BMC Performance Perceiver
Getting Started

Supporting

BMC® Performance Assurance®, version 7.5.00
BMC Capacity Management, version 7.5.00
BMC Performance Perceiver for Servers, version 7.5.00
BMC Performance Perceiver for Mainframes, version 7.5.00

November 2009
Contacting BMC Software

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  - product name
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  - 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
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- **(Asia-Pacific)** Contact your BMC sales representative or your local BMC office.
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Planning to deploy BMC Performance Perceiver

BMC Performance Perceiver can be deployed as an entry-level, standalone tool or integrated with BMC Performance Analyzer for Servers and BMC Performance Predictor for Servers for a complete BMC Performance Assurance solution. This product serves data seamlessly from real-time agent buffers through historical Visualizer databases.

BMC Performance Perceiver Web servers can be deployed across as many servers as needed for site optimization and convenience. Web servers may be deployed on Windows, Linux, or UNIX operating systems.

This chapter discusses the planning tasks to consider prior to deploying BMC Performance Perceiver in your environment. It contains the following topics:

- Installation overview .......................................................... 4
- Product requirements .......................................................... 7
- Deploying BMC Performance Perceiver in a distributed work environment ...... 11
- Migrating from previous versions of BMC Performance Perceiver .................. 12
- Planning data access ............................................................. 12
- Planning for BMC Atrium CMDB integration .................................... 18
Installation overview

Before you install BMC Performance Perceiver, ensure that your environment meets the hardware and software requirements described in “Product requirements” on page 7. Consult the BMC Performance Perceiver Release Notes for last minute changes to this information.

NOTE
Not all features described in this book are enabled for your license. Please refer the Read This First and the Release Notification documents available on the EPD site at www.bmc.com/support for license details.

Prior to installing on Windows computers

Before you install BMC Performance Perceiver on Microsoft Windows, ensure that:

- You are a member of a local administrator group.
- You have the required disk space on the computer and selected drive on which you are installing the product. BMC Performance Perceiver requires at least 600 MB of disk space on the drive where you install the software.
- All Visualizer and ODBC DSN data sources are system, not user DSN data sources. This makes it possible for BMC Performance Perceiver to run as a service on the Apache Tomcat web server on Windows systems. To verify that BMC Performance Perceiver is running as a service, open Start => Settings => Control Panel => Administrative Tools => Services and check for BMC Performance Perceiver.

Prior to installing on UNIX® and Linux computers

NOTE
BMC Software recommends that you install BMC Performance Perceiver as a non-root user on all UNIX and Linux platforms.

Before running the installation wizard on UNIX or Linux, the system administrator and performance analyst should prepare answers to the following questions that are asked during the installation.

- What directory will you use as the installation directory? The default directory is /opt/bmc or whatever was used during the installation session the last time it was run.
Do you have enough disk space? BMC Performance Perceiver requires at least 600 MB of disk space on the drive where you install the software.

Which non-privileged user (not root) will own the installation? The owner must be a non–privileged, not–root user.

Which CD drive will you use? Device names may vary. If your device has been configured to use a different device path name, get this from your system administrator. For more information on mounting a CD, see “Mounting CD on the drive” on page 128.

If you are installing on AIX platforms

You must have the following minimum AIX OS levels to run Java 1.5.0:

— AIX 5.3 -- 5.3.0.1 (APAR IY58143) or later

For more information on how to obtain the latest AIX maintenance levels, go to https://techsupport.services.ibm.com/server/aix.fdc

If you are installing on HP-UX platforms

Before you install BMC Performance Perceiver on a HP-UX platform, ensure that you have any of the following Quality Packs to run Java 1.5.0 on HP-UX. Install these patches before you install the Java software. The following table lists the required HP-UX patches for Java 1.5.0:

<table>
<thead>
<tr>
<th>HP-UX Version</th>
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<tr>
<td>HP-UX 11iv2</td>
<td>Sept '06</td>
</tr>
<tr>
<td></td>
<td>March '06</td>
</tr>
<tr>
<td></td>
<td>Dec '05</td>
</tr>
<tr>
<td></td>
<td>May '05</td>
</tr>
<tr>
<td></td>
<td>Sept '04</td>
</tr>
<tr>
<td></td>
<td>March '04</td>
</tr>
<tr>
<td></td>
<td>Base 11.23</td>
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To determine which Quality Pack is installed, use the following command:

```
swlist | grep -e QPK -e GOLD
```

If none of the Quality Packs are installed, use the Base packs (Base 11.00, Base 11.11). Install additional patches for each of the pack levels. For more information about these patches visit the HP web site http://www.hp.com/products1/unix/java/patches/index.html
Prior to installing on UNIX® and Linux computers

**If you are installing on Sun™ Solaris™ platforms**

If you are running Java 1.5.0 on Solaris, you must be at the required Solaris patch level. Use the following command to determine the current patch IDs on a Solaris system:

```
/usr/bin/showrev -p
```

**Table 2 Solaris patches**

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<thead>
<tr>
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<th>Patch number</th>
<th>Description</th>
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<td>113096-03</td>
<td>X11 6.6.1: OWconfig patch</td>
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<td>113887-26</td>
<td>OpenGL 1.3: OpenGL Patch for Solaris (64-bit)</td>
</tr>
<tr>
<td>Solaris 9</td>
<td>113886-26</td>
<td>OpenGL 1.3: OpenGL Patch for Solaris (32-bit)</td>
</tr>
<tr>
<td></td>
<td>113887-26</td>
<td>OpenGL 1.3: OpenGL Patch for Solaris (64-bit)</td>
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<tr>
<td></td>
<td>112963-17</td>
<td>SunOS 5.9: linker patch</td>
</tr>
<tr>
<td></td>
<td>113096-03</td>
<td>X11 6.6.1: OWconfig patch</td>
</tr>
<tr>
<td></td>
<td>112785-45</td>
<td>X11 6.6.1: Xsun patch</td>
</tr>
</tbody>
</table>

For more details and access to patches, see the Sun Java J2SE Patch Requirements (http://sunsolve.sun.com/pub-cgi/show.pl?target=patchpage) site.

**If you are installing on Solaris 10 local zone**

By default, the the pseudo device /dev/winlock is not available in a local zone.

**To add this pseudo device to the local zone**

1 execute the following commands to grant the local zone access to the pseudo device /dev/winlock.

```
global# zonecfg -z <zonename>
zonecfg:<zonename> add device
zonecfg:<zonename>:device> set match=/dev/winlock
zonecfg:<zonename>:device> end
zonecfg:<zonename> exit
```

2 execute the following command to reboot the local zone.

```
global# zoneadm -z [zonename] reboot
```

/dev/winlock will now be available in the local zone.

For more information, see http://forums.sun.com/thread.jspa?threadID=5233796.
Product requirements

Before you install BMC Performance Perceiver, ensure that your environment meets the hardware and software requirements described in the following sections. Consult the BMC Performance Perceiver Release Notes for last minute changes to this information.

Requirements for running the installation program

Before you install BMC Performance Perceiver on Microsoft Windows, ensure that:

- You are a member of a local administrator group.
- You have the required disk space on the computer and selected drive on which you are installing the product. A complete BMC Performance Perceiver installation requires at least 400 MB of disk space on the drive where you install the software.
- You have at least 200 MB of temporary disk space available on the drive containing your temp directory, typically the drive containing the operating system. This space is used during the installation and freed up at the end.

Table 3 describes the installation utility requirements.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft .NET Framework requirements</td>
<td>BMC Performance Perceiver requires .NET Framework 3.0 or later. The installation CD includes the Microsoft .NET Framework 3.5 SP1 executable in the Framework subdirectory.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> This is applicable only if you are installing the Virtualization Planning component with BMC Performance Perceiver.</td>
</tr>
<tr>
<td>Installation user</td>
<td>Verify that your account has Administrator privileges. Execute the following command in the Command prompt window: net user user_name</td>
</tr>
<tr>
<td>Permissions for SYSTEM user</td>
<td>If you are using an NTFS directory, verify that the SYSTEM user has read, write, and execute permissions on the home directory you are using for Perceiver (by default, C:\Program Files\BMC Software\CWA). These permissions allow Window’s Service Control Manager to run the BMC Performance Perceiver services.</td>
</tr>
<tr>
<td></td>
<td>To check the permissions, right-click the directory and select Properties. Click the Sharing tab, and then click Permissions. Verify that the user name has Full Control in the Access Through Share Permissions dialog box.</td>
</tr>
</tbody>
</table>
Before you install BMC Performance Perceiver, ensure your system meets the minimum system requirements in Table 4.

Table 3  Requirements for running the installation utility (Part 2 of 2)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuring data execution prevention (DEP) for installation on computers with Windows Server 2003 SP1 and Windows XP SP2</td>
<td>Before installing BMC Performance Perceiver on a Windows Server 2003 SP1 computer, you must configure the DEP feature to recognize the installation program. If the DEP is not configured to recognize the installation program, the DEP can block the installation program from continuing and an error message might appear stating that DEP is blocking the installation program. Contact your system administrator prior to adding the setup program to the list of programs to ensure that the program can be permanently added to the list. To configure a computer to recognize the installation program 1. From the Windows Desktop, right-click the My Computer icon. 2. Select Properties and then select the Advanced tab. 3. Under the Performance heading, select Settings. 4. Select the Data Execution Prevention tab. 5. Select Turn on DEP for programs and services except those I select. 6. Click Add. 7. From the directory in which you downloaded the product, select setup.exe. 8. Click Open and then click Apply. 9. Click OK and then click OK again to close the System Properties window.</td>
</tr>
</tbody>
</table>

System Requirements

Before you install BMC Performance Perceiver, ensure your system meets the minimum system requirements in Table 4.

Table 4  System requirements for BMC Performance Perceiver (Part 1 of 2)

<table>
<thead>
<tr>
<th>Resource</th>
<th>Minimum Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Consult the BMC Performance Perceiver Release Notes for a complete list of supported operating systems and web servers.</td>
</tr>
<tr>
<td>Web Servers</td>
<td></td>
</tr>
<tr>
<td>Disk Space</td>
<td>600 MB</td>
</tr>
</tbody>
</table>
In addition to the system requirements outlined in the *BMC Performance Perceiver Release Notes*, review the following requirements for the BMC Performance Perceiver web server.

### Enabling Java for browser support

You must have Java enabled in Microsoft Internet Explorer.

1. From the Microsoft Internet Explorer Tools menu, click **Internet Options** to open the Internet Options dialog box.

2. Click **Advanced** and scroll to **Microsoft VM**.

3. Select **Java logging enabled**, **Java JIT compiler enabled**, and **Java console enabled**.

4. Click **OK**.

5. From the **File** menu, click **Close**.

6. If you made changes, close the browser and restart it.

### Java Runtime Environment (JRE) support

BMC Performance Perceiver installs the required JRE version 1.5.0
Supported browsers

BMC Performance Perceiver supports the following browsers.

Table 5  Browser support table

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Browser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows</td>
<td>■ Internet Explorer 6.0, 7.0, 8.0</td>
</tr>
<tr>
<td></td>
<td>■ Firefox 2.0, 3.0</td>
</tr>
<tr>
<td>UNIX and Linux</td>
<td>■ Firefox 2.0, 3.0</td>
</tr>
</tbody>
</table>

**NOTE**
You must have Java enabled in Microsoft Internet Explorer. See “Enabling Java for browser support” on page 9.

Requirements for the Visualizer database

BMC Performance Perceiver uses the Visualizer database. Visualizer is a 32-bit application that runs on a Microsoft Windows computer. In addition to the system requirements outlined in the BMC Performance Perceiver Release Notes, review the following requirements for the Visualizer database:

- BMC Performance Perceiver supports Visualizer version 4.2.00 and later. However, to take full advantage of reporting on virtualized environments, BMC recommends migrating all Visualizer databases to 4.2.05 with the latest set of patches.

- All Visualizer and ODBC data sources must be system, not user DSN data sources. This makes it possible for BMC Performance Perceiver to run as a service on the Apache Tomcat web server on Windows systems.

- If you are an existing Visualizer user, you can install BMC Performance Perceiver on the same computer as Visualizer and Visualizer database server.

BMC Performance Perceiver database platform support

BMC Performance Perceiver supports the following database platforms.

- VIS SQL Server
- VIS Access
- VIS Oracle
BMC Performance Perceiver Visualizer support

BMC Software recommends running the Visualizer DBMIGRATE utility against all data sources to maximize the presentation of all Visualizer metrics. DBMIGRATE is documented in Visualizer Getting Started version 4.2.00. BMC Performance Perceiver supports version 4.2.05 with the latest set of patches.

NOTE
- VIS Access is supported only for demonstration and testing purposes.
- See the latest Visualizer Release Notes for the most current support information.

Deploying BMC Performance Perceiver in a distributed work environment

A distributed work environment allows the administrator to configure BMC Performance Perceiver across multiple servers - data and graphic. This non-standard approach organizes the servers into groups or tiers.

NOTE
BMC software recommends running all BMC Performance Perceiver components, web and data servers, at the same version level to provide users with access to the most current views and features.

The first tier is an optional load-balancer (not installed with BMC Performance Perceiver) which distributes consumers across BMC Performance Perceiver graphic servers. In the second tier is the BMC Performance Perceiver data servers and the back-end, or third tier, is the database servers. Each server is a fully functional installation of BMC Performance Perceiver, configured to serve a particular purpose.
Migrating from previous versions of BMC Performance Perceiver

BMC Performance Perceiver views and metrics change from version to version, views added, removed, modified. Regardless of changes, you have access to the metrics available with previous versions. For example, if you are migrating from a previous version of BMC Performance Perceiver, your View tab displays the UNIX Partition view which combines metrics for UNIX and Linux platforms in one view.

**NOTE**

BMC software recommends running all BMC Performance Perceiver components, web, and data servers, at the same version level to provide users with access to the most current views and features.

The current version of the product contains platform-specific views for VMware, Hyper-V, PowerVM, HP-UX, and Sun Solaris. The administrator can activate these views for you by reloading them on the Administration tab. The administrator can activate these views for you by reloading them on the Administration tab (see “Managing data sources” on page 66 for more information).

The administrator can activate the previous views for you by reloading them on the Administration tab (see “Reloading predefined views” on page 62 for more information).

Sometimes BMC Software enhances a view based on user or vendor input. The metrics contained in the original view are still retained in the data base. The analyst can go into the Build Views tab and recreate the original view. For more information on building and customizing views, see Chapter 5, “Building custom views.”

When you migrate to the latest version of BMC Performance Perceiver, Perceiver converts your default product package to an extended package. All the rules that apply to the extended package, apply to this too.

Planning data access

The following sections assist you as you plan for data access for your users.
Security and data access features in BMC Performance Perceiver

Making sure you maintain security at the same time as you provide users with easy access to data within their environment is essential to the smooth interoperability of multiple applications. BMC Performance Perceiver offers two features to help you control the access to the product components and the collected measurement data:

- User authentication - grants access to BMC Performance Perceiver only to users with valid user name and password credentials.
- Role-based product access - grants users access to various components and data, based on the roles that the administrator assigns to them.

**Authenticating users**

An enterprise may store user names and passwords in a variety of user lists across multiple applications. This version of BMC Performance Perceiver supports authentication for users stored locally on BMC Performance Perceiver server, on Remedy Action Request (AR) System servers, and on Lightweight Directory Access Protocol (LDAP) servers.

To authenticate users stored on AR server, the administrator configures the AR server by storing the system name, user name and password, and port number for the server on which the AR server is installed. Similarly, to authenticate users stored on LDAP server, the administrator configures the LDAP server by providing information about the LDAP server on the Configure Authentication page as shown in Figure 13. This information is available from the AR and LDAP server administrator. A user is authenticated at the beginning of each session.

An administrator assigns roles to authenticated AR and LDAP users and stores the roles-based access information locally. The roles assigned to AR and LDAP users control their access to tabs and data.

**NOTE**

An authenticated user is automatically granted the default viewer role. The viewer role provides access to the Views tab, the product entry point, only.

When BMC Performance Perceiver 7.5 users log on the product, they are authenticated at the beginning of each session in the following order:

1. local database (default)
2. AR System server (if enabled)
3. LDAP server (if enabled)
Authenticated users may access BMC Performance Perceiver components such as views, General Manager, and Virtualization Planning based on their assigned role.

**Controlling user access to views and computers**

BMC Performance Perceiver provides role-based access to the product. Administrators create roles that have specific access rights to various components (tabs and views) and data (groups of computers). Administrators create roles that have specific access rights. The access rights determine to which BMC Performance Perceiver 7.5.00 tabs (Views, Build Views, Virtualization Planning, Administrator) the user having that role has access. Administrators control product and data access at the user level, by assigning a user to a default or administrator-created role. The administrator assigns access rights to the roles and assigns one or more roles to users. For example, by default the guest user has access to the Views tab only. The administrator can grant the guest user access to the Build Views tab as well by assigning the builder role to the guest user. The administrator may:

- Grant each user one or more roles - for example, by default the guest user has access to the Views tab only. The builder user has access to the Views and Build Views tab.

- If the administrator adds the builder role to the guest user, the guest user can access both tabs.

- Create new roles with access to one or more viewable tabs - for example, the administrator can create a role called systems analyst which has access to the Virtualization Planning and Build Views tab. The administrator can then assign individual users who are responsible for projecting future needs to that role so they can perform consolidation projects and create supporting views.

- Create new users and assign them one or more roles that grant them access to viewable tabs - for example, the administrator can create users based on physical location (Boston, Houston, Sunnyvale) and then give them access to the roles created for the groups of computers that are located in Boston, Houston, Sunnyvale.

- Assign one or more roles to dynamic and static groups of computers - for example, you can create groups of computers based on location (Boston, Houston, Sunnyvale) and assign one or more corresponding roles to those groups. You can then decide which users in your enterprise need access to the computers in those locations by assigning them the corresponding role.

---

**TIP**

BMC Software best practice is to choose one additional authentication method (AR System or LDAP), but not both.
assign one or more roles to AR and LDAP users (see “Authenticating users” on page 13) - for example, the administrator may want to limit AR users to Configuration Management views on the Views tab. The analyst creates a role for the Configuration Management views called CMDB users. Then the administrator creates a user called AR user and assigns the AR user the CMDB users role. When AR users log into the product, they see only the Configuration Management views on the Views tab.

Planning the levels of data access

You configure access to the AR server by storing the system name, user name and password, and port number for the server on which the AR server is installed. Similarly the administrator configures the LDAP server by providing information about the LDAP server. This information is available from the AR and LDAP server administrator.

Out of the box, BMC Performance Perceiver recognizes the following default users and roles:

Table 6  Users, roles, and viewable tabs

<table>
<thead>
<tr>
<th>User Name &amp; Password</th>
<th>Role</th>
<th>Viewable Tabs</th>
</tr>
</thead>
<tbody>
<tr>
<td>admin (administrator) - User name and password specified during installation</td>
<td>admin</td>
<td>All tabs - Views, Build Views, Virtualization Planning, General Manager, and Administration</td>
</tr>
<tr>
<td>builder (analyst) - User name: builder Default password: builder</td>
<td>builder</td>
<td>Views and Build Views tabs</td>
</tr>
<tr>
<td>guest (consumer) - User name: guest Default password: guest</td>
<td>viewer</td>
<td>Views tab</td>
</tr>
<tr>
<td>sizer - User name: sizer Default password: sizer</td>
<td>sizer</td>
<td>Views, Build Views, and Virtualization Planning</td>
</tr>
</tbody>
</table>

NOTE

If you will be using the predefined users, BMC Software recommends you reset the default passwords.

You can assign one or more of these roles to the users you create, or create additional roles for specific users. See the BMC Performance Perceiver online Help, “Configuring user access” on page 86, or “Authenticating users” on page 13 for information about configuring users and roles.
Table 7 lists the items to consider when planning security and data access for BMC Performance Perceiver.

Table 7  Planning for role-based access

<table>
<thead>
<tr>
<th>Task</th>
<th>Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create list of users</td>
<td>Who will be using Capacity Management Essentials? This list represents the people who will need some level of access to the product.</td>
</tr>
<tr>
<td>Choose authentication method</td>
<td>Do you want to use an existing authentication method (AR System or LDAP)? If so, for which users?</td>
</tr>
<tr>
<td>Determine level of access for each user</td>
<td>Of the users in the list:</td>
</tr>
<tr>
<td></td>
<td>■ who will be accessing only views?</td>
</tr>
<tr>
<td></td>
<td>■ who will be creating custom views?</td>
</tr>
<tr>
<td></td>
<td>■ who will be using Virtualization Planning to perform virtualization studies?</td>
</tr>
<tr>
<td></td>
<td>■ does anyone else need administrator access?</td>
</tr>
<tr>
<td></td>
<td>The answers to these questions will define the role to be assigned to the user.</td>
</tr>
<tr>
<td>Assign roles to users</td>
<td>Go through the user list you created and assign one or more roles to each user.</td>
</tr>
<tr>
<td></td>
<td>See “Configuring roles” on page 91.</td>
</tr>
<tr>
<td>Assign roles to views</td>
<td>If you want to limit access to certain views to users with specific roles, modify the view and assign a role to the view. For example, you may want only users with a certain role to access the CMDB views.</td>
</tr>
<tr>
<td>Assign roles to computer groups</td>
<td>If you want to limit access to access to data to users with specific roles, modify the computer group and assign a role to the group. For example, you may want only users with a certain role to access data collected from a data center in another country.</td>
</tr>
</tbody>
</table>

What information you need to set up secure access

If you are implementing authentication based on user lists stored on a AR System or LDAP server, you need to have the information listed in Table 8. You may need to contact the system administrator or security applications administrator to obtain the information.
Secure access example

A company has hired a performance analyst contractor for a short term assignment to review resource utilization in the San Jose location. As the administrator, you do not want him to see computers in Houston or Boston data centers, and you do not want him to have access to the Virtualization Planning or Administration tabs.

**Table 8  System information required for secure access**

<table>
<thead>
<tr>
<th>Authentication method</th>
<th>What you need to know</th>
</tr>
</thead>
</table>
| AR System             | - AR Server Name - the fully qualified host name of the AR System server on which the BMC Atrium CMDB is installed.  
                         - Port number - the port number through which the AR System server sends and receives data. If your AR System server uses portmapper, you will not need the port number.  
                         - AR User Name - the user name for the Remedy User administrator.  
                         - Admin User Password - the password that authenticates the Remedy User administrator against the AR System server. |
| LDAP                  | - LDAP server name - the server name where the directory resides.  
                         - Base DN (distinguished name) - indicates where in the LDAP directory you wish to begin searching for the user. An LDAP directory is arranged in a hierarchy, with a root and branches. The base DN is used to specify at which branch the search begins.  
                         - Connection User Name - the user’s user name for connecting to the LDAP server and retrieving information from the LDAP server. These are optional fields.  
                         - Connection User Password - the user’s user name for connecting to the LDAP server and retrieving information from the LDAP server. These are optional fields.  
                         - Port number - the TCP port of the machine (indicated by the LDAP server name) where the directory server is listening for LDAP connections. The standard port number for LDAP is port 389 for non-SSL connections and 636 for SSL connections.  
                         - Version - the version number of the LDAP directory  
                         - User ID Attribute - a user ID attribute value for the user. Attributes include user id (uid), common name (cn), or e-mail id (mail-id). The User ID Attribute value represents the user id which will be used during authentication. |
Planning for BMC Atrium CMDB integration

To accomplish these goals:

- Set up a user for the contractor in BMC Performance Perceiver, and have it authenticated through your LDAP directory, for example.

- Create a Contractor role.

- Assign only viewer and builder access to the Contractor role.

- Edit the computer group, or groups, that comprise the San Jose data center to assign the Contractor role to those groups.

- Ensure that the computer groups containing servers from the Houston and Boston data centers do not allow access from users with the Contractor role.

**Planning for BMC Atrium CMDB integration**

BMC Performance Perceiver is part of a comprehensive Business Service Management approach. It integrates with the BMC Performance Assurance product family to provide a comprehensive performance analysis and capacity management solution. It also integrates with the BMC Atrium Configuration Management Database (CMDB), which provides system-level capacity reports to other BSM solutions, such as BMC Asset Management, BMC Change Process Management, and more.

BMC Atrium CMDB is designed to hold data about Configuration Items, which are physical, logical, or conceptual entities in your IT infrastructure. For example, computer systems, buildings, employees, installed software, and business services are all examples of CIs.

If you integrate BMC Performance Perceiver with the BMC Atrium CMDB, you can

- View BMC Atrium CMDB data in BMC Performance Perceiver

- Launch BMC Performance Perceiver as federated data from BMC Atrium CMDB console
View BMC Atrium CMDB data in BMC Performance Perceiver

Once you have activated the Configuration Management Database package, and created the Configuration Management Database data source that connects to the BMC Atrium CMDB, you can see selected class data in the Configuration Management views. A class defines a type of configuration item (CI), such as a computer system or business service.

The available views are:

- Asset Management
- Business Services
- Physical Location
- Organization

You can also configure BMC Performance Perceiver to generate groups of computers dynamically from data stored in the BMC Atrium CMDB. This feature enables you to create computer groups of servers based on specific attributes, such as business service or organization, automatically.

For example, you could set up a dynamic group based on rules that would automatically create computer groups for each business service in the BMC Atrium CMDB. You can run the rules interactively to refresh the groups or schedule the rules to execute on a regular basis to refresh the groups.

You can then use the Configuration Management views to analyze the servers in the group.

For instructions on these topics, see

- “Managing packages” on page 61 for information on activating the Configuration Management Database package.
- “Task 4: Define the data source” on page 44 for information on creating the Configuration Management Database data source.
- “Creating, scheduling, and deleting rules for dynamically generating groups” on page 79 for information on creating the dynamic groups.
Launch BMC Performance Perceiver as federated data from BMC Atrium CMDB console

Federated data is information about a CI that is stored outside BMC Atrium CMDB and linked to the CI. A federated interface is the object stored in BMC Atrium CMDB containing the information necessary to access a particular type of federated data.

You can configure a federated interface in the BMC Atrium CMDB console to launch the BMC Performance Perceiver web page, in context with a CI instance, from the CI Relationship Viewer. The Launch in Context menu displays the federated interfaces linked to the selected CI.

**NOTE**

You can launch BMC Performance Perceiver from the BMC Atrium CMDB console only if your database administrator has set up a federated link in the Federation Manager.

For more information about creating federated data, see the *BMC Atrium CMDB Installation and Configuration Guide*. 
Installing BMC Performance Perceiver

This chapter contains the following topics:

Installation and system requirements .......................................................... 21
Installing BMC Performance Perceiver ......................................................... 22
Starting, and stopping, and uninstalling on Microsoft Windows .................. 30
Starting, stopping, and uninstalling on UNIX and Linux ............................ 33

This chapter details installing and uninstalling BMC Performance Perceiver on Windows, UNIX, and Linux systems, and how computers are discovered after installation.

Installation and system requirements

Before you install BMC Performance Perceiver, ensure that your environment meets the hardware and software requirements described in the following sections. Consult the BMC Performance Perceiver Release Notes for last minute changes to this information.

Disk space for installation

BMC Performance Perceiver installation requires at least 600 MB.
RAM usage

You must run BMC Performance Perceiver server on a system with a minimum of 2 GB of RAM for proper data caching and chart image generation.

Installing BMC Performance Perceiver

Installing BMC Performance Perceiver on Windows, UNIX, and Linux computers is very similar. The pre-installation information is described in the following sections by platform.

Before you begin the installation process, ensure that all pre-installation (“Installation overview” on page 4) and system requirements (“Installation and system requirements” on page 21) are met.

- To install the product on Microsoft Windows, see “Installing BMC Performance Perceiver on Microsoft Windows”
- To install the product on UNIX and Linux, see “Installing BMC Performance Perceiver on UNIX and Linux”

Installing BMC Performance Perceiver on Microsoft Windows

1. Expand the images downloaded from the EPD site which includes instructions for extracting and installing the product.

2. Double-click Setup.exe to open the BMC Performance Perceiver 7.5.00 Installer page.

3. Click Next to open the Review License Agreement page.

4. Select the appropriate radio button to accept or decline the BMC Software license agreement and click Next.

   The BMC Performance Perceiver Installer displays a default destination directory.

5. Click Browse to select an alternate installation location and click Next.

---

NOTE

When you re-install or upgrade the product, the installer will not prompt for the installation directory.
6 On the **Configure Perceiver Administrator account** dialog box, enter the following details and click **Next**.

- Administrator name
- Administrator password
- Re-enter the administrator password for confirmation

---

**TIP**
If you want to change the destination directory, click **Previous**.

---

7 *(optional)* The **Configure Tomcat Web Server for Perceiver** dialog box displays the default port numbers for the Tomcat Web Server. You can change these port numbers.

8 Click **Next**.

9 On the **Configure BPA Hardware Table Service** dialog box execute either step A or step B.

---

**NOTE**
The installation utility displays the **Configure BPA Hardware Table Service** dialog box only if you are installing the Virtualization Planning component with the product.

---

A Select the **Use existing service** radio button to specify the Microsoft Windows system name on which the hardware table service is running, the port number, and click **Next**. The default port number is 8888.

B Select the **Install new service locally** radio button and click **Next**.

10 Verify the Installation preview details and click **Install**.

11 Click **Done** on the **Installation summary** dialog box.

---

**TIP**
To view the installation details, click **View Log**.
Installing BMC Performance Perceiver on UNIX and Linux

1. Extract the images downloaded from the EPD site which includes instructions for extracting and installing the product.

2. Type `./setup.sh` in the shell to open the BMC Performance Perceiver 7.5.00 Installer page.

3. Click Next to open the Review License Agreement page.

4. Select the appropriate radio button to accept or decline the BMC Software license agreement and click Next.

   The BMC Performance Perceiver Installer displays a default destination directory.

5. Click Browse to select an alternate installation location and click Next.

   **NOTE**
   When you re-install or upgrade the product, the installer will not prompt for the installation directory.

6. On the Configure Perceiver Administrator account dialog box, enter the following details and click Next.

   - Administrator name
   - Administrator password
   - Re-enter the administrator password for confirmation.

   **TIP**
   If you want to change the destination directory, click Previous.

7. (optional) The Configure Tomcat Web Server for Perceiver dialog box displays the default port numbers for the Tomcat Web Server. You can change these port numbers.

8. Click Next.

9. On the Configure BPA Hardware Table Service dialog box execute either step A or step B.

   **NOTE**
   The installation utility displays the Configure BPA Hardware Table Service dialog box only if you are installing the Virtualization Planning component with the product.
A Select the **Use existing service** radio button to specify the Microsoft Windows system name on which the hardware table service is running, the port number, and click **Next**. The default port number is 8888.

B Select the **Do not configure** radio button and click **Next**.

10 Verify the Installation preview details and click **Install**.

11 Click **Done** on the **Installation summary** dialog box.

---

**Tip**

To view the installation details, click **View Log**.

---

**Configuration for Windows 2003 and later**

Due to stricter security features implemented in Microsoft Internet Explorer, web sites are not trusted sites unless you add the specific URLs to the appropriate security zone. For this reason, accessing a BMC Performance Perceiver server from an Internet Explorer browser running on Microsoft Windows 2003 and later requires the following:

- A fully qualified name for the BMC Performance Perceiver web server URL to access a remote BMC Performance Perceiver server from an Internet Explorer browser installed on Windows 2003 and later systems.

- The fully qualified name in the browser’s security zone settings.

**Specifying a fully qualified URL**

The URL that is provided during BMC Performance Perceiver installation may not be fully qualified to support Windows 2003 and later environments. *Fully qualified* means that the system locator included in the URL contains the system name and the domain name, as in `mysystem.bmc.com` where `bmc.com` is the domain name.

For example:

- `http://foo.bmc.com:8080/qtv` is a fully qualified name.
- `http://foo:8080/qtv`, is *not* a fully qualified name.
On Windows 2003 and later, BMC Software recommends that you use a fully qualified node name (that is, `node-name.domain-name.extension`) but it is not required. It depends on how the nodes network settings have been configured for your enterprise. In addition, notify the BMC Performance Perceiver administrators that the systems on which they want to install the BMC Performance Perceiver server must be included within their company-wide Microsoft Windows security zones.

### Adding the URL to the correct security zone

1. Choose **Start => Settings => Control Panel => Internet Options** to open the Internet Properties dialog box.

2. Click the **Security** tab.

3. Click the **Local intranet** icon.

4. Click **Sites**.

5. In the Local intranet dialog box, click **Advanced**.

6. In the second Local intranet dialog box, type the specified URL in the web sites window.

7. Click **Close**.

### Using command-line options to perform a silent installation

A silent installation lets you to launch the BMC Performance Perceiver installation program from a command line. Execute a silent installation if any of the following scenarios exist in your environment:

- You want to run the installation in the background instead of interactively.
- You are installing on a remote computer that cannot display graphical user interfaces.
- You want to maintain consistent installation configuration values across multiple computers.

You can specify the command-line options by entering the options in the `PerceiverSilentInstallOptions.txt` text file, and then specify that file when you launch the installation program from the command line.
Before you begin

- Download the BMC Performance Perceiver product from the BMC Performance Perceiver Electronic Product Download (EPD) web page.

- Passwords for silent installations can be entered in plain text or in encrypted form. If you want to encrypt the passwords on Microsoft Windows, run the `PerceiverMaintenanceTool.cmd` utility as described in “To encrypt passwords for a silent installation.”

To encrypt passwords for a silent installation

1. On the computer on which you downloaded BMC Performance Perceiver, change to the directory that contains the `PerceiverMaintenanceTool` utility.

   By default, on **Microsoft Windows**, the utility is located at:

   \C:\Program Files\BMC Software\CWA

   By default, on **UNIX**, the utility is located at:

   `/opt/bmc/CWA`

2. Execute the utility.

   For **Microsoft Windows**, double-click the following file

   `PerceiverMaintenanceTool.cmd`

   For **UNIX**, execute the following command:

   `./PerceiverMaintenanceTool.sh`

3. When the **BMC Performance Perceiver Installation Tools** utility window opens, select the **Encrypt** tab.

4. Enter the password, confirm the password, and click **Encrypt**.

   The encrypted password is displayed in the **Encrypted password** field.

   Copy and paste the encrypted password as the value for the following options when you enter them in the options text file:

   PERCEIVER_ADMINPASSWORD

   PERCEIVER_ADMINCONFIRMPASSWORD
To install BMC Performance Perceiver from a command line by using a text file

_TIP_

A sample silent install options text file with all the default settings is included on the BMC Performance Perceiver DVD in the `<image>`\silent subdirectory, and in the same subdirectory in the downloaded EPD image. You can modify the sample file instead of creating a new one.

1. In a text editor, enter the options shown in Table 9 in the PerceiverSilentInstallOptions.txt file, close and save the file.

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-P installLocation=installationDirectory</code></td>
<td>the installation directory where you want to install the BMC Performance Perceiver components</td>
<td>For Microsoft Windows: C:\Program Files\BMC Software. For UNIX: /opt/bmc</td>
</tr>
<tr>
<td><code>-J PERCEIVER_ADMINUSER =userName</code></td>
<td>the user name required to log on as an administrator for BMC Performance Perceiver</td>
<td>Administrator</td>
</tr>
<tr>
<td><code>-J PERCEIVER_ADMINPASSWORD =password</code></td>
<td>the password required to log on as an administrator for BMC Performance Perceiver</td>
<td>tomcat</td>
</tr>
<tr>
<td></td>
<td>Passwords are displayed in plain text. For details on encrypting passwords before you run the silent installation, see “To encrypt passwords for a silent installation” on page 27.</td>
<td></td>
</tr>
<tr>
<td><code>-J PERCEIVER_ADMINCONFIRMPASSWORD =password</code></td>
<td>reentry of the password to ensure that you typed it correctly in the previous option and to complete the authentication of the log on as an administrator for BMC Performance Perceiver</td>
<td>tomcat</td>
</tr>
<tr>
<td><code>-J PERCEIVER_TOMCATWEBSERVERPORT =portNumber</code></td>
<td>the Tomcat web server port number</td>
<td>8080</td>
</tr>
<tr>
<td><code>-J PERCEIVER_TOMCATJAVASERVERPORT =portNumber</code></td>
<td>the Tomcat Java server port number</td>
<td>8009</td>
</tr>
<tr>
<td><code>-J PERCEIVER_TOMCATSHUTDOWNSPORT =portNumber</code></td>
<td>the shutdown port used to stop a running instance of Tomcat web server prior to installation</td>
<td>8005</td>
</tr>
</tbody>
</table>
Using command-line options to perform a silent installation

29

Table 9   Options for silent installation (Part 2 of 2)

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-J USER_HAS_HARDWARE_SERVICE =true</td>
<td>false</td>
<td>false</td>
</tr>
<tr>
<td>-J HRWSERVICE_HOSTNAME=hostName</td>
<td>the system where the hardware table service is installed</td>
<td>localhost</td>
</tr>
<tr>
<td>-J HRWSERVICE_PORT=portNumber</td>
<td>the port number for the hardware table service. This entry is optional. The default value is 8888.</td>
<td>8888</td>
</tr>
</tbody>
</table>

**Figure 1** shows an example of the PerceiverSilentInstallOptions.txt file.

**Figure 1  Example of text file for silent installation**

<table>
<thead>
<tr>
<th>Option (case-sensitive)</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-P installLocation=C:\Program Files\BMC Software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J PERCEIVER_ADMINUSER=Administrator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J PERCEIVER_ADMINPASSWORD=tomcat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J PERCEIVER_ADMINCONFIRMPASSWORD=tomcat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J PERCEIVER_TOMCATWEBSERVERPORT=8080</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J PERCEIVER_TOMCATJAVASERVERPORT=8009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J PERCEIVER_TOMCATSHUTDOWNPORT=8005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J USER_HAS_HARDWARE_SERVICE=false</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J HRWSERVICE_HOSTNAME=localhost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-J HRWSERVICE_PORT=8888</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2  Open a command prompt.

3  Change your working directory to the directory where the installation image is located.
Starting, and stopping, and uninstalling on Microsoft Windows

4 Enter the following command:
   For Microsoft Windows

   ```
   start /WAIT setup.exe -i silent
   -DOPTIONS_FILE="drive:\path\PerceiverSilentInstallOptions.txt"
   ```

   **EXAMPLE**
   ```
   start /WAIT setup.exe -i silent
   -DOPTIONS_FILE="C:\PerceiverSilentInstallOptions.txt"
   ```

   For UNIX

   ```
   ./setup.sh -i silent -DOPTIONS_FILE= <install path>/PerceiverSilentInstallOptions.txt
   ```

   **EXAMPLE**
   ```
   ./setup.sh -i silent
   -DOPTIONS_FILE=/tmp/PerceiverSilentInstallOptions.txt
   ```

   The variables `drive:\path` or `install location path` is the location where you saved the options file if different from the location of `setup.exe`. If the path contains spaces, enclose the path and options file name in quotes (for example, 'C:\Documents and Settings\PerceiverSilentInstallOptions.txt').

   To check the status of the installation, view the BMC Performance Perceiver installation log file. See “Viewing and packaging log files” on page 126.

Starting, and stopping, and uninstalling on Microsoft Windows

The following sections describe how to start, stop, and uninstall BMC Performance Perceiver on a Windows system.

Starting the BMC Performance Perceiver web server

When BMC Performance Perceiver is running, the Tomcat web server (`tomcat5.exe`) process is running. To ensure that BMC Performance Perceiver has started, open the Microsoft Windows Task Manager, click Processes, and verify that `tomcat5.exe` is listed.
To start BMC Performance Perceiver service on Microsoft Windows, choose Start => Programs => BMC Software => BMC Performance Perceiver => Start Perceiver Webserver.

The BMC Performance Perceiver service starts automatically when the installation is complete.

## Accessing the BMC Performance Perceiver web application

BMC Performance Perceiver is a Web server application that runs on the Apache Tomcat servlet container. Apache Tomcat is third-party, open-source web server and servlet engine software that can also be run as a standalone Web server, which is how BMC Performance Perceiver uses it. It enables BMC Performance Perceiver server to interact with end users in a web browser.

Consumers can only access the BMC Performance Perceiver Web application when the Tomcat servlet container and standalone Web server are running. Both run in a single Java Virtual Machine (JVM), which is a single Java executable process.

When you install BMC Performance Perceiver on Microsoft Windows systems, it installs as a service and starts automatically after installation. This means that the BMC Performance Perceiver server is instantly accessible to end users through the specified URL.

1. Enter the following URL:

   http://computer_name:port_number/qtv

   - *computer*_name is the computer on which BMC Performance Perceiver was installed
   - *port*_number is the port number (default is 8080)

2. If, after entering the URL, BMC Performance Perceiver Welcome page is not accessible you might also have to type the domain name and port number, in the following syntax:

   http://<computer_name>.<domain_name>:<port_number>/qtv

   - *computer*_name is the computer on which BMC Performance Perceiver was installed
   - *domain*_name is the name of the domain in which the computer is located
   - *port*_number is the port number (default is 8080)

   **EXAMPLE**

   http://operations1.Retailer.com:8080/qtv
Stopping the BMC Performance Perceiver web server

When BMC Performance Perceiver is running, the Apache Tomcat web server (tomcat5.exe) process is running. To ensure that BMC Performance Perceiver has stopped, open the Microsoft Windows Task Manager, click Processes, and verify that tomcat5.exe is not listed.

To stop the BMC Performance Perceiver service on Microsoft Windows, choose Start => Programs => BMC Software => BMC Performance Perceiver => Stop Perceiver Webserver.

Uninstalling BMC Performance Perceiver

1. Choose Start => Settings => Control Panel and double-click Add/Remove Programs to open the Add/Remove Programs Properties dialog box.

2. Select BMC Performance Perceiver and click Change/Remove to start the uninstallation utility.

3. On the Welcome page, click Next.

4. On the Select Products and Components to Uninstall page, click BMC Performance Perceiver 7.5.00 Uninstallation to expand the tree, and then select the BMC Performance Perceiver 7.5.00 check box.

5. On the Review Selections and Uninstall page, click Uninstall..

TIP

To view the uninstallation details, click View Log.

NOTE

In case you have another Web server running and listening on port 80, BMC Performance Perceiver installation uses 8080 as the Tomcat standalone Web server default port number instead of the standard Web server port (80). For example, you can access BMC Performance Perceiver using a URL similar to http://<computer_name>.<domain_name>/qtv.
Starting, stopping, and uninstalling on UNIX and Linux

The following sections describe how to start, stop, and uninstall BMC Performance Perceiver on UNIX and Linux systems.

Starting BMC Performance Perceiver

To start BMC Performance Perceiver in a UNIX or Linux environment, run the following commands to start BMC Performance Perceiver from a UNIX shell after logging on to the system on which BMC Performance Perceiver is installed.

**NOTE**

If your display environment variable is undefined, you might encounter problems viewing charts and icons in your browser on UNIX or Linux systems. To prevent these problems, you must set your display environment on the UNIX or Linux system before running BMC Performance Perceiver.

1. Run the following command:

   ```sh
   xhost + perceiver-server-system.domain.com
   ```

   where `perceiver-server-system.domain.com` is the fully qualified name of the BMC Performance Perceiver server.

2. After logging onto the BMC Performance Perceiver computer, change to the BMC Performance Perceiver Tomcat directory using the following command:

   ```sh
   cd <installation directory>/apache-tomcat
   ```

3. Start the BMC Performance Perceiver web server using the following command:

   ```sh
   bin/perceive.sh start nohup
   ```

   **WARNING**

   If you use the `nohup` option to start the BMC Performance Perceiver web server, you must have the Xvfb package installed on your machine. If you do not have this package, Perceiver will display the following error:

   ```
   Unable to find /usr/X11R6/bin/Xvfb
   Aborting Perceive initialization in headless mode
   ```
BMC Performance Perceiver on UNIX or Linux requires Xvfb for chart generation. This command automatically sets the DISPLAY variable to use the XWindows Virtual Frame Buffer (Xvfb) and allows BMC Performance Perceiver to continue running, even when the user who starts it exits the UNIX shell. To verify that BMC Performance Perceiver is running, type the following command:

```
ps -ef | grep java | grep -v grep
```

This command displays all the Java™ applications running on your machine.

**Setting the display variable for Xvfb**

The administrator must set the DISPLAY variable when:

- they do not want to use Xvfb
- they want to run BMC Performance Perceiver application on the system on which it is installed from another (client) system, using either login or telnet

When the DISPLAY variable must be set, the administrator needs to ensure that Xvfb on the client system accepts commands from the BMC Performance Perceiver computer.

**Xvfb on Solaris**

Xvfb executables are typically automatically installed on Solaris systems. The BMC Performance Perceiver installation process checks the `/usr/openwin/bin` directory to determine if Xvfb is already installed.

If Xvfb is not installed, the BMC Performance Perceiver installation routines install Xvfb in `/usr/openwin/bin`.

**Xvfb on IBM® AIX®**

For AIX, the Xvfb executable might not be installed by default. In this case, install the executable from the operating system CDs using the following steps.

1. Insert OS CD 1 in the CD drive and type the following on the command line:
   ```
   smitty
   ```

2. Select *Software Installation and maintenance*.

3. Select *Install and Update Software*. 
4 Select Install software.

5 For Select input device/directory, press F4 and select /dev/cd0.

6 For Select software to install, use OpenGL.OpenGL_X.dev.vfb X11.vfb.

7 When prompted, insert CD 3 and press Enter.

--- WARNING ---

If you use the nohup option to start the BMC Performance Perceiver web server, you must have the Xvfb package installed on your machine. If you do not have this package, Perceiver will display the following error:

```
Unable to find /usr/X11R6/bin/Xvfb
Aborting Perceive initialization in headless mode
```

--- NOTE ---

If Xvfb is not installed, the BMC Performance Perceiver installation routines install Xvfb in /usr/bin/X11.

--- Xvfb on Linux ---

To run BMC Performance Perceiver on Linux systems without a graphical device, you must install Xvfb from the Linux/X11R6 RPM package manager that is compatible with your Linux environment.

Since you can install both Redhat and SuSE Linux operating systems to run on servers without a graphic device, the X Window System is required to run BMC Performance Perceiver for chart generation. On systems that have no graphical device, Xvfb is also required.

To run BMC Performance Perceiver in those conditions, change the directory using the cd <installation directory>/apache-tomcat command and use the following command:

```
bin/perceive.sh start nohup
```

--- NOTE ---

If Xvfb is not installed, the BMC Performance Perceiver installation routines install Xvfb in /usr/X11R6/bin.
Stopping the BMC Performance Perceiver web server

To stop the BMC Performance Perceiver web server or the Tomcat Web Server on UNIX or Linux systems, execute the stop command from the `<installation directory>/CWA/apache-tomcat` directory. For example,

```
bin/perceive.sh stop
```

Uninstalling BMC Performance Perceiver

1. Locate the Uninstall directory off the root directory of the BMC Performance Perceiver installation.

2. In shell, type `cd UninstallBMCPerceiver` to change to that directory.

3. Type the following to open the Uninstall utility:

   `<install directory>/UninstallBMCPerceiver`

   **EXAMPLE**

   `<install directory>/perceive-7500/UninstallBMCPerceiver`

4. On the Welcome page, click **Next**.

5. On the **Select Products and Components to Uninstall** page, click BMC Performance Perceiver to expand the tree, and then select the **Uninstall BMC Performance Perceiver** check box.

6. On the Review Selections and Uninstall page, click **Uninstall**.

Interoperability considerations

Key interoperability considerations include ensuring compatibility with PATROL Web Central and the BMC Portal. They involve multiple Apache Tomcat installations on the same installation and ports.

During installation, ensure you type unique port numbers for the Tomcat Web Server port and the Tomcat Java Server port on the **Configure Tomcat for BMC Performance Perceiver** page (step 7 on page 23). If you are using PATROL Web Central and BMC Portal, ensure that these port numbers are different from those specified during the PATROL Web Central and BMC Portal installations.
The BMC Portal is a potential source of port conflict. BMC Portal uses Tomcat as well as the Apache Web server and makes extensive use of the AJP connector.

The following default port assignments can cause interoperability problems with multiple Tomcat installations on the same computer:

- The non-SSL HTTP/1.1 Connector port (8080 by default), which is used when Tomcat is configured as a standalone Web server.
- The AJP 1.3 Connector (8009 by default), which is used for inter-communication with the Apache Web server. This port is used even if the Apache Web server is not setup.
- Port 8005, which is used to listen for shutdown commands.
- The SSL HTTP/1.1 Connector (8443 by default) when BMC Performance Perceiver and Tomcat use SSL.

To change port numbers after installation

1. On the computer on which you installed BMC Performance Perceiver, change to the directory that contains the PerceiverMaintenanceTool utility.

By default, on Microsoft Windows

C:\Program Files\BMC Software\CWA

By default, on UNIX

/opt/bmc/CWA

2. Execute the utility.
   - For Microsoft Windows, double-click the following file:

```command
PerceiverMaintenanceTool.cmd
```

   - For UNIX, execute the following command:

```command
./PerceiverMaintenanceTool.sh
```

3. When the BMC Performance Perceiver Installation Tools utility window opens as shown in Figure 2, click the Configuration tab and click Next.
4 On the **Configure Tomcat Web Server for Perceiver** dialog box, change the port numbers and click **Next**.

5 Click **Finish** after changing the ports.
Chapter 3 Configuring BMC Performance Perceiver

This chapter presents the following topics:

- Overview of the configuration process ..................................................... 39
- Configure the Visualizer database ......................................................... 40
- Configure BMC Performance Perceiver web server ............................. 42
- Configure Virtualization Planning ......................................................... 50
- Using the maintenance tool to change configuration settings ............... 53

Overview of the configuration process

This chapter discusses the BMC Performance Perceiver configuration tasks you need to complete prior to using the product.

Table 10 lists the configuration tasks required to get the product up and running. The sections that follow provide the detailed steps.
Configure the Visualizer database

Prior to using BMC Performance Perceiver, you must create a Visualizer database and specify a client system DSN for that database. For detailed instructions on installing and configuring database servers and clients, see chapter 2 of the Visualizer Getting Started guide. Visualizer supports the following databases:

- Microsoft Access (local database used for demonstration purposes)
- Microsoft SQL Server
- Oracle

The following procedure shows you how to create a Microsoft Access database.

1. Select Start => Settings => Control Panel.
2. Double-click Administrative Tools.
3. Double-click Data Sources (ODBC).
4. Click System DSN.
5. Click Add to display a list of installed ODBC drivers.

### Table 10 Configuration tasks for BMC Performance Perceiver

<table>
<thead>
<tr>
<th>Components</th>
<th>Configuration tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualizer</td>
<td>Configure the Visualizer database</td>
</tr>
<tr>
<td>BMC Performance Perceiver</td>
<td>Task 1: Log on as an administrator</td>
</tr>
<tr>
<td></td>
<td>Task 2: Check the status of BMC Performance Perceiver</td>
</tr>
<tr>
<td></td>
<td>Task 4: Define the data source</td>
</tr>
<tr>
<td></td>
<td>Task 5: Activate the data source</td>
</tr>
<tr>
<td></td>
<td>Task 6: Create computer groups</td>
</tr>
<tr>
<td></td>
<td>Task 7: Configure JSSE for Tomcat and Viewer</td>
</tr>
<tr>
<td>Virtualization Planning</td>
<td>Configure Virtualization Planning</td>
</tr>
</tbody>
</table>
6 Select the Microsoft Access Driver (*.mdb).

For this example, select the Microsoft Access driver, as shown in Figure 3.

**Figure 3  Select ODBC driver**

![Create New Data Source](image)

7 Click Finish to open the ODBC Microsoft Access Setup dialog box.

8 Specify the following values shown in Table 11.

**Table 11  ODBC Microsoft Access Setup dialog box**

<table>
<thead>
<tr>
<th>Field or Option</th>
<th>Explanation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source Name</td>
<td>A user-specified name for the specific RDBMS. It is the name that appears in the Data Source Selection dialog box.</td>
<td>Perceiver</td>
</tr>
<tr>
<td>Description</td>
<td>Optional annotation for other users.</td>
<td>This is a local access database for marketing.</td>
</tr>
</tbody>
</table>

9 Click Create to open the New Database dialog box.

10 Enter the name for the new database (for example, perceiver.mdb).

11 Enter the proper directory location of the MS Access database file

--- **EXAMPLE**

C:\dbfiles\access\perceiver.mdb
12 Access confirms that the new database was successfully created. Click OK to return to the ODBC Microsoft Access Setup dialog box.

13 Click OK to return to the ODBC Data Source Administrator dialog box. The data source now appears in the list of available data sources.

14 Click OK to exit the ODBC Data Source Administrator dialog box.

**Configure BMC Performance Perceiver web server**

The following task sequence applies only the first time the administrator builds and deploys views for any data sources. Detailed information for each listed step follows the table.

<table>
<thead>
<tr>
<th>Table 12</th>
<th>Configuration tasks for BMC Performance Perceiver web server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>Notes and Tips</td>
</tr>
<tr>
<td>Log on as an Administrator and go to the Administration tab.</td>
<td>Administrator rights are specified during the installation process; Administrator rights are required for access to the build and administration functions. See “Task 1: Log on as an administrator” on page 43.</td>
</tr>
<tr>
<td>Check the status of BMC Performance Perceiver</td>
<td>The Status page on the Administration tab lets you check the status of BMC Performance Perceiver on a specific computer. See “Task 2: Check the status of BMC Performance Perceiver” on page 43.</td>
</tr>
<tr>
<td>Activate a package</td>
<td>Packages are logical groupings of data sources and their related views and metrics. They enable you to expose only relevant views to selected users. By default, BMC Performance Perceiver packages are activated. See “Task 3: Activate a package” on page 44.</td>
</tr>
<tr>
<td>Create data source</td>
<td>You must link BMC Performance Perceiver with the Visualizer data source you created previously. See “Task 4: Define the data source” on page 44.</td>
</tr>
<tr>
<td>Activate the data source</td>
<td>You must activate the data source for BMC Performance Perceiver so that consumers can access the views. See “Task 5: Activate the data source” on page 47.</td>
</tr>
<tr>
<td>Create computer groups</td>
<td>The Groups of Computers task in the task pane (left side of display) lets you organize groups in BMC Performance Perceiver so that consumers can organize data in a meaningful way. See “Task 6: Create computer groups” on page 48.</td>
</tr>
<tr>
<td>Configure JSSE for Tomcat and BMC Performance Perceiver</td>
<td>The Java Secure Socket Extension (JSSE) enables secure Internet communications. See “Task 7: Configure JSSE for Tomcat and Viewer” on page 49.</td>
</tr>
</tbody>
</table>
Task 1: Log on as an administrator

1. Click Start => Programs => BMC Software => BMC Performance Perceiver => Perceiver.
2. Type your user name in the User Name field.
3. Type your password in the Password field and click OK.
4. If authorization is accepted, BMC Performance Perceiver opens on the Views tab.

**NOTE**
Administrator name and password are configured during the installation process. For more information, refer the installation process in “Installing BMC Performance Perceiver” on page 21.

Task 2: Check the status of BMC Performance Perceiver

The Status page on the Administration tab lets you check the status of BMC Performance Perceiver on a specific computer. It lets multiple users determine if administrative work is happening on the system (when the view task displays Status - Offline) or if data sources are available for viewing (when the view task displays Status - Online). Other BMC Performance Perceiver graphic servers can still connect to an individual computer and retrieve data.

- When BMC Performance Perceiver server is online, you can display views for consumers to access or for analysts to build, and you can change or activate data sources.

- When the BMC Performance Perceiver server is offline, consumers cannot display views. Before taking it offline, you can set a message that users will see when they try to access BMC Performance Perceiver in this state. Only the user who performs the action sees the message. When you have successfully taken BMC Performance Perceiver server offline, a down arrow appears next to the application name in the left-hand panel of the Administration tab.

1. From the Administration tab Getting Started page, you can immediately see the status of BMC Performance Perceiver in the left-hand Task List.

A. If an up arrow precedes the BMC Performance Perceiver task category and it displays Status - Online, BMC Performance Perceiver is online. Consumers who access BMC Performance Perceiver can display views, and analysts can build views.
Task 3: Activate a package

To bring BMC Performance Perceiver offline, click Take BMC Performance Perceiver Offline. To set a message that users will see when they try to access BMC Performance Perceiver in this state, type a message in the text box and click Apply before clicking Take BMC Performance Perceiver Offline.

B If a down arrow proceeds the task category and it displays Status - Offline, BMC Performance Perceiver is offline. Users who attempt to access BMC Performance Perceiver cannot display data when the status is Offline.

Task 3: Activate a package

Packages are logical groupings of data sources, pre-defined views, and metrics. Administrators make packages available to analysts and consumers by selecting Manage Packages from the Administration tab. To enable a package, click Activate in the Action column on the Manage Packages page.

To view additional information on a package, click the package name. The information is displayed in the area below the package list.

The Distributed Systems package is activated by default.

Task 4: Define the data source

You can activate data sources without taking BMC Performance Perceiver offline and then bringing it back online. After installing BMC Performance Perceiver, use the following process to define the data source and prepare views for the consumer.

NOTE
Consumers and analysts can only view information on computers and groups of computers when data sources are active.

Display the Data Sources page

From the Administrator tab, select Distribution Systems from the Data Sources task list.
The table on the Manage Data Sources page contains five columns. Three are static columns containing information (Type, Active, and Priority), and two are active columns containing links to more information (Data Source and Action). The last column on the left indicates when data sources are copied.

The table on the Manage Data Sources page contains five columns. Three are static columns containing information (Type, Active, and Priority), and two are active columns containing links to more information (Data Source and Action). The last column on the left indicates when data sources are copied.

<table>
<thead>
<tr>
<th>Table Heading</th>
<th>Contents</th>
<th>Actions Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Static</td>
<td>None. Displays available data source types.</td>
</tr>
<tr>
<td>Active</td>
<td>Static</td>
<td>None. Displays Up Arrow icon, indicating which data source is currently active.</td>
</tr>
<tr>
<td>Data Source</td>
<td>Active Link</td>
<td>Clicking the data source link displays data source properties at the bottom of the page.</td>
</tr>
</tbody>
</table>
When you perform an action in any of the action-available columns, a message at the bottom of the page confirms that you successfully performed the intended operation.

### Create the Visualizer data source for Microsoft Access

The following procedure shows you how to link the BMC Performance Perceiver server with the Visualizer database you created in “Configure the Visualizer database” on page 40.
Task 5: Activate the data source

1. From the Manage Data Sources - Perceiver page, click **New** from the Action column that corresponds to **Visualizer - Access** (from the Type column) to open the New Data Source page.

![New Data Source page for Microsoft Access](image)

2. On the New Data Source: Perceiver - Access (ODBC) page, enter the following:

   A. A name for the data source in the **Name** field.

   B. The priority level in the **Priority** field. Use higher numbers to represent a greater priority.

   C. The name of the System DSN you configured in the **ODBC data source name** field.

   D. **Optional.** (Perform this step only if the database is password-protected.) Type the username in the **User name** field.

   E. **Optional.** (Perform this step only if the database is password-protected.) Type the password in the **Password** field.

3. Click **Create**.

**Task 5: Activate the data source**

1. Select the **Distributed Systems => Manage Data Sources** task.

2. In the Action column, click **Activate** for the data source you just created.
**Task 6: Create computer groups**

The **Groups of Computers** view task in the task pane lets you organize groups in BMC Performance Perceiver so that consumers and analysts can organize data in a meaningful way. You need to create logical groupings of computers so that the consumers can use the various multi-server charts and views available on the Views tab.

1. From the Administrator tab, select **Create/Delete Groups** from the **Groups of Computers** task list.

2. Type a name of up to 20 characters in the **Create Group** field.

3. Click **Create**. The new empty group is created and displayed in the **Group of Computers** table.

4. To add computers to the group, select **Edit Groups** from the **Groups of Computers** task list.

5. From the Edit Groups page, choose a group from the **Find computers to add to this group** menu.

6. Find computers to add to that group.
   
   A. To search for computers by matching regular expressions, type one or more comma-separated search expressions in the **Search criteria (matches)** text box. For example, `sun*`, `bgs*` finds computers such as sunbgs1, suntan, sunrise, bgs01, bgsAL10, and so forth.

   B. To search for computers in a policy file (for example, an existing BMC Performance Assurance policy or domain file), type the file name in the **File** text box, or click **Browse**.

   C. To search an active data source, choose a data source from the **Data Source (active)** menu. All computers in that data source are added to the Find Results table.

7. Click **Find Computers** to display the search results in a table.

8. To remove a computer from the search results, click the computer name in the **Find Results** window. The number of computers automatically decreases by one, as displayed in the total count in the table header.

9. To add the contents of the list to the group, click **Add Computers**. The modified group is displayed in the table at the bottom of the page.
10 Use the **Roles required** menu to assign this group to a particular user and click **Assign Roles**. For example, if you want the sizer user to access this group, select the sizer check box after you create the group. By default, admin user has access to any group you create.

### Task 7: Configure JSSE for Tomcat and Viewer

If you are using JSSE, to use the Java Secure Socket Extension (JSSE) for the BMC Performance Perceiver Viewer, you must:

- Generate a certificate keystore
- Configure the Tomcat SSL connector

#### Generate a Certificate Keystore

Run the following commands on UNIX or Linux to generate the keystore:

```
cd <installation directory>/CME/CWA/apache-tomcat
../jre1.5.0/jbin/keytool -genkey -alias tomcat -keyalg RSA -keystore $(pwd)/conf/.keystore
```

The following screen shot shows the keytool command being run with all the user entries required:

**Figure 6 Keystore certificate**

![Keystore certificate screen shot]

You do not need to specify a password if you use the default Tomcat certificate password, *changeit*. The command creates a .keystore file in the `<installdir>/CME/CWA/apache-tomcat` directory.
Configure the Tomcat SSL Connector

1 Modify the SSL Connector element in the TOMCAT_HOME/conf/server.xml file as follows:

   A Uncomment the SSL Connector element by removing the <!-- and --> lines before and after the Connector element.

   B Specify the new keystore file location in the keystoreFile attribute of the Factory element, as show in the following sample code.

<!-- Define an SSL HTTP/1.1 Connector on port 8443 -->
<Connector className="org.apache.catalina.connector.http.HttpConnector"
   port="8443" minProcessors="5" maxProcessors="75"
   enableLookups="true"
   acceptCount="10" debug="0" scheme="https" secure="true">
   <Factory className="org.apache.catalina.net.SSLServerSocketFactory"
   clientAuth="false" protocol="TLS"
   keystoreFile="/sys_install_local/perceiver/CWA/apache-tomcat/conf/.keystore" />
</Connector>

2 Use the following URL to start BMC Performance Perceiver and access it via http:

   http://<system-name>:8080/qtv

3 Accept the defaults in the following three dialog boxes:

   - Website certified by an unknown authority
   - Certificate viewer: <viewer name>
   - Security Error: Domain Name Mismatch

Configure Virtualization Planning

Prior to using the Virtualization Planning tab in BMC Performance Perceiver, you must define the default settings for the application. You perform your virtualization studies, including server consolidation, using the data from the data sources created and activated on the Administrator tab. At least one data source must be configured to perform virtualization tasks, using data from the Visualizer database.

Default application settings for Virtualization Planning

To configure the Virtualization Planning performance rating basis, hardware service, and logging levels.
1. Click **Begin Virtualization Study** on the Virtualization Planning tab.

2. Click **Settings** in the left pane.

The following page shows the default settings used to perform virtualization tasks. You can change any of the settings shown in Table 14.

### Table 14  Configuration settings for Virtualization Planning

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Rating Basis</td>
<td>This setting specifies which performance rating is the basis for the performance statistics shown in the studies. The available options are:</td>
</tr>
<tr>
<td></td>
<td>- SPECintRate2000 (the default)</td>
</tr>
<tr>
<td></td>
<td>- SPECint95</td>
</tr>
<tr>
<td></td>
<td>- SPECINTRATE95</td>
</tr>
<tr>
<td></td>
<td>- SPECint2000</td>
</tr>
<tr>
<td></td>
<td>- MIPS</td>
</tr>
<tr>
<td></td>
<td>- SPECint2006</td>
</tr>
<tr>
<td></td>
<td>- SPECintRate2006</td>
</tr>
</tbody>
</table>

**Note:** Changing this value from the default of SPECintRate2000 is not recommended. Changes to SPECint ratings in the Study Profiles are not properly converted during processing. However, should you need to change the setting:

1. Change the Performance Rating Basis.
2. Edit the Study Profile(s) for which you want the basis to apply.
3. Re-select the default hardware model from the Hardware Selector page.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Service</td>
<td>These settings specify the location of the hardware table service that provides the list of hardware models for new virtual hosts. The default location is the computer on which BMC Performance Perceiver is installed, although you can modify that location by specifying a different computer name and port number.</td>
</tr>
</tbody>
</table>

**Note:** If the hardware models are not being displayed on the Hardware Selector page, click **Reset hardware cache**. If this action does not resolve the issue, you may need to restart the BMC Hardware Table Service using the Services selection from the Microsoft Windows Administrative Tools option.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logging Level</td>
<td>Use this option to control the level of detail for the Virtualization Planning log file.</td>
</tr>
<tr>
<td></td>
<td>Click <strong>View Log File</strong> to launch a window showing the contents of the log file.</td>
</tr>
</tbody>
</table>
Advanced property settings for Virtualization Planning

There are some advanced settings available in the scon.properties file. The file is located in

```
C:\Program Files\BMC Software\CWA\apache-tomcat\webapps\scon\WEB-INF\classes
```

Some of the settings listed in the properties file can be changed using the Default Settings page, available by clicking Settings in the Virtualization Planning task pane. You should not modify any of the remaining settings, with the exception of the ones noted in Table 15 below.

### Table 15  Settings available in the scon.properties file (part 1 of 2)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>scon.perf.benchmark.basis=SPECINTRATE2000</td>
<td>This option specifies which performance benchmark is used by Sizer. Change this option using the Settings page in the product.</td>
</tr>
<tr>
<td>scon.printing.show.graphs=true</td>
<td>These settings are formatting options for the Save as PDF or Save as RTF options. Set the first option to false to suppress the appearance of graphs in the output file. Set the second option to false to remove page breaks between the Virtual Host reports on the Consolidation Summary.</td>
</tr>
<tr>
<td>scon.printing.target.page.breaks=true</td>
<td>These options relate to data retrieval. Do not change these options.</td>
</tr>
<tr>
<td>scon.data.threading=true</td>
<td>This option relate to caching computer group data along with the performance data. If set to false, the list of groups will be refreshed whenever performance data is retrieved from cache.</td>
</tr>
<tr>
<td>scon.data.retrieve.max.threads=20</td>
<td>These settings specify the location of BMC Performance Perceiver that provides access to the data used in the consolidation studies. The default location is the computer on which BMC Performance Perceiver is installed. Change these options using the Settings page in the product.</td>
</tr>
<tr>
<td>scon.data.grouping.size=300</td>
<td>These settings specify the location of the hardware table service that provides the list of hardware models for new virtual hosts. The default location is the computer on which BMC Performance Perceiver is installed, although you can modify that location by specifying a different computer name and port number.</td>
</tr>
<tr>
<td>scon.data.cache.groups=true</td>
<td>When hardware table caching is enabled, you can also specify to load the hardware table when BMC Performance Perceiver web service starts.</td>
</tr>
<tr>
<td>scon.perceiver.server=&lt;server&gt;</td>
<td>Change these options using the Settings page in the product.</td>
</tr>
<tr>
<td>scon.perceiver.port=8080</td>
<td></td>
</tr>
<tr>
<td>scon.clients.hrwservice.server=localhost</td>
<td></td>
</tr>
<tr>
<td>scon.clients.hrwservice.port=8888</td>
<td></td>
</tr>
<tr>
<td>scon.clients.hrwservice.caching=true</td>
<td></td>
</tr>
<tr>
<td>scon.clients.hrwservice.cache.on.startup=true</td>
<td></td>
</tr>
</tbody>
</table>
Using the maintenance tool to change configuration settings

BMC Performance Perceiver includes a utility that you can use to:

- View installation log files.
- Collect the log files into a ZIP file that you can send to a BMC Software Customer Support representative for troubleshooting.
- Perform maintenance tasks, such as updating the configuration settings you specified during the installation process.
- Run the license usage reporting tool.
- Install and uninstall product patches.

This section describes how to use the tool to change configuration settings defined during installation. For more information on the PerceiverMaintenanceTool see “Generating a license usage report” on page 98.

### Table 15  Settings available in the scon.properties file (part 2 of 2)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>scon.data.show.profile.systems=true</td>
<td>When this option is set to false, computers that are included in saved virtualization studies are removed from the computer list on the Computer Explorer page.</td>
</tr>
<tr>
<td>scon.log.level=INFO</td>
<td>This option controls the level of detail for the Virtualization Planning log file. Change this option using the Settings page in the product.</td>
</tr>
<tr>
<td>scon.home.page=Begin</td>
<td>These options control the start page for Virtualization Planning and the display of the Welcome page.</td>
</tr>
<tr>
<td>scon.welcome.page.show=true</td>
<td></td>
</tr>
<tr>
<td>scon.profile.default=VMware</td>
<td>This option sets the default Study Profile for all virtualization studies.</td>
</tr>
<tr>
<td>scon.windows.patchlevel.show=false</td>
<td>When this option is set to true, the patch levels for Windows operating systems are displayed in the Operating System column of various Virtualization Planning pages, in addition to the operating system name.</td>
</tr>
</tbody>
</table>

**NOTE**
For more information on Virtualization Planning, see Appendix B, “Virtualization Planning.”
To launch the BMC Performance Perceiver maintenance tool

On the computer on which you installed BMC Performance Perceiver, change to the directory that contains the PerceiverMaintenanceTool utility.

By default, on Microsoft Windows, this utility is located at

```
C:\Program Files\BMC Software\CWA
```

By default, on UNIX, this utility is located at

```
/opt/bmc/CWA
```

3 Execute the utility.
   For Microsoft Windows, double-click the following file:

```
PerceiverMaintenanceTool.cmd
```

For UNIX, execute the following command:

```
./PerceiverMaintenanceTool.sh
```

1 Alternatively, you can launch the maintenance tool from the BMC Performance Perceiver DVD.

2 When the BMC Performance Perceiver Installation Tools utility window opens, click the Configuration tab.
3 Change the settings for BMC Performance Perceiver Administrator account, and click **Next**. The Tomcat web server details are displayed as shown in Figure 7.

4 Change the settings for BMC Performance Perceiver web server, and click **Next**.

**NOTE**


5 Click **Finish** when done.
Using the maintenance tool to change configuration settings
Administering BMC Performance Perceiver

This chapter provides an overview of BMC Performance Perceiver’s administrator user interfaces and its related components and functions. It contains the following topics:

The administrator’s role in BMC Performance Perceiver ........................................ 57
Administering BMC Performance Perceiver ......................................................... 57
Generating a license usage report ................................................................. 98

The administrator’s role in BMC Performance Perceiver

As an administrator, you are responsible for making sure that packages are available, that data sources are created and activated, that groups are set up, that banners, charting and logging are configured, and that you implement security measures to control access to the product.

The tools you use to administer the BMC Performance Perceiver product are the Build Views and the Administration tabs. The following sections discuss each of these interfaces.

Administering BMC Performance Perceiver

As an administrator, your gateway to gauging system performance in BMC Performance Perceiver is a view. The view is your vehicle for controlling the way you want BMC Performance Perceiver to perform for your consumers, so they can easily obtain pertinent information at a glance.
The **Administration** tab in BMC Performance Perceiver user interface lets you configure and customize the data access structure, computer grouping, graphical layout, and product access. You have more power to present the application in a way that affords the greatest benefit to your company, and the easiest interface for your consumers to use.

**To log on as an administrator**

1. Open BMC Performance Perceiver from the Start menu or the URL supplied by the system administrator.

2. Type your user name in the **User Name** field when prompted to log on.

3. Type your password in the **Password** field.

4. If authorization is accepted, BMC Performance Perceiver Viewer opens on the **Views** tab and all tabs are available.

5. Click on the Administration tab.

**Figure 8** illustrates the administrator user interface, displaying the Status page on the **Administration** tab.

---

**NOTE**

Administrator name and password are configured during the installation process. For more information, refer to “Installing BMC Performance Perceiver” on page 22.
The administrator’s view is broken into two panes:

- The task pane (left side of display), which displays product status, data source availability, group status, product preferences, security roles, and a Home icon.

- The results pane (right side of display), which displays information relative to the task you select.

The task pane on the Administration tab displays task categories, bolded high-level logical groupings of the tasks you can access on the results pane that determine your view as an administrator.

For example, clicking the Preferences task category includes Configure Banner, Configure Logging, and Configure Charting.

Administrators are responsible for the following tasks:

- Starting and stopping BMC Performance Perceiver
- Checking the status of BMC Performance Perceiver
- Managing packages
- Preparing views the first time
- Managing data sources
- Defining and organizing groups
- Customizing BMC Performance Perceiver layout
- Configuring user access
Starting and stopping BMC Performance Perceiver

BMC Performance Perceiver server starts automatically when the installation is complete.

When BMC Performance Perceiver is running, the Tomcat web server (tomcat5.exe) process is running.

- To ensure that BMC Performance Perceiver has started, open the Microsoft Windows Task Manager, click Processes, and verify that tomcat5.exe is listed.

- On UNIX, make sure that Java process is running from the <installation directory>/CWA/jre1.5.0/bin directory by executing the ps -ef | grep java command. This command displays all the Java applications running on your machine.

- To start the BMC Performance Perceiver service on Microsoft Windows, see “Starting the BMC Performance Perceiver web server” on page 30.

- To start the BMC Performance Perceiver service on UNIX, see “Starting BMC Performance Perceiver” on page 33.

- To stop the BMC Performance Perceiver service on Microsoft Windows, see “Stopping the BMC Performance Perceiver web server” on page 32.

- To stop the BMC Performance Perceiver service on UNIX, see “Stopping the BMC Performance Perceiver web server” on page 36.

Checking the status of BMC Performance Perceiver

The Status page on the Administration tab lets you check the status of BMC Performance Perceiver on a specific computer. It lets multiple users determine if administrative work is happening on the system (when the view task displays Status - Offline) or if data sources are available for viewing (when the view task displays Status - Online). Other Viewer graphic servers can still connect to an individual computer and retrieve data.

To check the status of BMC Performance Perceiver

From the Administration tab Getting Started page, you can immediately see BMC Performance Perceiver status in the left-hand Task List.
If an up arrow precedes the BMC Performance Perceiver task category and it displays Status - Online, BMC Performance Perceiver is online. Consumers who access BMC Performance Perceiver can display views.

To bring BMC Performance Perceiver offline, click Take BMC Performance Perceiver Offline. To set a message that users see when they try to access BMC Performance Perceiver in this state, type a message in the text box and click Apply before clicking Take BMC Performance Perceiver Offline.

If a down arrow proceeds the BMC Performance Perceiver task category and it displays Status - Offline, BMC Performance Perceiver is offline. Users who attempt to access BMC Performance Perceiver cannot display data in their views.

The About task displays general information about BMC Performance Perceiver in a table, along with copyright information.

The table on the About page contains the following information:

<table>
<thead>
<tr>
<th>Information Heading</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>The name of the product you are running (BMC Performance Perceiver).</td>
</tr>
<tr>
<td>Product version</td>
<td>The version of the product.</td>
</tr>
<tr>
<td>Build number</td>
<td>BMC Software’s internal build number for BMC Performance Perceiver.</td>
</tr>
<tr>
<td>Web server version</td>
<td>The version of the Tomcat server running BMC Performance Perceiver.</td>
</tr>
<tr>
<td>JRE version</td>
<td>The version of the Java plug-in required to access analyst and administration functions.</td>
</tr>
<tr>
<td>MrConsumer version</td>
<td>The version of the MrConsumer module running on BMC Performance Perceiver.</td>
</tr>
<tr>
<td>Virtualization Planning build number</td>
<td>The build number of the Virtualization Planning module running on BMC Performance Perceiver.</td>
</tr>
<tr>
<td>General Manager build number</td>
<td>The build number of the General Manager module running on BMC Performance Perceiver.</td>
</tr>
</tbody>
</table>

Managing packages

Packages contain the data sources, metrics, views, and charts for a given data source category. Packages provide a way to narrow the focus of your analysis and manage the metrics available to consumers and analysts. Activating and deactivating packages enables administrators to selectively deploy only the platforms they wish to have in their workspace. Only the Distributed Systems package is active by default.
Activating or deactivating packages

You use the Manage Packages page in Figure 9 to Activate, Deactivate, and Reload Predefined Views which come with each package.

Figure 9 Manage Packages pages

<table>
<thead>
<tr>
<th>Active</th>
<th>Package Id</th>
<th>Package Name</th>
<th>Action</th>
<th>Extended Package Ids</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>perceive</td>
<td>Distributed Systems</td>
<td>Deactivate... Reload Predefined Views...</td>
<td>ext-sample</td>
</tr>
<tr>
<td></td>
<td>iSeries</td>
<td>iSeries</td>
<td>Activate...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>zSeries</td>
<td>zSeries</td>
<td>Activate...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>core</td>
<td>Capacity Management Essentials</td>
<td>Activate...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bpm</td>
<td>BMC Performance Manager</td>
<td>Activate...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>crdb</td>
<td>Configuration Management Database</td>
<td>Activate...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ext-sample</td>
<td>Extended Sample</td>
<td>Deactivate... Reload Predefined Views...</td>
<td></td>
</tr>
</tbody>
</table>

Reloading predefined views

Only the Distributed Systems package’s predefined views are displayed automatically on the Views tab. If you are migrating from a previous version of BMC Performance Perceiver or working with packages that are inactive by default, you must reload the predefined views to make them available for display.

NOTE

If you customized the predefined views in a previous release of BMC Performance Perceiver, those views will be overwritten when you reload the views. Save the customized views to a different name, before reloading predefined views.

1. From the BMC Performance Perceiver Administration tab Task List, select Manage Packages to display the Manage Packages page (as shown in Figure 9).

2. Click the Reload Predefined Views... action link for an activated package whose predefined views you want to display.

3. Click OK on the confirm reload views message dialog box. The system message in the window at the bottom of the page lets you know if the views were successfully reloaded.
Working with extended packages

Extended packages share data sources with the parent package. If you migrate to BMC Performance Perceiver 7.5.00, Perceiver displays the packages of the earlier version as extended packages in this version.

**NOTE**
- BMC Software supports the extended packages created by BMC Performance Perceiver.
- You must maintain the extended packages you create.
- To share data sources between packages, you can make changes to the platforms.xml file. For more information on the customizations to the platforms.xml file, logon to the Developer Network.

Preparing views the first time

After installing BMC Performance Perceiver, use the process described in the following table to prepare views for the consumer.

**NOTE**
The following task sequence applies only the first time the administrator builds and deploys views for any data sources other than Distributed Systems. The Distributed Systems package is activated by default and may be deactivated, just like any other package.

<table>
<thead>
<tr>
<th>Table 17</th>
<th>Deploying views the first time (part 1 of 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log on as an Administrator and go to the Administration tab.</td>
<td>Administrator rights are specified during the installation process; Administrator rights are required for access to the build and administration functions.</td>
</tr>
<tr>
<td>Activate the package.</td>
<td>You must activate a package to manage associated data sources, metrics, pre-defined views, and reports. See “Task 1: Activate the package” on page 64.</td>
</tr>
<tr>
<td>This applies only if you want to create views using data sources other than Distributed Systems. Distributed Systems packages are activated by default.</td>
<td></td>
</tr>
<tr>
<td>Create data sources for your packages.</td>
<td>You must create the data source for the package that you activated.</td>
</tr>
</tbody>
</table>
Preparing views the first time

Table 17  Deploying views the first time (continued) (part 2 of 2)

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate the data source.</td>
<td>This process discovers computers associated with the data source and makes them available to the consumer in the Computer drop-down list. See “Task 2: Define the data source for the package” on page 65.</td>
</tr>
<tr>
<td>If you have multiple active packages, BMC Software recommends that you create groups for each package.</td>
<td>Perform group functions by selecting the <strong>Groups of Computers</strong> task category.</td>
</tr>
<tr>
<td>Edit the group and import only the members from the additional data source.</td>
<td>Use the <strong>Create View</strong> wizard to add views with metrics that are not available in one of the pre-defined views. See the online Help for the <strong>Create View</strong> wizard for more details on creating, reviewing, and deploying views.</td>
</tr>
<tr>
<td>Enable views to make them visible to the consumer. Optionally the administrator and analyst can build new views as needed in the <strong>Build Views</strong> tab, and organize them into categories that map to the same package.</td>
<td>Consumers can select the views created by analysts and administrators on the <strong>Views</strong> tab.</td>
</tr>
<tr>
<td>Select the view.</td>
<td></td>
</tr>
</tbody>
</table>

Additional data types are available through the **Manage Packages** task.

**NOTE**

With the exception of Distributed Systems, all packages are deactivated by default, and must be activated according to the following process.

**Task 1: Activate the package**

Administrators make data source types available by selecting **Manage Packages** from the **Administration** tab and enabling the package containing additional data sources. To enable a package, click **Activate** in the **Action** column.
Preparing views the first time

**Task 2: Define the data source for the package**

When you activate a package, the package name appears in the Data Sources task category in the task pane. Each package can have multiple data source types. Define the data sources you want to use by clicking New from the Action column. For more information on defining additional data sources, refer to the BMC Performance Perceiver online Help for the Manage Data Sources page. See “Managing data sources” on page 66 for more information about managing data sources.

**Task 3: Set up groups**

BMC Performance Perceiver is capable of managing and reporting on thousands of computers. However, viewing and charting that much information in a single format makes understanding the charts and tables more difficult. The best strategy for creating concise, meaningful charts and tables is to organize the computers in your environment into logical groups.

You can use groups across sessions. You can set up static groups that are organized by location or business service. You can also set up dynamic groups or subsets of the permanent groups that will update on a regularly scheduled basis to further refine the management of data and reporting.

For more information on working with groups, see “Defining and organizing groups” on page 77 or refer to the online Help.
Managing data sources

**Task 4: Build the views**

Once you activate a package, its set of pre-defined views is shown in the **Build Views** tab. To enable the views for the consumer, select the checkbox next to the view, or create a new view and select the specific metrics you want for that view. Administrators and analysts should not mix metrics from different packages in the same view. Mixing metrics will generate the **Data is unavailable** message.

For more information on building and activating views for the different data sources, refer to the BMC Performance Perceiver online Help for the **Manage Packages** page.

For more information on building views, see Chapter 5, “Building custom views.”

Managing data sources

To start configuring data sources in BMC Performance Perceiver, click a Data Source category on the **Administration** tab Task List to open the Manage Data Sources page.

The table on the Manage Data Sources page contains six columns. Three are static columns containing information (**Type**, **Active**, and **Priority**), and two are active columns containing links to more information (**Data Source** and **Action**). The last column on the left indicates when data sources are copied.

The following sections detail how you can manage data sources in BMC Performance Perceiver using the Manage Data Sources page.
Creating data sources

The Manage Data Sources page lets you create the following data source types for the following packages:

- Distributed Systems, iSeries, zSeries packages
  - Visualizer - Oracle
  - Visualizer - SQL Server
  - Visualizer - Access
  - Visualizer - Custom Configuration - a proprietary database other than Oracle, Microsoft SQL Server, and Microsoft Access
  - Agent History
- BMC Capacity Management Essentials
  - CME - Oracle
  - CME - SQL Server
  - CME - Access
  - CME - Custom Configuration - a proprietary database, other than Oracle, Microsoft SQL Server, and Microsoft Access
  - Remote - CME - a Capacity Management Essentials Viewer server running on a different computer
  - Remote Perceiver - a BMC Performance Perceiver server running on a different computer
- BMC Performance Manager - BPM - Oracle
- Configuration Management Database - CMDB

The required information for creating data sources depends on the data source type, as shown in Table 18. When you are creating any type of data source, if you are not sure what value to enter in a field (other than priority) and the field already contains a default value, accept the default.

Table 18 Options to specify when creating data sources (part 1 of 4)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applies to data source type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the data source you are creating.</td>
<td>All</td>
</tr>
<tr>
<td>Priority</td>
<td>Use higher numbers to represent a greater priority. For consistent results, enter a unique priority for each data source you configure.</td>
<td>All</td>
</tr>
<tr>
<td>Driver</td>
<td>The database driver applicable for the custom configuration.</td>
<td>Visualizer Custom Configuration, CME Custom Configuration</td>
</tr>
</tbody>
</table>
### Table 18 Options to specify when creating data sources (part 2 of 4)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applies to data source type</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td>If the database is password-protected, enter the username and password.</td>
<td>CME Oracle, CME SQL Server, CME Access, CMDB, BPM, Visualizer Oracle, Visualizer SQL Server, Visualizer Access, Visualizer Custom Configuration</td>
</tr>
<tr>
<td>Password</td>
<td></td>
<td>CME Oracle, CME SQL Server, CME Access, CMDB, BPM, Visualizer Oracle, Visualizer SQL Server, Visualizer Access, Visualizer Custom Configuration</td>
</tr>
<tr>
<td>Database instance</td>
<td>To connect to a database instance as any user other than the user who created the instance, you must enter the credentials in the Database Instance and Database Owner fields.</td>
<td>CME Oracle, CME SQL Server, CME Custom Configuration, CMDB, BPM, Visualizer Oracle, Visualizer SQL Server, Visualizer Custom Configuration</td>
</tr>
<tr>
<td>Database Owner</td>
<td></td>
<td>CME SQL Server, CME Custom Configuration, Visualizer SQL Server, Visualizer Custom Configuration</td>
</tr>
<tr>
<td>Maximum connections</td>
<td>The maximum number of simultaneous connections to the database.</td>
<td>CME Oracle, CME SQL Server, CME Custom Configuration, BPM, Visualizer Oracle, Visualizer SQL Server, Visualizer Custom Configuration</td>
</tr>
<tr>
<td></td>
<td>For VIS Access, the default value is 1 and for other databases, it is 10.</td>
<td></td>
</tr>
<tr>
<td>Host</td>
<td>The name of the host server on which the database resides.</td>
<td>CME Oracle, CMDB, BPM, Visualizer Oracle</td>
</tr>
<tr>
<td>ODBC Data Source Name</td>
<td>The name of the System DSN you configured.</td>
<td>CME SQL Server, CME Access, Visualizer SQL Server, Visualizer Access</td>
</tr>
<tr>
<td>Connection URL</td>
<td>The URL used to connect to the custom configuration database.</td>
<td>CME Custom Configuration, Visualizer Custom Configuration</td>
</tr>
<tr>
<td>Port number</td>
<td>The port number used to access the data source. For example, Oracle usually uses port 1521.</td>
<td>CME Oracle, CMDB, BPM, Visualizer Oracle</td>
</tr>
</tbody>
</table>
### Table 18  Options to specify when creating data sources (part 3 of 4)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applies to data source type</th>
</tr>
</thead>
</table>
| Cache Size         | The size of the data source cache. The default value is 100 objects, the minimum is 50 and the maximum is 1000. For Remote Data Sources the default is 200 objects.  
A cached object is a complete data object for any data source. For example, if CPU data is returned for 50 systems in a multi-server view, the total number of objects stored in cache is 50. | All                         |
| Remote Port        | Remote Port and Remote Server are used to access an installation of a Viewer server (Remote CME) or Perceiver server (Remote Perceiver) running on another computer.  
The Remote Port entry should correspond to the Tomcat non-SSL HTTP/1.1 Connector's port setting on the specified Remote Server. | Remote CME, Remote Perceiver|
| Remote Server      |                                                                                                                                            | Remote CME, Remote Perceiver|
| cmdb-server        | The name of the BMC Atrium CMDB server to which BMC Performance Perceiver must connect to retrieve BMC Atrium CMDB data.  
**NOTE**  
On UNIX operating systems, you must specify the fully qualified server name, that is, the server and domain name. | CMDB configuration          |
| Type               | The type of data source you are creating.                                                                                                      | All                         |
| Beginning IP address | A range of IP numbers.  
Ensure the proxy host that you are trying to find is within the IP address range you specify in this field.                                                                 | Agent History               |
| Ending IP address  |                                                                                                                                                                                                                       |                             |
| History span       | The same number of hours that the agents are configured to collect for BMC Performance Perceiver to use. By default, that is two days of data. Although 48 hours is typically available, for optimal performance, do not specify more data than what you plan to use. | Agent History               |
| Initial time out   | The number of hours of historical data held in the agents you plan to contact. The larger the number, the more comprehensive, hence, better, the quality of the data, but the slower the data source will respond to the chart data.  
**For advanced users only:** Type the number of seconds you want to wait for the first cluster of data before timing out in the Initial timeout field. | Agent History               |
### Table 18 Options to specify when creating data sources (part 4 of 4)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applies to data source type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental time out</td>
<td>The number of hours of historical data held in the agents you plan to contact. The larger the number, the more comprehensive, hence, better, the quality of the data, but the slower the data source will respond to the chart data.</td>
<td>Agent History</td>
</tr>
<tr>
<td></td>
<td><strong>For advanced users only:</strong> Type the number of seconds you wish to wait between successive clusters of data before timing out in the Incremental timeout field.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The default value is 2 seconds.</td>
<td></td>
</tr>
<tr>
<td>Discover agents outside the firewall</td>
<td>Whether or not you want to Discover agents outside the firewall. For more information on firewall support see “How do I run BMC Performance Perceiver from a firewall-enabled client browser?” on page 124.</td>
<td>Agent History</td>
</tr>
<tr>
<td>From file (.plc or .dmn or .txt)</td>
<td>An IP range, an existing BMC Performance Assurance domain (.dmn) or policy (.plc) file, or a text (.txt) file. The .txt file can be a list of computers, each computer on its own line, separated by a new line character.</td>
<td>Agent History</td>
</tr>
<tr>
<td></td>
<td>You can specify IP addresses by uploading policy, domain or text file using From File checkbox and uploading the related file using File browse button. After pressing the Create/OK button, the IP addresses are populated in IP Address Range edit box.</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

You can either provide the IP address range by uploading file (.plc, .dmn or .txt file) or if you want to specify an entire range of IP address use the Beginning-Ending IP fields, not both.
### Administering data sources

Once you have created a data source, you can perform the following administrative tasks:

**Table 19 Administering data sources (part 1 of 2)**

<table>
<thead>
<tr>
<th>Task</th>
<th>How to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activating and deactivating data sources</td>
<td>1. Select the data source you want to manage. (See “Creating data sources” for list of data sources.)</td>
</tr>
<tr>
<td></td>
<td>2. In the Action column, click <strong>Activate</strong> for a deactivated data source.</td>
</tr>
<tr>
<td></td>
<td>3. To deactivate a data source, click <strong>Deactivate</strong> in the Action column.</td>
</tr>
<tr>
<td>Editing data sources</td>
<td>1. Click the data source name you want to edit in the Data Source column to open the <strong>Edit Data Source: data source name</strong> page.</td>
</tr>
<tr>
<td></td>
<td>2. Make changes to the appropriate fields.</td>
</tr>
<tr>
<td></td>
<td>3. When you finish changing the properties, click <strong>Close</strong>.</td>
</tr>
<tr>
<td>Copying data sources</td>
<td>1. From the Manage Data Sources page, click <strong>Copy</strong> from the Action column that corresponds to the type of data source you want to copy (from the Type column).</td>
</tr>
<tr>
<td></td>
<td>2. Verify the information in the fields that display on the bottom of the page.</td>
</tr>
<tr>
<td></td>
<td>3. Click <strong>Create</strong>.</td>
</tr>
<tr>
<td>Refreshing data sources</td>
<td>1. Click <strong>Refresh</strong> in the Action column adjoining the data source you want to refresh.</td>
</tr>
<tr>
<td></td>
<td>2. Click <strong>OK</strong> on the Refresh confirmation dialog box to refresh the data source or <strong>Cancel</strong> to void the action.</td>
</tr>
</tbody>
</table>

Consumers may notice delays when displaying views.
Managing data sources

Table 19  Administering data sources (part 2 of 2)

<table>
<thead>
<tr>
<th>Task</th>
<th>How to</th>
</tr>
</thead>
</table>
| Deleting data sources       | 1. Click **Delete** in the Action column adjoining the data source you want to remove. The **Delete** link is only available when the data source is deactivated.  
                               2. On the Delete confirmation dialog box, click **OK** to complete the action or **Cancel** to void the action. |
| Changing the data source priority | 1. Click the **Administration** tab.  
                                    2. Click **Manage Data Sources**.  
                                    3. In the Data Source column, click a data source name to edit it.  
                                    4. Click **Deactivate** in the action column adjoining the data source you want to deactivate.  
                                    5. Click the data source name again.  
                                    6. In the **priority** text box, type a priority from 1 to 99.  
                                    7. Click **OK**.  
                                    8. Click the data source name again.  
                                    9. Click **Activate** in the action column adjoining the data source you want to activate. The new priority level is now assigned to the data source. |

Guidelines for working with data sources

BMC Software recommends the following guidelines for setting up and working with data sources to achieve the best performance with BMC Performance Perceiver.

Table 20  Guidelines for data sources (part 1 of 5)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle and SQL Server data sources</td>
<td>BMC Software recommends placing Oracle and SQL Server data sources on separate servers, properly configured and tuned.</td>
</tr>
</tbody>
</table>
| Cache sizes                  | You can specify the cache size on the New Data Source page when you create a new data source or you can modify the existing cache size on the Edit Data Source page when you edit a data source.  
                               The default value is 100 objects; the minimum is 50 and the maximum is 1000 objects. For Remote Data Sources, the default is 200 objects. |
Managing data sources

Chapter 4 Administering BMC Performance Perceiver

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Priority levels

BMC Performance Perceiver allows you to specify the order in which the data sources are accessed when retrieving data for views. The priority level determines the order in which multiple data sources with similar data dates will be accessed. The order is processed by the priority assigned to each data source.

For example, assume you activate an CME Oracle data source and a Remote Perceiver data source, and the two data sources happen to have the same computers in their databases. You would assign a higher priority level to the CME Oracle data source than the Perceiver data source because the CME Oracle data source contains all of the essential metrics needed for the views, while the Perceiver data source contains only a subset of the metrics.

Optimizing Visualizer performance on Oracle databases

The analyzes.sql script file is located in the <installation directory>/CWA/apache-tomcat/webapps/qtv/scripts directory. It takes advantage of cost-based (statistical) optimization in Oracle. Because statistics are not gathered automatically, BMC Software has found that running this optimization script improves the performance of all queries run by BMC Performance Perceiver.

Once statistics are stored in the data directory, they might age and become unreliable. Although the overall statistics of tables that are subject to significant updates do not change drastically, you should re-compute these statistics on a regular basis. However, depending on the size of the tables, computing statistics may take a long time (up to several hours on large databases).

Because of this constraint, BMC Software suggests that you follow these tips when running the optimization tool:

- Do not use cost-based optimization on Oracle versions 9 or earlier.
- Do not run the optimization script more than once a month, unless you have added or deleted significant amounts of data during that period.

For instructions on running the tool, see “Guidelines for working with data sources” on page 72.

Table 20 Guidelines for data sources (part 2 of 5)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority levels</td>
<td>BMC Performance Perceiver allows you to specify the order in which the data sources are accessed when retrieving data for views. The priority level determines the order in which multiple data sources with similar data dates will be accessed. The order is processed by the priority assigned to each data source. For example, assume you activate an CME Oracle data source and a Remote Perceiver data source, and the two data sources happen to have the same computers in their databases. You would assign a higher priority level to the CME Oracle data source than the Perceiver data source because the CME Oracle data source contains all of the essential metrics needed for the views, while the Perceiver data source contains only a subset of the metrics.</td>
</tr>
<tr>
<td>Optimizing Visualizer performance on Oracle databases</td>
<td>The analyzes.sql script file is located in the &lt;installation directory&gt;/CWA/apache-tomcat/webapps/qtv/scripts directory. It takes advantage of cost-based (statistical) optimization in Oracle. Because statistics are not gathered automatically, BMC Software has found that running this optimization script improves the performance of all queries run by BMC Performance Perceiver. Once statistics are stored in the data directory, they might age and become unreliable. Although the overall statistics of tables that are subject to significant updates do not change drastically, you should re-compute these statistics on a regular basis. However, depending on the size of the tables, computing statistics may take a long time (up to several hours on large databases). Because of this constraint, BMC Software suggests that you follow these tips when running the optimization tool: - Do not use cost-based optimization on Oracle versions 9 or earlier. - Do not run the optimization script more than once a month, unless you have added or deleted significant amounts of data during that period. For instructions on running the tool, see “Guidelines for working with data sources” on page 72.</td>
</tr>
</tbody>
</table>
### Table 20  Guidelines for data sources (part 3 of 5)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Guidelines</th>
</tr>
</thead>
</table>
| Nodes in multiple data sources| **While activating a data source** - If a node is encountered again in a different data source, with a different system type, then, a node gets tagged with multiple system types.  

**While fetching data** - A request for fetching data is sent to a data source, first with a higher priority. If the data is not found in the requested interval, then the request for fetching data, for remaining intervals is sent to next data source, which has the same node, but with a less priority.  

**Note:** For the data sources with same priority, the same thing holds true. While fetching data, the quest goes to the first data source in list, and then to the next data source with same priority. |
| Microsoft Access data sources | BMC Performance Perceiver does not support Microsoft Access databases on mapped drives. For more information, refer the *BMC Performance Perceiver 7.5.00 Release Notes*. |
| Microsoft SQL Server data sources | BMC Software recommends that you do not use Windows authentication when configuring Microsoft SQL Server data sources. The BMC Performance Perceiver user ID may be overlooked which may disable the user name in the Windows domain when it is time to change the password. It may also cause conflicts when you upgrade or re-install BMC Performance Perceiver because those action require you to reconfigure the Perceiver services to use the NT username password. |
Table 20  Guidelines for data sources (part 4 of 5)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDB data sources</td>
<td>The BMC Atrium CMDB requires the following software:</td>
</tr>
<tr>
<td></td>
<td>■ AR Server 7.1</td>
</tr>
<tr>
<td></td>
<td>■ BMC Atrium CMDB 2.1</td>
</tr>
<tr>
<td></td>
<td>■ Topology Discovery TD 1.5</td>
</tr>
<tr>
<td></td>
<td>■ BMC Atrium CMDB extensions</td>
</tr>
<tr>
<td></td>
<td>■ CI viewer</td>
</tr>
<tr>
<td></td>
<td>This environment must be installed and operational prior to</td>
</tr>
<tr>
<td></td>
<td>activating a CMDB data source. The configuration is done during</td>
</tr>
<tr>
<td></td>
<td>installation. For more information see <em>BMC Atrium CMDB</em></td>
</tr>
<tr>
<td></td>
<td><em>Installation and Configuration Guide</em> for more information.</td>
</tr>
</tbody>
</table>
### Table 20  Guidelines for data sources (part 5 of 5)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WARNING</strong> Console UDR data sources</td>
<td>BMC Software does not recommend using Console UDR data sources because of known problems. For more information, go to <a href="http://documents.bmc.com/supportu/documents/83/28/58328/Output/090f44b1803ae956.htm">http://documents.bmc.com/supportu/documents/83/28/58328/Output/090f44b1803ae956.htm</a></td>
</tr>
<tr>
<td>To configure Extended Console Universal Data Repository (UDR) package:</td>
<td></td>
</tr>
<tr>
<td>1. Stop BMC Performance Perceiver</td>
<td></td>
</tr>
</tbody>
</table>
| 2. Extract the following files from the Extended_UDR_package.zip file in the TOMCAT_HOME\webapps\qtv\WEB-INF folder. These files are located in the <install dir>\CWA\apache-tomcat\webapps\qtv\docs directory | — udr_datasources.xml - console UDR data source definition file  
— udr_reports.xml - empty reports file |
| 3. Copy the <platform datasources="udr_datasources.xml" description="Extended - Console Universal Data Repository (UDR)" enabled="false" id="ext-udr" metrics="udrmappings.xml" name="Ext - Console Universal Data Repository (UDR)" reports="udr_reports.xml"/> UDR package definition to the TOMCAT_HOME\webapps\qtv\WEB-INF\platforms.xml file. |                                                                                   |
| 5. Activate the Ext - Console Universal Data Repository (UDR) package in the Administration tab. |                                                                                   |
| After BMC Performance Perceiver activates the package, the Data Sources task pane displays the Ext - Console Universal Data Repository (UDR) data source. |                                                                                   |
| 6. Create a new UDR data source and activate it. | You can chart the UDR data source supported metrics, like CPU Utilization, on the Views tab. |
Defining and organizing groups

The Groups of Computers task enables you to organize computers into logical groups so that analysts can present data in a meaningful way and consumers can view relevant data. Groups also provide administrators with a method for filtering the amount of data that BMC Performance Perceiver has to poll when creating charts, graphs, and tables. This enhances product performance.

Administrators can create static groups of computers or groups of computers that are dynamically refreshed according to attribute-based rules and schedules. Administrators are able to perform all the following tasks:

- Creating, deleting, or renaming static groups
- Editing static groups
- Creating, scheduling, and deleting rules for dynamically generating groups

Creating, deleting, or renaming static groups

The Create/Delete Groups page provides the following functions:

- create a group by providing a name of up to 20 characters. Avoid special characters such as ?, &, >, <, %, #, and *.
- delete a group by selecting any of the existing groups displayed in the drop-down list.
- rename a group by selecting any of the existing groups displayed in the list and entering a new name, making a copy of the selected group, and renaming it.

You cannot create, delete, or rename the [Exclusion Group]. The Exclusion Group is reserved for computers or groups of computers you want omitted from views. See “Working with the Exclusion Group” on page 82.

**NOTE**

Creating or renaming the groups do not affect the content of the groups.

---

Chapter 4  Administering BMC Performance Perceiver  77
Table 21 Working with static groups

<table>
<thead>
<tr>
<th>Task</th>
<th>How to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a static group</td>
<td>1. Type a name of up to 20 characters in the field to the right of the Create Group button.</td>
</tr>
<tr>
<td></td>
<td>2. Click Create Group. The new empty group is created and displayed in a table at the bottom of the page.</td>
</tr>
<tr>
<td></td>
<td>3. To add computers to the group, go to Groups of Computers =&gt; Edit Groups (see “Editing static groups”).</td>
</tr>
<tr>
<td>Delete a group</td>
<td>1. Select a group in the field to the right of the Delete Group button.</td>
</tr>
<tr>
<td></td>
<td>2. Click Delete Group.</td>
</tr>
<tr>
<td>Rename a group</td>
<td>1. Select a group in the field to the right of the Rename Group button.</td>
</tr>
<tr>
<td></td>
<td>2. Type a new name in the to be field.</td>
</tr>
<tr>
<td></td>
<td>3. Click Rename Group.</td>
</tr>
</tbody>
</table>

Editing static groups

Using the Edit Groups page in the Groups of Computers task category, you can add computers to any of the groups created on the Create/Delete page or to the [Exclusion Group], reserved for computers you do not want to make available to consumers (see “Working with the Exclusion Group” on page 82). Use one of the following methods to edit a group:

- enter a search criteria using a regular expression
- provide a policy or domain file
- specify a currently active data source

To edit a group

1 From the Edit Groups page, choose a group from the Select a Group of Computers menu.

2 Search for computers to add to that group

   A By matching regular expressions, type one or more comma-separated search expressions in the Search Criteria text box. For example, sun*, bgs* finds computers such as sunbgs1, suntan, sunrise, bgs02, bgsAl, and so forth.

   B In a text or policy file (for example, an existing BMC Performance Assurance policy or domain file), type the file name in the File text box, or click Browse.
In an active data source, choose a data source from the Data Source (active) menu. All computers in that data source are added to the Find Results table.

3 Click Find Computers to display the search results in a table.

4 To remove a computer from the search results, click the computer name in the Find Results window. The number of computers automatically decreases by one, as displayed in the total count in the table header.

5 To add the contents of the list to the group, click Add Computers. The modified group is displayed in the <group_name> table at the bottom of the page.

6 Select the Roles Required check box if you want this group of computers to be accessed only by a user or users who share one or more of the roles that are assigned to the group of computers.

7 Select one or more roles for this group of computers and click Assign Roles. Click Roles Required to select all roles for this group of computers.

Creating, scheduling, and deleting rules for dynamically generating groups

The administrator creates rules for generating groups of computers dynamically. To create a rule, you select the attribute you want to group the computers by and specify a value for the attribute. Some of the attributes are database specific; others are common. Table 22 lists the attributes that are available by data base:

Table 22 Group by attributes

<table>
<thead>
<tr>
<th>Group by attribute</th>
<th>Description</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Location</td>
<td>Creates a group of dynamic computers based on physical locations specified in the data.</td>
<td>BMC Atrium CMDB</td>
</tr>
<tr>
<td>Organization</td>
<td>Creates a group of dynamic computers based on organizations specified in the data.</td>
<td>BMC Atrium CMDB</td>
</tr>
<tr>
<td>Domain</td>
<td>Creates a group of dynamic computers based on domain names in the data.</td>
<td>All</td>
</tr>
<tr>
<td>Daily Run Policy</td>
<td>Creates a group of computers based on the Daily Run policy in the data which contains selected computers for collection and data base population.</td>
<td>BMC Capacity Management Essentials</td>
</tr>
<tr>
<td>Business Service</td>
<td>Creates a group of computers based on a business service in the data such as finance, payroll, development.</td>
<td>BMC Atrium CMDB</td>
</tr>
</tbody>
</table>
You can enter a value for the group by attribute, such as **Finance** for the Business Service attribute. Assume you have organizations called DevBoston, DevHouston, Finance, and Sales. If you enter Dev as the value, Create Rule returns the groups **DevBoston** and **DevHouston**.

To create a group that includes all instances of an attribute, leave the value field blank. For example, if you want to create groups for each business service in the CMDB data source, leave the value field blank as shown in **Figure 11**.

**Figure 11  Dynamically generating groups**

As soon as you create the rule, you can run it interactively to create the dynamic group. To view the group you generate dynamically, select **View Groups**. You can refresh the group by scheduling a start time for the first refresh and a refresh interval for subsequent refreshes.
Table 23 Working with dynamic groups

<table>
<thead>
<tr>
<th>Task</th>
<th>How to</th>
</tr>
</thead>
</table>
| Create a rule to generate a dynamic group | 1. Click **Dynamic Groups** from the Task Pane of the Administration tab.  
2. Select the **Group By** attribute you want to use as the basis for a dynamic group from the drop down list: physical location, organization, VM Host name, domain, Daily Run policy, and business service.  
3. Do one of the following:  
   Enter the value you want to associate with the **Group By** attribute. For example, if you select Business Service as the **Group By** value with Payroll as the value, the Computer drop down list will contain only computers associated with Payroll business service in a BMC Atrium CMDB database.  
or  
   Leave the field blank to group all the computers by the selected attribute. For example, if you create a rule with the **Group By** attribute Business Service and leave the Value field blank you will generate groups for all the business services in the BMC Atrium CMDB data base such as Finance, Payroll, Development.  
4. Select **Create Rule**. The new rule appears in the **Dynamic group generation rules** table which lists the attribute and value, if you specified a value. |
| Generate a dynamic group    | Select the rule you want to run or select all rules and click **Run Selected** to apply the rule to generate the dynamic group. |
| Schedule a dynamic group refresh | 1. Specify the **Initial Start Time** you want to refresh the dynamic group, in hours and minutes This executes only once.  
2. Specify the interval (**Refresh Interval**) after the **Initial Start Time** at which you want the dynamic group refreshed, in hours and minutes.  
The refresh schedule applies to all the rules in the **Dynamic group generation rules** table.  
3. Click **Save Task** to save the refresh schedule for all rules.  
   For example, you may specify 07:00 am as the initial start time followed by a refresh at six hour intervals. The group would refresh at 7 am, 1 pm, 7 pm, and so on until you specify a new refresh schedule.  
To change the schedule, specify a new **Initial Start Time** and **Refresh Interval**. Click **Save Task**. |
| Delete a dynamic group      | 1. Select one rule or all rules in the header to specify the rule or rules to be deleted.  
2. Click **Delete Selected** to delete the rule or rules you want to void. |
Guidelines for using groups to filter data in Virtualization Planning

Keep the following in mind when using groups to create new virtualization studies:

- The groups and intervals you select on the Views and Build Views tabs are imported to the Virtualization Planning tab when:
  - You go to the Virtualization Planning tab the first time in a session
  - You go to the Virtualization Planning Welcome or Begin page any time during the session
- The group and interval changes and deletions you make on the Views and Build Views tabs are imported to the Virtualization Planning tab.

Keep the following in mind when using groups with saved studies:

- If you use the calendar to change the date range in a saved study, the study group is used to filter the data.
- If the group you used in the saved study is changed, the group data is not updated in the saved study.
- If the group you used in the saved study is deleted, there is no way to filter the data and reloads all available data.

Working with the Exclusion Group

The Exclusion Group is a default group name, reserved for computers you might want to prevent from appearing in views or on the Build Views tab. For example, if there is a computer that you know always skews results, you might want to include it in the Exclusion Group so that it does not impact averaged values.

You cannot create a group called Exclusion Group because that name is reserved for this use. You cannot delete or rename the Exclusion Group either.

You can edit the Exclusion Group, adding and removing computers from it. Once added to the group, the computer name, as well as the name Exclusion Group, appear in italics on all Administration tabs.

To edit the Exclusion Group

1. From the Edit Groups page, choose Exclusion Group from the Select a Group of Computers menu.
2. Search for computers to add to that group.
A To search for computers by matching regular expressions, type one or more comma-separated search expressions in the Computer text box. For example, sun*, bgs * finds computers such as sunbgs1, suntan, sunrise, bgs02, bgsAll, and so forth.

B To search for computers in a text or policy file (for example, an existing BMC Performance Assurance policy or domain file), type the file name in the File text box, or click Browse.

C To search an active data source, choose a data source from the Data source (active) menu. All computers in that data source are added to the Find Results table.

3 Click Find Computers to display the search results in a table.

4 To remove a computer from the search results, click the computer name in the Find Results window. The number of computers automatically decreases by one, as displayed in the total count in the table header.

5 To add the contents of the list to the group, click Add Computers. The modified group is displayed in the table at the bottom of the page.

6 Select the Roles Required check box if you want this group of computers to be accessed only by a user or users who share one or more of the roles assigned to the group of computers.

7 Select one or more roles for this group of computers and click Assign Roles.

Once you add a computer to the Exclusion Group, it does not appear in the Computer selection field or the Computer Search window.

**Customizing BMC Performance Perceiver layout**

The Preferences task category lets you customize the layout of the BMC Performance Perceiver interface by configuring a banner to create a specific design for the web application, configure logging levels, or setting charting defaults.

The following sections detail how to configure colors, the banner, logging levels, and charting using the Preferences task category.
Customizing BMC Performance Perceiver layout

Configuring the banner

The Configure a Banner page lets you preview and customize the application’s top banner. You can modify the following items in the banner:

- application name
- top-left icon (optional, by uploading an image from the client system)
- company URL (optional)
- contact e-mail link

You can preview your selected modifications on the page by clicking Set to the right of each option on the Configure a Banner page.

To configure the banner

1. Click Configure Banner in the Preferences task category to open the Configure a Banner page.

2. Type a name in the Enter a name for your web application text box and click Set Name.

3. Select an icon for the web address by typing the path to the icon in the Enter an icon pathname text box or by clicking Browse. Then click Set Icon.

4. Type a URL in the Enter a URL text box.

5. Type the text for the URL in the and URL text box.

6. Click Set URL.

7. Type the e-mail address for comments and feedback in the Enter a feedback email address text box and click Set Email.

8. To save changes, click Apply Changes.

Configuring logging levels

The Configure Logging page lets you set the logging level of BMC Performance Perceiver on the fly, so it is not necessary to restart BMC Performance Perceiver.
To configure logging

1. Click Configure Logging in the Preferences task category to open the Configure Logging page, as shown in Figure 12.

2. Change the application logging by selecting the appropriate option button and click Apply Changes.

3. Clicking one of the log links (for example, perceive.log) opens a new browser window that displays the selected log files. By default, the browser either displays text or prompts you to save the selected log to a new file on the client browser.

Figure 12  Configure logging

Configuring chart settings

The Configure Charting page lets you control the look of your charts on the fly. Changes you make here are applied globally.

To configure charting

1. Click Configure Charting in the Preferences task category to display the Configure Charting options, as shown in Figure 13. You can change

   - The position of chart legends from Right to Top, Bottom, or Left.
   - The number of computers per chart on multiple computer charts from 30 to 10, 20, 40, or 50. You lose clarity as you add computers.
Configure user access

BMC Performance Perceiver provides product security by enabling role-based access to BMC Performance Perceiver components and authenticating AR and LDAP users. Using this feature, administrators define roles and specify to which tab(s) (Views, Build Views, Virtualization Planning, and Administration) the role has access. The administrator assigns one or more roles to an individual user, a group of users, individual computers, and groups of computers.

User names, passwords, and roles for BMC Performance Perceiver users are stored locally on BMC Performance Perceiver. Administrators are able to add users, edit the profile of existing users (that is, modify roles and passwords), and delete existing users.

In addition to storing local BMC Performance Perceiver users, the administrator is able to access and store information about Remedy Action Request (AR) System and Lightweight Directory Access Protocol (LDAP) users. The administrator is able to assign BMC Performance Perceiver roles to AR and LDAP users to grant them access to tabs (Views, Build Views, Virtualization Planning, Administration). This feature facilitates access to BMC Performance Perceiver data sources where user names and passwords are stored on AR servers and LDAP servers such as BMC Performance Manager and Configuration Management Database.

2. Change the chart settings by selecting the appropriate option button and click Apply Changes.

Figure 13 Configure charting
Out of the box, BMC Performance Perceiver recognizes the following default roles:

### Table 24  Default users roles and associated rights

<table>
<thead>
<tr>
<th>Role</th>
<th>User Name &amp; Password</th>
<th>Access rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>User name and password specified during installation</td>
<td>All tabs - Views, Build Views, Virtualization Planning, General Manager, Administration.</td>
</tr>
</tbody>
</table>
| Builder (analyst) | **User name:** Builder  
                  **Default password:** builder | Views and Build Views tabs |
| Viewer (consumer) | **User name:** guest  
                  **Default password:** guest | Views tab |
| Sizer           | User name: sizer  
                  Default password: sizer | Views, Build Views, Virtualization Planning |

**NOTE**

BMC Software recommends you reset the default passwords.

It is not necessary to stop or restart Tomcat while creating new users or modifying existing users.

### Configuring users

By default, the administrator role, designated during the installation process, is able to create new users and assign roles to them with specified access levels. For example, by default a viewer can only access the Views tab. The administrator can grant the viewer access to the Build Views tab as well. The administrator is able to:

- Create new users - page 88
- Assign roles to AR and LDAP users - page 90
- Edit existing users - page 90
- Delete existing users - page 91

**NOTE**

Analysts are able to use the roles defined by the administrator to limit access to views and charts. For more information, see “Task 1: Specify the type of view you want” on page 105.
To add role-based users

1. Click **Configure Users** in the **User Access Configurations** task category of the Administration tab to display the Configure Users page.

---

**NOTE**

By default, users are authenticated locally (VIEWER) until you configure AR or LDAP authentication for users.

---

2. Click **Create User** to display the Create User page as shown in Figure 15.
3 Enter a user name, a description of the user, a password and password confirmation, and an e-mail address for the user.

4 Select one or more roles to associate with the new user. To associate all roles, select the check box in the header. The table displays the viewable tab rights that are associated with a given role.

5 Send users email to let them know the role-based access rights they have been assigned.

6 Click Save to return to the Configure Users page.

A message lets you know if the user has been created. If you specified a user name or role that already exists, a message lets you know that a user with that name already exists and returns you to the Create User page to specify a new name.
To assign roles to AR and LDAP users

1 Click Assign Roles To AR/LAP User on the Configure Users page to display the Assign Roles page as shown in Figure 16.

Figure 16 Assign Roles page for AR and LDAP users

2 Select the authentication type from the Authentication list.

3 Enter a user name and description for the user.

4 Select the roles you want associated with the user. The roles grant access to BMC Performance Perceiver components by viewable tab. If you want to associate all roles, select the check box in the header column.

5 Click Save to return to the Configure Users page. The authentication level for this user is AR, as opposed to the default VIEWER level.

A message lets you know if the user has been created.

To edit users

1 Select the user you want to edit and click Edit User to display the Edit User Properties page.

2 Edit the properties you want to change, including adding, removing or changing roles.
3 Click **Save** to return to the Configure Users page.

A message lets you know if you successfully edited the user.

**To delete users**

1 Select the user you want to delete and click **Delete Selected**.

An informational message asks you to confirm the deletion.

2 Click **OK**.

A message lets you know if the user was successfully deleted.

**Configuring roles**

The administrator has the authority to create new roles and grant one of the four roles with their associated access rights to the new role. The role determines what viewable tab your user is able to access:

- viewer has access to the Views tab
- builder has access to the Views and Build Views tabs
- sizer has access to the Views, Build Views, and Virtualization Planning tabs
- admin has access to all tabs

**To configure roles**

1 Click **Configure Roles** in the User Access Configurations task category of the Administration tab to display the Configure Roles page shown in **Figure 18**.

**NOTE**

The default roles cannot be edited or deleted. Administrator-created roles appear in the table with a check box in the first column because you can select them to edit or delete.
2 Click **Create Role** to display the Create Role page as shown in Figure 18.

3 Enter a name for the new role and, optionally, a description role.
4 Select the role-based access rights you want associated with the new role. The table shows you what viewable tabs to which each role has access.

5 Click Save.

A message let you know if the new role was successfully created. You are returned to the Configure Roles page.

To edit roles

1 Select the user-created role you want to edit and click Edit Role to display the Edit User Properties page.

2 Change the role description or the associated role. You cannot edit role name.

3 Click Save to return to the Configure Roles page.

A message lets you know if you successfully edited the role.

To delete roles

1 Select the user-created role you want to delete and click Delete Selected.

An informational messages asks you to confirm the deletion.

2 Click OK.

A message lets you know if the user was successfully deleted.

Configuring AR and LDAP authentication

User names, passwords, and roles for BMC Performance Perceiver Viewer users are stored locally on the BMC Performance Perceiver Viewer. The administrator is also able to access and store information about (authenticate) Remedy Action Request (AR) System users and Lightweight Directory Access Protocol (LDAP) users.
The administrator can specify authentication details for both servers, change the authentication details, and easily enable or disable them. Authentication should be enabled for only one of the servers at a time. Trying to authenticate a user against both servers may generate a security audit on either server, if the username and passwords are not consistent across the two servers.

The administrator can assign BMC Performance Perceiver roles to AR and LDAP users. The roles grant the users access to Viewer tabs (Views, Build Views, Virtualization Planning, Administration).

If the administrator has not assigned a role to an AR or LDAP user, when a properly authenticated user logs into the product for the first time the user is assigned the viewer role by default. The viewer role gives the user access to the Views tab only. The administrator can assign one or more roles to AR and LDAP users. Each user is authenticated once at the beginning of the user’s session. See “Configuring roles” on page 91.

If the administrator enables LDAP authentication, the user is validated against the Capacity Management Essentials local user database and then against the LDAP server, but not the AR server. Even though the user is not authenticated against the AR server, the user is able to see BMC Atrium CMDB data if the package and data source have been activated. If the administrator wants to limit that user’s access to BMC Atrium CMDB data, the administrator may specify roles for the computer groups which the user does not share. The analyst can also restrict access to BMC Atrium CMDB views by specifying roles for the views which the user does not share.

When logging into the product, users are authenticated against databases in the following order:

1. local database (default)
2. AR server
3. LDAP server
To authenticate AR users

1 Click **Configure Authentication** in the **User Access Configurations** task category of the Administration tab to display the Configure Authentication page shown in Figure 19. The asterisks (*) represent required fields.

![Figure 19 Configuring Authentication page](image)

2 Type the name of the AR server in the AR server name text box. This is the server name you entered when you created a CMDB data source.

3 Type the user name of the AR administrator.

4 Type the Port number used to access the AR server. The port is the TCP port of the machine (indicated by the host name) where the directory server is listening for AR connections.

5 Type the user password for the AR administrator.

6 Click **Enable AR Authentication**.

7 Click **Apply Changes**.

A system message at the bottom of the screen lets you know if the server was successfully enabled.
To authenticate LDAP users

1. Click Configure Authentication in the User Access Configurations task category of the Administration tab to display the Configure Authentication page shown in Figure 19. The asterisks (*) represent required fields.

2. Type the name of the LDAP server in the LDAP server name text box.

3. Type the Base DN (distinguished name). The base DN indicates where in the LDAP directory you wish to begin searching for the user. This information is available from the LDAP administrator.

4. Type the User Name and User Password associated with the LDAP connection. These are the user's credentials for connecting to the LDAP server and retrieving information from the LDAP server. These are optional fields.

5. Type the Search Base which is the location of the user you want to authenticate. For example, if a particular group or user is located in an organizational unit called "People," then the value in this field might look something like: `ou=People, dc=Boston`. This information is available from the LDAP administrator.

6. Type the Port number used to access the LDAP server. The port is the TCP port of the machine (indicated by the host name) where the directory server is listening for LDAP connections. The standard port number for LDAP is port 389 for non-SSL connections and 636 for SSL connections.

7. Type the version number of the LDAP server. This information is available from the LDAP administrator.

8. Enter a user ID attribute value for the user. Attributes include user id (uid), common name (cn), or e-mail id (mail-id). The User ID Attribute value represents the user id which will be used during authentication. This information is available from the LDAP administrator.

9. Select the Authentication type you want to use. BMC Performance Perceiver supports only simple authentication which is username plus password. Simple authentication sends the LDAP server the fully qualified user DN and clear-text password.

10. Click Enable LDAP Authentication.

11. Click Apply Changes.

A system message at the bottom of the screen lets you know if the server was successfully enabled.
Communicating with users

BMC Performance Perceiver enables users to communicate with each other.

A Feedback link in the upper-right corner of the results pane enables you to send an e-mail to the administrator. The administrator can help resolve questions, or collaborate on any comments about a consumer’s view. By sending the administrators an e-mail, you can request to create additional custom views.

Administrators can configure or alter the feedback mechanism in BMC Performance Perceiver. They can change the location of the URL so that messages are sent to any person within the company.

**TIP**

If you are using the Microsoft Internet Explorer, you can send a note, or a chart image using, to any recipient configured in your network. To do this, choose File => Send => Page by E-mail. This launches your e-mail application.

Another example of collaboration is the Status view task on the Administration tab. This task lets Administrators take BMC Performance Perceiver application offline to manage data sources, and set a message for all users alerting them that the system is offline and data sources are not available for viewing. Consumers and analysts can use these messages to determine whether administrative work is occurring, and what options are available to them when they access the system.

For more information on determining status, see “Checking the status of BMC Performance Perceiver” on page 60.

Annotations for default views and charts

BMC Performance Perceiver comes with default view and chart annotations. The annotations have been designed to optimize your out-of-the-box experience and reduce the learning curve.
View and chart annotations are off by default. However, chart-level annotation is available on the Views and Build Views tabs as well as on the view and chart displays. To turn the annotations on, click the Annotation icon in the tool bar on the Views and Build Views tabs as shown in the following figure. You can also see the annotation when you hover the mouse over the chart type.

**Figure 20  Annotation icon and annotations**

![Annotation icon](image)

Once you are familiar with the graphs, turn the annotations off by clicking the Annotation icon again.

Annotations offer great flexibility. You can annotate your own views and charts when you create new ones. You can modify existing views and charts as well as adding links to different views from inside an annotation.

## Generating a license usage report

BMC Software provides a utility to help you track product usage and maintain product license compliance in your environment. With BMC Performance Perceiver, the license reporting utility is installed with the product and must be run by the user.

**NOTE**

This utility is available only on Microsoft Windows systems.

You can use the BMC Performance Perceiver maintenance tool to run the license usage reporting utility.

Note the following requirements for running the utility:
You must run the reporting utility on the computer where you have Visualizer installed.

You must run the reporting utility once for each Visualizer data source in your environment.

You can select and run the reporting utility on several data sources at the same time as long as the same credentials are used.

The license information produced by the reporting utility is based on the data stored in the Visualizer database. If information has been deleted from the database, the usage data generated by the utility might not be accurate.

**To run the license reporting utility**

1. On the BMC Performance Perceiver system, open a command prompt.

1. On the computer on which you installed BMC Performance Perceiver, change to the directory that contains the `PerceiverMaintenanceTool.cmd` utility.

   By default, this utility is located at

   `C:\Program Files\BMC Software\CWA`

2. Double-click the following file:

   `PerceiverMaintenanceTool.cmd`

   The BMC Performance Perceiver Installation Tools utility window opens to the Logs tab by default.

3. Click the License Usage Report tab.
4 Select the Visualizer data source for which you want to produce a report.

5 If the database is password-protected, enter the user name and password.

6 Specify the directory in which you want to store the report.

7 Click Generate Usage Report.
Building custom views

This chapter provides an overview of the Build Views user interface and related components and functions. It contains the following topics:

Customizing views for consumers ..................................................... 101
Getting started with custom views .................................................... 102
Building custom views ................................................................. 105

Customizing views for consumers

As an administrator for BMC Performance Perceiver, you play an integral role in the data center by administering system management tools. When administering BMC Performance Perceiver, these tasks include designing the layout and configuring data sources. In addition to those tasks, you may need to customize BMC Performance Perceiver to help determine the health of the computer environment.

As an administrator (sometimes referred to as the analyst) in the performance planning environment, you are probably in charge of setting up and configuring views to better report system status and respond to customer needs. You might also have the authority to reject or accept enhancement requests by consumers. You might be expected to restrict views to certain users or groups of users for security or data management purposes.

This chapter details how administrators can customize views. If you perform administrative functions, you might consider reading this chapter in conjunction with the administrator chapter to determine similar functions available to both types of users. For additional information specific to administrators, refer to Chapter 4, “Administering BMC Performance Perceiver.”
Getting started with custom views

The Build Views tab provides specialized functionality that lets you construct custom views in BMC Performance Perceiver.

When you log on as an administrator and access the Build Views tab, a Getting Started page displays, as shown in Figure 22.

Figure 22  Build Views Getting Started page

BMC Performance Perceiver includes the following pre-defined categories of views:

- **Computer Views** - This category provides you with charts and tables displaying metrics for the individual computers in your enterprise.

- **Group Views** - This category provides you with charts and tables displaying metrics for a selected group of computers defined by the administrator for your enterprise.

- **Sample Views** - This category provides you with the predefined views that are shipped with the product.

- **VMware Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the VMware Hosts and Guests in your virtual environment.

- **MS Hyper-V Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the Hyper-V Hosts and guests in your virtual environment.
- **IBM Power VM Partition Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the IBM Power VM Partitions in your virtual environment.

- **HP-UX Partition Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the HP-UX Partitions in your virtual environment.

- **Solaris Partition Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the Solaris Partitions in your virtual environment.

- **Microsoft Virtual Server Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the AIX Partitions in your virtual environment.

- **Virtual Computer Views** - This category provides you with a set of charts and tables designed specifically to provide key information about the virtual computers in your virtual environment.

- **Datacenter Overview** - This category provides you with histogram charts displaying the essential metrics for the computers in your data center from a variety of perspectives. The set of charts (CPU, IO, Memory, Network) is displayed for the selected group of computers.

- **Datacenter Summary by Resource** - This category contains multi-server charts displaying the essential metrics for the computers in your data center from a variety of perspectives.

- **Server Profile by Resource** - This category contains single computer views that provide detailed profiles of key metrics (CPU, Memory, IO and Network) for each server in your data center.

- **Virtual Host Summary by Resource** - This category contains multi-server charts displaying the essential metrics for the virtual host servers in your data center from a variety of perspectives.

- **Virtual Machine Overview** - This category contains multi-server charts displaying the essential metrics for all of the VMs in your data center.

- **Virtual Machine Summary by Resource** - This category contains multi-server charts displaying the essential metrics for the individual VMs of a selected virtual host server.

- **Cluster Summary** - This category contains multi-server views displaying the essential metrics for the VMs on a selected VMware cluster host and selected virtual machines on a VMware cluster host.
- **Resource Pool Summary** - This category contains charts for a selected virtual machine on a VMware resource pool host.

- **iSeries Views** - This provides key metrics from CPU, I/O subsystem, and main storage pools for iSeries computers. It also provides overall throughput and response time information. To investigate a particular area in more detail, go to the appropriate view.

- **zSeries Views** - This provides key metrics from CPU, I/O subsystem, and main storage pools for zSeries computers. It also provides overall throughput and response time information. To investigate a particular area in more detail, go to the appropriate view.

- **Performance Manager** - This category contains histogram charts displaying the essential metrics for the computers in your data center from a variety of perspectives. The set of charts (CPU and Memory) is displayed for the selected group of computers.

- **Configuration Management** - This category contains information about asset and configuration data, as well as business-service information about IT services and infrastructure.

These default categories contain different types of views: single computer views, group views, and multi-server views. Computer views display multiple charts for a single computer. Group views display up to two charts for each computer in a group. Multi-server views display up to eight charts for all computers in a group. Computer groups are created by the BMC Performance Perceiver Administrator, as described in “Creating, deleting, or renaming static groups” on page 77.

The **Build Views** tab gives administrators a template to construct their own customized views, and preview that view before making it available to consumers. It lets you deploy views by turning them on, or eliminate views by turning them off.

---

**NOTE**

You can delete default views created by BMC Software and reload them from the **Administrator** page. For more information on deleting sample views, refer to “Deleting a custom view” on page 115.

To activate or deactivate a view, select the check box next to that view on the **Build Views** tab. Deactivated view names are italicized, and do not appear on the **Views** tab.

The following section details how to build custom views using the **Build Views** tab.
Building custom views

The Build Views tab contains a Create icon as well as the word Create. As soon as you create a new view or highlight an existing view, Edit and Delete options become available on the task pane. These options let you build, edit, and delete views with just a few clicks.

Clicking Create displays the first of a two page Create View wizard that lets you create, define, and categorize a new view. Clicking Edit displays an Edit View page that lets you customize an existing view for Viewer users.

Creating a new view

Each basic task in Table 25 is followed by a reference to later sections in this chapter that provide more detail on that step.

Table 25  Basic steps for creating a custom view

<table>
<thead>
<tr>
<th>Task</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick the type of view you want to create</td>
<td>On the Build Views tab, click Create to open the first page of the Create Views page (“Task 1: Specify the type of view you want” on page 105)</td>
</tr>
<tr>
<td></td>
<td>“To modify chart annotations” on page 117</td>
</tr>
<tr>
<td>Add the metrics to the view to create the charts</td>
<td>Click Next to open the second page of the Create View page (“Task 2: Construct the view layout with associated metrics” on page 108).</td>
</tr>
<tr>
<td>Customize the chart properties in the view</td>
<td>“Customizing chart properties” on page 110</td>
</tr>
<tr>
<td></td>
<td>“To modify view annotations” on page 118</td>
</tr>
</tbody>
</table>

Task 1: Specify the type of view you want

When you click Create, the first page of the Create View wizard opens, as shown in Figure 23.
1 Create a name for the new view in the **View name** field. You can type any one-line name of up to 50 characters.

2 Add a custom annotation for the view in the **Description** field. Your annotation can be up to 500 characters.

**TIP**
The behavior of annotations may vary from browser to browser. For example, in Internet Explorer, the description appears on the **Views** tab, as a tool tip when you move the cursor over a view name in the **Build Views** tab, and in the header of the printed output of that view. If you close the view, the description is displayed in the results pane along with the chart name.

3 Choose the category for the new view.

   - To display the view in an existing category, select **Existing category** and choose a category from the menu.
   - To display the view in a new category, select **New Category** and type a name for the category in the text box.

4 Select the type of view you want to create.

   The view you create contains charts, tables, or property sheets. Views are displayed one computer at a time, for all computers in a group, computer by computer, or up to eight charts for multiple systems. You can select the style of the view while adding a new view, or by changing your selection while editing a view.
Do one of the following:

A Select **Computer** to create a view with multiple charts for one computer.

B Select **Group** to create multi-page views for all computers in a group (one or two charts for each computer).

C Select **Multi-Server** to create multi-page views with up to eight single series charts for all computers in the group, displayed by default in groups of 30 computers per page.

5 Select one or more system types to include in this view.

Select one or more System Types to create a view of specific system types. If you do not make a selection here, all the different types of computer systems in your group are charted together. Since not all systems support the same metrics, this can cause error messages such as Data is unavailable.

If you select only one system type, the metric tree displays all metrics for that system type on page 2 of the Create View wizard. For example, if you select UNIX systems, then only UNIX-specific metrics are displayed in the metrics tree on the second page of the Create Views wizard.

If you select two or more system types, the metric tree displays only the metrics that are common to the system types selected, on page 2 of the Create View wizard. For example, you might want metrics for VMware hosts and clusters to appear in the same charts.

6 Assign roles to this view.

BMC Performance Perceiver provides many metrics from a variety of sources. Not all systems collect the same metrics or use the same names for similar metrics. When charting Microsoft Windows, UNIX, and VMware metrics in the same view, you will get **Data is unavailable** messages if the view contains metrics that are not available for the system or group type you have selected.

This release provides you with a method to filter the metrics in your charts based on system type. You can refine views to display metrics specifically for one or more of the system types as shown in Figure 23.

Select one or more System Types to create a view of specific system types. If you do not make a selection here, all the different types of computer systems in your group will be charted together. Since not all systems support the same metrics this can cause error messages for systems for which chart metric is not supported.

On the first page of the Create Views Wizard, if you select only one system type, the metric tree displays all metrics for that system type on page 2 of the Create View wizard. For example, you can chart just the UNIX systems in your data center, or you can combine VMware Hosts and VMware Guests in the same chart,
or you can display Microsoft Windows stand-alone systems.

If you select two or more system types on the first page of the Create Views Wizard, the metric tree displays only the metrics that are common to the system types selected on page 2 of the Create View wizard. For example, if you select UNIX systems and Windows systems, the metrics available for charting on page 2 would be only metrics that are common to all systems.

When you select the new views and charts from the Views page, they will include only the metrics for the specified system types. For example, if you select VMware Host as the system type, only VMware hosts will be available from the Computer list.

7 Click Next when you are finished with the first page of the Create View page. The second page of the Create View wizard opens (Figure 24). This page lets you select the metrics you want to display in the sample view.

**Task 2: Construct the view layout with associated metrics**

**Figure 24  Create View page, page 2**
In the second page of the Create View wizard you can

- create a view layout by selecting and adding metrics
- create one or two charts for computer or group style views
- create up to eight charts with multiple computers per chart
- customize the view by adding, moving, or resizing charts
- change the chart properties

The task pane of the second page contains a metric list, which you can use to build your custom view.

**To add a metric chart to the view**

1. Select a metric from the list and click **Add Metric**.

   A green plus sign indicator appears in the cells where you can add the chart.

2. Click the plus sign in the cell in which you want to place the chart.

3. Repeat the process by adding additional metrics to the view. The following table provides guidelines for adding additional metrics:

<table>
<thead>
<tr>
<th>Action</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a metric on an empty cell</td>
<td>The cell will display the new metric.</td>
</tr>
<tr>
<td>Add a metric to a cell where a metric of the same unit already exists</td>
<td>As the units are same, the chart becomes a multi-metric chart.</td>
</tr>
<tr>
<td>Add a metric to a cell where a metric of a different unit already exists</td>
<td>This action is allowed only when you are creating a Ranking Table (multi-server view). The metric is then added as another column in the Ranking Table.</td>
</tr>
</tbody>
</table>

4. If you are not satisfied with the layout of the view, use the move or resize buttons in the cell to rearrange the charts, or resize a chart across more than one cell.

5. To remove a chart from the view, click the **Delete** sign (X) in the upper-right corner of the chart.

6. Do one of the following:

   - **A** Click the chart properties icon to remove a metric or to customize the chart properties (see Customizing chart properties on page 110).
   
   - **B** Click **Finish**.
You can view up to nine charts on the second page of the Create View wizard when creating computer views, two charts when creating group views, and up to eight charts when creating a multi-server view. Figure 25 shows an example of a multi-server view with four charts.

Figure 25  The Create View page (multiple charts, multiple computers each chart)

When constructing views for up to four charts showing multiple computers per chart, you can only add single series metrics (metrics with single data points) into the cells.

By default, each chart displays 30 systems. Charts are created until all metrics for all computers in the group are displayed. For example, if you create a view with four charts for a group of 100 computers, Viewer generates four sets of the four charts. The first three sets of four charts contain 30 computers each and the last set of four charts contains 10 computers.

For example, if there are 65 computers in a group, BMC Performance Perceiver generates three charts, with 30, 30, and 5 systems. You can change the default using Administration => Preferences => Configure Charting.

Customizing chart properties

For single computer and group views, you can change the default chart type as well as set guidelines and thresholds for the metrics in the chart. For multi-server views, you can also change the chart type and set additional display values.
1 Click the chart properties icon in the upper-right corner of the chart.

This selection displays the Chart Properties page. The page displays different options depending on the type of view you are creating. Figure 26 shows the properties page for a single computer or group chart, while Figure 27 shows the properties page for a multi-server chart.

Figure 26 Chart Properties page for a single computer or group chart
**Figure 27  Chart Properties page for a multi-server chart**

To change the graphic type (when available), click the down arrow in the Graph Type field and select either Bar, Line, Area or Stacked Bar.

To change to a different metric, click the down arrow in the Metric field and select the new metric from the dropdown list.

To delete a metric, click Delete Metric. To add a metric, click Add Metric.

In Ranking Tables, Relative Weight is the comparable importance between metrics and Full Weight value is used to calculate the Blended Value.

When you are done, click OK to apply your changes or click Cancel to return without any changes.

1. Modify any of the options (listed in Table 26) that appear on the chart properties pages.

**NOTE**

The fields that you can edit on the Chart Properties page depends on the chart type you select.
Table 26  Options on Chart Properties page (part 1 of 3)

<table>
<thead>
<tr>
<th>Option</th>
<th>Available for</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td>Multi-server charts</td>
<td>The Chart Type drop-down menu shown in Figure 27 lets you select the chart type you want.                                                                                                                                -------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ <strong>Group graph</strong> - shows the metric plotted for all computers in the group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ <strong>Histogram graph</strong> - gives an indication of the overall resource usage in the data center. The charts are allocated into “bins” that represent 10% of the overall usage for each category. The percentage value can be changed on this Chart properties page. This distribution makes it easy to see the overall usage for the data center for a particular key resource.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ <strong>Histogram table</strong> - a table representation of the histogram graph.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ <strong>Ranking table</strong> - shows where the computers being measured fall, in increments of 10 percentage points, based on a blended value of the essential metrics (CPU Capacity Used, IO Rate, Physical Memory Used, Network Rate). These values can be changed on this Chart properties page.</td>
</tr>
<tr>
<td>Chart title</td>
<td>All types</td>
<td>Specify a title that appears for the chart on the view.</td>
</tr>
<tr>
<td>Chart description</td>
<td>All types</td>
<td>Specify a brief description for the chart. This description appears as the annotation for the chart.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>You can add links to other views from the view annotation by inserting the following variable in the annotation: %VIEW: viewname%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example, if you include the following annotation in the Ranking Table annotation, you are able to go from the Ranking Table to the Essential Metrics view.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For more information see Essential Metrics view %VIEW:Essential Metrics%.</td>
</tr>
<tr>
<td>Graphic type</td>
<td>■ Single computer chart</td>
<td>Select from any of the following types of charts:</td>
</tr>
<tr>
<td></td>
<td>■ Group chart</td>
<td>■ <strong>Line</strong> - Displays values as individual points, with consecutive points connected by a straight line, over time.</td>
</tr>
<tr>
<td></td>
<td>■ Multi-server group graph</td>
<td>■ <strong>Bar</strong> - Displays values as vertical bars for the appropriate time periods (dates or hours).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ <strong>Area</strong> - Displays values in areas for the appropriate time periods.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ <strong>Stacked Bar</strong> - Displays groups of values as stacked vertical bars over time. The sum of values is determined by the topmost line.</td>
</tr>
</tbody>
</table>
## Customizing chart properties

### Table 26  Options on Chart Properties page (part 2 of 3)

<table>
<thead>
<tr>
<th>Option</th>
<th>Available for</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guideline and Threshold</td>
<td>Single computer chart, Group chart, Multi-server group graph, Histogram table, Ranking table</td>
<td>You can set threshold and guideline values for a metric, to make it easy to see if a data point in the chart goes beyond the values that you set. In the chart, the thresholds and guidelines are shown as red (threshold value exceeded), yellow (guideline value exceeded), and green (within threshold and guideline boundaries). For example if the threshold for a CPU Utilization metric is set at 80%, the area in the chart above 80% will be shown in a red background color. Anything below the guideline will be green and anything between the threshold and guideline will be yellow.</td>
</tr>
<tr>
<td>Show Total</td>
<td>Virtual Host Summary by Resource view charts</td>
<td>You can show the total of the virtual host charted against the individual usage of each VM. The virtual host total is displayed as a line against the area graphs that represent the VM totals. This is set by on by default.</td>
</tr>
<tr>
<td>Full Weight and Relative Weight</td>
<td>Ranking table</td>
<td>For a ranking table, set the relative and full weight values.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The full weight value sets the ceiling for the metric display, for example 100% for CPU Capacity used. This value is optional. If it is not specified, then the maximum value of the data being displayed is used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The Relative weight is the importance of the metric in the calculation of the blended value shown on the ranking table. For example, if you want CPU Capacity Used to be emphasized more in the calculation of the blended value than Physical Memory Used, then you would give a higher Relative weight to CPU Capacity Used.</td>
</tr>
<tr>
<td>Summary method</td>
<td>Histogram graph, Histogram table, Ranking table</td>
<td>There are three options for summarizing the data that appears on the charts:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>95 percentile</strong> - ignores the top 5% of the highest data values, which results in a more reliable picture of the data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>Average</strong> - uses the average value observed in the collected data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>Peak</strong> - uses the highest value observed in the collected data</td>
</tr>
<tr>
<td>Number of bins</td>
<td>For histogram graphs and histogram tables</td>
<td>Sets the number of distribution bins to be shown on the graph or table. You have the option of defining the number of bins, or slots, for a histogram chart and table. The default value is 10 bins, with the minimum and maximum value of 5 and 20 bins.</td>
</tr>
<tr>
<td>Sort by and sort order</td>
<td>Multi-server</td>
<td>The fields are information-only, and cannot be modified.</td>
</tr>
<tr>
<td>Y axis ceiling</td>
<td>All types</td>
<td>Enables you to configure scaling of a chart’s Y axis. For example, setting the Y axis ceiling for CPU Queue to 5 means the maximum value shown for the height of the graph is five requests. If you leave the field blank, the chart is automatically scaled to the maximum value observed in the collected data for the metric.</td>
</tr>
</tbody>
</table>
Deleting a custom view

You can delete a custom view using the Create Views page, but only after adding it and clicking Finish from the Create Custom View wizard page. This displays the view in the task pane.

3 Click OK when you have finished customizing the view.

### Table 26 Options on Chart Properties page (part 3 of 3)

<table>
<thead>
<tr>
<th>Option</th>
<th>Available for</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Trending</td>
<td>Single computer chart</td>
<td>Enables you to set the trending type and trending projection. Select the Show trending check box to choose the trending type and trending projection.</td>
</tr>
<tr>
<td>Trending Type</td>
<td>Group chart</td>
<td>Enables you to choose the trending pattern for the chart. There are three types of patterns.</td>
</tr>
<tr>
<td></td>
<td>Multi-server group graph</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Linear</td>
<td>This trending pattern applies the Linear algorithm on the metric data. It plots two trend points—start and projected, and joins these points with a straight line.</td>
</tr>
<tr>
<td></td>
<td>Power</td>
<td>This trending pattern applies the Power algorithm on the metric data to plot the trend line.</td>
</tr>
<tr>
<td></td>
<td>Exponential</td>
<td>This trending pattern applies the Exponential algorithm on the metric data to plot the trend line.</td>
</tr>
<tr>
<td>Trending Projection</td>
<td></td>
<td>Enables you to set the trending projection in percentage for a metric. Example: If your metric data is for a four day interval and you choose the Trending projection as 25%, the Trending projection will be set for 5 days.</td>
</tr>
<tr>
<td>Show TopN</td>
<td>Single computer chart</td>
<td>Enables you to set the top (n) value and choose to include or exclude the remaining computers from the chart.</td>
</tr>
<tr>
<td>TopN value</td>
<td>Multi-server charts</td>
<td>Enables you to define the number of top computers for which you want to plot the metric.</td>
</tr>
<tr>
<td></td>
<td>Group chart</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multi-server group graph</td>
<td></td>
</tr>
<tr>
<td>Show BottomN</td>
<td></td>
<td>Enables you to set the bottom (n) value and choose to include or exclude the remaining computers from the chart.</td>
</tr>
<tr>
<td>BottomN value</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enables you to define the number of bottom computers for which you want to plot the metric.</td>
</tr>
<tr>
<td>Show Rest of Series</td>
<td></td>
<td>Enables you to include or exclude the remaining computers from the chart. If you choose to include the remaining computers, for every data sample, the sum of all computers is taken and plotted as a point. The number of remaining computers after filtering (using TopN or BottomN) are displayed in brackets in the chart legend.</td>
</tr>
</tbody>
</table>
Editing an existing view

NOTE
You can delete default views created by BMC Software and reload them from the Administrator page.

To delete a custom view

1 With the custom view displayed, click Delete in the task pane of the Build Views tab.

2 On the confirmation message, click OK. A message displays in the results pane that the view has been removed, and the most recent view displayed opens in the results pane.

Editing an existing view

To customize or make changes to an existing view, you can also use the Edit View page, accessed by clicking Edit in the task pane of the Build Views tab.

To edit a view

1 Select the view from the task pane that you want to edit.

2 Click Edit. The Edit View page opens, as illustrated in Figure 28.
Editing an existing view

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You can edit the view by resizing existing objects, adding metrics from the metric list, changing the chart type, or deleting the chart from the view. For example, you can resize a chart by expanding the chart across two cells by clicking the < > button.

After you make changes, click Finish to close the page and display the customized view in BMC Performance Perceiver.

To modify chart annotations

1 Login as Administrator or Builder.

2 On the Build Views tab, select the view containing the chart you want to modify from the navigation pane.

3 Click Edit to load the view in the Create View wizard.

4 Click the Properties Page icon in the chart you want to modify.

5 Modify the chart annotation that appears in the Chart Description field and click OK to save the modified annotation and return to the Create Views wizard.

6 Click Finish to save all changes.
To modify view annotations

1. Login as Administrator or Builder.

2. On the Build Views tab, select the view you want to modify from the navigation pane.

3. Click **Edit** to load the view in the Create Views wizard.

4. Click **Back** to display all the view attributes.

5. Modify the view annotation that appears in the Description field.

6. Click **Next** to return to the second page of the wizard.

7. Click **Finish** to save the modified annotation.

To customize Ranking Table labels

1. Login as Administrator or Builder.

2. On the Build Views tab, click **Create** to create a ranking table.

3. Click **Edit** to load the view in the Build Views wizard.

4. Click the **Properties Page** icon in the chart you want to modify.

5. Modify the chart annotation that appears in the **Chart Description** field. Use the following variables:
   
   - %TOP5%
   - %TOP10%
   - %BOTTOM5%
   - %BOTTOM10%

6. Click **OK** to save the modified annotation and return to the Create Views wizard.

7. Click **Finish** to save all changes.

To embed links in annotations

1. Login as Administrator or Builder.

2. On the Build Views tab, select the view you want to edit and click **Edit** to load the view in the Create Views wizard.
3 Click the **Properties Page** icon in the chart you want to modify.

4 Enter the following variable in the **Chart Description** field.

   \%VIEW: viewname\%

For example, if you want your consumer to be able to go from the Ranking Table in the Essential Overview view to the charts in the Essential Metrics view you could add the following sentence and variable to the Ranking Table annotation:

For more information see the Essential Metrics view \%VIEW:Essential Metrics\%.

5 Click **OK** to save the modified annotation and return to the Create Views wizard.

6 Click **Finish** to save all changes.

---

**Removing view categories**

View categories can be removed by authorized administrators and analysts by

- deleting all the views within that category, which automatically deletes the category

- clearing (unchecking) all the views in a category, which makes the category no longer display on the **Views** tab
Removing view categories
Troubleshooting

This appendix presents the following topics:

Where to start ................................................................. 122
Build information in XML files ........................................... 122
Common issues ............................................................... 122
  Resolving issues with data collection .................................... 123
  Resolving issues with BMC Performance Perceiver .................. 123
Frequently asked questions .................................................. 124
Product directories and log files .......................................... 124
  Structure of BMC Performance Perceiver directory .................... 125
  Key log files ................................................................ 125
Viewing and packaging log files ............................................ 126
Mounting CD on the drive .................................................... 128
Where to start

This chapter provides some basic information to help you identify and resolve problems that may occur during the collection, transfer, analysis and population of data.

Table 27 provides a basic outline for troubleshooting the product.

### Table 27 Troubleshooting process

<table>
<thead>
<tr>
<th>Task</th>
<th>See</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find build information</td>
<td>“Build information in XML files” on page 122</td>
</tr>
<tr>
<td>Review the log files on BMC Performance Perceiver for messages.</td>
<td>“Key log files” on page 125</td>
</tr>
</tbody>
</table>

Build information in XML files

BMC Performance Perceiver XML files contain build information (build number and build date). This feature enhances supportability and problem resolution. The build tags appear after the version tag.

For example, your XML files will contain the following tag:

```
filename.xml -- Version: 7.5.00 Built on Aug 2 2009 02:31:39 Code: 7.5.00.0059
```

If the XML file gets migrated, it will contain a new line similar to the following:

```
7.5.10 Migrated on Sep 22 2009 03:30:00 Code: 7.5.10.0000
filename.xml -- Version: 7.5.00 Built on Aug 2 2009 02:31:39 Code: 7.5.00.0059
```

Common issues

The following sections identify some common problems you may encounter while using BMC Performance Perceiver.
Resolving issues with data collection

Create a data availability view

Check to see if you are missing data points by creating a custom data availability view, using the following metrics:

- CPU Data Available
- System Data Available
- Paging Data Available
- Network Data Available

If any of the metrics are showing less than 100%, then you are experiencing data collection problems.

For information on creating a custom view, see “Creating a new view” on page 105.

Resolving issues with BMC Performance Perceiver

Chart building recommendation

When creating custom views, keep in mind that the number of data points per chart impacts performance. As you add more points, charting becomes very slow. Also, the data point bars on the chart become very thin, making them difficult to read and interpret. Recommendations include:

- reduce the time interval
- display top $n$ of a multi-series
- use less granular data

To resize a chart, edit the view and click the Expand/Shrink chart button.
Frequently asked questions

Questions about BMC Performance Perceiver

How do I run BMC Performance Perceiver from a firewall-enabled client browser?

In order to run the BMC Performance Perceiver Viewer from a client browser with the firewall enabled you must add the BMC Performance Perceiver port number to the list of firewall exceptions.

To add the port number to the firewall exception list

1. Select Start => Control Panel.
2. Double-click Windows Firewall.
3. On the Exceptions tab, click Add port.
4. On the Add a Port dialog box:
   A. Enter a name for the port and the port number (8080 is the BMC Performance Perceiver default).
   B. Click OK to accept the default TCP or select UDP and click OK.
5. Click OK to exit.

Product directories and log files

The following sections describe some of the key directories for BMC Performance Perceiver once it is installed to your local computer.

**NOTE**
The directory structure varies depending on the type of installation. This section describes only the basic installation directories.
Structure of BMC Performance Perceiver directory

You specify the base directory on the Specify Installation Directory page when you run the installation utility.

The default location for this directory for **Microsoft Windows**:

\[ C:\Program Files\BMC Software\CWA \]

The default location for this directory for **UNIX**:

\[ /opt/bmc/CWA \]

This list assumes that you installed the BMC Performance Perceiver products in the default base directory.

**Table 28  List of key sub-directories in the BMC Software directory**

<table>
<thead>
<tr>
<th>Directory name</th>
<th>Subdirectories and description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWA</td>
<td>This directory contains the Perceiver Maintenance Tool that can be used to configure the BMC Performance Perceiver Web Server, capture log files, and run the license usage utility. It also contains the files needed to run BMC Performance Perceiver.</td>
</tr>
<tr>
<td>UninstallBMC Perceiver</td>
<td>This directory contains the files necessary to uninstall BMC Performance Perceiver if you want to run the installation utility in uninstall mode.</td>
</tr>
</tbody>
</table>

**Key log files**

The following table lists BMC Performance Perceiver log files. Most of the files are not installed with BMC Performance Perceiver. They are created after you use BMC Performance Perceiver for a period of time. The content of these files might be useful in problem solving.

The log files referenced in **Table 29** assume the following base directory as a prefix to the paths shown in the table. The table outlines which log files are useful for specific situations.

By default, the base directory for **Microsoft Windows** is:

\[ C:\Program Files\BMC Software\CWA\]

By default, the base directory for **UNIX** is:

\[ /opt/bmc \]
Viewing and packaging log files

During installation, the BMC Performance Perceiver installation programs write log files that contain messages about the BMC Performance Perceiver installation. When a problem occurs, log files can help you to determine why the problem occurred.

On Microsoft Windows, the installation programs write the following log files to %TEMP% and on UNIX to the /var/tmp. The log file names are the same for Microsoft Windows and UNIX.

- *perceiver_install_log.txt* contains messages generated during the installation.
- *perceiver_uninstall_log.txt* contains messages generated during the uninstallation.
- *perceiver_configuration_log.txt* contains messages generated when performing configuration tasks, like changing the administrator password for BMC Performance Perceiver.

You can use the BMC Performance Perceiver maintenance tool to view the log files.

### Table 29 Useful log files for specific errors

<table>
<thead>
<tr>
<th>For problems with</th>
<th>Refer to these files</th>
</tr>
</thead>
</table>
| Installation failing or the product cannot be started after the install | For Microsoft Windows, the installation log files are located in: C:\Documents and Settings\user\Local Settings\temp\  
- The log file created when you install BMC Performance Perceiver is *perceiver_install_log.txt*.  
- The log file created when you uninstall BMC Performance Perceiver is *perceiver_uninstall_log.txt*.  

For UNIX, the installation log files are located in: var/tmp  
- The log file created when you install BMC Performance Perceiver is *perceiver_install_log.txt*.  
- The log file created when you uninstall BMC Performance Perceiver is *perceiver_uninstall_log.txt*.  

Log files can be viewed using the BMC Performance Perceiver Maintenance Tool. To view the files, see “Viewing and packaging log files” on page 126. |
| **BMC Performance Perceiver** | *...\CWA\apache-tomcat\logs\perceive.log* |
1 On the computer on which you installed BMC Performance Perceiver, change to the directory that contains the `PerceiverMaintenanceTool.cmd` utility.

   By default, on **Microsoft Windows** this utility is located at:

   ```
   C:\Program Files\BMC Software\CWA
   ```

   By default, on **UNIX**, this utility is located at:

   ```
   /opt/bmc/CWA
   ```

2 Double-click the following file:

   **For Microsoft Windows**

   ```
   PerceiverMaintenanceTool.cmd
   ```

   **For UNIX**, execute the following command:

   ```
   ./PerceiverMaintenanceTool.sh
   ```

   Alternatively, you can launch the maintenance tool from the BMC Performance Perceiver DVD.

3 The BMC Performance Perceiver Installation Tools utility window opens to the **Logs** tab by default.

4 Click the button for the log file you want to view.
To package log files to send to customer support, click **Zip Logs**.

The **Zip Logs** option captures Viewer log files as well as several BMC Performance Perceiver log files.

Once the process is complete, you will see a message on the utility screen showing the location of the zipped log files. By default, the file is called **PerceiverLogs.zip** and is stored in the `%TEMP%` or `/var/tmp` for the user who is running the tool.

### Mounting CD on the drive

1. Insert the BMC Performance Perceiver for Servers CD into your CD device.

2. Enter the mount command to mount the CD device so it is available from the system where you are performing the installation.

   **NOTE**

   To enter the mount command, you must know the CD device type (device driver) and the mount point. To determine the device type, see your system administrator. In general, operating systems provide the mount point/cdrom.

Mount commands vary according to the operating system and individual configuration. The following table shows examples of mount commands for the major Unix operating systems. The example commands assume that your CD drive is at SCSI ID 6. Substitute the appropriate device file name for your CD drive. See your system administrator for the exact command syntax for your system.
On Solaris systems: The CD device usually mounts automatically after the CD is inserted.

Table 30 Example commands to mount the CD

<table>
<thead>
<tr>
<th>OS</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td># mount -v cdrfs -r /dev/cd0 /cdrom</td>
</tr>
<tr>
<td>HP-UX</td>
<td># pfs_mount -t rrip -x unix /dev/dsk/c0t6d0 /cdrom</td>
</tr>
<tr>
<td>Solaris</td>
<td># mount -F hsfs -r /dev/dsk/c0t6d0s0 /cdrom</td>
</tr>
</tbody>
</table>

Review the CD naming conventions

This guide uses the following operating system-specific default names for CD devices. If your CD device has been configured using a different device path name, see your system administrator to identify the name.

Table 31 Typical CD-ROM device names

<table>
<thead>
<tr>
<th>Applicable Operating System</th>
<th>Default CD device names</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM - AIX</td>
<td>/dev/cd0</td>
</tr>
<tr>
<td>HP-UX</td>
<td>/dev/dsk/c0t6d0</td>
</tr>
<tr>
<td>Solaris</td>
<td>/dev/dsk/c0t6d0s0</td>
</tr>
</tbody>
</table>
Review the CD naming conventions
Virtualization Planning

This chapter presents the following topics:

What is Virtualization Planning? ................................................................. 131
Conducting a virtualization study .............................................................. 133
Consolidating to virtual hosts ................................................................. 137
  Create the Consolidation Study ............................................................... 138
  Review the Consolidation Summary ......................................................... 148
Deploying new guests .................................................................................. 153
  Creating the Deployment Study ............................................................... 154
  Review the Deployment Summary report ............................................... 156
Rebalancing existing virtual hosts ............................................................ 159
  Creating the Rebalancing Study ............................................................... 160
  Reviewing the results of the study .......................................................... 161
Fine-tuning the results of a virtualization study ........................................... 163
Working with saved studies ....................................................................... 175
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  Working with Study Profiles ................................................................... 177
  Changing default parameters .................................................................. 180

What is Virtualization Planning?

In today’s environment, companies – large or small – are looking for ways to streamline their organization, reduce costs and continue to provide optimal customer service. One industry trend that addresses these goals is virtualization.

Suppose you are a Performance Analyst for Company Y. As a result of challenging economic conditions, your company is looking for ways to cut costs in all departments. You know of a number of under-utilized Windows machines and believe you can save money by consolidating servers. Your manager has asked you to report on the performance and capacity of these machines and provide a virtualization recommendation.
The Virtualization Planning module prepares you for the move to a virtualized computing environment by helping you assess, report, and consolidate computers onto a single physical or multiple virtual servers. You can easily determine the computers needed to support your consolidation goals and meet your business service level objectives. Recommendations are presented in web-based reports and graphs. In addition, the module helps you manage the virtual environment once it is operational by showing where to deploy new guests or to rebalance existing virtual hosts.

**What is a virtualization study?**

A virtualization study consists of:

- a list of candidate computers with the performance data that was collected during the specified time period for the study.

- the *Study Profile*. The Study Profile is the template for the virtualization study, containing the default hardware configuration for any new virtual hosts (on to which the computers are consolidated) and parameters such as CPU utilization threshold and overhead.

- the resulting target computers showing actual assignments and projected performance.

System data is automatically discovered from any data source set up in BMC Performance Perceiver. After applying filters for the type of virtualization you are planning, you can view the systems that are candidates for virtualization. The module suggests which stand-alone computers and existing guests should be assigned to each target virtual host. It takes affinity relationships between systems into consideration to indicate which computers or guests should be placed on the same host and which should be placed on different hosts.

**Types of virtualization studies**

This chapter discusses how to create several types of virtualization studies. Conducting a virtualization study will help you optimize server performance and throughput, with the goal of getting data processing closer to the limits of the server capacity in your data center.

With Virtualization Planning, you can:

- consolidate physical systems or virtual machine guests or partitions onto new or existing virtual hosts.
gauge the impact of deploying new guests or partitions to new or existing virtual hosts.

rebalance the guests or partitions running on virtual hosts in your environment, to achieve optimal performance.

Before you begin

Prior to conducting any virtualization study, you must have:

- existing collected data representative of your computing environment residing in a BMC Performance Perceiver data source.

- activated data sources. Virtualization Planning discovers data from the active data sources of BMC Performance Perceiver, Remote Perceiver, or Capacity Management Essentials, and makes those systems available for the virtualization study. Ensure that the right data sources are activated for the study.

- evaluated data with BMC Performance Perceiver graphs.
- created logical groups of systems in your data center. This is key to filtering the amount of data that must be polled when performing a virtualization study.

These tasks are done by the BMC Performance Perceiver Administrator, and must be completed prior to undertaking the virtualization study.

Conducting a virtualization study

The following sections describe how to create a virtualization study, and provide an overview of the generated reports.

Selecting the type of virtualization study

To conduct one of these virtualization studies:

1. Start BMC Performance Perceiver using one of the following methods:

   - If you are logged on to the BMC Performance Perceiver server, you can start BMC Performance Perceiver by selecting Start => Programs => BMC Software => BMC Performance Perceiver => Perceiver.
Selecting the type of virtualization study

1. If you are accessing the BMC Performance Perceiver server using a web browser, enter the following URL:

   http://computer_name:port_number/qtv

   *computer_name* is the computer on which the BMC Performance Perceiver server was installed

   *port_number* is the web server port number (default is 8080)

   **TIP**
   If BMC Performance Perceiver is not accessible after entering the URL, you might have to type the domain name and port number, using the following syntax:

   http://computer_name.domain_name:port_number/qtv

2. Log on to BMC Performance Perceiver using the user name and password assigned by the BMC Performance Perceiver Administrator.

   The default credentials for access to the **Virtualization Planning** tab are:

   - User name: *sizer*
   - Password: *sizer*

   By default, these credentials give you access rights to the Views, Build Views, and Virtualization Planning tabs.

   **TIP**
   Organizing your data into logical groups speeds processing time and helps you narrow the focus of your analysis and reduces the data retrieval needed for virtualization studies. The groups and intervals you activate on the **Views** or **Build Views** tabs are exported to the **Virtualization Planning** tab.

3. Use the Views tab to investigate which computers you want involved in the Virtualization Study, and then click the **Virtualization Planning** tab (Figure 30).
4 Verify that the date range shown in the middle of the page reflects the desired time period for the study. If it does not, click the calendar icon and choose a different date range.

**TIP**
To ensure that you capture the entire life-cycle for the applications in your data center, use a time period between one and four weeks.

5 Verify the computer count is roughly what you would expect, given the data sources that are currently active in BMC Performance Perceiver and the value in the drop-down list above the table.

If the active group contains a virtual host, data is loaded for all of the guests that resided for some portion of the selected time range on the included host, as well as for the host itself. The values in the Computer Counts in Time Period table and the sizing options available on the Begin Virtualization Study screen are dependent upon the computers that are contained in the selected group. For example, if the selected group contains no virtual hosts, even though they exist in your environment, the Begin Virtualization Study screen shows 0 counts in the Host row of the Computer Counts table and the Rebalance Virtual Hosts study option is not available.
Selecting the type of virtualization study

Keep the following guidelines in mind when using groups to create new studies:

- The groups and intervals you select on the Views and Build Views tabs are imported to the Virtualization Planning tab when:
  - You go to the Virtualization Planning tab the first time in a session
  - You go to the Virtualization Planning Welcome page or Begin page any time during the session
  - The group and interval changes and deletions you make on the Views and Build Views tabs are imported to the Virtualization Planning tab.

Keep the following in mind when using groups with saved studies:

- If you use the calendar to change the date range in a saved study, the Virtualization Planning module uses the study group to filter the data.
- If the group you used in the saved study is changed, this module does not update the group data in the saved study.
- If the group you used in the saved study is deleted, this module has no way to filter the data and reloads all available data.

**TIP**

If the values for the Computer Types in the Computer Count table are blank, it means that there is no data in the active data sources for the date range specified in the Time Period field. Click the calendar icon and choose a different date range.

6 Choose the type of virtualization study you want to conduct.

- To consolidate physical systems, existing guests, or both types of systems onto new or existing virtual hosts, click **Consolidate to Virtual**.
- To deploy new guests to new or existing virtual hosts, click **Deploy New Guests**.
- To rebalance the guests running on virtual hosts in your environment for optimal performance, click **Rebalance Virtual Hosts**. This option is available only if there are virtual hosts in the active data sources.

7 Proceed to one of the following sections, based on the study you chose:

- “Consolidating to virtual hosts” on page 137
- “Deploying new guests” on page 153
- “Rebalancing existing virtual hosts” on page 159
Consolidating to virtual hosts

This section discusses consolidating physical systems onto new virtual hosts, which is called a Consolidation Study. Reviewing the following questions prior to using Virtualization Planning will help you as you conduct the Consolidation Study:

- How big a consolidation? Will you focus on the servers assigned to a particular BMC Performance Perceiver group, or include all available servers from any active data source?
- Will you be consolidating physical machines onto new virtual host, existing virtual hosts, or both?
- Will you be including existing guests in this Consolidation Study?

Table 32 highlights the key steps involved in using Virtualization Planning to conduct a Consolidation Study.

<table>
<thead>
<tr>
<th>Task</th>
<th>See</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose the virtualization study type.</td>
<td>page 133</td>
</tr>
<tr>
<td>Specify the basic parameters for the study, by choosing the study profile and verifying the time period.</td>
<td>page 138</td>
</tr>
<tr>
<td>If you have identified and grouped server consolidation candidates using BMC Performance Perceiver, filter the computer list by selecting that group from the Computer Filter list. Otherwise, use the pre-defined filters or create your own filters to identify the server consolidation candidates.</td>
<td>page 140</td>
</tr>
<tr>
<td>The Filtered Computers table is populated with the computers that match the filter criteria. You can select multiple filters to create the list of consolidation candidates.</td>
<td></td>
</tr>
<tr>
<td>Review the list of exceptions, to see any issues with the data from the selected time period.</td>
<td>page 139</td>
</tr>
<tr>
<td>From the resulting filtered list, select the individual computers you want to include in the consolidation study, or click the check box in the table heading row to select all of the displayed computers as candidates.</td>
<td>page 142</td>
</tr>
<tr>
<td>On the Create Consolidation Study page, enter the parameters for the study.</td>
<td>page 144</td>
</tr>
<tr>
<td>Select the target hosts.</td>
<td>page 145</td>
</tr>
<tr>
<td>Review the Consolidation Summary and the Target Host reports.</td>
<td>page 148</td>
</tr>
<tr>
<td>Repeat the process, until you are satisfied with the results.</td>
<td>page 163</td>
</tr>
<tr>
<td>Save the study to use as a plan for your server consolidation effort, or as a candidate for further study.</td>
<td>page 175</td>
</tr>
</tbody>
</table>
Create the Consolidation Study

The following sections outline each of the tasks involved in creating the Consolidation Study.

**Step 1: Verify the basic parameters for the study**

Selecting the **Consolidate to Virtual** option on the Begin Virtualization Study page displays the Computer Explorer page (Figure 31).

![Figure 31 Computer Explorer page](image)

1. Choose the Study Profile from the **Study Profile** list. The default value is **VMware**.

2. Verify that time period shown is correct for your study, or select a time period for the Consolidation Study using the calendar icon.

---

To widen the viewing area for the page, collapse the task pane by clicking the icon on the divider bar, or you can drag the bar to the left or to the right.
The Computer Explorer page displays a list of servers that are available from the active data sources that are compatible with the Study Profile. Computers that are present in the database for the specified time period, but have data or system-related issues are not shown in the initial filtered computer list. These computers appear in the Exceptions table.

**Step 2: Review issues with discovered computers**

Optionally, review the list of computers shown in the Exceptions table. The computers are grouped by category, with a brief description of the issue that prevents them from being included in the study. The most common reason a computer appears in this table is that there is no collected data for the specified time period.

**Figure 32 Computer Exceptions table**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Count</th>
<th>Computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has CPU model Pentium-4 thinkers on PA8000 that does not have a rating in the hardware library for SPECINT2000</td>
<td>1</td>
<td>h02ev02.boston.bmc.com</td>
</tr>
</tbody>
</table>
| No data present for computer(s) within the time period requested    | 11    | del05560-4.boston.bmc.com, dev1mk4-th.boston.bmc.com, dev1mk4-1b.boston.bmc.com, dev1mk4-2.boston.bmc.com, ess4anthony (Anthony D'Aljaro), ess4ellen (Kevin Fernandez), ess9.boston.bmc.com, ess9.trent.bmc.com, ess9trent (Kevin Fernandez) |}

To view a detailed list of the computers not available for inclusion in the study, click the magnifying glass icon on the Exceptions table of the Computer Explorer page.
Figure 33  Computer Exceptions page

The Computer Exceptions page provides a list of the computers that were present in the database for the specified time period (shown at the top of the page) but did not have data for the time period or had some sort of configuration-related issue.

The table lists the computers by system name and provides a brief description of the issue. The total number of computers in the exceptions list is shown above the table.

Step 3: Filter the computer list

By default, the list of computers presented when you begin the Consolidation Study is automatically populated from the active data sources BMC Performance Perceiver.

If you have identified and grouped server consolidation candidates using other tabs in the BMC Performance Perceiver, filter the computer list by selecting that group from the Computer Filter list. In the example shown in Figure 34, we select a group called Physical systems that we created in BMC Performance Perceiver to group the standalone servers in the data center with low resource utilization.

Otherwise, use the pre-defined filters or create your own filters to identify the server consolidation candidates.
To create a custom computer filter, select the Create your own filter option from the Computer Filter list on the Computer Explorer page. See “Creating a custom computer filter” on page 163.

**Figure 34  Computer Filter options**

<table>
<thead>
<tr>
<th>Computer Filter:</th>
<th>Computers in group DataCenter-standalone</th>
<th>Computers with average CPU utilization less than 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Computers running Windows2000</td>
<td>Small computers (Perf Rating: 10 or less, Memory: 1 GB or less)</td>
</tr>
<tr>
<td></td>
<td>Computers running Windows2003</td>
<td>All available through profile</td>
</tr>
<tr>
<td></td>
<td>All physical servers</td>
<td>Create your own filter</td>
</tr>
<tr>
<td></td>
<td>All guests</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All selected computers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All unselected computers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dom01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>houperfc002</td>
<td></td>
</tr>
<tr>
<td></td>
<td>houperfns001</td>
<td></td>
</tr>
</tbody>
</table>

The list is refreshed each time you choose a filter from the Computer Filter list. **Table 33** describes the columns in the Filtered Computers list.

**Table 33  Columns on Filtered Computers list (part 1 of 2)**

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer</td>
<td>The system name of the computer.</td>
</tr>
<tr>
<td>Domain</td>
<td>The domain name in which the computer was discovered.</td>
</tr>
<tr>
<td>OS</td>
<td>The operating system running on the computer.</td>
</tr>
<tr>
<td>Perf Rating</td>
<td>The average SPECint rating observed during the period specified in the Time Period. This column is blank if the computer is a guest computer.</td>
</tr>
<tr>
<td>Peak CPU Util</td>
<td>The highest percentage of CPU used by the computer during the period specified in the Time Period.</td>
</tr>
<tr>
<td>Avg CPU Util</td>
<td>The average percentage of CPU used by the computer during the period specified in the Time Period.</td>
</tr>
<tr>
<td>Avg Memory Used</td>
<td>The average amount of memory in use (in GB) during the date range specified in the Time Period.</td>
</tr>
<tr>
<td>Avg Memory Configured</td>
<td>The average amount of memory configured for the computer (in GB) during the date range specified in the Time Period. Note: This field is shown only when there are no guest computers in the list.</td>
</tr>
<tr>
<td>Avg IO</td>
<td>The average IO rate (in MB per second) during the date range specified in the Time Period.</td>
</tr>
</tbody>
</table>
Step 4: Identify the candidates for consolidation

1. From the Filtered Computers list, select the individual computers you want to include in the Consolidation Study, or click the check box in the table heading row to select all of the displayed computers as candidates.

2. Optionally, click on any of the columns in the Filtered Computer list to sort the list.

   The computers you select appear in the Consolidation Candidates list (Figure 35) shown below the Filtered Computers table.

3. Optionally repeat Step 3: Filter the computer list using a different filter to display other computers that can be added to the list of consolidation candidates.

   For example, if you want to consolidate all the Windows XP and Windows 2003 computers, you would select Computers running Windows XP from the Computer Filter list and click the heading check box to select all of the displayed computers. Repeat this process using the Computers running Windows 2003 filter. Even though the Windows XP computers are not displayed currently in the Filtered Computer list, they are still consolidation candidates as they have already been added to the Consolidation Candidates list.

4. Review configuration information and key performance statistics for each computer.

   To view a table and performance charts for the list of candidate computers in the study, click the magnifying glass icon on the Candidates table (Figure 36). The graphs at the bottom of the page provide a snapshot of the resource utilization, by interval, for the specified time period you selected for the study. The legend to the right of the graph provides a color-coded list of each candidate computer.
Once you are satisfied that the list of consolidation candidates are the computers you want in the Consolidation Study, click Create Study to display the Create Consolidation Study page (Figure 37).
Step 5: Enter Consolidation Study identification information

The Create Consolidation Study page is divided into three sections:

- Consolidation Study identification information
- Candidates
- Target virtual hosts (including new virtual hosts created for this study, existing virtual hosts to include in the study, or both)

You can specify new virtual host hardware settings that apply for this Consolidation Study only, or you can make those values the default settings by saving them to the Study Profile.

The fields at the top of the Create Consolidation Study page provide basic identification information for the Consolidation Study. Table 34 describes these fields.
Table 34 Identification fields for the Consolidation Study

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study name</td>
<td>Enter a name of the Consolidation Study. It is not necessary to name the study until you are saving it.</td>
</tr>
<tr>
<td>Study Profile</td>
<td>The name of the Consolidation Study profile selected on the Computer Explorer page.</td>
</tr>
<tr>
<td>Description</td>
<td>Optionally, enter a brief description of the Consolidation Study.</td>
</tr>
<tr>
<td>Time Period</td>
<td>The date range specified for the study on the Begin Virtualization Study or Computer Explorer page. You can change the time period by clicking the Calendar icon.</td>
</tr>
<tr>
<td></td>
<td>If the new time period is missing data for any of the candidates, those computers are removed from the candidate list.</td>
</tr>
</tbody>
</table>

**Step 6: Finalize the list of candidates**

This Candidates list in the middle of the page shows the computers you have identified to participate in the Consolidation Study.

To fine-tune the list, you can:

- Click **Add/Remove** to change the list of computers involved in the study. See “Adding or removing computers from a study” on page 164.

- Click **Set Affinity** to specify affinity relationships which indicate which computer candidates cannot reside on the same virtual host, and which computer candidates must reside on the same virtual host. See “Setting an affinity relationship for computers” on page 167.

  Setting affinity relationships provides additional information about the servers in the study that Virtualization Planning cannot determine from the collected data, such as whether one server acts as a backup server for another.

**Step 7: Identify the target virtual hosts**

You can choose to create new virtual hosts for this study, select one or more existing virtual hosts to include in the study, or both. The virtual hosts are the servers onto which the candidate computers will be consolidated.

In the example shown in Figure 38, we have selected the three existing virtual hosts for the study because they have plenty of capacity to handle additional guests, as indicated by the low CPU utilization numbers. We have also selected the Create New Virtual Hosts option, in the event that all of the candidates in the study do not fit on the three existing virtual hosts.
Create the Consolidation Study

Figure 38  Target Virtual Hosts section

Create New Virtual Hosts option

Select the Create New Virtual Hosts option to create a new virtual host using the physical configuration shown in the table. You can change the default configuration by clicking Change CPU Model, which displays the Hardware Selector page. See “Changing the target hardware” on page 169.

\[ TIP \]

If you select new hardware and you want to use that hardware as the default for the Study Profile, click Save to Study Profile.

Table 35 describes the fields on the Create New Hardware table.

Table 35  Fields on Create New Hardware table

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Model</td>
<td>The model type of the CPU (for example XEON@700).</td>
</tr>
<tr>
<td>Performance Rating</td>
<td>A throughput metric based on the SPEC CINT benchmarks. It measures the system’s capacity for processing jobs of a specified type in a given amount of time.</td>
</tr>
<tr>
<td>Processors</td>
<td>This is an input field where you specify the number of processors configured for the host server model.</td>
</tr>
<tr>
<td>Configured Memory</td>
<td>This field is an input field where you can specify the amount of memory (in GB) configured for the host server model.</td>
</tr>
</tbody>
</table>

Use Existing Virtual Hosts option

Select the Use Existing Virtual Hosts option to include one or more virtual hosts in the study. The virtual hosts you select are then used as target host servers for consolidation candidate computers. You can also specify how to handle the existing guests that are currently running on the virtual host, using the options in the Assignment Action for Existing Guests column.
**TIP**

By default, the guests currently running on the existing virtual hosts will be included in the consolidation study, even if they have not been selected as candidates. If you may not want all guests included in the study, click **View Guests** to review the guest assignments.

Table 36 describes the fields on the Use Existing Virtual Hosts table.

### Table 36 Fields on Use Existing Virtual Hosts table

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Host</td>
<td>The system name of the virtual host.</td>
</tr>
<tr>
<td>Description</td>
<td>If available, a brief description of the virtual host. You can add a description for the virtual host by clicking in the table cell.</td>
</tr>
<tr>
<td>Nbr of Guests</td>
<td>The number guests running on the virtual hosts.</td>
</tr>
<tr>
<td></td>
<td>This value is shown in bold type if it is equal to the <strong>Maximum Guests per Host</strong> value shown in the Virtualization Parameters section of the Consolidation Summary.</td>
</tr>
<tr>
<td>Perf Rating</td>
<td>The SPECint performance rating for the virtual host server.</td>
</tr>
<tr>
<td>Avg CPU Util</td>
<td>The percentage of CPU utilization for the virtual host. This value includes the combined CPU utilization of all of the guests plus the utilization of the virtual host to support the guests (CPU overhead).</td>
</tr>
<tr>
<td>Mem Cfg</td>
<td>The total amount of memory (in GB) configured for the virtual host.</td>
</tr>
<tr>
<td>Avg Mem Util</td>
<td>The average amount of memory utilization (as a percentage of the configured memory) in use for the virtual host. This value includes the combined memory utilization of all of the guests plus the memory utilization of the virtual host to support the guests (memory overhead).</td>
</tr>
<tr>
<td>Avg IO (MB/sec)</td>
<td>The average IO rate for the virtual host.</td>
</tr>
<tr>
<td>Assignment Action for Existing Guests</td>
<td>The consolidation action specified for the existing guests running on the virtual host. Choose from the following options:</td>
</tr>
<tr>
<td></td>
<td>■ Keep all on current host</td>
</tr>
<tr>
<td></td>
<td>■ Move any as needed</td>
</tr>
<tr>
<td></td>
<td>■ Ignore all for this study</td>
</tr>
<tr>
<td></td>
<td>■ Set for each guest (click <strong>View Guests</strong> to display the Guests on Host page, where you can specify which guests you want to keep on the current virtual host)</td>
</tr>
</tbody>
</table>

You can view the guests currently running on existing virtual hosts and see key performance statistics and utilization graphs for each guest. To review the guests currently running on the virtual host, click **View Guests**. See “Viewing the guests on an existing virtual host” on page 172.
Step 8: Verify virtualization parameters for the virtual host

You can also change the virtualization parameters for new virtual hosts by clicking Advanced.

The Change Advanced Settings page defines virtualization parameters such as the maximum number of guests allowed for target hosts (new or existing), as well as the amount of CPU overhead that will be used by the target host. You can also set thresholds for the maximum amount of the host server CPU and memory that can be used by any guest.

Verify that the default settings from the Study Profile apply to your virtualization goals, or update the values. See “Changing the virtualization parameters” on page 170.

Step 9: Create the Consolidation Study

After you have entered all of the parameters on the Create Consolidation Study page, click Consolidate.

Review the Consolidation Summary

The results of the consolidation study are presented in the Consolidation Summary report. You can review the report to see how many servers were recommended to host the consolidated work, and how the work from the consolidated servers should be distributed to the host servers.

The report is divided into three main sections:

- Consolidation Summary
- Virtual Host Summary table
- Virtual Host Detail report

Reviewing the Consolidation Summary section

The Consolidation Summary section gives you a snapshot of the effectiveness of the consolidation. It has three basic components:

- Before and After consolidation comparison
- Virtualization Parameters
- Virtual Server Configuration (if new target hosts were created)
Use the Before and After columns to calculate the efficiency savings that could be achieved through the consolidation. In the example shown in Figure 39, we have consolidated a total of 27 physical servers onto three virtual hosts, two of which were already hosting 29 guests. The 27 physical servers and the two existing hosts were only using 4.4% of the combined performance rating. The resulting three hosts are using 15.4% of their combined performance rating.

**NOTE**
The Before value for the Average CPU Utilization of Hosts refers to the two existing virtual hosts that we included in the study. The average CPU utilization of the physical servers is shown in parenthesis next to the number of physical servers.

**Figure 39** Consolidation summary section

<table>
<thead>
<tr>
<th>Consolidation Summary</th>
<th>Before</th>
<th>After</th>
<th>Virtualization Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Servers (Avg CPU Util):</td>
<td>27 (0.7%)</td>
<td></td>
<td>Host CPU Utilization Threshold:</td>
</tr>
<tr>
<td>Number of Guests:</td>
<td>20</td>
<td>56</td>
<td>New Host Additional CPU Overhead:</td>
</tr>
<tr>
<td>Number of Virtual Hosts:</td>
<td>2</td>
<td>3</td>
<td>Host Memory Utilization Threshold:</td>
</tr>
<tr>
<td>Performance Rating Used:</td>
<td>94.4 of 1910.9</td>
<td>94.5 of 613.2</td>
<td>Reconfigure Guest Memory:</td>
</tr>
<tr>
<td>Utilization of Performance Rating:</td>
<td>4.4%</td>
<td>15.4%</td>
<td>Target Guest Memory Utilization:</td>
</tr>
<tr>
<td>Total Configured Memory:</td>
<td>201.7 GB</td>
<td>170.0 GB</td>
<td>Host I/O Rate Threshold:</td>
</tr>
<tr>
<td>Average CPU Utilization of Hosts:</td>
<td>16.5%</td>
<td>14.8%</td>
<td>Host Network Rate Threshold:</td>
</tr>
<tr>
<td>Highest Host Peak CPU Utilization:</td>
<td>30.3%</td>
<td>33.5%</td>
<td>Maximum Guests per Host:</td>
</tr>
<tr>
<td>Average Memory Utilization of Hosts:</td>
<td>39.0%</td>
<td>40.2%</td>
<td>Virtualization Platform:</td>
</tr>
<tr>
<td>Average I/O Rate of Hosts:</td>
<td>2.15 MB/sec</td>
<td>2.08 MB/sec</td>
<td>New Virtual Server Configuration</td>
</tr>
<tr>
<td>Average Network Rate of Hosts:</td>
<td>321.43 MB/sec</td>
<td>214.32 MB/sec</td>
<td></td>
</tr>
<tr>
<td>CPU Performance Rating:</td>
<td>101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU Model:</td>
<td>DELL 6650@3000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Processors:</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configured Memory:</td>
<td>16 GB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**
The host-related values in the Before columns are populated only for existing virtual hosts that are involved in the study. Other values, such as Utilization of Performance Rating, are shown even if there are no existing virtual hosts in the study.
Table 37 provides an overview of each section in the summary. For detailed descriptions, see “Reviewing the Consolidation Summary section” on page 148 or the online Help.

### Table 37   Sections in Consolidation Summary report

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before and After comparison</td>
<td>This section gives you a picture of the overall performance of the candidate computers before the consolidation, and the projected performance of the new virtual host servers and guests after the consolidation. Use the values in these columns to calculate the efficiency savings that could be achieved through the consolidation. Specifically, look for a reduction in the total performance rating available, and an increase in the utilization of the performance rating. The <strong>Before</strong> column shows statistics for all virtual hosts that are either targets or have guests that are part of the study. The <strong>After</strong> column shows the projected performance statistics for the virtual hosts. For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
<tr>
<td>Virtualization Parameters</td>
<td>The fields in this section of the report show the virtualization settings that can affect how many virtual host servers are recommended from the study. If the results shown in the Before and After section are unacceptable, you can change these virtualization settings on the Change Advanced Settings page, available when you click Advanced on the Create Consolidation Study or Edit Consolidation Study pages. For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
<tr>
<td>New Virtual Server Configuration</td>
<td>This section displays the specified configuration for any new target virtual server. This section is shown only if new target hosts were created as part of the study. If the results shown in the Before and After section are unacceptable, you can change these configuration settings on the Hardware Selector page to upgrade to a more powerful processor. To access the Hardware Selector page to change the CPU model type for the new virtual host, click Change Parameters and then Change CPU Model. For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
</tbody>
</table>

**Reviewing the Virtual Host Summary table**

This table provides the basic performance information for the virtual hosts planned as a result of the study. For descriptions of each of the fields on this report, the online Help.

One of the major things to look for in this report is to see if there are any constraints that might be preventing the virtual hosts from being more effectively utilized. If you feel that there are too many new virtual hosts recommended by the study, review the After columns to see where there is a constraint that is creating additional hosts.

To help you locate constraints in the summary table, a constraint message is displayed below the table when there are at least two targets and at least one of them is a new virtual host.
For example, if the message indicates that the constraint is Performance Rating Used, and more than one new host has been created, then you can increase the CPU threshold or change the CPU model to one with a higher Performance Rating. To access the Hardware Selector page to change the CPU model type for the new virtual host, click Change Parameters and then Change CPU Model.

In the example shown in Figure 40, note the message under the summary table. The message indicates that the virtualization parameter Maximum Number of Guests is acting as a constraint on the virtual hosts. This constraint is also indicated by the values in the Nbr of Guests column shown in bold type.

**Figure 40  New virtual host summary table**

<table>
<thead>
<tr>
<th>Target Host</th>
<th>Description</th>
<th>Perf Rating</th>
<th>Nbr of Guests</th>
<th>Peak CPU Util (%)</th>
<th>Avg CPU Util (%)</th>
<th>Avg Mem Util (%)</th>
<th>Mem Clq (GB)</th>
<th>Avg ID (MB/sec)</th>
<th>Nbr of Guests</th>
<th>Peak CPU Util (%)</th>
<th>Avg CPU Util (%)</th>
<th>Avg Mem Util (%)</th>
<th>Mem Clq (GB)</th>
<th>Avg ID (MB/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>gunnr</td>
<td>Perf Rating = 195.7</td>
<td>21</td>
<td>20.4</td>
<td>9.3</td>
<td>45.7</td>
<td>32.0</td>
<td>2.26</td>
<td>17</td>
<td>38.3</td>
<td>22.9</td>
<td>59.5</td>
<td>32.0</td>
<td>3.43</td>
<td></td>
</tr>
<tr>
<td>breechaction</td>
<td>Perf Rating = 316.5</td>
<td>25</td>
<td>29.0</td>
<td>19.0</td>
<td>31.3</td>
<td>128.0</td>
<td>3.17</td>
<td>12</td>
<td>19.1</td>
<td>10.2</td>
<td>18.6</td>
<td>128.0</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Newhost1</td>
<td></td>
<td>10</td>
<td>33.5</td>
<td>16.1</td>
<td>43.6</td>
<td>16.0</td>
<td>0.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Because the average CPU and memory utilization values for **gunnr** and **breechaction** are still low, we can consider increasing the maximum number of guests allowed on any virtual host and running the consolidation again to achieve greater efficiency.

---

**TIP**

To revisit the virtualization parameters for the study, click Change Parameters and then click Advanced on the Create Consolidation Study or Edit Consolidation Study pages go to the Change Advanced Settings page.

The Virtual Host column provides a link to a more detailed report for the virtual host. Click on the virtual host name to view the Virtual Host report.

**Reviewing the Virtual Host Detail reports**

This report shows the total resource use of the virtual host at the top of the report, and a table providing performance metrics for each guest on the virtual host. There is a Virtual Host report for each virtual host in the Consolidation Study.
Review the Consolidation Summary

**Figure 41 Virtual Host reports**

Virtual Host: breechaction  (2 of 3)

<table>
<thead>
<tr>
<th>Performance Rating:</th>
<th>316.5</th>
<th>Configured Memory:</th>
<th>128.0 GB</th>
<th>Average IO Rate:</th>
<th>3.17 MB/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average CPU Utilization:</td>
<td>19.0%</td>
<td>Average Memory Utilization:</td>
<td>31.3%</td>
<td>Average Network Rate:</td>
<td>377.33 MB/sec</td>
</tr>
<tr>
<td>Peak CPU Utilization:</td>
<td>29.0%</td>
<td>Unallocated Memory:</td>
<td>67.0 GB</td>
<td>Number of Guests:</td>
<td>25</td>
</tr>
</tbody>
</table>

With this report, you can see the overall projected performance statistics for the virtual host server in the summary section at the top, as well as the list of candidate computers that have been assigned to the virtual host in the table.

**TIP**

Source Computer names in **bold** text have been specified as consolidation candidates. Source Computer names in *italics* are existing guests that have been assigned to a different virtual host.

In the summary section at the top of the report, note the following items:

- **Unallocated Memory** field - This field shows the amount of memory that is not allocated for use by guests running on the virtual host, or for memory overhead. If the amount of memory allocated for the guests exceeds the configured memory for the virtual host, this field is shown as **Memory Overcommitment**.

- **Average CPU Utilization** and **Peak CPU Utilization** fields - The CPU utilization metrics shown for the virtual host summary items at the top of the report are not the sum of the utilizations of the guests, but rather the sum of the guest usage plus the CPU overhead. For existing hosts, it is the measured overhead in the collected data. For new virtual hosts, it is the CPU Overhead value specified in the virtualization parameters from the Study Profile. However, if there is an existing virtual host that does not have any guests involved in the study, then it is considered a new virtual host, and the value from the Study Profile is used.

For descriptions of each of the fields on this report, see the online Help.
It may take several iterations of this process before you are satisfied with the consolidation results. For example, after reviewing this report, you may decide that there are source computers assigned to this virtual host which you want to move to a different host. In this case, click Change Assignments to display the Change Source-to-Target Assignments page. On this page you can move source computers from one virtual host to another. See “Changing computer assignments” on page 165.

Once you are satisfied, you can save the study for future reference and print a copy in portable document format (PDF) or rich text format (RTF) format.

**Deploying new guests**

Selecting the **Deploy New Guests** option on the Begin Virtualization Study page displays the Deploy New Guests page (**Figure 31**).

**Figure 42  Deploy New Guests page**
Creating the Deployment Study

Use the Deploy New Guests page to create a virtualization study that projects how adding new guests affects the overall operation of your virtual environment. For example, you can use the results of the Deployment Study to gauge the impact of virtualized I/O when more guests are added to the environment. You can also determine how many copies of a specific physical server, virtual guest, or guest profile can be added to your virtual environment.

To specify the number of new guests to deploy

On the Deploy New Guests page, you enter the number of new guests to deploy in your virtual environment. You can base some of them on a guest profile.

A guest profile is a template containing the configuration and performance characteristics of the new guest you are about to deploy.

1. Perform one of the following tasks:

   - In the Guest Profiles table, specify the number of guests to deploy next to the name of existing guest profiles. These guests will be deployed based on the configuration in the guest profile.

   - In the Existing Guests or Physical Servers table, specify a number of guests to deploy based on the configuration and performance characteristics of existing guests or physical servers.

     The guest or physical server you select acts as a temporary guest profile for the study. To create a guest profile using the characteristics of the existing guest or physical server, click Create Guest Profile. See “Creating or editing guest profiles” on page 174.

**TIP**

Create a guest profile for any new guest configuration that you may be deploying regularly in your environment. For example, you may have one guest profile for guests that will be deployed for a new developer in your company, and another guest profile for a new human resources employee.

You can also use this page to determine how many copies of a particular guest profile, virtual guest, or physical server can fit on your existing virtual environment. Do this by using an asterisk * instead of an actual number to deploy next to the appropriate name. The Deployment Summary report will show a count of how many can be deployed.
2. Ensure that the time period shown is the correct date range for this virtualization study. If it is not, either click the Calendar icon and specify a new time period, or return to the Begin Virtualization Study page (Figure 30 on page 135) and specify a new time period.

3. Click **Specify Target Hosts** to display the Specify Target Hosts page (Figure 43).

**Figure 43 Specify Target Hosts page**

To select the virtual hosts on which to deploy the new guests

1. On the Specify Target Hosts page, complete the descriptive information for the study by entering a study name and description.

**NOTE**

The Specify Target Hosts page is similar in appearance and function to the Create Consolidation Study page (Figure 37 on page 144).

2. Review the new guests being deployed in the **New Guests** list.

- Click **Add/Remove** to add or remove guests from the deployment list. See “Adding or removing computers from a study” on page 164.
Click **Set Affinity** to specify any affinity relationships for the new guests. For example, if one of the new guests is planned as a backup system for another guest, you would not want both of those guests to reside on the same virtual host. See “Setting an affinity relationship for computers” on page 167.

---

**TIP**

Setting affinity relationships provides additional information about the servers in the study. This information cannot be determined from the collected data, such as whether one server acts as a backup server for another.

3 Select the target hosts for the study. You can create a new virtual host for the study if you are planning to upgrade or buy new hardware, use existing virtual hosts, or both. The virtual hosts are the servers onto which the new guests will be deployed.

- Select the **Use Existing Virtual Hosts** option to specify the existing virtual hosts onto which the new guests will be deployed.

  By default, the guests running on these hosts are also included in the study. You can also specify how to handle the existing guests that are currently running on the virtual host, using the options in the **Assignment Action for Existing Guests** column. To review the existing guests currently running on the virtual host, click **View Guests**. See “Viewing the guests on an existing virtual host” on page 172. For descriptions of the fields in this table, see the online Help.

---

**NOTE**

If you have specified * to deploy as many of a single computer as will fit, you can only deploy these onto existing hosts, so the **Create New Virtual Host** option will not be available.

- Select the **Create New Virtual Host** option if you want the study to create one or more new virtual hosts (using the physical configuration shown in the table) if additional hosts are required to effectively handle the deployment.

  You can change the default configuration by entering a different number of processors or configured memory, or by clicking **Change CPU Model**, which displays the Hardware Selector page. See “Changing the target hardware” on page 169. For descriptions of the fields in this table, see the online Help.

4 Click **Deploy** to display the deployment results.

---

**Review the Deployment Summary report**

The results of the Deployment Study are presented in the Deployment Summary report (Figure 44). You can review the report to see how guests should be distributed to the host servers.
Review the Deployment Summary report

Summary reports are divided into four sections:

- Before and After comparison
- Virtualization Parameters
- New Virtual Server Configuration
- Virtual Host reports
Table 38 provides an overview of each section in the summary. For detailed descriptions, see the online Help.

### Table 38 Sections in Summary report

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before and After comparison</td>
<td>This section gives you a picture of the overall performance of the selected virtual hosts before and after deployment or rebalancing.</td>
</tr>
<tr>
<td></td>
<td>Use the values in these columns to see the benefits that could be achieved through the rebalancing effort.</td>
</tr>
<tr>
<td></td>
<td>The <strong>Before</strong> column shows statistics for the virtual hosts you have selected for the study. The <strong>After</strong> column shows the projected performance statistics for the virtual hosts. For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
<tr>
<td>Virtualization Parameters</td>
<td>The fields in this section show the virtualization settings that can affect how many virtual host servers are recommended from the study.</td>
</tr>
<tr>
<td></td>
<td>If the results shown in the Before and After section are unacceptable, you can change these virtualization settings on the Change Advanced Settings page, available when you click <strong>Advanced</strong> on the Specify Target Hosts, Create Rebalance Study, or Edit Rebalance pages. For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
<tr>
<td>New Virtual Server Configuration</td>
<td>This section displays the specified configuration for any new target virtual server, and is shown only if you selected <strong>Create New Virtual Hosts</strong> on the Specify Target Hosts, Create Rebalance Study, or Edit Rebalance Study pages, and the results of the study required the creation of additional hardware.</td>
</tr>
<tr>
<td></td>
<td>If the results shown in the Before and After section are unacceptable, you can change these configuration settings on the Hardware Selector page to upgrade to a more powerful processor. To access the Hardware Selector page to change the CPU model type for the new virtual host, click <strong>Change Parameters</strong> and then <strong>Change CPU Model</strong>. For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
<tr>
<td>Virtual Host reports</td>
<td>The Virtual Host reports provide key performance statistics for the virtual hosts involved in the study. This section displays two reports: a summary report for all virtual hosts in the study, and a series of detail reports, one for each virtual host.</td>
</tr>
<tr>
<td></td>
<td>- The Virtual Host summary table provides the basic information for the virtual hosts planned as a result of the study. The Before columns are populated only if existing virtual hosts were involved in the study.</td>
</tr>
<tr>
<td></td>
<td>- The Virtual Host detail report shows the total resource use of the virtual host at the top of the report, and a table providing performance metrics for each guest on the virtual host. There is a Virtual Host report for each virtual host in the study.</td>
</tr>
<tr>
<td></td>
<td>For complete descriptions of the fields in this section, see the online Help.</td>
</tr>
</tbody>
</table>

### Where to go from here

If you are satisfied with the results, you can click **Save Study** to keep the results of the Deployment Study or click **Print** to print the study.
If you want to make changes to the study:

- Click **Change Assignments** to move guests from one virtual host to another. See “Changing computer assignments” on page 165.

- Click **Change Parameters** to edit the target virtual hosts for the study. The fields on this page are the same as those described in “To select the virtual hosts on which to deploy the new guests” on page 155.

## Rebalancing existing virtual hosts

Use the Create Rebalance Study page to rebalance the guests running on virtual hosts in your environment for optimal performance.

This page lists all the existing virtual hosts identified in the data for the date range you specified on the Begin Virtualization Study page.

**Figure 45  Create Rebalance Study page**
Creating the Rebalancing Study

This page is divided into two sections:

- Rebalance Study identification information
- Target Virtual Hosts

To enter the Rebalance Study identification information

The fields at the top of the page provide basic identification information for the Rebalance Study.

1. Enter a name of the Rebalance Study in the Study Name field. It is not necessary to name the study until you are saving it.

2. Enter a brief description of the Rebalance Study in the Description field.

3. Review the date range specified for the study on the Begin Virtualization Study page. You can change the time period by clicking the calendar icon.

4. Optionally, click View Exceptions to see if the new time period is missing data for any of the rebalancing candidates. Those computers are shown on the View Exceptions list.

To select the target virtual host hardware

You can choose to create new virtual hosts for this study, select one or more existing virtual hosts to rebalance, or both. The virtual hosts are the servers onto which the guests are placed.

1. Select the existing virtual hosts you want to use as target host servers for the guests.

   You can also specify how to handle the existing guests that are currently running on the virtual host, using the options in the Assignment Action for Existing Guests column. To review the guests currently running on the virtual host, click View Guests.

   This option displays the same table used in the Deploy New Guests virtualization study. For descriptions of the columns on this table, see the online Help or page 155.

2. Select the Create New Virtual Host option to create a new virtual host (if necessary) using the physical configuration shown in the table.
If some existing hosts are over-utilized, the Rebalancing Study may suggest the addition of new virtual hosts, using the CPU model and configuration specified in this section. You can change the default configuration by clicking **Change CPU Model**, which displays the Hardware Selector page. See “Changing the target hardware” on page 169.

---

**TIP**

If you do select new hardware for this study and want to use that hardware as the default for future rebalancing efforts, click **Save to Study Profile**.

---

For descriptions of the columns on this table, see the online Help.

3 Optionally, click **Advanced** to display the Change Advanced Settings page.

This page shows the virtualization parameters for the target virtual hosts. For more information, see the online Help.

4 Click **Rebalance** to display the rebalancing results.

On the Rebalancing Results page, review the Rebalancing Summary report and the Virtual Host table to see the projected results of the study.

---

**Reviewing the results of the study**

The Rebalancing Study and Deployment Study produce recommendations shown on a Results page, similar to the one produced by the Consolidation Summary, which is discussed in “Review the Consolidation Summary” on page 148.

**Figure 46** shows an example of the Rebalancing Results page.
Specifically, look for the Highest Host Peak CPU Utilization value to decrease, indicating a greater consistency of CPU utilization across all the virtual hosts. Also, you may find that the performance of some virtual hosts that were over-utilized has improved, due to guests moving to other, less-utilized virtual hosts.

For an overview of the Summary report, see the online Help.

**Where to go from here**

If you are satisfied with the results of the Rebalancing Study, you can click **Save Study** to keep the results of the deployment study or click **Print** to print the study.

If you want to make changes to the study:

- Click **Change Assignments** to move guests from one virtual host to another. See “Changing computer assignments” on page 165.
Click Change Parameters to edit the target virtual hosts for the study. The fields on this page are the same as those described in “To select the virtual hosts on which to deploy the new guests” on page 155.

## Fine-tuning the results of a virtualization study

There are a number of tasks you can perform to change the outcome of the study results, if the original results are not acceptable for your virtualization goals.

Table 39 describes these options, and provides links to sections with greater detail.

<table>
<thead>
<tr>
<th>Task</th>
<th>See</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating a custom computer filter</td>
<td>page 163</td>
</tr>
<tr>
<td>Adding or removing computers from the study</td>
<td>page 164</td>
</tr>
<tr>
<td>Changing computer candidate assignments</td>
<td>page 165</td>
</tr>
<tr>
<td>Setting an affinity relationship for candidate computers</td>
<td>page 167</td>
</tr>
<tr>
<td>Changing the target hardware</td>
<td>page 169</td>
</tr>
<tr>
<td>Changing the virtualization parameters</td>
<td>page 170</td>
</tr>
<tr>
<td>Viewing the guests on an existing virtual host</td>
<td>page 172</td>
</tr>
<tr>
<td>Creating or editing guest profiles</td>
<td>page 174</td>
</tr>
</tbody>
</table>

## Creating a custom computer filter

To create a custom filter for a Consolidation Study:

1. Select **Create your own filter** from the **Filter Computers** list on the Computer Explorer page (Figure 31 on page 138).

2. Specify the basic computer identification fields you are interested in for the filter at the top of the Filter Computers page by typing a value in the fields (using full object name for an exact match or by using any wildcard pattern), or by making a selection from the list.

You can filter by any of the identification fields shown, such as by operating system or by group name (if you have created one or more computer groups in BMC Performance Perceiver), or by any combination of fields.
Adding or removing computers from a study

3 Optionally, you can add other filter conditions by entering thresholds for any of the metrics listed in the middle of the page. The thresholds are evaluated using a Less Than comparison.

4 Click Add Above Filter Criteria to Table to create the filter and add it to the Filter Criteria Table at the bottom of the page.

5 Optionally, you can repeat the process to create a series of filter conditions.

This option is useful if you want to create an OR condition for the filter. For example, if you wanted to consolidate all of the Microsoft Windows XP computers and any under-utilized Windows 2003 computer:

A Select WindowsXP from the OS list, and click Add Above Filter Criteria to Table.

B Select Windows2003 from the OS list, specify an Average CPU Utilization value of 10%, and click Add Above Filter Criteria to Table.

The resulting filter would find any Windows XP computer and any Windows 2003 computer with CPU usage less than 10%.

6 Click Apply Filter to filter the list of computers on the Computer Explorer page, or click Save Filter and Apply to both apply the filter and add the filter to the Computer Filter list, which makes the filter available for future use.

Once you apply the filter you are returned to the Computer Explorer page, which is refreshed to show the computers that meet the filter criteria.

Adding or removing computers from a study

Adding or removing computers from a Consolidation Study

When reviewing the list of candidate computers, you may decide that the list is incomplete, or that there are some computers you do not want included in the study.

1 From the Create Consolidation Study page, click Add/Remove.

The Add/Remove Computers page shows all computers that are available through the Study Profile specified on the Computer Explorer page.
Changing computer assignments

2. Review your selections and ensure that it reflects the list of candidate computers you want to include in the study.

3. Select any computers you want to add to the study.

4. Deselect computers that you want removed from the study.

5. Click Save.

For descriptions of each of the fields on this page, see the online Help.

Adding or removing guests from a Deployment Study

When reviewing the list of deployment candidate computers, you may decide that you want to deploy additional guests, reduce the number of guests being deployed, or want to choose a different guest profile.

From the Select Target Hosts page, click Add/Remove. You are returned to the Deploy New Guests page, where you can make the necessary changes.

Changing computer assignments

After reviewing Virtual Host report on the Results page, you may decide that there are source computers or guests assigned to this virtual host which you want to move to a different host.

To change the list of computers assigned to a virtual host, click Change Assignments on the Consolidation Results page, the Deployment Results page, or the Rebalancing Results page to display the Change Source-to-Target Assignments page. Use this page to move one or more computers from one virtual host in the study to another.
The page has a table that lists the computers involved in the study. The **Assigned Virtual Host** column shows the virtual host to which the computer has been consolidated in the study.

To move the computer to another virtual host:

1. Select the virtual host to which you want to move the computer from the list in the **Assignment Action** column, or leave the selection blank to automatically assign the computer to a host.

2. Select the reconsolidation option for the computers with a blank value in the **Assignment Action** column.
   - To automatically place the computers on virtual hosts during reconsolidation, select the **Move computers to new virtual hosts as needed to achieve optimal balancing** option.
   - To keep these computers on the virtual host specified in the **Assigned Host Computer** column, select the **Leave Computers on their currently assigned virtual host** option.

3. Click **Reconsolidate**.
Setting an affinity relationship for computers

When reviewing the list of source computers or guests on the Specify Target Hosts page or Create Consolidation Study page, you may decide that there are specific guest computers that you either do or do not want assigned to the same virtual host.

Use the Guest-to-Host Placement Limitations page to set affinity relationships between source computers or guests, specifying which ones must co-reside on the same virtual host and which ones must reside on different hosts. For example, one of the source computers may be a backup server for another source computer, which you would not want to co-reside on the same virtual host.

**NOTE**

Be aware that setting affinity relationships may impact the number of target virtual hosts that are recommended by the study. For example, if you specify that a number of guests cannot co-reside on the same virtual host, Virtualization Planning may need to create additional virtual hosts for these guests.
To set an affinity relationship for candidate computers:

1. Click **Set Affinity** on the Create Consolidation Study page to display the Guest-to-Host Placement Limitation page.

**Figure 49 Guest-to-Host Placement Limitations page**

2. Select the type of affinity relationship at the top of the page. The default choice is **Cannot co-reside on the same target**.

3. Select two or more computers for which this relationship type applies.

4. Click **Set**.

5. When you are done with setting affinity relationships, click **Save**.

### Table: Guest-to-Host Placement Limitations

<table>
<thead>
<tr>
<th>Computer</th>
<th>Domain</th>
<th>OS</th>
<th>Description (click to input)</th>
<th>Cannot Co-reside With</th>
<th>Must Co-reside With</th>
</tr>
</thead>
<tbody>
<tr>
<td>bhp1100.boston.bmc.com</td>
<td>boston.bmc.com</td>
<td>HP-UX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bhp1111.boston.bmc.com</td>
<td>boston.bmc.com</td>
<td>HP-UX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bmu26.boston.bmc.com</td>
<td>boston.bmc.com</td>
<td>SunOS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chb1.boston.bmc.com</td>
<td>adprod.bmc.com</td>
<td>Windows2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cm64.mle.boston.bmc.com</td>
<td>boston.bmc.com</td>
<td>Linux</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>esx4Wms003Q4A1</td>
<td>winNetEnterprise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>esx4Wms003Q4A1</td>
<td>win2000AdvServ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>esx4Wms003Q4A1</td>
<td>win2000AdvServ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>esx4Wms003Q4A1</td>
<td>win2000AdvServ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To clear an affinity relationship:

1. Select the type of affinity relationship at the top of the page.

2. Select the computers for which you want to remove the relationship. Clearing a relationship is reciprocal between candidate computers. For example, if computer A and computer B have an affinity relationship and you select computer A, then computer B’s relationship with computer A is also cleared, even if you did not select computer B.

3. Click Clear.

4. When you have finished clearing affinity relationships, click Save.

**NOTE**
Setting a Cannot co-reside relationship may cause additional virtual hosts to be created. For example, if you have three computers that cannot co-reside, you will need at least three hosts to accommodate that relationship.

### Changing the target hardware

You can select the hardware configuration for new virtual hosts by clicking Change CPU Model on the Create Consolidation Study, Edit Consolidation Study, Specify Target Hosts, or Edit Target Host page.

**TIP**
If you are selecting a hardware configuration for a specific study, the CPU model you choose applies only to the study you are working on. However, you can make the CPU model the default configuration for the Study Profile associated with the study. To do so, click Save to Study Profile.

---

**Figure 50  Hardware Selector page**

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Model Name</th>
<th>Processors</th>
<th>Perf Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUN</td>
<td>X4600G20000</td>
<td>16</td>
<td>239.0</td>
<td>SunFire X4600 Opteron185 16cores/Chip Score/Chip</td>
</tr>
<tr>
<td>SUN</td>
<td>X1000G2200</td>
<td>4</td>
<td>64.8</td>
<td>SunFire X1000 Opteron 275 4cores 2560Score/Chip</td>
</tr>
<tr>
<td>SUN</td>
<td>X1000G2200</td>
<td>4</td>
<td>64.8</td>
<td>SunFire X1000 Opteron 275 4cores 2560Score/Chip</td>
</tr>
<tr>
<td>SUN</td>
<td>W10080000</td>
<td>4</td>
<td>78.1</td>
<td>SunFire W40c Opteron 856-4cores 4chip Score/CHIP</td>
</tr>
</tbody>
</table>
On the Select Hardware page, browse the available list of CPU models and select one.

The table lists the configuration for many CPU models. You can filter the list by selecting a vendor from the Filter by Vendor list. You can sort the table by clicking the column heading for the vendor name, operating system type, or performance rating type.

**Changing the virtualization parameters**

You can also change the virtualization parameters by clicking Advanced on the Create Consolidation Study, Edit Consolidation Study, Specify Target Hosts, or Edit Target Host page.

The Change Advanced Settings page defines virtualization parameters such as the maximum number of guests allowed for the target host, network and I/O rates, as well as the amount of CPU overhead that will be used by the target host. You can also set thresholds for the maximum amount of the host server CPU and memory that can be used by any guest. You can also reduce configured memory for guests that have significantly more than they need.

**Figure 51 Change Advanced Settings page**

There are two ways to specify I/O and network thresholds on the Study Profile or Advanced Settings page.

- Enter specific I/O and network rate values.
Ask the module to calculate threshold values based upon measurements already available in your data. You can change any of the values shown in the Table 40.

Table 40  Fields on Change Advanced Settings page

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host CPU Utilization Threshold</td>
<td>The maximum combined value of CPU utilization for all guests on a host server, plus the CPU overhead.</td>
</tr>
<tr>
<td>New Host Additional CPU Overhead</td>
<td>The percentage of CPU utilization that will be used by the host server to support virtualization. This setting applies only to new virtual hosts, or to existing virtual hosts that do not have any guests participating in the study.</td>
</tr>
<tr>
<td>Host Memory Utilization Threshold</td>
<td>The overall memory utilization of the virtual host (which is the sum of the memory used by all its guests), divided by the configured memory of the virtual host.</td>
</tr>
<tr>
<td>Reconfigure Guest Memory</td>
<td>This value is used to reduce configured memory for computers that are over-configured when assigning them to hosts.</td>
</tr>
<tr>
<td></td>
<td>Select Never if you do not want guest configured memory to be reduced. If you do want it to be reduced, select the other radio button and specify the threshold such that when memory utilization is below this value, the configured memory for the guest will be reset. The second field is used to set the new value for configured memory.</td>
</tr>
<tr>
<td></td>
<td>For example, suppose you have set the threshold to 30%, the average memory usage of a guest is 0.66 GB, and the guest has 3 GB of configured memory. This means that its memory utilization is only 22% which is below the threshold and the memory is reconfigured when the guest is placed on a host. Its configured memory is reduced to 1.1 GB, since its target memory utilization is 60%.</td>
</tr>
<tr>
<td></td>
<td>This value must be less than the value specified for the Host Memory Utilization Threshold.</td>
</tr>
<tr>
<td>Maximum Guests per Host</td>
<td>The maximum number of guests that can be consolidated on any target host server.</td>
</tr>
<tr>
<td>Host IO Rate</td>
<td>The maximum rate of IO that is acceptable on the target host server.</td>
</tr>
<tr>
<td>Host Network Rate</td>
<td>The maximum rate of network throughput that is acceptable on the target host server.</td>
</tr>
</tbody>
</table>

Table 41 describes the error messages you get when a threshold is exceeded and recommends remedies by the type of candidate in the study.
### Viewing the guests on an existing virtual host

You can view the guests currently running on existing virtual hosts and see key performance statistics and utilization graphs for each guest.

To view the guests on an existing virtual host, click **View Guests** on the Create Consolidation Study, Edit Consolidation Study, Specify Target Hosts, or Edit Target Host page.

---

#### Table 41  Error checking and problem correction for threshold violations

<table>
<thead>
<tr>
<th>Type of system</th>
<th>Message</th>
<th>Action to take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidation candidate</td>
<td>Identifies the computer or computers and the threshold that has been exceeded.</td>
<td>Do one of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Remove the computers from the list.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use the Advanced Settings page to do one of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- increase the threshold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- use a value that is based on measured data</td>
</tr>
<tr>
<td>Guests that are not candidates</td>
<td>Identifies the guests, hosts on which they reside, and the threshold that has been exceeded.</td>
<td>Clear the host and then:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use either the <strong>Assignment Action for Existing Guests</strong> radio button or the <strong>View Guests</strong> button for the host to ignore the specified guests.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use the Advanced Settings page to do one of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- increase the threshold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- use a value that is based on measured data</td>
</tr>
<tr>
<td>Target host</td>
<td>Identifies the target host or hosts and the threshold that has been exceeded. If it is only one host, the host overhead is included in the message.</td>
<td>Do one of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Clear the host in the Virtual Host table.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use the Advanced Settings page to do one of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- increase the threshold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- use a value that is based on measured data</td>
</tr>
</tbody>
</table>
Viewing the guests on an existing virtual host

**Figure 52  Guests on Host page**

The table on the Guests on Host page shows the guests currently running on the host server, along with some basic metrics for each guest. The graphs at the bottom of the page provide a snapshot of the guest resource utilization, by interval, for the specified time period you selected for the study. The legend to the right of the graph provides a color-coded list of each guest system.

**TIP**

If you want to copy the graphs to include them in another document, right-click the graph and select **Save picture**.

You can also specify how to handle the existing guests that are currently running on the virtual host, using the options in the *Action* column. When you first display the Guests on Hosts page, the action listed in this column is the same as the assignment action shown on the *Use Existing Virtual Hosts* table. You can change the assignment action for the individual guest by selecting one of the following options:

- **Keep on current host** - select this option if you want the guest to remain on this host server in the virtualization study.
- **Move as needed** - select this option if you want Virtualization Planning to decide the best location for the guest in this study.
- **Ignore** - select this option to remove the guest from the study.
Creating or editing guest profiles

The fields on the Create Guest Profile (Figure 53) or Edit Guest Profile are identical. The only difference is that on the Edit Guest Profile page, the Name field is for display only.

**Figure 53 Create Guest Profile**

<table>
<thead>
<tr>
<th>Create Guest Profile From Performance Data</th>
<th>Help</th>
<th>Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the Performance Rating Adjustment field to scale the Performance Rating Used value of each interval in this Guest Profile. For example, enter 30 to increase all values by 20% or enter -50 to decrease all values by 50%.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile Name:</th>
<th>Developer Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Created from hypervms367 (Fri Dec 14 2007 - Sun Dec 16 2007)</td>
</tr>
<tr>
<td>OS:</td>
<td>Windows2003</td>
</tr>
</tbody>
</table>

**Performance Metrics**

- Peak Performance Rating Used: 15.54
- Average Performance Rating Used: 1.10
- Performance Rating Adjustment: 0.0 ( > -100%, applies to each interval)

- Memory Configured: 4.00 (GB)
- Memory Used: 0.81 (GB)
- Average I/O Rate: 0.09 (MB/sec)
- Average Network Rate: 0.00 (MB/sec)

You can base the guest profile on the characteristics of an existing guest.

1. Enter the identification information for the guest profile. Specify a Profile Name, and optionally a Description for the profile.

2. Specify the performance characteristics for the new guest, using the fields described in Table 42.
Working with saved studies

To view, edit, or delete a saved virtualization study, click **Work with Saved Studies** in the task pane. The Consolidation Studies page (Figure 54) lists all of the studies that have been saved.

### Table 42  Fields on Create Guest profile and Edit Guest Profile

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Performance Rating Used</td>
<td>The highest percentage of the total SPECint performance rating used by the computer (physical system or guest on virtual host) during the intervals in the specified time period. You cannot edit this field.</td>
</tr>
<tr>
<td>Average Performance Rating Used</td>
<td>The average amount of the total SPECint performance rating that the computer (physical system or guest on virtual host) used during the intervals in the specified time period. For example, if the total performance rating of a computer is 250, and the CPU utilization was 10%, then the actual performance rating used is 25. You cannot edit this field.</td>
</tr>
<tr>
<td>Performance Rating Adjustment</td>
<td>The percentage by which you want to increase the utilization of the total capacity for this guest profile. For example, to double the utilization of the total capacity, enter 100%. The performance rating observed for each interval in the measurement data be doubled.</td>
</tr>
<tr>
<td>Memory Configured</td>
<td>The total amount of memory (in GB) allocated for guest.</td>
</tr>
<tr>
<td>Memory Used</td>
<td>The average amount of memory (in GB) that the guest will use.</td>
</tr>
<tr>
<td>Average IO Rate</td>
<td>The average IO rate (in MB/sec) for the guest.</td>
</tr>
<tr>
<td>Average Network Rate (MB/sec)</td>
<td>The average network throughput (in MB/sec) for the guest.</td>
</tr>
</tbody>
</table>

3  Click **Save**.

**TIP**

You can edit, copy, or delete these Guest Profiles using the **Work with Guest Profiles** option in the task pane.
After creating and reviewing a virtualization study, you can edit the basic parameters for the study, and run the study again.

1. Select the virtualization study.
   - For studies that have been saved but not consolidated: click the Work with Saved Studies task in the navigation pane, select the study, and click View/Edit.
   - For studies that have been consolidated: click the Work with Saved Studies task in the navigation pane, select the study, click View/Edit to display the Consolidation Results page, and click Change Parameters.

2. You can make changes to the parameters that apply for this virtualization study only, or you can make the values the default settings by saving them to the Study Profile.

   The parameters for the study are the same as the ones you specify when you create a new Consolidation Study, Deployment Study, or Rebalancing Study. See the online Help for descriptions of the parameters.

3. Click Save Study.

4. Optionally, you can export the study to a different format by clicking View Results as PDF or View Results as RTF.

What to do next

Exporting the results into a report

You can export the results and recommendations from a virtualization study into different formats (PDF or RTF), to create a formal server consolidation report that can be shared with other members of the company.
1 On the Results page, click the View Results as PDF or View Results as RTF.

2 On the File Download dialog, click Open to view the report.

Figure 55 shows an example of the report in PDF format.

Figure 55  Results exported into report format

**Working with Study Profiles**

A Study Profile acts as a partial template for a Virtualization Study. It includes the specifications for the hardware configuration of virtual hosts as well as other parameters, such as threshold and overhead values.

You can create, edit, and copy Study Profiles to specify settings appropriate to different virtualization scenarios. You can also delete existing Study Profiles.

Click **Work with Study Profiles** in the task pane to display the Study Profiles page (Figure 56).
The table on the Study Profiles page lists basic information about the Study Profile, such as the profile name and the type of virtualization platform, as well as some advanced threshold settings for the profile.

**Editing a Study Profile**

Study Profiles contain two types of information:

- virtualization parameters which affect what operating systems can be virtualized, and some performance thresholds and overhead

- hardware configuration information for the new virtual hosts

These settings appear on the Create Study Profile, Edit Study Profile, and Copy Study Profile pages. Use the Edit Study Profile page (Figure 57) to change any of the Study Profile settings.

1. On the Study Profiles page, click **Edit** next to the Study Profile you want to update.

2. Update the description for the Study Profile.

3. Change the default virtualization parameters for the virtual host on which the computers will be consolidated.

The options in the section specify the operating system types for the computers that will be involved in any study using this profile, and the operating system type of the default virtual host server. You also specify several virtualization options for the host server.
See “Changing the virtualization parameters” on page 170.

4 Click **Change CPU Model** to display the Hardware Selector page, where you can change the CPU model for new virtual host servers.

See “Changing the target hardware” on page 169.

5 Click **Save**.

**Figure 57  Edit Study Profile page**

For descriptions of the fields on this table, see the online Help.
Creating a new Study Profile

To create a new Study Profile that you can use as the base for a future Virtualization Study:

1. On the Study Profiles page, click **Create Profile**.

2. On the Create Study Profiles page, specify a name for the Study Profile and optionally provide a short description.

3. Specify the default virtualization parameters for the virtual hosts on which the computers will be consolidated.

   See “Changing the virtualization parameters” on page 170.

4. Click **Change CPU Model** to display the Hardware Selector page, where you can specify the CPU model for the virtual host server.

   See “Changing the target hardware” on page 169.

5. Click **Save**.

Changing default parameters

There are several base settings for the Virtualization Planning feature that you can change if you want to make global modifications to the application. These settings apply to the performance rating that is the basis for the performance statistics shown in the studies, as well as the Hardware Table service and the level of detail used for the Virtualization Planning log files.

To display the Settings page (Figure 58), click **Settings** in the lower left corner of the Virtualization Planning tab.
Figure 58  Settings page

Table 43 describes the settings on this page.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Rating Basis</td>
<td>This setting specifies which performance rating is the basis for the performance statistics shown in the studies. The available options are:</td>
</tr>
<tr>
<td></td>
<td>- SPECintRate2000 (the default)</td>
</tr>
<tr>
<td></td>
<td>- SPECint95</td>
</tr>
<tr>
<td></td>
<td>- SPECint2000</td>
</tr>
<tr>
<td></td>
<td>- MIPS</td>
</tr>
<tr>
<td></td>
<td>- SPECint2006</td>
</tr>
<tr>
<td></td>
<td>- SPECintRate200</td>
</tr>
<tr>
<td>Hardware Service</td>
<td>These settings specify the location of the hardware table service that provides the list of hardware models for the new virtual hosts. The default location is the computer on which BMC Performance Perceiver is installed, although you can modify that location by specifying a different computer name and port number.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you have updated any of the Hardware Tables, click <strong>Reset Hardware Cache</strong> to refresh the view of the tables.</td>
</tr>
<tr>
<td>Logging Level</td>
<td>Use this option to control the level of detail for the Virtualization Planning log file.</td>
</tr>
<tr>
<td></td>
<td>Click <strong>View Log File</strong> to launch a window showing the contents of the log file.</td>
</tr>
</tbody>
</table>
General Manager

This appendix presents the following topics:

Installing the General Manager Server ........................................... 184
General Manager features............................................................. 187

General Manager coordinates and controls Manager runs by integrating multiple customer consoles running UNIX and Windows under a single umbrella. You can perform any of the following actions:

- List what is running on each console (both manager run information and node information)
- Start, stop, view, and recover existing manager runs
- View reports and logs
- Node History
- Collection and Transfer Status Report (UCM Status Report)
- Processing Report (OSR)
- Data Collection and Processing Exception Report
- Manager Run logs
- View console configuration (operating system, console version and patch level)

The General Manager consists of the **General Manager Client** component and the **General Manager Server** component. The server and client communicate via Web Services.

The General Manager Server resides on the same node as the Manager Console. The General Manager Client user interface is integrated with BMC Performance Perceiver 7.5.00 and is a separate tab in the Perceiver product. The Client manages multiple manager installations on Microsoft Windows and UNIX.

Execute the steps described in “Installing the General Manager Server” to start the General Manager Server.
Installing the General Manager Server

**BMC_GMService** is installed when you install a Console. To manage a Console using General Manager, make sure that the **BMC_GMService** is running on the Console.

### On Microsoft Windows

When you install BMC Performance Assurance, the General Manager service is installed and started. You can also install General Manager using either of the following two methods.

- “To start the General Manager Server in a Standalone mode on Microsoft Windows”
- “To start the General Manager Server on Tomcat”

### On UNIX and Linux

You can install General Manager using either of the three methods. BMC recommends you to use the first method

- “To install and start the General Manager Server in Standalone mode as a persistent service on UNIX”
- “To stop the General Manager Server in Standalone mode as a persistent service on UNIX”
- “To start the General Manager Server in Standalone mode on UNIX”
To start the General Manager Server in a Standalone mode on Microsoft Windows

1. On the command prompt, execute the
   \%BEST1\_HOME\%\bgs\bin\GeneralManagerServer.exe <port number> command.

--- EXAMPLE
“C:\Program Files\BMC Software\Patrol3\BEST1\NTC\bgs\bin\GeneralManagerServer.exe” 10129

To install and start the General Manager Server in Standalone mode as a persistent service on UNIX

1. On the command prompt, execute the
   $BEST1\_HOME/bgs/scripts/startGeneralManager [port] command. (Port number is optional here, by default it takes 10129). This will start General Manager Server on the post 10129.

--- EXAMPLE
/usr/adm/best1\_7.5.00/bgs/scripts/startGeneralManager [10129]

To stop the General Manager Server in Standalone mode as a persistent service on UNIX

1. On the command prompt, execute the
   $BEST1\_HOME/bgs/scripts/stopGeneralManager [port] command.

--- EXAMPLE
/usr/adm/best1\_7.5.00/bgs/scripts/stopGeneralManager

To start the General Manager Server in Standalone mode on UNIX

1. On the command prompt, execute the
   $BEST1\_HOME/bgs/bin/GeneralManagerServer <port number> command.

--- EXAMPLE
/usr/adm/best1\_7.5.00/bgs/bin/GeneralManagerServer 10129

To start the General Manager Server on Tomcat

--- NOTE
If you want to use the Collect and Transfer (UCM) and Processing Report (OSR) features, you must start the General Manager Server on Tomcat.

---
By deploying with Tomcat, you can access the UCM (UDR Collection Manager) and OSR (Operational Status Reports) remotely.

On the command prompt, execute the Perl script with the Tomcat installation directory. For example, on Microsoft Windows, use the `%BEST1_HOME%\bgs\bin\Deploy.pl –d <tomcat installation dir> command.

--- EXAMPLE ---
For Microsoft Windows:
“C:\Program Files\BMC Software\Patrol3\BEST1\NTC\bgs\bin\Deploy.pl” –d
“C:\Program Files\Apache Software Foundation\Tomcat 5.5”

For UNIX:
/usr/adm/best1_7.5.00/bgs/bin/Deploy.pl –d “/perceive-7500/CWA/apache-tomcat”

If you are using Tomcat version 5.5, rename the servlets-cgi.renametojar file to servlets-cgi.jar file in the <tomcat installation dir>\server\lib folder.

Start the Tomcat application.

Add the BMC Performance Assurance 7.5 Manager Console to the General Manager Client user interface by entering the name of the Manager console and the port number.

--- NOTE ---
The default port is 10129, and the default web server port is 8080.
General Manager features

Using General Manager, you can monitor and manage Consoles and Manager runs. You can use the General Manager tab in Perceiver to start, stop, and schedule manager runs. Using General Manager, you can perform the following operations for Consoles.

- **Console Management** - Once the General Manager service is enabled, add the Consoles that you want to manage. The Console Management feature of General Manager enables you to keep a tab of the Consoles that you are managing. Using this feature, you can add Consoles, remove them, and check their status. Using General Manager, you can perform the following Console Management activities.
  - View Consoles
  - Add Consoles
  - Remove Consoles

- **Console Operations** - Several manager runs run on a Console. These runs collect, transfer, process, and populate data. General Manager enables you to schedule, monitor, recover, and abort the manager runs for multiple Consoles. This feature enables you to control the manager runs for a Console irrespective of the Console operating system. Using General Manager, you can perform the following Console Operations activities.
  - List Nodes
  - View scheduled runs
  - Schedule new runs
  - Stop scheduled runs
  - Recover runs
  - Console Configuration

- **Console Reports** - General Manager generates reports that help you to track the performance of the Consoles and manager runs. Using General Manager, you can view the following Console Reports.
  - Node History
  - Exception reports
  - Collect and Transfer report
  - Processing Report

- **Console Logs** - You can use General Manager to view Manager Run logs.

- **Preferences** - Using General Manager, you can set the log level settings of the application.
  - Log reports for a Low logging level provide information messages.
  - Log reports for a High logging level provide information and debugging
messages

NOTE
For more information, refer the General Manager online Help.
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