tr>
<td></td>
<td>- FALSE: CMDB is not installed</td>
</tr>
<tr>
<td></td>
<td>The default is TRUE.</td>
</tr>
</tbody>
</table>

The default is mc.
### Table 10  Silent mode installation properties (part 4 of 5)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELL_MODE=Standalone</td>
<td>how you want the BEM or SIM cell configured</td>
</tr>
<tr>
<td>Enter one of the following values:</td>
<td></td>
</tr>
<tr>
<td>- Standalone:</td>
<td></td>
</tr>
<tr>
<td>- Primary:</td>
<td>the primary cell in a high availability pair</td>
</tr>
<tr>
<td>- Secondary:</td>
<td>the secondary cell in a high availability pair</td>
</tr>
<tr>
<td>The default is <strong>Standalone</strong>.</td>
<td></td>
</tr>
<tr>
<td>CELL_PORT=portNumber</td>
<td>the port number for the cell to use to connect to the BMC IX</td>
</tr>
<tr>
<td>The default is <strong>1828</strong>.</td>
<td></td>
</tr>
<tr>
<td>CELL_KEY=encryptionKey</td>
<td>the cell encryption key</td>
</tr>
<tr>
<td>The default is <strong>mc</strong>.</td>
<td></td>
</tr>
<tr>
<td>CELL_PRIMARY_HOST=hostName</td>
<td>the host name where the primary cell server is installed</td>
</tr>
<tr>
<td>CELL_PRIMARY_PORT=portNumber</td>
<td>the port number for the primary cell to use to connect to the secondary cell in a high-availability pair</td>
</tr>
<tr>
<td>The default is <strong>1828</strong>.</td>
<td></td>
</tr>
<tr>
<td>CELL_SECONDARY_HOST=hostName</td>
<td>the host name for the cell failover server if the cell you are installing is specified as Primary</td>
</tr>
<tr>
<td>CELL_SECONDARY_PORT=portNumber</td>
<td>the port number for the primary cell to use to connect to the failover cell in a high-availability pair</td>
</tr>
<tr>
<td>The default is <strong>1828</strong>.</td>
<td></td>
</tr>
<tr>
<td>PS_KEY=serverEncryptionKey</td>
<td>encryption key for the BMC Impact Publishing Server that you are installing. Appears only if you select to install the BMC Impact Publishing Server.</td>
</tr>
<tr>
<td>The default is <strong>mc</strong>.</td>
<td></td>
</tr>
<tr>
<td>PS_PORT=portNumber</td>
<td>the port number that the BMC Impact Publishing Server will use to connect to the BMC Impact Manager cell. Appears only if you select to install the BMC Impact Publishing Server.</td>
</tr>
<tr>
<td>The default is <strong>1839</strong>.</td>
<td></td>
</tr>
<tr>
<td>PORTAL_HOST=hostName</td>
<td>host name where the BMC Impact Portal is installed and to which the BMC Impact Publishing Server should connect</td>
</tr>
<tr>
<td>PORTAL_PORT=portNumber</td>
<td>The Java Network Launch Protocol (JNLP) port number to use to connect the BMC Impact Publishing Server to the BMC Impact Portal.</td>
</tr>
<tr>
<td>The default is <strong>9379</strong>.</td>
<td></td>
</tr>
</tbody>
</table>
Installing BMC Impact Solutions components on a UNIX computer

Table 10  Silent mode installation properties (part 5 of 5)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOVOA_CELL_PORT=portNumber</td>
<td>port number to use to connect the BMC Impact Service Model Integration for HP OVO adapter cell to the BMC Impact Publishing Server if you are installing the adapter cell on a different computer than the one on which the publishing server is installed. The default is <strong>1838</strong>.</td>
</tr>
<tr>
<td>IOVOA_CELL_KEY=encryptionKey</td>
<td>encryption key for the BMC Impact Publishing Server. Specify this value only if you are installing the BMC Impact Service Model Integration for HP OVO adapter cell on a different computer than the one on which the publishing server is installed. The default is <strong>mc</strong>.</td>
</tr>
<tr>
<td>OVO_USER=userName</td>
<td>user name used to access HP OVO.</td>
</tr>
<tr>
<td>OVO_PASSWORD=password</td>
<td>password for the HP OVO Userid.</td>
</tr>
<tr>
<td>PS_HOST=hostName</td>
<td>host name of the BMC Impact Publishing Server if different from the one on which you are installing the BMC Service Model Integration for HP OVO adapter cell.</td>
</tr>
<tr>
<td>IX_IAS_HOST=hostName</td>
<td>the host name where the IAS is installed that the BMC IX should connect to.</td>
</tr>
<tr>
<td>IX_IAS_PORT=portNumber</td>
<td>the port number that the BMC IX should use to connect to the IAS. The default is <strong>3084</strong>.</td>
</tr>
</tbody>
</table>

**NOTE** Include only those options for which you want to specify a value. If you want to use default values, do not include the option in the `setup.properties` file.

Figure 8 on page 71 shows an example of the `setup.properties` file.
Figure 8  Example of the setup.properties file for a silent mode installation on UNIX computers

```
INSTALLED_USER=silent
USER_INSTALL_DIR=/opt/bmc/Impact
INSTALL_PACKAGE=BOOTH
CHOOSEN_INSTALL_FEATURE_LIST=IAS,IM,IX
IAS_NAME=Admin
IAS_PORT=3084
IAS_PASSWORD=IAS$DOLLAR$Admin$DOLLAR$
IAS_TYPE=Master
IAS_MODE=standalone
IAS_PRIMARY_HOST=localhost
IAS_SECONDARY_HOST=
MASTER_IAS_HOST=
MASTER_IAS_PORT=3084
MASTER_IAS_PASSWORD=
ADMIN_CELL_PRIMARY_PORT=1827
#
USER_HAS_ARS_SERVER=true
CMDB_HOSTNAME=localhost
CMDB_PORT=0
CMDB_LOGIN=Demo
CMDB_PASSWORD=
#
CELL_NAME=
CELL_TYPE=SIM
CELL_MODE=standalone
CELL_PORT=1828
CELL_KEY=mc

IX_IAS_HOST=localhost
IX_IAS_PORT=3084
```

**NOTE**
Pay close attention to the syntax used in the file. Backslash signs (\) must be entered as `\` and dollar signs ($) must be entered as `$DOLLAR$` in the *setup.properties* file.

If you are unsure how to edit the file, use the standard installation program instead of silent mode.

2  After you complete your edits to the *setup.properties* file, save the file locally.

3  At a command prompt, enter the following command:

   ```
   Setup -f full_path/setup.properties
   ```

   The variable `full_path` is the absolute path where you saved the *setup.properties* file locally.

To check the status of the installation, view the installation log file.
Installing BMC Impact Solutions components on a UNIX computer

Where to go from here

To create additional cells, such as secondary server cells for high availability, see the *BMC Impact Solutions Getting Started* guide.

To enable BMC Impact Explorer users to access the data defined to cells, you must register the cell with the BMC Impact Portal. For more information, see *BMC Impact Solutions Getting Started* guide.

Troubleshooting the BMC Impact Solutions installation

The BMC Impact Solutions installation does not create specific log files, but the installation scripts (located in the product’s target directory) and the mcell trace file (located in the `%MCELL_HOME%/tmp/cellName/trace` directory) contain information, such as file names and paths, service information, and messages, that might be useful for troubleshooting problems with the installation. If you need assistance with a failed installation, call your Customer Support representative.

Postinstallation tasks for the BMC IX

Before using BMC IX, you must perform the following tasks:

- Obtain a user account for BMC IX in the BMC IAS. For instructions, see “To obtain a user account for BMC IX” on page 73.

- If you installed the BMC IX on RedHat Linux 5.0 platforms, and you want to localize the interface for Japanese and Chinese locales, you must configure the `console.sh` file before you launch the BMC IX. See “To configure the console.sh file for Japanese and Chinese locales” on page 73.

- Verify that BMC IX was installed successfully. For instructions, see “To verify the successful installation of BMC IX” on page 74.

- Configure BMC IX to communicate with other BMC Impact Solutions products and components in your environment. For more information, see *BMC Impact Solutions Getting Started Guide*. 


To obtain a user account for BMC IX

1 From a command line, enter the following command to request a user account in the IAS:

   `iadmin -aru` (Add Remote User)

   If you define a user account in the BMC Impact Portal, you can select the Synchronize Users with IAS function from the Superadmin->Portal tab to synchronize the Portal users and groups with those of the BMC IAS.

   Users are added to the BMC IAS with the default password `user`.

2 Make the user a member of the Service Administrators group.

   For information about requesting a user account in the BMC IAS, see BMC Impact Solutions Infrastructure Administration Guide. For information about defining a user account in the BMC Impact Portal, see the BMC Portal Getting Started guide.

To configure the console.sh file for Japanese and Chinese locales

1 In a text editor such as Notepad, open the `console.sh` file.

   The file is located in the `/opt/bmc/Impact/console` directory.

2 Append the following information to the JVM_ARGS definition, depending on your locale:

   - For Chinese locales: `-Duser.language=zh -Duser.region=CN`
   - For Japanese locales: `-Duser.language=ja -Duser.region=JP`

   The edited line would appear as follows:

   - For Chinese locales:
     `JVM_ARGS="-Xms64m -Xmx256m" -Duser.language=zh -Duser.region=CN`
   - For Japanese locales:
     `JVM_ARGS="-Xms64m -Xmx256m" -Duser.language=ja -Duser.region=JP`

3 Close and save the file.
Installing the SNMP MIB libraries

To verify the successful installation of BMC IX

Enter the following command at a UNIX prompt:

```
sh console.sh
```

If the BMC IX console starts, installation was successful.

Installing the SNMP MIB libraries

This section explains how to install the SNMP MIB libraries on a UNIX computer.

1. Navigate to the `net-snmp` directory on the installation CD labeled *BMC Impact Solutions Enabling Components*.

2. Extract the file appropriate to your operating system to a temporary directory.

For more information about using the net-snmp package, see *BMC Impact Solutions Event Adapters User Guide*.

Installing the SNMP Adapter Configuration Manager

If you install the SNMP Adapter Configuration Manager, you must install it on the same computer where BMC Impact Event Adapters are installed.

Before you begin

- Ensure that you have root authority on the computer where you will be installing the SNMP Adapter Configuration Manager

- Ensure that the `PATH` environment variable has been set for JDK version 1.6 (for example, `/jdk1.6/bin`).

To install the SNMP Adapter Configuration Manager

1. Copy the files from the installation DVD to a directory on the computer or download the BMC Impact Solutions product from the BMC Software EPD site.

   - DVD: Insert the installation DVD labeled *BMC Event and Impact Management Base*, locate the platform-specific subdirectory of the `Impact_Event_Adapters` directory, and copy the contents of that directory.
Installing the SNMP Adapter Configuration Manager

Chapter 3 Installing components on UNIX computers the first time


2 Run one of the following scripts, depending on your operating system:

- For Solaris, EAConf_solaris.bin.
- For AIX, EAConf_aix.bin.
- For HP-UX, EAConf_hp.bin.
- For Linux, EAConf_linux.bin.

3 In the SNMP Adapter Configuration Manager - InstallShield Wizard page, click Next.

4 Accept the license agreement, and click Next.

5 Accept the default directory or select the directory where you want to install the product, and click Next.

**NOTE**

Ensure that the path contains no spaces.

6 Enter the paths where JDK and Perl are installed, and click Next.

7 Perform the appropriate action for the Tomcat installation below, then click Next:

- If you want to install the Tomcat server that is bundled with the SNMP Adapter Configuration Manager, select **Install TOMCAT**. Accept the default listen and shutdown ports or enter different ports.

- If the Tomcat server is already installed, select **Do not Install TOMCAT**. You must enter the path where the Tomcat server is already installed.

**NOTE**

BMC recommends that you install the Tomcat server that is bundled with the SNMP Adapter Configuration Manager. If you use an existing Tomcat server, you must manually configure it. For details, see “Configuring the Tomcat server” on page 78.

8 Perform the appropriate action for the Net-SNMP library installation:

- If you want to install the Net-SNMP library, select **Install Net-SNMP Library**. The Net-SNMP library is installed in the *installationDirectory/ucd-snmp-4.2.3* directory.

  The variable *installationDirectory* is the path to the SNMP Adapter Configuration Manager configuration and executable files.
If a Net-SNMP library is already installed, select **Don’t Install Net-SNMP Library**. You must enter the existing Net-SNMP bin and MIB paths.

In the **Net-SNMP bin Path** box, append the following folders to your Net-SNMP library path:

- For Solaris, `/usr/bin`
- For AIX, `/usr/local/bin`
- For HP-UX, `/usr/local/bin`
- For Linux, `/usr/local/bin`

In the **Net-SNMP mibs Path** box, append the following folders to your Net-SNMP library path:

- For Solaris, `/usr/share/snmp/mibs`
- For AIX, `/usr/local/share/snmp/mibs`
- For HP-UX, `/usr/local/share/snmp/mibs`
- For Linux, `/usr/local/share/snmp/mibs`

9 Click **Next**.

10 Review the summary information carefully to ensure that it is correct.

- If you want to change your selections, click **Back**.
- If the selections are correct, click **Install** to start installing.

11 After the product has been successfully installed, select **Start Tomcat Server** to automatically start the Tomcat server.

If you do not select to start the Tomcat server automatically, you must manually start it before you can use the SNMP Adapter Configuration Manager. For more information, see “Starting the Tomcat server” on page 77.

12 At the end of the installation, click **Finish**.

**Where to go from here**

After you have installed the SNMP Adapter Configuration Manager, you must perform certain postinstallation tasks. For details, see “Postinstallation tasks for the SNMP Adapter Configuration Manager.”
Postinstallation tasks for the SNMP Adapter Configuration Manager

This section describes the postinstallation tasks that you should perform after you have installed the SNMP Adapter Configuration Manager.

Enabling the JDK 1.6 plug-in

1. Open Internet Explorer.
2. Choose Tools => Internet Options.
3. Click the Advanced tab.
4. Under Microsoft VM, select the following options:
   - Java console enabled (requires restart)
   - JIT compiler for virtual machine enabled (requires restart)
5. Under Java (Sun), select Use Java 2 vx.x.x for <applet> (requires restart).

**NOTE**
If Java (Sun) is not visible, the Java plug-in is not installed on the computer. In that case, install Java™ SE JRE™ from http://java.sun.com/javase/downloads/index.jsp.

Starting the Tomcat server

Perform this procedure if you chose not to automatically start the Tomcat server during installation of the SNMP Adapter Configuration Manager. You must start the Tomcat server before you can use the SNMP Adapter Configuration Manager.

1. At a command prompt, navigate to the installationDirectory/jakarta-tomcat-5.0.25/bin directory or the Catalina_Home/bin directory.

   Catalina_Home is the path where the Tomcat server is installed.

2. Run the appropriate command for your operating system:
   - For Solaris, ./catalina.sh run -security
   - For AIX, ./catalina.sh run -security
   - For HP-UX, ./catalina.sh run -security
   - For Linux, ./catalina.sh run -security
Configuring the Tomcat server

If you did not install the Tomcat server that is bundled with the SNMP Adapter Configuration Manager, you must manually configure your existing Tomcat server.

1. At the beginning of the `Catalina.sh` file that is located in the `Catalina_Home\bin` directory, add the following lines in the order shown:

   ```
   JAVA_HOME=JDK_Home
   export JAVA_HOME
   PATH=Perl_Home/bin:/NET_SNMP_EXEC:$PATH
   export PATH
   . /etc/mcell/setup_env.sh
   LOG_PROPERTIES="$MCELL_HOME/etc/snmpAdapter/logging.properties"
   JAVA_OPTS=${JAVA_OPTS}" -Xms134217728  -Xmx536870912"
   ```

2. In the `Catalina.sh` file that is located in the `Catalina_Home\bin` directory, add the `java.util.logging.config.file` and the `MCELL_HOME` system properties for all the `EXECJAVA` commands after the following statements:

   ```
   elif [ "$1" = "run" ]; then
     shift
     if [ "$1" = "-security" ]; then
       echo "Using Security Manager"
     shift
   ```

   A. To add the `java.util.logging.config.file` and the `MCELL_HOME` system properties, add the following lines in the file.

   ```
   -Djava.util.logging.config.file=$LOG_PROPERTIES \
   -DMCELL_HOME=$MCELL_HOME \
   ```

   B. Ensure that the following `java.security.policy` system property has been set in the `Catalina.bat` file:

   ```
   -Djava.security.policy="$CATALINA_BASE"/conf/catalina.policy \
   ```
3 In the setClasspath.sh file that is located in the Catalina_Home/bin directory, add SnmpAdapterClient.jar to the classpath, as follows:

CLASSPATH=$JAVA_HOME/lib/tools.jar:$installationDirectory/lib/SnmpAdapterClient.jar:$CLASSPATH

4 In the server.xml file that is located in the Catalina_Home/conf directory, specify the Connector port and the Server port.

Ensure that the ports you have specified are not being used by any other application.

--- EXAMPLE ---
<Server port="8005" shutdown="SHUTDOWN" debug="0">
<Connector port="8080"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" redirectPort="8443" acceptCount="100"
default="false" connectionTimeout="20000" maxPostSize="0"
disableUploadTimeout="true" />

--- EXAMPLE ---
<Connector port="8080"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" redirectPort="8443" acceptCount="100"
default="false" connectionTimeout="20000" maxPostSize="0"
disableUploadTimeout="true" />

5 In the server.xml file that is located in the Catalina_Home/conf directory, set the value of the maxPostSize to 0.

--- EXAMPLE ---
<Connector port="8080"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" redirectPort="8443" acceptCount="100"
default="false" connectionTimeout="20000" maxPostSize="0"
disableUploadTimeout="true" />

6 At the end of the catalina.policy file that is located in the Catalina_Home/conf directory, add the contents of the Client_Unix.policy file.

The Client_Unix.policy file is located in the product installation directory.
Stopping the Tomcat server

You must stop and then restart the Tomcat server each time you modify a configuration file related to the SNMP Adapter Configuration Manager. Until you restart the Tomcat server, the changes made to the configuration files are not reflected in the SNMP Adapter Configuration Manager. You must also stop the Tomcat server before you uninstall the SNMP Adapter Configuration Manager.

1. At a command prompt, navigate to the `installationDirectory\jakarta-tomcat-5.0.25\bin` directory or the `Catalina_Home\bin` directory.

2. Run one of the following commands, depending on your operating system:
   - For Solaris, `/catalina.sh stop`
   - For AIX, `/catalina.sh stop`
   - For HP-UX, `/catalina.sh stop`
   - For Linux, `/catalina.sh stop`
Upgrading BMC Impact Solutions

This part presents the following topics:

Chapter 4
Upgrading BMC Impact Solutions components on Windows computers . . . . . . . 83

Chapter 5
Upgrading BMC Impact Solutions components on UNIX computers . . . . . . . . 97

Chapter 6
Upgrading a service model to BMC Atrium CMDB . . . . . . . . . . . . . . . . . . . . . 113
This chapter details how to upgrade BMC Impact Solutions components on Windows if you have earlier versions of the components installed, and includes the following topics:

- General upgrade considerations .................................................. 84
- Preparing to upgrade ................................................................. 84
- Upgrading BMC SIM CMDB extensions ....................................... 85
- Upgrading BMC Impact Solutions components ............................ 86
  - Using the BMC IAS migration utility ......................................... 92
- Updating the SIM KB component classes ..................................... 94
- Upgrading the SNMP Adapter Configuration Manager .................. 95
- Verifying the upgrade ............................................................... 95
General upgrade considerations

You can apply these upgrade instructions only if you are upgrading from BMC Impact Solutions 7.0.02 or later to this version of BMC Impact Solutions.

If you upgrade from version 7.0.02 and install the BMC Impact Administration Server on a different computer from the computer with the prior version of the BMC Impact Portal, you must use the BMC IAS migration utility to migrate your BMC Impact Portal data to the BMC IAS. For the procedure to run this utility, see “Using the BMC IAS migration utility” on page 92.

Before you start the upgrade, take an inventory of all applications that integrate with SIM (BMC, third-party, or created in-house) and verify that there is a version available that supports SIM 7.3.

BMC Remedy AR System 7.1 and 7.5 and BMC Atrium CMDB 2.1 and 7.5 do not support Microsoft Windows 2000. If you are running either of these applications on Windows 2000, you must upgrade the operating system to Windows 2003 before upgrading the applications.

Preparing to upgrade

1 Back up the entire system, including the database and file system.

2 Ensure that the services listed in Table 11 are running.

Table 11   Windows services for BMC products and components

<table>
<thead>
<tr>
<th>Component</th>
<th>These names are shown as part of a string in the Services list</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Datastore</td>
<td>■ BMC Listener</td>
</tr>
<tr>
<td></td>
<td>■ BMC BMCPDS Instance</td>
</tr>
<tr>
<td>BMC Impact Portal Appserver</td>
<td>BMC Impact Portal</td>
</tr>
<tr>
<td>BMC Impact Portal Webserver</td>
<td>BMC Portal Web Server</td>
</tr>
<tr>
<td>BMC Atrium CMDB</td>
<td>■ Remedy Action Request System</td>
</tr>
<tr>
<td></td>
<td>■ Remedy ARS Portmapper</td>
</tr>
<tr>
<td>cell</td>
<td>mcell_cellName</td>
</tr>
</tbody>
</table>
Upgrading BMC SIM CMDB extensions

After the BMC Atrium CMDB is successfully upgraded, upgrade the SIM extensions as described in this section. There are two separate installation programs for the BMC SIM CMDB extensions, one that installs the extensions that support BMC Atrium CMDB 2.1 and one that installs the extensions that support BMC Atrium CMDB 7.5.

If you are performing event management only or service impact management without a BMC Atrium CMDB, you do not have BMC SIM CMDB extensions installed and can start the upgrade with BMC Impact Manager (see “Upgrading BMC Impact Solutions components” on page 86.)

---

**WARNING**

Upgrading the SIM extensions over a network can cause the upgrade to fail. Copy the extensions to the local BMC Atrium CMDB computer and run the upgrade from it.

---

To upgrade the SIM extensions

1. Start the upgrade program using one of the following methods:
   - DVD: Insert the installation DVD labeled *BMC Event and Impact Management Base* DVD. In the **SIM_CMDB_Extensions** directory, open the **CMDB_2.1** or **CMDB_7.5** directory, depending on what version of the BMC Atrium CMDB that you are upgrading. Double-click the **simExtLoader.exe** file.
   - [http://webapps.bmc.com/epd](http://webapps.bmc.com/epd) (BMC Software EPD website): Select BMC Service Impact Manager, select the current version for the platform that you are installing to, and then select BMC Impact Extensions for Atrium CMDB. Download the .zip file that corresponds to the version of the BMC Atrium CMDB that you installed (either 2.1 or 7.5), unzip the file, and double-click the **simExtLoader.exe** file.

2. On the Welcome page, click Next.


4. On the AR Server Connection Information page, accept the default or enter a local AR System server name (not the fully qualified host name or IP address) and, if necessary, the TCP port number and RPC port number, and then click Next.

   If you accepted the default values for the TCP and RPC port numbers during the BMC Atrium CMDB installation, you can leave those values blank.

5. On the Administrator Login Information Request page, enter an administrator user name and password (if necessary), and then click Next.
Upgrading BMC Impact Solutions components

6 On the Notification Service Plugin page, accept the default (1840) or enter a port for the plugin, and then click Next.

If you recorded installation decisions in the installation planning sheet, see Table 4 on page 19.

After you click Next, the plugin is installed, the BMC Remedy AR System server is restarted, and the SIM CMDB extensions are upgraded. Upgrading the BMC Atrium CMDB extensions usually takes about 1.5 hours.

7 On the Package Load Summary page, verify that each line displays Success and click Next.

8 On the Setup Complete page, click Finish.

**WARNING**

If the BMC Remedy ITSM product, or any of its component products, are installed after the SIM extensions have been installed, you must apply a patch to the BMC Atrium CMDB by using the cmdbdriver script. This script is located on the *BMC Event and Impact Management Base* DVD in the *SIM_CMDB_Extensions\patches* directory. For directions for applying the patch, see the *readme.txt* file included with the script.

Upgrading BMC Impact Solutions components

For Atrium deployment scenarios, follow these steps to upgrade to the new version of BMC Impact Solutions.

1 Run the service model migration utilities. See page 87.

2 Upgrade the BMC Impact Solutions components. See page 87.

3 Finalize the upgrade of the cell’s knowledge base. See page 89.

4 Register the BMC IX with the BMC Atrium CMDB. See page 92.

5 If you are upgrading from BMC Impact Solutions 7.0.02, restart the IAS. See page 92.

If you are upgrading event management only or service impact management without a BMC Atrium CMDB scenarios, you do not need to run the migration utilities. Upgrade the BMC Impact Solutions components as specified on page 87.
Before you begin

Back up the cell’s knowledge base from MCELL_HOME\etc\cellName\kb.

To run the service model migration utilities

1. From the BMC Event and Impact Management Base version 7.3.00 DVD or the BMC Impact Solutions image that you downloaded from the BMC Software EPD website, copy the msmdelete and msmreattach scripts from the Impact_Solutions\utilities directory into the MCELL_HOME\bin directory on the computer where you want to upgrade the service model.

2. To erase the service model from the existing cell, from a command line, enter the following command:

   msmdelete -n cellName

   The msmdelete script terminates the cell, restarts it in non-publish mode, erases the service model from it, and terminates it again.

To upgrade BMC Impact Solutions components

1. Start the upgrade program by using one of the following methods:

   - DVD: Insert the installation DVD labeled BMC Event and Impact Management Base DVD, locate platform-specific subdirectory of the Impact_Solutions directory, and then double-click the setup.exe file.


   If the upgrade program detects BMC Impact Solutions version 7.0.02 or later, the program displays the detected components and their version numbers. Click Next and continue with step 2.

   If the upgrade program detects BMC Impact Solutions versions earlier than 7.0.02, the program displays the detected components and their version numbers but does not let you continue the upgrade. Click Cancel.

2. On the End User License Agreement page, acknowledge that you reviewed and agree to the terms of the License Agreement, and click Next.

3. If any software components other than BMC Impact Explorer are installed on this computer, skip to step 4 on page 88. Otherwise, continue with this step.
If you have only BMC Impact Explorer installed on this computer, the upgrade script prompts you to select the upgrade that you want to perform. Make your selection, and click Next.

- **Minimal Install**: This option is recommended for a first-time installation. Selecting this option installs the BMC Impact Administration Server, Impact Integration Web Services, the BMC Impact Manager, and the BMC Impact Explorer using default configuration values. The only option that you will need to specify during the installation is the installation directory.

- **Complete Install (Recommended)**: This option installs all the components for the software package that you selected on the product selection installation page.

- **Custom**: This option displays a secondary upgrade page that enables you to select which components from the software package that you want to upgrade on this computer.

- **Impact Explorer Console**: This option upgrades a BMC Impact Explorer console only.

4. On the custom upgrade selection page make your selections from the following choices and click Next.

---

**TIP**

Checking the BMC Impact Solutions box automatically checks the boxes for all the components.

- BMC Impact Solutions
- BMC Impact Administration Server
- BMC Impact Integration Web Services Server
- BMC Impact Publishing Server
- BMC Impact Manager (a cell)
- Integration for BMC Remedy Service Desk
- BMC Impact Explorer
- BMC Impact Event Adapters
- BMC Impact Windows Event Log Adapter
- BMC Impact Solutions Documentation
5 On the upgrade summary page, verify the selections that you made during the upgrade process.

- To change the settings, click Previous.
- To start the installation, click Install.

**WARNING**

After you click Install and file copying begins, do not attempt to cancel the upgrade. Canceling the upgrade during file copying can prevent use of the uninstallation script and require manual cleanup of the computer. Cleaning up the computer manually after a canceled upgrade is difficult.

If the package upgrades successfully, the following message is displayed:

The installation of BMC Impact Solutions 7.3.00 was completed successfully.

6 Click Done to complete the upgrade script.

**To finalize the upgrade**

When you upgrade BMC Impact Manager, existing cell configurations are not modified so that your customizations are preserved. As a result, existing cell configuration files do not contain new configuration parameters included in the upgrade. The following procedure explains how to update these configuration files for upgraded cells.

Perform the following steps after the installation program completes the upgrade of the BMC Impact Solutions components.

1 Upgrade the cell’s knowledge base by performing the following steps:

   A Back up the cell’s knowledge base from \MCELL_HOME\etc\cellName\kb. For example, you could rename it to kb_old.

   B Copy the knowledge base from \MCELL_HOME\etc\default\SIM\kb to \MCELL_HOME\etc\cellName\kb.

   C Merge the customizations from the knowledge base back up that you created in step A (for example, kb_old) into the new knowledge base.
Upgrading BMC Impact Solutions components

2 Recompile the knowledge base by entering the following command from a command line:

```
mccomp -n cellName
```

**NOTE**
You must recompile the KB files of each cell in use.

3 Restart the newly upgraded cell.

4 Publish the service model again to the newly updated cell by entering the following command from a command line:

```
pinit -n cellName
```

5 Restore the impact status on the CIs by entering the following command from a command line:

```
msmreattach -n cellName
```

**To install BMC Impact Solutions components on a different computer but preserve knowledge base customizations**

If you want to install the BMC Impact Solutions on a different computer but maintain the knowledge base customizations from your current installation, perform the following steps.

1 Install the BMC Impact Solutions components as described in “Installing BMC Impact Solutions components on a Windows computer” on page 32.

2 On the computer where you install the BMC Impact Solutions components, create new cells by entering the following command:

```
mcrctcell -as -p port cellName
```

3 Stop the cells on the computer where the previous installation is installed.

4 Copy the contents of `MCELL_HOME\log\cellName` directory from the previous installation to the `MCELL_HOME\log\cellName` directories of the cells that you created on the computer with the new installation.

5 Copy and merge the customizations from the Knowledge Base back up that you created before you began the upgrade into the Knowledge Base for the newly installed cells.
6  Recompile the knowledge base by entering the following command from a command line:

`mccomp -n cellName`

---

**NOTE**

You must recompile the KB files of each cell in use.

---

7  Restart the newly upgraded cell.

8  Publish the service model again to the newly updated cell by entering the following command from a command line:

`pinit -n cellName`

9  Restore the impact status on the CIs by entering the following command from a command line:

`msmreattach -n cellName`

---

**To upgrade the Knowledge Base of the administration cell**

If you upgraded from version 7.1 or 7.2, you must manually load the data file for the Impact Administration Cell. Perform the following additional steps.

---

**NOTE**

Customizations to the knowledge base will not be saved. If you want to save your customizations, ensure that you back up the knowledge base of the IAC before you upgrade BMC Impact Solutions, then copy the customizations from the old knowledge base to the new knowledge base after the upgrade is complete.

---

1  Rename the knowledge base located in `MCELL_HOME\etc\Admin`. For example, you could rename it `KB_old`.

2  Copy the knowledge base located in `MCELL_HOME\etc\default\Admin` to `MCELL_HOME\etc\Admin`.

3  Recompile the Knowledge Base by entering the following command:

`mccomp -n Admin`

4  Restart the IAC and reload the cell’s data file by entering the following command:

`mcell -n Admin -id`
To restart the BMC Impact Administration Server

If you upgraded from version 7.0.02 to version 7.3, you must restart the BMC IAS to update the cell.info.list file. Restart the IAS service through the Services window.

To register BMC IX in the BMC Atrium CMDB

1. On the Portal computer, navigate to the appserver\websdk\bin\smsIX subdirectory.
2. Run the following command from a command line:

   `federationLoader -S ARserverName -U ARadminUserid [-P ARadminPassword]`

   Provide the -P parameter only if there is a password.

Using the BMC IAS migration utility

If you upgraded the BMC Impact Solutions and installed the BMC Impact Administration Server (BMC IAS) on a computer separate from the prior BMC Impact Portal installation, use this utility to migrate your data from the BMC Impact Portal to the BMC IAS. You can find the files for this utility in the utilities subdirectory of the BMC Impact Solutions installation directory. If you accepted the default installation directory, the files are located in C:\Program Files\BMC Software\Impact\utilities.

To run the BMC IAS migration utility

1. Copy these files from the utilities installation subdirectory to a temporary directory on the BMC Impact Portal computer:
   - ExcludedFiles.txt
   - ReadMe.txt
   - createIasMigrate.bat
   - migrateToIas.bat
   - iasmigration.jar

2. Update the following variables in the createIasMigrate.bat file:
   - JAVA_HOME: the installation directory for Java
     For example: JAVA_HOME="C:\Program Files\Java\jre1.6.0_02"
   - UTILITY_HOME: the directory where you copied the utility files
For example: UTILITY_HOME="C:\Temp\Test"

- TEMP_FOLDER: an empty temporary directory inside the UTILITY_HOME directory
  For example: TEMP_FOLDER="C:\Temp\Test\Test1"

- PORTAL_HOME: the directory where the BMC Impact Portal is installed
  For example: PORTAL_HOME="C:\Temp\BMC Portal"

3 Execute the createIasMigrate.bat file.

The IAS_Migration.zip file is created in the utility home directory.

4 Copy the IAS_Migration.zip file from the utility home directory to a temporary directory on the BMC IAS computer.

5 Copy these files from the utilities installation subdirectory to the same temporary directory specified in step 4:

- ExcludedFiles.txt
- createIasMigrate.bat
- migrateToIas.bat
- iasmigration.jar

6 Update the following variables in the migrateToIas.bat file:

- JAVA_HOME: the installation directory for Java
  For example: JAVA_HOME="C:\Program Files\Java\jre1.6.0_02"

- IAS_MIGRATION_FILE: the directory where you copied the IAS_Migration.zip file
  For example: IAS_MIGRATION_FILE="C:\Temp\Test\IAS_Migration.zip"

- IAS_HOME: the installation directory of the BMC IAS
  For example: IAS_HOME="C:\Program Files\BMC Software\Impact\server"

7 Execute the migrateToIas.bat file.

The script distributes the files contained in IAS_Migration.zip to their respective directories on the BMC IAS computer and completes the migration.
Updating the SIM KB component classes

These steps are necessary if you have modified any of the default KB files or if you have upgraded an existing cell. These steps synchronize the cell KB with new classes from the BMC Atrium CMDB.

To update the SIM KB BAROC files

1. In the BMC Impact Portal, on the Configure tab, under Tasks, click Service Model Editor.

2. In the BMC Impact Service Model Editor, from the Tools menu, choose Export Cell Meta Data.

   In the Select Save Directory dialog box, the File Name box contains the value mc_sm_object.baroc.

3. Save this BAROC file and remember its location.

4. Locate the existing mc_sm_object.baroc file in the %MCELL_HOME%/etc/cellName/kb/classes directory.

5. Replace the file with the new one that you exported in step 3 on page 94.

6. Recompile the KB files by running the following command:

   %MCELL_HOME%/bin/mccomp.exe %MCELL_HOME%/etc/cellName/kb/manifest.kb

   **NOTE**
   You must replace the BAROC file and recompile the KB files of each cell that is in use.

7. Stop the BMC Impact Managers (cells).

8. Start the BMC Impact Managers.
Upgrading the SNMP Adapter Configuration Manager

1. Create a temporary, backup directory on your computer, for example, `backup_mibs`.
2. Copy the contents of the `installationDirectory\ucd-snmp-4.2.3\usr\mibs` directory to the backup directory that you created in step 1.
3. Uninstall the current version of the SNMP Adapter Configuration Manager.
   For details, see “Uninstalling the SNMP Adapter Configuration Manager” on page 144.
4. Install the new version of SNMP Adapter Configuration Manager.
   For details, see “Installing the SNMP Adapter Configuration Manager” on page 44.
5. Copy the contents of directory that you created in step 1 to the `installationDirectory\ucd-snmp-4.2.3\usr\mibs` directory in the new installation.
   The newly installed files will be overwritten with the files from the previous installation.

Verifying the upgrade

After all the components are upgraded as instructed in this chapter, verify that the entire upgrade was successful.

To verify that the upgrade was successful

1. Check the BMC Impact Publishing Server service. If it is already started, stop it and restart it.
   This action reinitializes the BMC Atrium CMDB and reconnects it with the BMC Impact Publishing Server.
2. Verify that all other services are running. See Table 11 on page 84 for the list of services.
3. Open a browser (Mozilla Firefox or Microsoft Internet Explorer).
4. In your browser, type the host name of the Portal web server.
5 Log on to the BMC Portal as superadmin.

6 In the BMC Portal, verify that user accounts created in the previous release are still available.

   To find existing accounts, on the Account tab, in the right pane under Accounts List, click Search.

7 Verify that the BMC Remedy Action Request System settings are correct. You might need to enter BMC Atrium CMDB AR System location information. For more information, see the BMC Portal Getting Started guide.

   On the Portal tab, in the right pane, Global Properties displays the BMC Remedy Action Request System parameter settings.

8 Verify that the cells are registered.

   If they are not registered, perform the following actions:

   A On the Portal tab, in the left pane, choose Tasks, and click Impact Managers.

   B Select a cell and click Subscribe Portals.

9 Log off the BMC Portal.

10 Log on to the BMC Portal with a user account created in the previous release.

11 In the BMC Portal, verify that service component instances and relationships created in the previous release are still available by checking the BMC Portal Status tab.

12 Launch the BMC Impact Service Model Editor and perform the following actions:

   A Verify that objects are still available by using the Find command.

   B Change an existing object or create a new component instance and verify that you can publish it.
Upgrading BMC Impact Solutions components on UNIX computers

This chapter details how to upgrade BMC Impact Solutions components on UNIX if you have earlier versions of the components installed, and includes the following topics:

- General upgrade considerations .......................................................... 98
- Preparing to upgrade ................................................................. 98
- Upgrading BMC SIM CMDB extensions ........................................ 98
- Upgrading BMC Impact Solutions components ................................. 100
  - Using the BMC IAS migration utility .............................................. 106
- Updating the SIM KB component classes ...
- Upgrading the SNMP Adapter Configuration Manager ..................... 109
- Verifying the upgrade ................................................................. 110
General upgrade considerations

You can apply these upgrade instructions only if you are upgrading from BMC Impact Solutions 7.0.02 or later to the version of BMC Impact Solutions.

If you upgrade from version 7.0.02 and install the BMC Impact Administration Server on a different computer from the computer with the prior version of the BMC Impact Portal, you must use the BMC IAS migration utility to migrate your BMC Impact Portal data to the BMC IAS. For the procedure to run this utility, see “Using the BMC IAS migration utility” on page 106.

Before you start the upgrade, take an inventory of all applications that integrate with SIM (BMC, third-party, or created in-house) and verify that there is a version available that supports SIM 7.3.

Preparing to upgrade

1 Back up the entire system, including the database and file system.

2 Verify that the processes listed in Table 12 are running.

Table 12 BMC UNIX processes

<table>
<thead>
<tr>
<th>Component</th>
<th>These names are shown as part of a string</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Datastore</td>
<td>BMCPDS</td>
</tr>
<tr>
<td></td>
<td>BMCPDS is the default; the process name is user-defined during installation.</td>
</tr>
<tr>
<td>BMC Impact Portal Appserver</td>
<td>bmc/BMCPortalKit/appserver</td>
</tr>
<tr>
<td>BMC Impact Portal Webserver</td>
<td>bmc/BMCPortalKit/webserver</td>
</tr>
<tr>
<td>BMC Atrium CMDB</td>
<td>• bmc/cmd/bin/arserverd</td>
</tr>
<tr>
<td></td>
<td>• bmc/cmd/bin/arsvcddsp</td>
</tr>
<tr>
<td></td>
<td>• bmc/cmd/bin/armonitor</td>
</tr>
<tr>
<td>BMC Impact Manager instance</td>
<td>mcell –n cellName</td>
</tr>
</tbody>
</table>

Upgrading BMC SIM CMDB extensions

After the BMC Atrium CMDB is successfully upgraded, upgrade the SIM extensions as described in this section. There are two separate installation programs for the BMC SIM CMDB extensions, one that installs the extensions that support BMC Atrium CMDB 2.1 and one that installs the extensions that support BMC Atrium CMDB 7.5.
If you are performing event management only or service impact management without a BMC Atrium CMDB, you do not have BMC SIM CMDB extensions installed and can start the upgrade with BMC Impact Manager (see “Upgrading BMC Impact Solutions components” on page 100.)

--- WARNING ---
Upgrading the SIM extensions over a network can cause the upgrade to fail. Copy the extensions to the local BMC Atrium CMDB computer and run the upgrade from it.

To upgrade the SIM extensions

1 Log on as root.

2 Start the installation program using one of the following methods:

- DVD: Insert the installation DVD labeled BMC Event and Impact Management Base DVD. In the SIM_CMDB_Extensions directory, open the CMDB_2.1 or CMDB_7.5 directory, depending on what version of the BMC Atrium CMDB that you are upgrading. Download and extract the simExtLoader.tar file.

- http://webapps.bmc.com/epd (BMC Software EPD website): Select BMC Service Impact Manager, select the current version for the platform that you are installing to, and then select BMC Impact Extensions for Atrium CMDB. Download and extract the .tar file that corresponds to the version of the BMC Atrium CMDB that you installed (either 2.1 or 7.5).

3 Run the following command:

```
./simExtLoader
```

4 At the License Agreement prompt, press Enter to read the entire license or type q to skip to the end.

5 At the BMC Remedy AR System server prompt, either choose your BMC Remedy AR System server from the list and press Enter, or specify the local server name (not the fully qualified host name or IP address) of your BMC Remedy AR System server (if not installed in the default location) and press Enter.

6 At the prompt to specify the directory where the BMC Remedy AR System server is currently installed, press Enter to accept the default path.

7 At the prompt to set the BMC Remedy AR System server port number, accept the existing portmapper settings (leaving 0 as the port number to use portmapper if that matches your previous settings) by pressing Enter.

8 At the prompt to confirm the TCP/IP port settings, press Enter.
Upgrading BMC Impact Solutions components

9 At the prompt to enter the BMC Remedy AR System Administrator ID and password, type the AR System Administrator ID (usually Demo) and press Enter.

10 Type the BMC Remedy AR System Administrator password (if necessary) and press Enter.

11 At the Notification Service Plugin prompt, accept the default (1840) by pressing Enter, or enter a port for the plugin and press Enter.

After you press Enter, the plugin is installed, the BMC Remedy AR System server is restarted, and the SIM CMDB extensions are upgraded. Upgrading the extensions usually takes about 1.5 hours.

**WARNING**
If the BMC Remedy ITSM product, or any of its component products, are installed after the SIM extensions have been installed, you must apply a patch to the BMC Atrium CMDB by using the cmdbdriver script. This script is located on the BMC Event and Impact Management Base DVD in the SIM_CMDB_Extensions\patches directory. For directions for applying the patch, see the readme.txt file included with the script.

### Upgrading BMC Impact Solutions components

For Atrium deployment scenarios, follow these steps to upgrade to the new version of BMC Impact Solutions.

1 Run the service model migration utilities. See page 101.

2 Upgrade the BMC Impact Solutions components. See page 101.

3 Finalize the upgrade of the cell's knowledge base. See page 103.

4 Register the BMC IX with the BMC Atrium CMDB. See page 106.

5 If you are upgrading from BMC Impact Solutions 7.0.02, restart the IAS. See page 106.

If you are upgrading event management only or service impact management without a BMC Atrium CMDB scenarios, you do not need to run the migration utilities. Upgrade the BMC Impact Solutions components as specified on page 101.

**Before you begin**

Back up the cell's knowledge base from MCELL_HOME/etc/cellName/kb.
To run the service model migration utilities

1 From the BMC Event and Impact Management Base version 7.3.00 DVD or the BMC Impact Solutions image that you downloaded from the BMC Software EPD website, copy the `msmdelete` and `msmreattach` scripts from the Impact_Solutions/utilities directory into the MCELL_HOME/bin directory on the computer where you want to upgrade the service model.

2 To erase the service model from the existing cell, from a command line enter the following command:

   `msmdelete -n cellName`

   The `msmdelete` script terminates the cell, restarts it in non-publish mode, erases the service model from it, and terminates it again.

To upgrade BMC Impact Solutions components

1 Log on as `root`.

2 Copy the files from the installation DVD to a directory on the computer or download the BMC Impact Solutions from the BMC Software EPD site.

   - DVD: Insert the installation DVD labeled BMC Event and Impact Management Base DVD, locate the platform-specific subdirectory of the Impact_Solutions directory, and copy the BMC Impact Solutions folder.

3 Run the `setup.bin` script.

4 If the upgrade program detects BMC Impact solutions version 7.0.02 or later, the program displays the detected components and their version numbers. Click `Next` and continue with step 5.

   If the upgrade program detects BMC Impact solutions versions earlier than 7.0.02, the program displays the detected components and their version numbers but does not let you continue the upgrade. Click `Cancel`.

5 On the End User License Agreement page, acknowledge that you reviewed and agree to the terms of the License Agreement, and click `Next`.

6 If any software components other than BMC Impact Explorer are installed on this computer, skip to step 7 on page 102. Otherwise, continue with this step.
If you have only BMC Impact Explorer installed on this computer, the upgrade script prompts you to select the upgrade you want to perform. Make your selection and then click Next.

- **Minimal Install**: This option is recommended for a first-time installation. Selecting this option installs the BMC Impact Administration Server, Impact Integration Web Services, the BMC Impact Manager, and the BMC Impact Explorer using default configuration values. The only option that you will need to specify during the installation is the installation directory.

- **Complete Install (Recommended)**: This option installs all the components for the software package that you selected on the product selection installation page.

- **Custom**: This option displays a secondary upgrade page that enables you to select which components from the software package you want to upgrade on this computer.

- **Impact Explorer Console**: This option upgrades a BMC Impact Explorer console only.

7 On the custom upgrade selection page make your selections from the following choices and click Next.

---

**TIP**

Checking the BMC Impact Solutions box automatically checks the boxes for all the components.

---

- BMC Impact Solutions
- BMC Impact Administration Server
- BMC Impact Integration Web Services Server
- BMC Impact Publishing Server
- BMC Impact Manager (a cell)
- Integration for BMC Remedy Service Desk
- BMC Impact Explorer
- BMC Impact Event Adapters
- BMC Impact Windows Event Log Adapter
- BMC Impact Service Model Integration with HP OVO
- BMC Impact Solutions Documentation
On the upgrade summary page, verify the selections that you made during the upgrade process.

- To change the settings, click Previous.
- To start the installation, click Install.

**WARNING**

After clicking Install and file copying begins, do not attempt to cancel the upgrade. Canceling the upgrade during file copying can prevent use of the uninstallation script and require manual clean up of the computer. Cleaning up the computer manually after a canceled upgrade is difficult.

If the package upgrades successfully, the following message is displayed:

The installation of BMC Impact Solutions 7.3.00 was completed successfully.

Click Done to complete the upgrade script.

**To finalize the upgrade**

When you upgrade BMC Impact Manager, existing cell configurations are not modified so that your customizations are preserved. As a result, existing cell configuration files do not contain new configuration parameters included in the upgrade. The following procedure explains how to update these configuration files for upgraded cells.

Perform the following steps after the installation program completes the upgrade of the BMC Impact Solutions components.

1. Upgrade the cell's knowledge base by performing these steps:

   A. Back up the cell's knowledge base from `MCELL_HOME/etc/cellName/kb`. For example, you could rename it to `kb_old`.

   B. Copy the knowledge base from `MCELL_HOME/etc/default/SIM/kb` to `MCELL_HOME/etc/cellName/kb`.

   C. Merge the customizations from the knowledge base back up that you created in step A (for example, `kb_old`) into the new knowledge base.
Upgrading BMC Impact Solutions components

2 Recompile the knowledge base by entering the following command from a command line:

   mccomp -n cellName

   **NOTE**
   You must recompile the KB files of each cell in use.

3 Restart the newly upgraded cell.

4 Publish the service model again to the newly updated cell by entering the following command from a command line:

   pinit -n cellName

5 Restore the impact status on the CIs by entering the following from a command line:

   msmreattach -n cellName

**To install BMC Impact Solutions components on a different computer but preserve knowledge base customizations**

If you want to install the BMC Impact Solutions on a different computer but maintain the knowledge base customizations from your current installation, perform the following steps.

1 Install the BMC Impact Solutions components as described in “Installing BMC Impact Solutions components on a UNIX computer” on page 60.

2 On the computer where you install the BMC Impact Solutions components, create new cells by entering the following command:

   mcrtcell -as -p port cellName

3 Stop the cells on the computer where the previous installation is installed.

4 Copy the contents of %MCELL_HOME%/log\cellName directory from the previous installation to the %MCELL_HOME%/log\cellName directories of the cells that you created on the computer with the new installation.

5 Copy and merge the customizations from the Knowledge Base back up that you created before you began the upgrade into the Knowledge Base for the newly installed cells.
Upgrading BMC Impact Solutions components

6 Copy and merge the customizations from the knowledge base back up that you created before you began the upgrade into the knowledge base for the newly installed components.

7 Recompile the knowledge base by entering the following command from a command line:

   mccomp -n cellName

--- NOTE ---
You must recompile the KB files of each cell in use.

--- NOTE ---
Customizations to the knowledge base will not be saved. If you want to save your customizations, ensure that you back up the knowledge base of the IAC before you upgrade BMC Impact Solutions, then copy the customizations from the old knowledge base to the new knowledge base after the upgrade is complete.

8 Restart the newly upgraded cell.

9 Publish the service model again to the newly updated cell by entering the following command from a command line:

   pinit -n cellName

10 Restore the impact status on the CIs by entering the following command from a command line:

   msmreattach -n cellName

To upgrade the knowledge base of the administration server

If you upgraded from version 7.1 or 7.2, you must manually load the data file for the Impact Administration Cell. Perform the following additional steps.

--- NOTE ---
Renamed the knowledge base located in $MCELL_HOME/etc/Admin. For example, you could rename it KB_old.

2 Copy the knowledge base located in $MCELL_HOME/etc/default/Admin to $MCELL_HOME/etc/Admin.

3 Recompile the knowledge base by entering the following command:

   mccomp -n Admin
4 Restart the administration cell and reload the cell’s data file by entering the following command:

    mcell -n Admin -id

To restart the BMC Impact Administration Server

If you upgraded from version 7.0.02 to version 7.3, you must restart the BMC IAS to update the cell.info.list file. To restart the IAS, execute the ias_service script from the appropriate path. (The default path is /opt/bmc/Impact/server/bin.) You must be logged on as a root user to start and stop the script.

To register BMC IX in the BMC Atrium CMDB

1 On the Portal computer, navigate to the appserver/websdk/bin/smsIX subdirectory.

2 Run the following command from a command line:

    federationLoader -S ARserverName -U ARadminUserid [-P ARadminPassword]

Provide the -P parameter only if there is a password.

Using the BMC IAS migration utility

If you upgraded the BMC Impact Solutions and installed the BMC Impact Administration Server (BMC IAS) on a computer separate from the prior BMC Impact Portal installation, use this utility to migrate your data from the BMC Impact Portal to the BMC IAS. You can find the files for this utility in the utilities subdirectory of the BMC Impact Solutions installation directory. If you accepted the default installation directory, the files are located in opt/bmc/Impact/utilities.

To run the BMC IAS migration utility

1 Copy these files from the utilities installation subdirectory to a temporary directory on the BMC Impact Portal computer:

   - ExcludedFiles.txt
   - ReadMe.txt
   - createIasMigrate.sh
   - migrateToIas.sh
   - iasmigration.jar
2 Update the following variables in the `createIasMigrate.sh` file:

- **JAVA_HOME**: the installation directory for Java
  
  For example: `JAVA_HOME="/usr/bin/java/jre1.6.0_02"`

- **UTILITY_HOME**: the directory where you copied the utility files
  
  For example: `UTILITY_HOME="/tmp/Test"`

- **TEMP_FOLDER**: an empty temporary directory inside the utility home directory
  
  For example: `TEMP_FOLDER="/tmp/Test/Test1"`

- **PORTAL_HOME**: the directory where the BMC Impact Portal is installed
  
  For example: `PORTAL_HOME="/usr/bmc/BMCPortalKit"`

3 Execute the `createIasMigrate.sh` file.

The `IAS_Migration.tar` file is created in the utility home directory.

4 Copy the `IAS_Migration.tar` file from the utility home directory to a temporary directory on the BMC IAS computer.

5 Copy these files from the utilities installation subdirectory to the same temporary directory specified in **step 4**:

- `ExcludedFiles.txt`
- `createIasMigrate.sh`
- `migrateToIas.sh`
- `iasmigration.jar`

6 Update the following variables in the `migrateToIas.sh` file:

- **JAVA_HOME**: the installation directory for Java
  
  For example: `JAVA_HOME="/usr/bin/java/jre1.6.0_02"`

- **IAS_MIGRATION_FILE**: the directory where you copied the `IAS_Migration.tar` file
  
  For example: `IAS_MIGRATION_FILE="/tmp/Test/IAS_Migration.tar"`

- **IAS_HOME**: the installation directory of the BMC IAS
  
  For example: `IAS_HOME="/opt/bmc/Impact/server"`
Updating the SIM KB component classes

These steps are necessary if you have modified any of the default KB files or if you have upgraded an existing cell. These steps synchronize the cell KB with new classes from the BMC Atrium CMDB.

To update the SIM KB BAROC files

1. In the BMC Impact Portal, click the Configure tab.
2. On the Configure tab under Tasks, click Service Model Editor.
3. In the BMC Impact Service Model Editor, from the Tools menu, choose Export Cell Meta Data.

   In the Select Save Directory dialog box, the File Name box contains the value mc_sm_object.baroc.
4. Save this BAROC file and remember its location.
5. Locate the existing mc_sm_object.baroc file in the $MCELL_HOME/etc/cellName/kb/classes directory.
6. Replace the file with the new one that you exported in step 4.
7. Recompile the KB files by running the following command:

   %MCELL_HOME%/bin/mccomp.exe $MCELL_HOME/etc/cellName/kb/manifest.kb

   **NOTE**

   You must replace the BAROC file and recompile the KB files of each cell that is in use.

8. Stop the Impact Managers (cells).

7. Execute the `migrateToIas.sh` file.

   The script distributes the files contained in IAS_Migration.tar to their respective directories on the BMC IAS computer and completes the migration.
Upgrading the SNMP Adapter Configuration Manager

1 Create a temporary, backup directory on your computer, for example, backup_mibs.

2 Copy the contents of the following directory, depending on your operating system, to the backup directory that you created in step 1.
   - For Solaris, /usr/share/snmp/mibs
   - For AIX, /usr/local/share/snmp/mibs
   - For HP-UX, /usr/local/share/snmp/mibs
   - For Linux, /usr/local/share/snmp/mibs

3 Uninstall the current version of the SNMP Adapter Configuration Manager.
   For details, see “Uninstalling the SNMP Adapter Configuration Manager” on page 150.

4 Install the new version of SNMP Adapter Configuration Manager.
   For details, see “Installing the SNMP Adapter Configuration Manager” on page 74.

5 Copy the contents of directory that you created in step 1 to one of the following directories, depending on your operating system, in the new installation.
   - For Solaris, /usr/share/snmp/mibs
   - For AIX, /usr/local/share/snmp/mibs
   - For HP-UX, /usr/local/share/snmp/mibs
   - For Linux, /usr/local/share/snmp/mibs

   The newly installed files will be overwritten with the files from the previous installation.
Verifying the upgrade

After all the components are upgraded as instructed in this chapter, verify that the entire upgrade was successful.

**To verify that the upgrade was successful**

1. Check the BMC Impact Publishing Server process. If it is already started, stop it and restart it.
   
   This action reinitializes the BMC Atrium CMDB and reconnects it with the BMC Impact Publishing Server.

2. Verify that all processes are running, including the BMC Impact Publishing Server. See Table 12 on page 98 for the list of processes.

3. Open a browser (Mozilla Firefox or Microsoft Internet Explorer).

4. Log on to the BMC Portal as **superadmin**.

5. In the BMC Portal, verify that user accounts created in the previous release are still available.
   
   To find existing accounts, on the **Account** tab, in the right pane under **Accounts List**, click **Search**.

6. Verify that the BMC Remedy AR System server settings are correct. You might need to enter the BMC Remedy AR System location information. See the **BMC Portal Getting Started** guide for more information.
   
   On the **Portal** tab, in the right pane, **Global Properties** displays BMC Remedy AR System parameter settings.

7. Verify that the BMC Impact Manager instances (cells) are registered.
   
   If they are not registered, perform the following actions:
   
   **A** On the **Portal** tab, in the left pane, choose **Tasks**, and click **Impact Managers**.

   **B** Select a cell and click **Subscribe Portals**.

8. Log off the BMC Portal.

9. Log on to the BMC Portal with a user account created in the previous release.

10. In the BMC Portal, verify that service component instances and relationships created in the previous release are still available by checking the **Status** tab.
11 Launch the BMC Impact Service Model Editor and perform the following actions:

A Verify that objects are still available by using the `Find` command.

B Change an existing object or create a new component instance and verify that you can publish it.
Upgrading a service model to BMC Atrium CMDB

This chapter covers the following topics:

- Upgrading from non-Atrium-CMDB SIM to BMC Atrium CMDB SIM ........................................ 114
  - Upgrading SIM data that originates from BMC Performance Manager ........................................ 114
  - Upgrading SIM data that originates from third-party source .................................................. 115
- sim2cmdb restrictions .................................................................................................................. 115
- Recommended upgrade steps ........................................................................................................ 115
  - Understanding how the upgrade works ....................................................................................... 117
  - Ensuring quality data in BMC Atrium CMDB ............................................................................ 118
  - Identifying components and data reconciliation ........................................................................ 118
- Data imported into BMC.SIM ........................................................................................................ 121
  - sim2cmdb CLI command .............................................................................................................. 123
  - Running the upgrade ................................................................................................................... 126
- Reviewing the output files for sim2cmdb ..................................................................................... 130
  - Upgrade commitment .................................................................................................................. 133
- CI identification .............................................................................................................................. 134
  - Dataset cleanup ......................................................................................................................... 135
- sim2cmdb return codes .................................................................................................................. 135
Upgrading from non-Atrium-CMDB SIM to BMC Atrium CMDB SIM

When you have implemented service impact management without the BMC Atrium CMDB product and now want to use the BMC Atrium CMDB to store and manage service components and their relationships, you can upgrade service model data from the cell (version 7.3) to the BMC Atrium CMDB by using the `sim2cmdb` tool. The `sim2cmdb` tool facilitates the migration of a non-BMC Atrium CMDB service impact management implementation to a solution where BMC Atrium CMDB stores and manages service components and their relationships. The `sim2cmdb` tool populates the BMC Atrium CMDB with service model data from the cell.

Service impact management without the BMC Atrium CMDB product (Standard or Basic deployment of BMC Impact Solutions) means that you have created component instances and relationships directly in the cell by using Direct Feed (through BMC Performance Manager, BMC Impact Explorer, `mposter` CLI command, or rules) or by using Direct Publish (a BAROC source file and the `pposter` CLI command) or that you are using a third-party database for service model data.

Upgrading SIM data that originates from BMC Performance Manager

Before you execute the `sim2cmdb` CLI command on Direct Feed service model objects, service model objects in the cell that originated from BMC Performance Manager must be created in the BMC.BPM dataset in the BMC Atrium CMDB, reconciled into the BMC.ASSET dataset, and published to the cell. Because BPM is the source of this data, both BMC Performance Manager and BMC Impact Portal must be upgraded to version 2.6.50. If you do not upgrade BMC Performance Manager and BMC Impact Portal

- the data upgraded by BMC Performance Manager in the BMC Atrium CMDB will not be published, because BMCPerformanceManager does not set ServiceModelSet to IN)

- there will be duplicate CIs in the cell (because BMC Performance Manager stores `mc_udid` as `ComponentAlias` in the cell, but not in the BMC Atrium CMDB

For more information about the integration between BMC Performance Manager and SIM, see the Direct Service Model Integration section in the BMC Performance Manager Portal Monitoring and Management Guide.
Upgrading SIM data that originates from third-party source

If you have a third-party repository for your service model, you do not have to use the `sim2cmdb` tool to copy it into the BMC Atrium CMDB. It is probably more efficient to import this data into the BMC Atrium CMDB directly from the third-party repository than to use the data in BMC Impact Manager as the interface between these two repositories. Once the initial model is imported into the BMC Atrium CMDB, BMC recommends that you make further changes to the model directly in the BMC Atrium CMDB. `sim2cmdb` is intended as an upgrade tool to be used when the main repository of service impact manage data is actually the BMC Impact Manager; it is not a way to keep a third-part repository in sync with the BMC Atrium CMDB.

**sim2cmdb restrictions**

The cell must be upgraded to version 7.2, because there are new slots in the cell in version 7.2 that are used in the best match rules. Components that do not have values in these new slots cannot be properly identified and merged into the BMC Atrium CMDB. See Table 13 on page 119 and Table 13 on page 119 for slots that participate in the reconciliation.

**Recommended upgrade steps**

Use the following process to ensure the most uneventful upgrade to service impact management implementation with the BMC Atrium CMDB.

1. Review and understand how the sim2cmdb upgrade works.
2. Verify that the cell is upgraded to 7.3.
3. Ensure you have quality data in the BMC Atrium CMDB.
4. Analyze and understand the data in the cell so you know how it will be identified and reconciled in the BMC Atrium CMDB.
5. Modify the `sim2cmdb.conf` file as needed.
6 Run **`sim2cmdb`** without any command to verify the data.

Running **`sim2cmdb`** without any command verifies if the data is qualified for the BMC Atrium CMDB, generating a detailed output file which lists all the data to be imported and detects any dropped or skipped instances. The dropped or skipped instances are those that could cause potential issues when Running **`sim2cmdb`** with the commit option. The output file is explained in the section, “Reviewing the output files for **`sim2cmdb`**” on page 130.

7 Repair the offending data in the cell.

8 Repeat steps 6 and 7 until no more data is excluded.

9 Run the **`sim2cmdb`** command *with* the commit option.

When commit is requested, you want as much data as possible to be upgraded. Consequently, set the **`ContinueOnSkip`** parameter to **T** (default is **F**). For more information about commitment, see “Upgrade commitment” on page 133.

10 Verify that the output file contains no excluded data.

---

**NOTE**

If more excluded data is found in the output file, continue through step 13.

---

11 Verify that publication was successful.

You can verify if the publication is successful by using CMDB tools or SIM tools. If the data is not automatically published to SIM, you need to diagnose the failure, and, if necessary, repair the data in BMC.ASSET and republish the data using the publishing server client.

12 Check the output file for unidentified CI’s. Identify them manually, and reconcile. For more information, see “CI identification” on page 134

13 Verify that publication was successful.

If publication was not successful, diagnose failure and, if necessary, repair data in BMC.ASSET and publish again.

14 If in step 10 data you discovered excluded data, repair the offending data in the cell and restart this procedure from step 6.

Verify that all expected data (especially impact relationships) are exported. You might need to upgrade DirectFeed data, too.

15 When all data from the publish environment is upgraded, close the upgrade.
When DirectPublish cell data is upgraded to BMC Atrium CMDB, close the publish environment.

The following sections explain some of these steps in greater detail.

**Understanding how the upgrade works**

To upgrade service model data to the BMC Atrium CMDB product, you execute the `sim2cmdb` CLI command. `sim2cmdb` takes the service model data and the management data in the cell of a specific publish environment and copies the data to a BMC Atrium CMDB dataset, BMC.SIM, where it is reconciled into the BMC.ASSET (production) dataset. When reconciliation terminates, the data is automatically (or manually) published back to the cell. In other words, the CI that was originally created directly in the cell is replaced with a CI from BMC Atrium CMDB.

Replacement in the cell is based on

- for CIs—the `ComponentAliases` attribute

  If a CI has no value in the `ComponentAliases` slot, then the CI will not be replaced in the cell when the CI in the BMC Atrium CMDB is published back to the cell, resulting in duplicate CIs in the cell.

  Upgrading the cell to 7.3 ensures that even CIs without a value in the `ComponentAliases` attribute are replaced by `sim2cmdb`, because in 7.3, if `ComponentAliases` for a CI is empty, it is assigned the `mc_udid` as a default.

- for impact relationships—the `consumer_id` and `provider_id` attributes
- for management data—key attributes of the class

**NOTE**

The final set of data in BMC.ASSET (after reconciliation and publication) is not necessarily the same as it was in the cell, because this depends on existing data in BMC.ASSET and the precedences of the reconciliation.

**Best practice** for service models with CIs in multiple cells is to upgrade all the involved cells at the same time.

If the service model data you want to import into the BMC Atrium CMDB is from a secure publish environment, you must provide authentication information in the `sim2cmdb` CLI command string.
Ensuring quality data in BMC Atrium CMDB

Before you can upgrade to BMC Atrium CMDB, component data that was created directly in the cell must be qualified. *Qualified* data means that the data complies with the normalization rules required by the BMC Atrium CMDB so that duplicate CIs can be prevented. Normalization is achieved when a CI from multiple sources is identified by the Reconciliation Engine as the same CI.

To ensure quality data in the BMC Atrium CMDB, you must

- consider the classes under which component instances were created in the cell. Are they valid classes for BMC Atrium CMDB?
- consider the attributes for each class under which you have created components in the cell

To guarantee qualified data, data imported to BMC Atrium CMDB has to follow the normalization rules. The *BMC Atrium Common Data Model Normalization Guidelines* white paper provides general guidelines for data normalization on major IT component classes. A CI created directly in the cell needs to have the required slot values assigned and the values must follow the normalization formula addressed in *BMC Atrium Common Data Model Normalization Guidelines*.

Identifying components and data reconciliation

A default reconciliation job “BMC SIM to CMDB Migration - Identification and Merge” is provided for the *sim2cmdb* tool. It is installed into BMC Atrium CMDB when the BMC SIM CMDB Extensions are installed. The reconciliation job defines the data identification rules and identification activities for both component instances and management data instances.

- For IT component classes, the identification is “best match” rule. Attributes that participate in the identification rules are defined by the requirements in BMC Atrium CMDB data normalization. If the Auto Identify flag for identification activity is set to NO, it means that the ReconciliationId value will not be assigned to the CI during the reconciliation process, therefore the instance (CI) will not get pushed to the master dataset (BMC.ASSET by default).
- For logical business classes (for example, BusinessProcess and BusinessService), SIM is the authoritative source, so the Auto Identify flag is set to Yes and the reconciliation ID is assigned automatically.
- BMC_BusinessProcess.SourceLocation is set to SIM in BMC Atrium CMDB by *sim2cmdb*. 
For management data, `sim2cmdb` uses identification rules that are based on the cell's key slots. The reconciliation ID is automatically assigned.

If you do not use any discovery tools to push data into the BMC Atrium CMDB, you can enable auto identify on all identification rules (before you run `sim2cmdb`) so that no manual identification is necessary. Be careful; keeping unique CIs in the BMC Atrium CMDB Master Dataset is a very important BMC Atrium CMDB concept. You should only enable the auto identification on all rules if you are certain the action will not create duplicate CIs in the BMC Atrium CMDB.

If a CI is not auto identified, then you must manually identify the CI. Refer to the three options as explained in the section, “CI identification” on page 134.

**NOTE**

If ITSM is installed, then certain attributes (Category, Type, Item, Model, ManufacturerName) of a CI have to correspond with the attributes of existing products (Tier1, Tier2, Tier3, Product Name, Manufacturer) in the catalog before performing a `sim2cmdb` commit. If these attributes fail to correspond, the commit will fail when executed.

For more information about how to create entries in the product catalog, how to create product catalog alias mappings, and how to work with trusted datasets for the product catalog see the supplied ITSM documentation.

`sim2cmdb` has a default set of identification groups for identifying the components in the BMC Atrium CMDB. Table 13 lists these identifying components.

- base class that the identification is defined on
- classes that inherit the identification group
- best match attributes that are used in the rule
- value of the auto-identification flag

<table>
<thead>
<tr>
<th>Base class of the identification group</th>
<th>Classes that inherit the rule</th>
<th>Best match attributes</th>
<th>Auto-identify</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC_Activity</td>
<td></td>
<td>Name</td>
<td>Yes</td>
</tr>
<tr>
<td>BMC_Application</td>
<td></td>
<td>Name, ApplicationType</td>
<td>No</td>
</tr>
<tr>
<td>BMC_ApplicationInfrastructure</td>
<td></td>
<td>Name, ApplicationInfrastructureType</td>
<td>No</td>
</tr>
<tr>
<td>BMC_ApplicationService</td>
<td></td>
<td>Name, SystemName, SystemClassId</td>
<td>No</td>
</tr>
</tbody>
</table>
The reconciliation rules for management data are based on the key slots of the classes and shown in Table 14 on page 121.

<table>
<thead>
<tr>
<th>Base class of the identification group</th>
<th>Classes that inherit the rule</th>
<th>Best match attributes</th>
<th>Auto-identify</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC_BaseElement</td>
<td>BMC_DataBase BMC_ApplicationSystem BMC_Cluster BMC_ConnectivityCollection BMC_ConnectivitySegment BMC_IPConnectivitySubnet BMC_LNsCollection BMC_LAN BMC_WAN</td>
<td>Name</td>
<td>No</td>
</tr>
<tr>
<td>BMC_BusinessProcess</td>
<td></td>
<td>Name</td>
<td>Yes</td>
</tr>
<tr>
<td>BMC_BusinessService</td>
<td></td>
<td>Name</td>
<td>Yes</td>
</tr>
<tr>
<td>BMC_ComputerSystem</td>
<td>BMC_Mainframe BMC_VirtualSystem</td>
<td>HostName Domain SerialNumber</td>
<td>No</td>
</tr>
<tr>
<td>BMC_HardwareSystemComponent</td>
<td>BMC_Media BMC_CDROMDrive BMC_DiskDrive BMC_FloppyDrive BMC_TapeDrive BMC_UPS BMC_VMware</td>
<td>Name SystemName SystemClassId SerialNumber</td>
<td>No</td>
</tr>
<tr>
<td>BMC_IPXConnectivityNetwork</td>
<td></td>
<td>Name NetworkNumber</td>
<td>No</td>
</tr>
<tr>
<td>BMC_LogicalSystemComponent</td>
<td>BMC_FileSystem BMC_DataBaseStorage BMC_LocalFileSystem BMC_RemoteFileSystem BMC_DiskPartition BMC_SystemResource</td>
<td>Name SystemName SystemClassId</td>
<td>No</td>
</tr>
<tr>
<td>BMC_Organization</td>
<td></td>
<td>Name</td>
<td>Yes</td>
</tr>
<tr>
<td>BMC_SoftwareServer</td>
<td></td>
<td>Name SoftwareServerType</td>
<td>No</td>
</tr>
<tr>
<td>BMC_SystemSoftware</td>
<td>BMC_OperatingSystem</td>
<td>Name SerialNumber VersionNumber</td>
<td>No</td>
</tr>
<tr>
<td>BMC_UserCommunity</td>
<td></td>
<td>Name</td>
<td>Yes</td>
</tr>
<tr>
<td>BMC_VirtualSystemEnabler</td>
<td>BMC_VirtualDisk BMC_VirtualSystem</td>
<td>Name SystemName SystemClassId</td>
<td>No</td>
</tr>
<tr>
<td>BMC_ConcreteCollection</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>
You can modify the reconciliation rules and identification activities according to the nature of your data, but do not change the name of reconciliation job.

### Data imported into BMC.SIM

This section describes factors that affect the data imported into the BMC.SIM dataset.

If the `ContinueOnSkip` parameter of the `sim2cmbd.conf` file is set to `=T` (true), data will be imported in BMC.SIM, even if some of the data cannot be imported. If the parameter is set to `=F` (false), then if some of the data cannot be imported, no data is imported. In both cases the data that cannot be imported is to the output file with a message describing the reason for the failure to import.
When Diary (Notes in SIM) are imported from SIM to CMDB, the Notes slot is not imported as multiple entries. All entries are concatenated into a single string and imported as one entry.

**Weak relationships**

If the relationship is a *weak relationship*, its destination member, called the *weak member*, cannot exist without its source member, called the *strong member*. A weak relationship creates a logical *composite object* consisting of both member CIs.

In BMC Atrium CMDB, the *strong members* are the CIs derived from BMC_System class and the *weak members* are the CIs derived from BMC_SystemComponent or BMC_SystemService. An example of BMC_System class is BMC_ComputerSystem and an example of BMC_SystemComponent class is BMC_FileSystem. Normally, since a FileSystem cannot exist without a ComputerSystem, sim2cmdb creates a weak relationship between them. So, an instance of BMC_HostedSystemComponents is created, which is a logical composite object consisting of both member CIs.

For CIs whose class is derived from BMC_SystemComponent or BMC_SystemService, BMC recommends that you set a value in the SystemName slot so that a weak relationship can be created when *sim2cmdb* runs.

If a BMC_SystemComponent or BMC_SystemService object has a value in the SystemName slot, *sim2cmdb* attempts to create the following two weak relationships during the import process:

<table>
<thead>
<tr>
<th>Source (Strong member)</th>
<th>Weak relationship</th>
<th>Destination (Weak member)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC_System</td>
<td>BMC_HostedSystemComponents</td>
<td>BMC_SystemComponent</td>
</tr>
<tr>
<td>BMC_System</td>
<td>BMC_HostedService</td>
<td>BMC_SystemService</td>
</tr>
</tbody>
</table>

**Possible Import Results**

Table 15 lists possible import results for specific circumstances.
Before you run sim2cmdb

For Direct Feed data—If you have not previously published data from BMC Atrium CMDB to a cell, then before executing a sim2cmdb, you must execute the CLI command `pinit -n cellName`. This prevents the default management data from being upgraded as part of the execution of `sim2cmdb`.

**sim2cmdb.conf file and parameters**

Table 16 describes the `sim2cmdb.conf` file which contains properties and parameters for managing the sim2cmdb CLI command.

Modify the following parameters in particular to suit your specific requirements before you execute `sim2cmdb`.

- ContinueOnSkip
- ReverseCellAliases
- ReconJobTimeout
### sim2cmdb.conf file (part 1 of 3)

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IASServers</td>
<td>Specifies the Impact Administration Server (usually by host name) against which the CLI commands authenticate. CLI commands may be executed on a computer other than the computer on which Impact Administration Server is installed. If you specify a remote Impact Administration Server in the sim2cmdb.conf file, but do not provide user credentials, you must provide them as command line arguments when you run a CLI command. If the Impact Administration Server has a backup server, then you can specify the primary server as well as the secondary server. If the primary is not running, then the CLI will authenticate against the secondary server.</td>
<td>localhost:3084</td>
</tr>
<tr>
<td>IASUserName</td>
<td>Specifies a valid Impact Administration Server user name to be presented as credentials to the specified Impact Administration Server</td>
<td>none</td>
</tr>
<tr>
<td>IASPassword</td>
<td>Specifies the valid Impact Administration Server password for the specified Impact Administration Server (IASUsername) to be presented as credentials for the specified Impact Administration Server. Enter the IASPassword as plain text. Upon the first execution, it is encrypted. To set up remote automatic authentication of CLI commands, specify the user name (IASUsername), and password (IASPassword) to be used as valid credentials for the specified Impact Administration Server (IASServers) in the sim2cmdb.conf file.</td>
<td>none</td>
</tr>
<tr>
<td>ARSXLonfTimeOut</td>
<td>Sets the time to stop waiting on a BMC Remedy AR System operation that occurs slowly</td>
<td>1800</td>
</tr>
<tr>
<td>ARSXLonfTimeOutEstimate</td>
<td>Enables (T) or disables (F) the use of the estimate when the length of time exceeds the value that is calculated for committing bulk entry transactions</td>
<td>T (true)</td>
</tr>
</tbody>
</table>
Table 16  sim2cmdb.conf file (part 2 of 3)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ContinueOnSkip</strong></td>
<td>defines sim2cmdb behavior if one or more instances cannot be imported</td>
<td>F (false)</td>
</tr>
<tr>
<td></td>
<td>If <strong>ContinueOnSkip</strong> is set to <strong>T</strong>, true, instances that can be imported are imported and instances that cannot be imported are not imported. The output file contains the list of instances that could not be imported.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If <strong>ContinueOnSkip</strong> is set to <strong>F</strong>, false (default), the occurrence of even one instance that cannot be imported results in no data being created in the BMC Atrium CMDB. In other words, if all instances can be imported, all data (with attributes) in BMC.SIM is exactly as it is in the cell. If even one instance cannot be imported, only previously existing data in BMC.SIM still exists. The output file indicates the results.</td>
<td></td>
</tr>
<tr>
<td><strong>ReverseCellAliases</strong></td>
<td>specifies which alias corresponds to which cell</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>Format: <strong>cellName, cellAlias{, cellName, cellAlias}</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>When several aliases point to the same cell, retrieving an alias from a cell name is not deterministic. With the <strong>ReverseCellAliases</strong> parameter, you can specify which alias corresponds to which cell. It should have only one <strong>CellAlias</strong> for a cell in <strong>ReverseCellAliases</strong>. The letters in <strong>cellAlias</strong> value are case sensitive.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If this parameter is not set, <strong>sim2cmdb</strong> makes an undefined, arbitrary choice.</td>
<td></td>
</tr>
<tr>
<td><strong>ReconJobTimeout</strong></td>
<td>sets the length of time that sim2cmdb checks for the termination of the reconciliation job</td>
<td>120 (seconds)</td>
</tr>
<tr>
<td></td>
<td>If the interval expires before the reconciliation job completes, the sim2cmdb output file does not indicate the results of the reconciliation job. It may or may not have completed successfully.</td>
<td></td>
</tr>
</tbody>
</table>
Running the upgrade

**sim2cmdb** is executed as a CLI command.

**sim2cmdb syntax**

```
sim2cmdb [-c ConfigFile] [-h] [-?] [-i User/Password [@Host[/Port] [.Host[/Port][...]]][HomeLocation][-p"Var=Value"][-v][-z][-f][-q][-eEnvId1[,EnvId2[...]]][-nCell1[,Cell2[...]]][-oOutputFile][close|commit|identify]
```

The three commands of **sim2cmdb** are **close**, **commit**, and **identify**. Unless you specify one of these commands, **sim2cmdb** will execute in default command, meaning that it will only verify the data. See “Upgrade commitment” on page 133, “CI identification” on page 134, and “Dataset cleanup” on page 135 for more information about each of these commands.

**sim2cmdb command options**

Table 17 lists the options for the **sim2cmdb** command.
### Table 17 sim2cmdb command options (part 1 of 3)

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;common options&gt;</td>
<td>-c -h -? -i -q -l -p -v -z see BMC Impact Solutions Service Modeling and Publishing Guide</td>
</tr>
<tr>
<td>-e EnvID envID1[,envID2[...]]</td>
<td>identifies the specific environments If an environment is not specified, then Direct Feed data is upgraded. If you are upgrading Direct Feed data only, EnvID must be empty; do not use the -e option for Direct Feed data. For example, the following command displays all the Direct Feed data present in the cell to be upgraded sim2cmdb -v -n &lt;cellname&gt; For secured environments, you must provide a valid password using the -p &quot;password=xx&quot; option. If multiple EnvID options are specified, you must provide a password value for each EnvID. If one of the EnvID command options fails during environment verification, the sim2cmdb execution terminates. If both Direct Feed data and Direct Publish data must be imported, the Direct Publish EnvIDs as well as one empty EnvID has to be specified with -e option. To display data in Direct Feed and Direct Publish environments, use one of the following examples: sim2cmdb -v -n &lt;cellname&gt; -e &quot;&quot;,DirectPubEnvId1,DirectPubEnvId2&quot; sim2cmdb -v -n &lt;cellname&gt; -e &quot;DirectPubEnvId1,DirectPubEnvId2,&quot; sim2cmdb -v -n &lt;cellname&gt; -e &quot;DirectPubEnvId1,,DirectPubEnvId2&quot; The comma (,) at the beginning, end, or middle of the option represents an empty EnvID.</td>
</tr>
<tr>
<td>-f</td>
<td>forces the command execution without prompting you to confirm the action If you do not specify the -f option, you must confirm the action when prompted to allow the action to execute.</td>
</tr>
</tbody>
</table>
Running the upgrade

Table 17  sim2cmdb command options (part 2 of 3)

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
</table>
| -n cellName1[,cellName2[...]] | specifies the specific cell or cells from which to retrieve the service model classes  
On Windows platforms, you must enclose the cell list in quotation marks (").  
If no cell name is specified and there is an –e option, all the cells involved in the EnvIds are included. If there is no –e option, all the cells in the AtriumCMDB PROD environment will be included.  
If one of the cells fails during cell verification, the sim2cmdb execution terminates. |
| -o ReportFileName            | file that contains the report of sim2cmdb execution, in other words, the list of data that will be imported into BMC Atrium CMDB and a list of data that will not be imported into BMC Atrium CMDB, and a list of errors that have occurred  
BMC Software recommends examining this report each time you run sim2cmdb. You might need to correct the SIM date before executing sim2cmdb again.  
If you omit this option, sim2cmdb generates a default report file name. |
| -p Password=                 | specifies the password for each environment listed in the -e option, if a password is required for the environment  
Separate additional passwords with commas (,)  
For example, if three environments exist, and environment 2 has no password (is unsecured), the command might look like this:  
sim2cmdb -e Envi,NoSecEnv,Env3 -n cell -p "Password=pw1, ,pw3" |
| close                        | removes all the instances in the BMC.SIM dataset  
Although you can force removal of all the data in the BMC.SIM dataset, if the dataset is not clean you should first return to the CI identification stage to identify CIs. Forcing removal of unidentified CIs can cause unsynchronized data between SIM and CMDB. |
Running the upgrade

Table 17  sim2cmdb command options (part 3 of 3)

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>commit</td>
<td>imports the SIM data into the CMDB BMC.SIM dataset</td>
</tr>
<tr>
<td></td>
<td>Upon a successful commit, sim2cmdb automatically starts the reconciliation job to merge data into the BMC.ASSET dataset.</td>
</tr>
<tr>
<td>identify</td>
<td>assigns a ReconciliationIdentity value to the components in BMC.SIM which have not been identified.</td>
</tr>
<tr>
<td></td>
<td>See “CI identification” on page 134 for more information.</td>
</tr>
</tbody>
</table>

sim2cmdb CLI command examples

sim2cmdb -e testEnv -i user/user

Verifies imported data. Data are from all the cells in the direct publish environment testEnv.

sim2cmdb -e testEnv -n cellA -i user/user

Verifies imported data. Data are from cell cellA in the direct publish environment testEnv.

sim2cmdb -n cellB -i user/user

Verifies imported data. Data are from cellB created from direct feed.

sim2cmdb -e testSecuredEnv -i user/user -p Password=mypasswd

Verifies imported data from the secured environment testSecuredEnv with the password parameter.

sim2cmdb -n cellS1, cellS2 -i user/user -p Password=passwd1,passwd2

Verifies imported data from multiple cells with multiple password parameters.

sim2cmdb -e testEnv   commit

Runs the commit command to import data into the BMC Atrium CMDB. The reconciliation and publish process takes place following the success of the commit.

sim2cmdb   -i user/user identify

imports the SIM data into the CMDB BMC.SIM dataset
Upon a successful commit, sim2cmdb automatically starts the reconciliation job to merge data into the BMC.ASSET dataset.
assigns a ReconciliationIdentity value to the components in BMC.SIM which have not been identified.
See “CI identification” on page 134 for more information.
Assigns the ReconciliationId to the CIs in the BMC.SIM dataset if they are not automatically identified. The reconciliation and publish process takes place following the success of the commit.

```
sim2cmdb close
```

Removes all the data in the BMC.SIM dataset.

## Reviewing the output files for sim2cmdb

The output files report on the results of `sim2cmdb` execution. The output includes:

- the `sim2cmdb` command string that you entered
- an indication of the success or failure of user authentication
- an indication of the success or failure of connection to the BMC Remedy AR System
- a list of instances in the cell that will be copied to the BMC Atrium CMDB (Exporting service impact data from cells)
- a list of instances that could not be imported into the BMC Atrium CMDB with the reason (Importing service impact data into CMDB’s dataset BMC.SIM)

If there are no issues with the data, this section of the output file is blank; only data instances that cannot be imported will be listed here.

- an indication of the success or failure of the reconciliation job with a list of instances that you must manually reconcile (BMC SIM to CMDB reconciliation into CMDB’s data BMC.ASSET)
- an indication of the success or failure of the sim2cmdb execution

Figure 9 on page 131, Figure 10 on page 132, and Figure 11 on page 133 are examples of an output files.
Figure 9 Example output file without commit

```
Sun, 24 Feb 2008 11:31:42:454 CST
User Jean successfully authenticated with IAS.
User Demo successfully connected to AR System hou-jezhou-37:0.

Exporting service impact data from cell(s).

Reconcile data in BMC.SIM dataset into BMC.ASSET dataset in CMDB.

1. BMC_ComputerSystem; mc_udid=JZTest_Computer_1; ComponentAliases=[JZTest_Computer_1]; Name=JZTest_Computer_1;
   BMC_ComputerSystem; mc_udid=JZTest_Computer_2; ComponentAliases=[JZTest_Computer_2]; Name=JZTest_Computer_2;
   BMC_ComputerSystem; mc_udid=JZTest_Computer_4; ComponentAliases=[JZTest_Computer_4]; Name=JZTest_Computer_4;

The following CIs in BMC.SIM have not been automatically identified:

Importing service impact data into CMDB's dataset BMC.SIM.

During the data import, the following issues were found:

1. BMC_Filesystem; mc_udid=JZTest_Filesystem_4_2; ComponentAliases=[JZTest_Filesystem_4_2]; Name=JZTest_Filesystem_4_2;
   Warning: Slot SystemName has no value. No BMC_HostedSystemComponent relationship created with a BMC_SystemComponent instance.

2. BMC_Filesystem; mc_udid=JZTest_Filesystem_4; ComponentAliases=[JZTest_Filesystem_4]; Name=JZTest_Filesystem_4;
   Warning: System CI WrongSystemName is existing in either import source or in CMDB.

Reconcile data in BMC.SIM dataset into BMC.ASSET dataset in CMDB.

The following CIs in BMC.SIM have not been automatically identified:

1. BMC_ComputerSystem; mc_udid=JZTest_Computer_1; ComponentAliases=[JZTest_Computer_1]; Name=JZTest_Computer_1;
2. BMC_ComputerSystem; mc_udid=JZTest_Computer_2; ComponentAliases=[JZTest_Computer_2]; Name=JZTest_Computer_2;
3. BMC_Filesystem; mc_udid=JZTest_Filesystem_2; ComponentAliases=[JZTest_Filesystem_2]; Name=JZTest_Filesystem_2;
4. BMC_Filesystem; mc_udid=JZTest_Filesystem_TestWK; ComponentAliases=[JZTest_Filesystem_TestWK]; Name=JZTest_Filesystem_TestWK;
5. BMC_ComputerSystem; mc_udid=JZTest_Computer_4; ComponentAliases=[JZTest_Computer_4]; Name=JZTest_Computer_4;
6. BMC_Filesystem; mc_udid=JZTest_Filesystem_4; ComponentAliases=[JZTest_Filesystem_4]; Name=JZTest_Filesystem_4;
7. BMC_Filesystem; mc_udid=JZTest_Filesystem_4_1; ComponentAliases=[JZTest_Filesystem_4_1]; Name=JZTest_Filesystem_4_1;
8. BMC_Filesystem; mc_udid=JZTest_Filesystem_4_2; ComponentAliases=[JZTest_Filesystem_4_2]; Name=JZTest_Filesystem_4_2;

Please verify that the automated publication triggered by the reconciliation was successful, or execute a manual publication with cli publish and verify that it is successful.

Chapter 6 Upgrading a service model to BMC Atrium CMDB
Reviewing the output files for sim2cmdb

Figure 10  Example verify.log file

```
sim2cmdb -e testPSR -i user/**** -o test_y_commit.log commit
Wed, 14 May 2008 09:49:51:954 CDT
IAS Server version: 7.2.00 [Build 1544526 - 29-Apr-2008]
User user successfully authenticated with IAS server hou-jezhou-37:3084.
BMC Atrium CMDB version: 2.1.0.0
User Demo successfully connected to AR System hou-jezhou-37:0.

Upgrade data of all cells of the publish environment(s).
Using cell(s) hou-jz-37 psr for DirectPublish data of testPSR.

==================================================================
Exporting service impact data from cell(s)
==================================================================
Cell: hou-jz-37-psr
Components:
1. BMC_BusinessProcess: mc_udid=BusProcess_Y ComponentAliases=[BusProcess_Y]; AccountID=Y; Description='SIM2CMDB testing no-InstanceId, relationships'; Name=BusProcess_Y;
   BMC_ComputerSystems: mc_udid=Computer_Y ComponentAliases=[Computer_Y]; AccountID=Y; Description='SIM2CMDB testing no-InstanceId, relationships'; Name=Computer_Y; Type=WINDOWS_SYSTEM; HostName=JZTest_1;
   BMC_FileSystems: mc_udid=FileSystem_Y ComponentAliases=[FileSystem_Y]; AccountID=Y; Description='SIM2CMDB testing no-InstanceId, relationships'; Name=FileSystem_Y; SystemName=Computer_wrongName;

   Relationships:
   4. BMC_Impact: mc_udid=Computer_Y_TO_BusProcess_Y PropagationModel=DIRECT; consumer_id=BusProcess_Y; provider_id=Computer_Y; AccountID=Y;
   5. BMC_Impact: mc_udid=FileSystem_Y_TO_Computer_Y PropagationModel=DIRECT; consumer_id=Computer_Y; provider_id=FileSystem_Y; AccountID=Y;

==================================================================
Importing service impact data into CMDB's dataset BMC.SIM
==================================================================
During the data import, the following issues were found:
1. BMC_FileSystem: mc_udid=FileSystem_Y; Name=FileSystem_Y; ComponentAliases=[FileSystem_Y];
   Warning: No System instance with Name Computer_wrongName exists in CMDB or upgraded data. No relationship BMC_HostedSystemComponentWithInstance FileSystem_Y is created.
   Reason/Suggestion: Please verify the valid System CI Computer_wrongName is existing in either import source or in CMDB.

No SIM data is imported to CMDB because commit was not requested.

==================================================================
sim2cmdb result
==================================================================
Program ended with no SIM data imported to CMDB.
```
When you run `sim2cmdb` with the `commit` command, SIM data is imported into the BMC Atrium CMDB. The data is first imported into the BMC Atrium CMDB BMC.SIM dataset. Afterward, `sim2cmdb` starts the reconciliation job, BMC SIM to CMDB Migration, to merge the identified instances into the BMC.ASSET dataset. Finally, the SIM publish process is automatically triggered to push the data into the cell with new reconciliation IDs.

The `sim2cmdb` commit command terminates for two reasons:

- If issues are found in data verification and the configuration parameter "ContinueOnSkip" is set to false (default).
To continue upgrading, you must fix the data or set the `ContinueOnSkip` to `true`, which commits the data upgrade regardless of issues with the data.

- The BMC.SIM dataset is not clean. A clean dataset means that all CIs in the BMC.SIM dataset are identified. In other words, all the component instances in the dataset have the unique `ReconciliationIdentity` value assigned.

If the dataset is not clean, you must either:

- return to the CI identification step to identify CIs
- return to the dataset cleanup step to force clean all the data in BMC.SIM dataset

The `sim2cmdb` commit reports CIs which have not been automatically identified. If the output report contains any un-identified CIs, you must return to the CI identification stage to identify the CIs.

You must also verify the results of data publication, as explained in step 11 on page 116.

**CI identification**

The CI identification procedure identifies the component instances in the BMC.SIM dataset and triggers the `BMC SIM to CMDB Migration` reconciliation job.

You have three options to identify CIs.

1. Manually assign `ReconciliationIdentity` values to unidentified CIs from the CMDB Reconciliation Manager, and then manually run the `BMC SIM to CMDB Migration` reconciliation job.

2. Modify the identification rules in the BMC SIM to CMDB Migration - Identification and Merge job from the CMDB Console and manually run the reconciliation job. See “Identifying components and data reconciliation” on page 118 for details.

3. Run the `sim2cmdb` identify command. The `sim2cmdb` identify command assigns a unique ID to each unidentified CI in the BMC.SIM dataset and calls the reconciliation job.

Options 2 and 3 have the potential to create duplicates in the BMC Atrium CMDB. Duplicates should be avoided. Therefore, use options 2 and 3 only if SIM data are the sole resource of the BMC Atrium CMDB data or you are certain that the option will not cause duplication.

After CIs in the BMC.SIM dataset are identified and the reconciliation job successfully executed, you must verify if the publication is successful.
Dataset cleanup

The sim2cmdb close command cleans up all the data in the BMC.SIM dataset.

You cannot run the sim2cmdb commit command if the BMC.SIM dataset is not clean. A clean dataset means that all CIs in BMC.SIM dataset are identified, that is, all the component instances in the dataset have a unique ReconciliationIdentity value assigned.

Although you can force removal of all the data in BMC.SIM dataset, BMC Software recommends that if the dataset is not clean you return to the CI Identification stage to identify those CIs. Forced removal of unidentified Cis can cause unsynchronized data between SIM and the BMC Atrium CMDB.

sim2cmdb return codes

When the sim2cmdb command exits with a return value other than 0 (success), additional textual information on the error cause is displayed to standard output and to the generated trace file MCELL_HOME\etc\sim2cmdb.trace.

To enable debug tracing, comment out the last two sections in the MCELL_HOME\etc\sim2cmdb.trace configuration file.

These exit codes, their meanings, and recommended remedial actions are described in Table 18.

Table 18    error exit codes for sim2cmdb CLI command (part 1 of 3)

<table>
<thead>
<tr>
<th>Error Exit Code</th>
<th>Description</th>
<th>Recommended remedial action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>indicates a syntax error on one or more command line arguments or options</td>
<td>Verify the correct syntax for the command string.</td>
</tr>
<tr>
<td>3</td>
<td>indicates that the home directory of the CLI is not defined</td>
<td>Do the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Verify that the MCELL_HOME environment variable is set for the application.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Verify that the CLI script (.bat or .sh) file correctly contains:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-DhomeLocation=%MCELL_HOME%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Specify the home directory (-D HomeLocation) path at the command line.</td>
</tr>
<tr>
<td>4</td>
<td>indicates the supplied configuration file could not be found</td>
<td>Verify that the value of the -c argument is an existing, readable file.</td>
</tr>
</tbody>
</table>
**Table 18  error exit codes for sim2cmdb CLI command (part 2 of 3)**

<table>
<thead>
<tr>
<th>Error Exit Code</th>
<th>Description</th>
<th>Recommended remedial action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>indicates an I/O error occurred when reading the configuration file</td>
<td>Verify that the user has read access to the configuration file.</td>
</tr>
<tr>
<td>6</td>
<td>indicates the Impact Administration Server (IAS) interface cannot be initialized</td>
<td>Check that the Impact Administration Server (IAS) is up and running.</td>
</tr>
<tr>
<td>7</td>
<td>indicates a security problem (for example, write access) to the CLI home directory</td>
<td>Check that the user has read and write access to the <code>etc/log</code> directory and write access to the <code>temp</code> directory in the CLI home directory.</td>
</tr>
<tr>
<td>8</td>
<td>indicates that the home directory of the CLI does not exist</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>indicates that the CLI cannot find a file that it requires to run properly; for example a FileNotFound exception.</td>
<td>Verify that the file whose name appears as missing does exist</td>
</tr>
<tr>
<td>15</td>
<td>indicates that the CLI cannot resolve a host name</td>
<td>Repair the computer’s network settings</td>
</tr>
<tr>
<td>16</td>
<td>indicates the failure to authenticate with the Impact Administration Server</td>
<td>Do the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ If you are running a CLI command, verify the credentials that you specified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ If automatic authentication is set up in the sim2cmdb.conf file, verify that the credentials (IASUsername, IASPassword, and IASServers) are valid.</td>
</tr>
<tr>
<td>17</td>
<td>indicates an error with starting impact CLI</td>
<td>Do the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verify that the file <code>MCELL_HOME/etc/locale/sim2cmdb.load</code> exists on the BMC Portal server host computer.</td>
</tr>
<tr>
<td>18</td>
<td>indicates that the UTF-8 character set is not supported by the host</td>
<td>The host computer must support the UTF-8 character set.</td>
</tr>
<tr>
<td>30</td>
<td>indicates verification of publish environment failed</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>indicates an error occurred when retrieving a cell directory from the BMC Atrium CMDB</td>
<td>Verify the access rights for the cell directory.</td>
</tr>
<tr>
<td>32</td>
<td>indicates an error occurred when communicating with a cell</td>
<td>Verify that the cell is running.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verify network connectivity.</td>
</tr>
<tr>
<td>33</td>
<td>indicates verification of cell protocol version failed</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>indicates classes between CMDB and cell(s) are not synchronized</td>
<td></td>
</tr>
</tbody>
</table>
Table 18  error exit codes for sim2cmdb CLI command (part 3 of 3)

<table>
<thead>
<tr>
<th>Error Exit Code</th>
<th>Description</th>
<th>Recommended remedial action</th>
</tr>
</thead>
</table>
| 35              | indicates an error when communicating with BMC Atrium CMDB | Verify that BMC Remedy AR System is running.  
                       |                                                          | Verify network connectivity.                                   |
| 36              | indicates an error when executing a CMDB operation |                                                                  |
| 37              | indicates an error when importing data into CMDB | Check standard out for more details regarding the error.        |
Uninstalling BMC Impact Solutions

This part presents the following topics:

Chapter 7
Uninstalling BMC Impact Solutions components from Windows computers . . . 141

Chapter 8
Uninstalling BMC Impact Solutions components from UNIX computers . . . . . . 147
Chapter 7 Uninstalling BMC Impact Solutions components from Windows computers

This chapter provides instructions for how to uninstall BMC Impact Solutions components on Windows. It includes the following topics:

- General uninstallation recommendations ........................................ 142
  - Before starting an uninstallation .............................................. 142
  - When deleting registry keys .................................................. 142
- Uninstalling BMC Impact Solutions components ........................ 143
- Uninstalling the BMC Impact Portal and its components ............ 144
- Uninstalling the SNMP Adapter Configuration Manager ............. 144
- Uninstalling a licensed Oracle database ................................. 145
General uninstallation recommendations

Review these recommendations before you attempt to uninstall a product or component.

Before starting an uninstallation

- Note the contents of your %TEMP% directory environment variable. It can have different values on different systems. The temporary directories should be cleaned out before you begin uninstallation of the BMC Impact Solutions components.

- If you are using BMC Impact Event Adapters, stop the BMC Impact Event Adapters service before stopping other BMC Impact Solutions services.

- Stop all other BMC Impact Solutions product and component services, including cells (mcell_cellName).

- Close all active Windows applications, the Services window, and any applications associated with BMC Impact Solutions.

When deleting registry keys

**WARNING**

Using the Registry Editor incorrectly can cause serious, system-wide problems that can require you to reinstall the Windows operating system to correct them. Use this tool at your own risk.

- Before you begin making changes to the registry, consider backing it up by exporting the registry keys to a .reg file.

- When deleting registry keys, do not delete a key without checking the expanded list. Otherwise, you might unintentionally delete a required key.

- In the Registry Editor (regedt32) utility, the LEGACY folder contains product entries that cannot be deleted and that do not interfere with the BMC product installation utility.

- After deleting keys from the registry, always restart the computer.
Uninstalling BMC Impact Solutions components

1. On the computer where you installed the BMC Impact Solutions components, open the Control Panel.

2. In the Control Panel, double-click **Add/Remove Programs** to open the Add/Remove Programs window.

3. To open the uninstallation wizard, select **BMC Impact Solutions**, and click **Change/Remove**.

4. On the Welcome page, click **Next**.

5. On the features uninstallation selection page, make your selections from the following choices and click **Next**.

---

**Tip**

Checking the BMC Impact Solutions box automatically checks the boxes for all the components.

- BMC Impact Solutions
- BMC Impact Administration Server
- BMC Impact Integration Web Services Server
- BMC Impact Manager (Cell)
- Integration for BMC Remedy Service Desk
- BMC Impact Explorer
- BMC Impact Event Adapters
- BMC Impact Windows Event Log Adapter
- BMC Impact Solutions Documentation
6 On the uninstallation summary page, verify the settings that you chose during the uninstallation process.

- To change the settings, click Previous.
- To start the installation, click Uninstall.

**WARNING**

After clicking Uninstall and file deletion begins, do not attempt to cancel the uninstallation. Canceling the uninstallation during file deletion can require manual cleanup of the computer. Cleaning up the computer manually after a canceled uninstallation is difficult.

If the package uninstalls successfully, the uninstallation process displays the following message:

The uninstallation of BMC Impact Solutions 7.3.00 was completed successfully.

7 Click Done to complete the uninstallation.

Ensure that the uninstallation deleted the installation directory and removed all BMC Impact Solutions services. If any of these remain, delete or remove them manually.

---

**Uninstalling the BMC Impact Portal and its components**

For information about uninstalling the following applications or components, see the BMC Portal Installation Guide guide:

- BMC Impact Portal
- BMC Portal application server

---

**Uninstalling the SNMP Adapter Configuration Manager**

1 Close the web-based GUI of the SNMP Adapter Configuration Manager.

2 Stop the Tomcat server.

For more information, see the “Stopping the Tomcat server” on page 49.
3 Navigate to the `installationDirectory\_uninst` directory.

4 Double-click `uninstaller.exe`.

5 On the welcome page, click `Next`.

6 On the next page, click `Uninstall`.

7 At the end of the uninstallation, click `Finish`.

---

**Uninstalling a licensed Oracle database**

For instructions for removing a licensed Oracle database, see the Oracle website.

---

**WARNING**

Verify that the licensed Oracle database that you are removing is not used by any other applications before you remove it.
Uninstalling a licensed Oracle database
Uninstalling BMC Impact Solutions components from UNIX computers

This chapter provides instructions for how to uninstall BMC Impact Solutions components on UNIX. It includes the following topics:

Uninstalling BMC Impact Solutions .................................................. 148
Uninstalling the BMC Impact Portal and its components .................. 150
Uninstalling the SNMP Adapter Configuration Manager ..................... 150
Uninstalling a licensed Oracle database ............................................ 150
Uninstalling BMC Impact Solutions

1 Log on to the computer as root or using an account that has root privileges.

   You must have the same privileges as the root user on your system before you can remove any of the server files.

2 Stop any mcell processes that are running.

3 In the /opt/bmc/Impact/UninstallBMCImpactSolutions directory, locate the uninstall script.

4 Change directories to the directory that is one level above the subdirectory that contains the uninstall script.

   Because the uninstallation script deletes the subdirectory in which it is contained, you must execute the script from a higher-level directory. For example, if the uninstall script resides in /opt/bmc/Impact/UninstallBMCImpactSolutions, change directories to /opt/bmc/Impact.

5 Execute the script by entering the following command from a command line:

   UninstallBMCImpactSolutions/uninstall

   To display output, including a list of the files that are removed, use the -v switch with the uninstallation command. The output might repeat some lines several times and display other formatting anomalies.

6 On the Welcome page, click Next.

7 On the features uninstallation selection page, make your selections from the following choices and click Next.
Chapter 8 Uninstalling BMC Impact Solutions components from UNIX computers

8 On the uninstallation summary page, verify the settings that you chose during the uninstallation process.

- To change the settings, click Previous.
- To start the installation, click Uninstall.

**WARNING**

After clicking Uninstall and file deletion begins, do not attempt to cancel the uninstallation. Canceling the uninstallation during file deletion can require manual cleanup of the computer. Cleaning up the computer manually after a canceled uninstallation is difficult.

If the package is uninstalled successfully, the following message is displayed:

_The uninstallation of BMC Impact Solutions 7.3.00 was completed successfully._

9 Click Done to complete the uninstallation.

10 Manually delete the directory where the script resided.

If you execute a script from the directory where it resides, the script might not delete the directory.
Uninstalling the BMC Impact Portal and its components

For information about uninstalling the following applications or components, see the BMC Portal Installation Guide guide:

- BMC Impact Portal
- BMC Portal application server

Uninstalling the SNMP Adapter Configuration Manager

1. Close the web-based GUI of the SNMP Adapter Configuration Manager.
2. Stop the Tomcat server.
   
   For more information, see the “Stopping the Tomcat server” on page 80.
3. Navigate to the installationDirectory/_uninst directory.
4. Run the following script:
   
   uninstaller.bin
5. On the welcome page, click Next.
6. On the next page, click Uninstall.
7. At the end of the uninstallation, click Finish.

Uninstalling a licensed Oracle database

For instructions for removing a licensed Oracle database, see the Oracle website.

WARNING

Verify that the licensed Oracle database that you are removing is not used by any other applications before you remove it.
Environment variables

The installation process creates or updates environment variables used by BMC Impact Solutions.

This appendix presents the following topics:

Microsoft Windows environment variables ........................................... 152
Re-creating environment variables on Windows ..................................... 152
UNIX environment variables ................................................................. 153
Re-creating environment variables on UNIX ......................................... 153
Microsoft Windows environment variables

Table 19 describes the Windows environment variables for BMC Impact Solutions and provides the default location for each variable.

<table>
<thead>
<tr>
<th>Environment variable</th>
<th>Full path name</th>
<th>Default directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC_PORTAL_KIT_HOME</td>
<td>%BMC_PORTAL_KIT_HOME%</td>
<td>C:\BMCSoftware\BMCPortalKit\</td>
</tr>
<tr>
<td>defines the path to BMC Impact Portal configuration files and executable files</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATASTORE_HOME</td>
<td>%DATASTORE_HOME%</td>
<td>C:\BMCSoftware\Datastore</td>
</tr>
<tr>
<td>defines the path to the BMC Datastore files</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCELL_HOME</td>
<td>%MCELL_HOME%</td>
<td>C:\Program Files\BMC Software\Impact\server</td>
</tr>
<tr>
<td>defines the path to BMC Impact Manager configuration files and executable files</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMPACT_SOLUTIONS_HOME</td>
<td>%IMPACT_SOLUTIONS_HOME%</td>
<td>C:\Program Files\BMC Software\Impact</td>
</tr>
<tr>
<td>defines the path to BMC Impact Solutions configuration files and executable files</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Re-creating environment variables on Windows

An executable is available for backward compatibility and the rare occasion when the environment variables must be re-created on the same system or a different system.

To re-create the environment variables, run the following script:

```
%SystemRoot%\system32\drivers\etc\mcell\setup_env.bat
```
UNIX environment variables

Table 20 describes the UNIX environment variables for BMC Impact Solutions and provides the default location for each variable.

Table 20  UNIX environment variables

<table>
<thead>
<tr>
<th>Environment variable</th>
<th>Full path name</th>
<th>Default directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC_PORTAL_KIT_HOME</td>
<td>$BMC_PORTAL_KIT_HOME</td>
<td>/opt/bmc/BMCPortalKit</td>
</tr>
<tr>
<td></td>
<td>defines the path to BMC Impact Portal configuration files and executable files</td>
<td></td>
</tr>
<tr>
<td>DATASTORE_HOME</td>
<td>$DATASTORE_HOME</td>
<td>/opt/bmc/Datastore</td>
</tr>
<tr>
<td></td>
<td>defines the path to the BMC Datastore files</td>
<td></td>
</tr>
<tr>
<td>MCELL_HOME</td>
<td>$MCELL_HOME</td>
<td>/opt/bmc/Impact</td>
</tr>
<tr>
<td></td>
<td>defines the path to BMC Impact Manager configuration files and executable files</td>
<td></td>
</tr>
<tr>
<td>IMPACT_SOLUTIONS_HOME</td>
<td>$IMPACT_SOLUTIONS_HOME</td>
<td>/opt/bmc/Impact</td>
</tr>
<tr>
<td></td>
<td>defines the path to BMC Impact Solutions configuration files and executable files</td>
<td></td>
</tr>
</tbody>
</table>

Re-creating environment variables on UNIX

An executable is available for backward compatibility and the rare occasion when the environment variables must be re-created on the same system or a different system.

To re-create the environment variables, run one of the following scripts:

. /etc/mcell/setup_env.sh
. /etc/profile
source /etc/mcell/setup_env.csh
source /etc/.cshrc
Index

B

BMC Impact Administration Server (BMC IAS)
installing on UNIX computers 60
installing on Windows computers 32
BMC Impact Event Adapters
installing on UNIX computers 60
installing on Windows computers 32
BMC Impact Event Log Adapter for Windows, installing 32
BMC Impact Explorer
installing on UNIX computers 60
installing on Windows computers 32
obtaining a user account on UNIX 73
obtaining a user account on Windows 43
upgrading on UNIX computers 100
upgrading on Windows computers 86
verifying successful installation on UNIX 74
verifying successful installation on Windows 44
BMC Impact Manager
installing on UNIX computers 60
installing on Windows computers 32
installing SNMP MIB libraries on UNIX 74
installing SNMP MIB libraries on Windows computers 44
post-installation tasks on UNIX 72
postinstallation tasks on Windows 43
upgrading on UNIX computers 100
upgrading on Windows computers 86
BMC Impact Portal
uninstalling from UNIX computers 150
uninstalling from Windows computers 144
BMC Impact Publishing Server
installing on UNIX computers 60
installing on Windows computers 32
BMC Impact Solutions
default installation directory 33
installing in silent mode on UNIX computers 66
installing in silent mode on Windows computers 44
troubleshooting installation on UNIX computers 72
troubleshooting installation on Windows computers 43
uninstalling from UNIX computers 148
uninstalling from Windows computers 143
upgrade considerations for UNIX 98
upgrade considerations for Windows 84
upgrading on UNIX computers 100
upgrading on Windows computers 86
BMC SIM CMDB extensions
installing on UNIX computers 58
installing on Windows computers 30
upgrading on UNIX computers 98
upgrading on Windows computers 85
BMC Software, contacting 2
BMC_PORTAL_KIT_HOME environment variable 152, 153
C
command options
publish 127
customer support 3
D
DATASTORE_HOME environment variable 152, 153
default installation directory
for installing BMC Impact Solutions 33
E
enabling components
installing on UNIX 74
installing on Windows computers 44
environment variables
BMC_PORTAL_KIT_HOME 152, 153
DATASTORE_HOME 152, 153
for UNIX 153
MCELL_HOME 152, 153
re-creating on UNIX 153
re-creating on Windows 152
exits 135
installation
task map 24, 25, 27, 52, 53, 55
installation directory
default for BMC Impact Solutions 33
installing
BMC Impact Administration Server (BMC IAS) on UNIX computers 60
BMC Impact Administration Server (BMC IAS) on Windows computers 32
BMC Impact Event Adapters on UNIX computers 60
BMC Impact Event Adapters on Windows computers 32
BMC Impact Event Log Adapter for Windows 32
BMC Impact Explorer on UNIX computers 60
BMC Impact Explorer on Windows computers 32
BMC Impact Manager on UNIX computers 60
BMC Impact Manager on Windows computers 32
BMC Impact Manager post-installation tasks on UNIX 72
BMC Impact Manager postinstallation tasks on Windows 43
BMC Impact Publishing Server on UNIX computers 60
BMC Impact Publishing Server on Windows computers 32
BMC Impact Solutions in silent mode on UNIX computers 66
BMC Impact Solutions in silent mode on Windows computers 38
default installation directory for BMC Impact Solutions 33
Integration for BMC Remedy Service Desk (IBRSD) on UNIX computers 60
Integration for BMC Remedy Service Desk (IBRSD) on Windows computers 32
order of installation 28, 56
postinstallation tasks for SNMP Adapter Configuration Manager on Windows computers 46
SIM CMDB extensions on UNIX computers 38
SIM CMDB extensions on Windows computers 30
SNMP Adapter Configuration Manager on Windows computers 44
SNMP MIB libraries on UNIX 74
SNMP MIB libraries on Windows computers 44
troubleshooting BMC Impact Solutions installation on UNIX computers 72
troubleshooting BMC Impact Solutions installation on Windows computers 43
verifying BMC Impact Explorer installation on UNIX 74
verifying BMC Impact Explorer installation on Windows 44
Integration for BMC Remedy Service Desk (IBRSD) installing on UNIX computers 60
installing on Windows computers 32
M
MCELL_HOME environment variable 152, 153
O
Oracle
uninstalling licensed database from UNIX computers 150
uninstalling licensed database from Windows computers 145
order of installation 28, 56
output file for sim2cmdb CLI command 130
P
product support 3
publish command
command options 127
R
re-creating environment variables
on UNIX 153
on Windows 152
S
scripts
setup_env.bat 152
setup_env.csh 153
setup_env.sh 153
setup_env.bat script 152
setup_env.csh script 153
setup_env.sh script 153
silent mode
for installing BMC Impact Solutions on UNIX computers 66
for installing BMC Impact Solutions on Windows computers 38
SIM KB BAROC files
updating on UNIX 108
updating on Windows 94
SIM KB component classes
updating on UNIX 108
updating on Windows 94
sim2cmdb.conf file 123
SNMP Adapter Configuration Manager installing on UNIX computers 74
installing on Windows computers 44
postinstallation tasks for UNIX installation 77
postinstallation tasks for Windows installation 46
uninstalling from UNIX computers 150
SNMP Adapter Configuration Manager (continued)
uninstalling from Windows computers 144
upgrading on UNIX computers 109
upgrading on Windows computers 95
SNMP MIB libraries
installing on UNIX 74
installing on Windows computers 44
support, customer 3

T

task map, installation 24, 25, 27, 52, 53, 55
technical support 3
troubleshooting
BMC Impact Solutions installation on UNIX
computers 72
BMC Impact Solutions installation on Windows
computers 43

U

uninstalling
BMC Impact Portal from UNIX computers 150
BMC Impact Portal from Windows computers 144
BMC Impact Solutions components from Windows
computers 143
BMC Impact Solutions from UNIX computers 148
licensed Oracle database from UNIX computers 150
licensed Oracle database from Windows computers 145
Registry key deletion considerations on Windows 142
SNMP Adapter Configuration Manager from UNIX
computers 150
SNMP Adapter Configuration Manager from Windows
computers 144
UNIX
environment variables 153
updating SIM KB component classes on UNIX 108
updating SIM KB component classes on Windows 94
Upgrading 83
upgrading
BMC Impact Manager on UNIX computers 100
BMC Impact Manager on Windows computers 86
BMC Impact Solutions on UNIX computers 100
BMC Impact Solutions on Windows computers 86
BMC SIM CMDB extensions on UNIX computers 98
considerations for upgrading on UNIX computers 98
considerations for upgrading on Windows computers 84
pre-upgrade steps for UNIX 98
pre-upgrade steps for Windows 84
SIM CMDB extensions on Windows computers 85
SIM KB component classes on UNIX computers 108
SIM KB component classes on Windows computers 94

SNMP Adapter Configuration Manager on UNIX
computers 109
SNMP Adapter Configuration Manager on Windows
computers 95
verifying on UNIX 110
verifying on Windows 95
upgrading BMC SIM CMDB extensions on UNIX
computers 98
upgrading BMC SIM CMDB extensions on Windows
computers 85
user accounts
obtaining on UNIX 73
obtaining on Windows 43

W

Windows
considerations for upgrading BMC Impact Solutions 84
installation workflow 19
Third Party Product Terms

The following terms apply to third-party products that are included with or in a BMC Software product as described in the BMC Software, Inc., License Agreement that is applicable to the product.

The Apache Software License, Version 1.1

This product includes the Apache software product found at www.apache.org and the Apache software product is distributed to us pursuant to the following terms and conditions:

Copyright (c) 2000 The Apache Software Foundation. All rights reserved.

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution if any, must include the following acknowledgement: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgement might appear in the software itself, if and wherever such third-party acknowledgements normally appear.

4. The names "Apache", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.

5. Products derived from this software might not be called "Apache", nor might "Apache" appear in their name without prior written permission of the Apache Group.

THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache Software License version 2.0

This product includes the Apache software product found at http://apache.org, and the Apache software product is distributed to us pursuant to the following terms and conditions:

Copyright (c) 2000-2004 The Apache Software Foundation. All rights reserved.

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity
(including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You might reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You might add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You might add Your own copyright statement to Your modifications and might provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided You use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement You might have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You might choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You might act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

GNU Lesser General Public License

Certain software used by this program is:

Provided by Bruno Lowagie and is subject to its copyrights and those of its licensors;

Copyright (C) 1991, 1999 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

The above component is licensed under the terms of the GNU Lesser General Public License version 2.1 which is included on the distribution media.

NO WARRANTY

BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Java Service License

Copyright (c) 2000, Alexandria Software Consulting

All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions, and the following disclaimer.
- Neither name of Alexandria Software Consulting nor the names of the contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS “AS IS” AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

JDOM License

Copyright (C) 2000 Brett McLaughlin & Jason Hunter. All rights reserved.

1. Redistributions of source code must retain the above copyright notice, this list of conditions, and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions, and the disclaimer that follows these conditions in the documentation and/or other materials provided with the distribution.

3. The name “JDOM” must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact license@jdom.org.

4. Products derived from this software might not be called “JDOM”, nor might “JDOM” appear in their name, without prior written permission from the JDOM Project Management (pm@jdom.org).

THIS SOFTWARE IS PROVIDED “AS IS” AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE JDOM AUTHORS OR THE PROJECT CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software consists of voluntary contributions made by many individuals on behalf of the Java Document Object Model Project and was originally created by Jason Hunter <hunter_AT_jdom_DOT_org> and Brett McLaughlin <brett_AT_jdom_DOT_org>. For more information on the JDOM Project, please see <http://www.jdom.org/>.

The BSD License for the JGoodies Looks

Copyright (c) 2001-2004 JGoodies Karsten Lentzsch. All rights reserved.

- o Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- o Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- o Neither the name of JGoodies Karsten Lentzsch nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED “AS IS” AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The Artistic License

Various media for this product contain products which are licensed under the terms of the Artistic License.

The Library is Copyright (C) Copyright 1987-2001, Larry Wall

THIS PACKAGE IS PROVIDED “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

ObjectWeb License

Copyright (c) 2000-2005 INRIA, France Telecom All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

MOZILLA PUBLIC LICENSE

All or certain components of Rhino, which is Copyright © 1996-2005 The Mozilla Organization (the "Program"), might accompany this BMC Software product. The Program is licensed under the terms of the Mozilla Public License Version 1.1 (the "MPL"). A copy of the MPL is included on media for this BMC Software product in a file entitled "MPL.txt." The terms and conditions of your BMC Software license agreement do not apply with respect to the Program to the extent that any such term or condition imposes any further limitation or restriction on the exercise of any right with respect to the Program granted under the MPL.

You might acquire the source code version of the Program under the terms of the MPL http://www.mozilla.org/MPL. The BMC Software license does not alter, limit, or restrict any rights you have under the MPL with respect to the source code version of the Program.

ANY TERMS THAT DIFFER FROM THE MPL, AND ANY WARRANTY, SUPPORT, INDEMNITY, OR LIABILITY OBLIGATIONS THAT might BE OFFERED BY BMC SOFTWARE, ARE OFFERED BY BMC SOFTWARE ALONE ON THE TERMS AND CONDITIONS OF YOUR LICENSE AGREEMENT WITH BMC SOFTWARE, AND NOT BY ANY INITIAL DEVELOPER OR ANY CONTRIBUTOR (AS SUCH TERMS ARE DEFINED IN THE MPL). ALL WARRANTIES FOR THE PROGRAM ARE DISCLAIMED AS SET FORTH IN THE MPL, AND LIABILITIES ARE LIMITED WITH RESPECT TO THE PROGRAM AS SET FORTH IN THE MPL.

Net-SNMP License

--- Part 1: CMU/UCD copyright notice (BSD like) -----


Copyright 1996, 1998-2000 The Regents of the University of California All Rights Reserved

Permission to use, copy, modify and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice is displayed in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of CMU and The Regents of the University of California not be used in advertising or publicity pertaining to distribution of the software without specific written permission.

CMU AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL CMU OR THE REGENTS OF THE UNIVERSITY OF CALIFORNIA BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM THE LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

--- Part 2: Networks Associates Technology, Inc copyright notice (BSD) -----

Copyright (c) 2001-2003, Networks Associates Technology, Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Networks Associates Technology, Inc nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--- Part 3: Cambridge Broadband Ltd. copyright notice (BSD) -----

Portions of this code are copyright (c) 2001-2003, Cambridge Broadband Ltd. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* The name of Cambridge Broadband Ltd. might not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 4: Sun Microsystems, Inc. copyright notice (BSD) -----

Copyright © 2003 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved. Use is subject to license terms below.

This distribution might include materials developed by third parties. Sun, Sun Microsystems, the Sun logo and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

 Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Sun Microsystems, Inc. nor the names of its contributors might be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 5: Sparta, Inc copyright notice (BSD) -----

Copyright (c) 2003-2004, Sparta, Inc All rights reserved.

 Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Sparta, Inc nor the names of its contributors might be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 6: Cisco/BUPTNIC copyright notice (BSD) -----

Copyright (c) 2004, Cisco, Inc and Information Network Center of Beijing University of Posts and Telecommunications. All rights reserved.

 Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Cisco, Inc, Beijing University of Posts and Telecommunications, nor the names of their contributors might be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Sun Microsystems, Inc. Binary Code License Agreement

1. LICENSE TO USE. Sun grants you a non-exclusive and non-transferable license for the internal use only of the accompanying software and documentation and any error corrections provided by Sun (collectively "Software"), by the number of users and the class of computer hardware for which the corresponding fee has been paid.

2. RESTRICTIONS. Software is confidential and copyrighted. Title to Software and all associated intellectual property rights is retained by Sun and/or its licensors. Except as specifically authorized in any Supplemental License Terms, you might not make copies of Software, other than a single copy of Software for archival purposes. Unless enforcement is prohibited by applicable law, you might not modify, decompile, or reverse engineer Software. Licensee acknowledges that Licensed Software is not designed or intended for use in the design, construction, operation or maintenance of any nuclear facility. Sun Microsystems, Inc. disclaims any express or implied warranty of fitness for such uses. No right, title or interest in or to any trademark, service mark, logo or trade name of Sun or its licensors is granted under this Agreement.

3. LIMITED WARRANTY. Sun warrants to you that for a period of ninety (90) days from the date of purchase, as evidenced by a copy of the receipt, the
media on which Software is furnished (if any) will be free of defects in materials and workmanship under normal use. Except for the foregoing, Software is provided "AS IS". Your exclusive remedy and Sun's entire liability under this limited warranty will be at Sun's option to replace Software media or refund the fee paid for Software.

4. DISCLAIMER OF WARRANTY. UNLESS SPECIFIED IN THIS AGREEMENT, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT THESE DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

5. LIMITATION OF LIABILITY. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE SOFTWARE, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL SUN'S LIABILITY TO YOU, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR OTHERWISE, EXCEED THE AMOUNT PAID BY YOU FOR SOFTWARE UNDER THIS AGREEMENT. THE FOREGOING LIMITATIONS WILL APPLY EVEN IF THE ABOVE STATED WARRANTY FAILS OF ITS ESSENTIAL PURPOSE.

6. Termination. This Agreement is effective until terminated. You might terminate this Agreement at any time by destroying all copies of Software. This Agreement will terminate immediately without notice from Sun if you fail to comply with any provision of this Agreement. Upon Termination, you must destroy all copies of Software.

7. Export Regulations. All Software and technical data delivered under this Agreement are subject to US export control laws and might be subject to export or import regulations in other countries. You agree to comply strictly with all such laws and regulations and acknowledge that you have the responsibility to obtain such licenses to export, re-export, or import as might be required after delivery to you.

8. U.S. Government Restricted Rights. If Software is being acquired by or on behalf of the U.S. Government or by a U.S. Government prime contractor or subcontractor (at any tier), then the Government's rights in Software and accompanying documentation will be only as set forth in this Agreement; this is in accordance with 48 CFR 227.7201 through 227.7202-4 (for Department of Defense (DOD) acquisitions) and with 48 CFR 2.101 and 12.212 (for non-DOD acquisitions).

9. Governing Law. Any action related to this Agreement will be governed by California law and controlling U.S. federal law. No choice of law rules of any jurisdiction will apply.

10. Severability. If any provision of this Agreement is held to be unenforceable, this Agreement will remain in effect with the provision omitted, unless omission would frustrate the intent of the parties, in which case this Agreement will immediately terminate.

11. Integration. This Agreement is the entire agreement between you and Sun relating to its subject matter. It supersedes all prior or contemporaneous oral or written communications, proposals, representations and warranties and prevails over any conflicting or additional terms of any quote, order, acknowledgment, or other communication between the parties relating to its subject matter during the term of this Agreement. No modification of this Agreement will be binding, unless in writing and signed by an authorized representative of each party.

JAVA(TM) INTERFACE CLASSES JAVA API FOR XML-BASED RPC API
CLASS FILES, VERSION 1.1 SUPPLEMENTAL LICENSE TERMS

These supplemental license terms ("Supplemental Terms") add to or modify the terms of the Binary Code License Agreement (collectively, the "Agreement"). Capitalized terms not defined in these Supplemental Terms shall have the same meanings ascribed to them in the Agreement. These Supplemental Terms shall supersede any inconsistent or conflicting terms in the Agreement, or in any license contained within the Software.

1. Software Internal Use and Development License Grant.

Subject to the terms and conditions of this Agreement, including, but not limited to Section 3 (Java(TM) Technology Restrictions) of these Supplemental Terms, Sun grants you a non-exclusive, non-transferable, limited license to reproduce internally and use internally the binary form of the Software, complete and unmodified, for the sole purpose of designing, developing and testing your Java applets and applications ("Programs").

2. License to Distribute Software. In addition to the license granted in Section 1 (Software Internal Use and Development License Grant) of these Supplemental Terms, subject to the terms and conditions of this Agreement, including but not limited to Section 3 (Java Technology Restrictions), Sun grants you a non-exclusive, non-transferable, limited license to reproduce and distribute the Software in binary form only, provided that you (i) distribute the Software complete and unmodified and only bundled as part of your Programs, (ii) do not distribute additional software intended to replace any component(s) of the Software, (iii) do not remove or alter any proprietary legends or notices contained in the Software, (iv) only distribute the Software subject to a license agreement that protects Sun's interests consistent with the terms contained in this Agreement, and (v) agree to defend and indemnify Sun and its licensors from and against any damages, costs, liabilities, settlement amounts and/or expenses.

3. Java Technology Restrictions. You might not modify the Java Platform Interface ("JPI"), identified as classes contained within the "java" package or any subpackages of the "java" package, by creating additional classes within the JPI or otherwise causing the addition to or modification of the classes in the JPI. In the event that you create an additional class and associated API(s) which (i) extends the functionality of the Java Platform, and (ii) is exposed to third party software developers for the purpose of developing additional software which invokes such additional API, you must promptly publish broadly an accurate specification for such API for free use by all developers. You might not create, or authorize your licensees to create additional classes, interfaces, or subpackages that are in any way identified as "java", "jav", "s", "sun" or similar convention as specified by Sun in any naming convention designation.

4. Trademarks and Logos. You acknowledge and agree as between you and Sun that Sun owns the SUN, SOLARIS, JAVA, JINI, FORTE, and iPLANET trademarks and all SUN, SOLARIS, JAVA, JINI, FORTE, and iPLANET-related trademarks, service marks, logos and other brand designations ("Sun Marks"); and you agree to comply with the Sun Trademark and Logo Usage Requirements currently located at http://www.sun.com/policies/trademarks. Any use you make of the Sun Marks inures to Sun's benefit.

5. Source Code. Software might contain source code that is provided solely for reference purposes pursuant to the terms of this Agreement. Source code might not be redistributed unless expressly provided for in this Agreement.

6. Termination for Infringement. Either party might terminate this Agreement immediately should any Software become, or in either party's opinion be likely to become, the subject of a claim of infringement of any intellectual property right.

For inquiries please contact: Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, California 95054

(LF#136499/Form ID#011801)

**Tanuki Software**

This product includes the Tanuki Software product found at http://www.wrapper.tanukisoftware.org and this product is distributed to us pursuant to the following terms and conditions:
Permission is hereby granted, free of charge, to any person obtaining a copy of the library software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Portions of the Software have been derived from source code developed by Silver Egg Technology under the following license:

Copyright (c) 2001 Silver Egg Technology

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

**GPL – GCC**

Various distribution components for this product contain GCC 3.1.1 ("Program"), which is licensed under the terms of the GNU General Public License, Version 2 ("GPL"). The text of the GPL is listed below, and the source code of the Program is provided in a separate distribution component for this product. The terms and conditions of the BMC Software agreement applicable to this product do not apply to the Program to the extent that any such term or condition imposes any further restriction on the exercise of any right with respect to the Program granted under the GPL.

gcc (GCC) 3.1.1 - Copyright (C) 2004 Free Software Foundation, Inc.

GNU Library General Public License, Version 2

Copyright (C) 1991 Free Software Foundation, Inc. 675 Mass Ave, Cambridge, MA 02139, USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software -- to make sure the software is free for all its users.

This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a 'work based on the library' and a 'work that uses the library'. The former contains code derived from the library, while the latter only works together with the library.
Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightfrom into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work must be the derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing
that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY
15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY
APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE
LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND
PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY
SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER
PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY
GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY
(INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD
PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN
ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS