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

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For BMC Control-M Products that are licensed on the “per CPU - Full Capacity” unit of measurement and installed in an Amazon Web Services (“AWS”) or Microsoft Azure (“Azure”) cloud environment, a license is required for the total number of CPUs in each AWS or Azure instance upon which the Product is installed or which the Product manages, either remotely or locally. For AWS, one CPU is equivalent to one vCPU, as defined by AWS. For Azure, one CPU is equivalent to up to four Virtual Cores (as defined by Azure), rounded up to the closest multiple of four.

Server Endpoint Licensing

All machines upon which any Control-M component is installed or upon which Control-M managed workload runs must be licensed. This includes Control-M Agent/Agentless platforms onto which one or more application plug-ins are installed but also includes Control-M Agent/Agentless platforms where no application plug-ins are installed. Control-M Agent/Agentless platforms on which jobs are ordered are counted regardless of whether those jobs execute or not. All Server Endpoints are counted, including development, staging, QA, pre-production, test, and production environments.
The licensing guidelines for application plug-ins are as follows:

- **ERP and BI/DI**: The application server(s) upon which Control-M managed processes are executed should be licensed in addition to the Control-M Agent machine(s) (in some cases, this may be the same machine).

- **Databases**: Each database server upon which Control-M managed database related processes are being executed should be counted in addition to the Control-M Agent machine(s).

- **AFT and MFT**: Only the machine(s) upon which the AFT or MFT plug-in is installed should be licensed.

- **Web Services, Java & Messaging**: only the Control-M Agent machine(s) upon which the plug-in is installed should be licensed.

- **Backup**: The Control-M Agent machine(s) where the Backup plug-in is installed and also the hosts which are running the backup server software should be licensed (note that this excludes the client machines for which the Backup Server software is managing actual backup processes except where a backup takes place of the backup server machine itself).

- **Cloud**: only the Control-M Agent machine(s) upon which the plug-in is installed should be licensed.

- **Hadoop**: All machines in each managed Hadoop Cluster should be licensed.

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**Customer support**

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

**Support website**

You can obtain technical support from BMC 24 hours a day, 7 days a week at http://www.bmc.com/support. From this website, you can:
- Read overviews about support services and programs that BMC offers
- Find the most current information about BMC products
- Search a database for issues similar to yours and possible solutions
- Order or download product documentation
- Download products and maintenance
- Report an issue or ask a question
- Subscribe to receive proactive e-mail alerts when new product notices are released
- Find worldwide BMC support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

**Support by telephone or e-mail**

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

**Before contacting BMC**

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

- **Product information**
  - Product name
  - Product version (release number)
  - License number and password (trial or permanent)

- **Operating system and environment information**
  - Machine type
  - Operating system type, version, and service pack or other maintenance level such as PUT or PTF
  - System hardware configuration
  - Serial numbers
  - Related software (database, application, and communication) including type, version, and service pack or maintenance level

- **Sequence of events leading to the issue**

- **Commands and options that you used**

- **Messages received (and the time and date that you received them)**
  - Product error messages
  - Messages from the operating system, such as `file system full`
  - Messages from related software
License key and password information

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

- (USA or Canada) Contact the Order Services Password Team at 800 841 2031, or send an e-mail message to ContractsPasswordAdministration@bmc.com.

- (Europe, the Middle East, and Africa) Fax your questions to EMEA Contracts Administration at +31 20 354 8702, or send an e-mail message to password@bmc.com.

- (Asia-Pacific) Contact your BMC sales representative or your local BMC office.

Third party Software

For the provisions described in the BMC License Agreement and Order related to third party products or technologies included in the BMC Product, see https://docs.bmc.com/docs/display/workloadautomation/Control-M+Workload+Automation+Documentation and click Third-party software (TPS).
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Introduction to Control-M installation

Control-M installation includes all Control-M components and enables you to install a new installation on a clean computer or upgrade an existing installation. You can install or upgrade the latest version of Control-M components whether it’s an annual or fix pack version from the same installation files. You do not need to install a base version and then apply fix packs. You can use the same installation files to install a new installation or upgrade an existing installation.

**EXAMPLE:** You can use the version 9.0.18 installation files to install Control-M on a clean account or upgrade an existing Control-M version to 9.0.18.

To upgrade an existing version of Control-M/EM server and clients, Control-M/Server, and Control-M/Agents, see Control-M upgrade (on page 12).

To install one or many Control-M components on a clean account, see one of the following options:

- **Control-M full installation** (on page 21): Enables you to install the Control-M package with all Control-M components including Application Plug-ins, and add-ons, (see Control-M installation terminology (on page 10)) on UNIX and Windows via an interactive or automatic installation. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings.

- **Control-M/Agent installation** (on page 46): Enables you to install additional Control-M/Agents on different computers throughout your organization, which enables you to run jobs on multiple computers. This enhances performance and creates greater load balancing control.

- **Control-M client installation** (on page 53): Enables you to install additional Control-M clients on different computers throughout your organization, which enable multiple users in your organization to access Control-M.

- **Control-M additional installations** (on page 76): Enables you to install multiple instances of Control-M/Enterprise Manager (Control-M/EM), Control-M/Server, and individual Application Plug-ins (see Control-M Application Plug-ins (on page 29)). You can also install a secondary instance of Control-M full installation, Control-M/EM, and Control-M/Server for High Availability (see High availability installation (on page 95)).

If you are installing Control-M in a cluster environment, see Control-M cluster configuration (on page 105).

**NOTE:** Ensure that all of your existing Control-M Reporting Facility reports and data are migrated and converted into Control-M Reports, as described in Control-M Reporting Facility migration.

**NOTE:** Control-M automatically collects information on your product usage patterns. This information helps BMC to identify trends, enhance Control-M capabilities, and improve the quality. BMC does not collect any of your personal or organizational identifiable data. Your participation in the usage collection is optional. You can opt-out at any time by changing the values of the UsageCollectionDisabled system parameter to 1, as described in CMS parameters.
Planning your installation

In Control-M, you have the option to install both Control-M/EM and Control-M/Server in one account for UNIX and Windows using the Full Install option or you can install Control-M/EM in one account and Control-M/Server in a different account. In addition, you can install each component on a separate computer in separate accounts. There are several advantages to install each component in a distributed configuration. These considerations are more relevant in a production environment than they are in a non-production environment. A distributed environment has benefits if you need to perform maintenance on a computer, OS kernel, or for backup/restore a PostgreSQL database. PostgreSQL in a Full install builds two databases on a single database server instance and when a backup or restore is performed, both Control-M/EM and Control-M/Server are impacted and must be down.

The Full install option is recommended in a testing environment or if you have limited resources and you need to install all Control-M components on one computer. Note all aspects of redundancy, availability, and the cost of ownership to meet those objectives.

Language options

Support for East Asian languages (Simplified Chinese, Traditional Chinese, Japanese, and Korean) is provided for all installations at the database level.

When you create a Control-M database on an existing PostgreSQL or MSSQL database server, CJK settings are not inherited automatically from the database server. They must be defined during the installation.

When you create a Control-M database on an existing Oracle database server, CJK settings are inherited automatically from the database server.

For more information regarding language support, including CJK and databases, see Language and Customization.
Control-M installation terminology

The following table lists terms that are specific to the Control-M environment.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>Control-M client</td>
<td>Provides the main interface to your real-time batch environment and consists of the following GUI applications:</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M Configuration Manager</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M Reports</td>
</tr>
<tr>
<td>Control-M/Agent</td>
<td>Handles job execution and runs jobs on behalf of its requesting Control-M/Server, tracks the job processing, and sends status information back to the Control-M/Server.</td>
</tr>
<tr>
<td>Control-M Add-ons</td>
<td>The following Control-M Add-ons are automatically installed in a trial version, which enables you to use the Add-on functionality:</td>
</tr>
<tr>
<td></td>
<td>▪ Batch Impact Manager</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M/Forecast</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M Self Service</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M Workload Change Manager</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M Workload Archiving</td>
</tr>
<tr>
<td>Control-M/EM</td>
<td>Controls and manages your production jobs. Control-M/EM provides a single, centralized point of access and control that enables you to view, monitor, manage, and intervene in batch flow processing across the entire enterprise. Control-M/EM on Windows includes the Control-M client.</td>
</tr>
<tr>
<td>Control-M/Server</td>
<td>Handles job scheduling and processing needs that can be used in the Control-M environment. You can install multiple instances of Control-M/Server and each is responsible for scheduling individual jobs, managing job processing flows, and notifying Control-M/EM of job statuses.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Trial Version         | Installs a trial version of Control-M with all base and optional components including the following:<br>**NOTE:** This version is intended for testing and evaluation, not for usage in a production environment. For production usage in the future, uninstall the trial version and then re-install a non-trial version.  
  - Batch Impact Manager  
  - Control-M/Forecast  
  - Control-M Self Service  
  - Control-M Workload Change Manager  
  - Control-M Workload Archiving |
| Non-Trial Version     | Install the following Control-M base components:<br>  
  - Control-M/Enterprise Manager  
  - Control-M/Server  
  - Control-M/Agent  
  - Control-M for SAP  
  - Control-M for Web Services, Java, and Messaging  
  - Control-M for OEBS  
  - Control-M for Informatica  
  - Application Pack (Control-M for Databases, Control-M for Backup, Application Integrator) |
Control-M upgrade

The Control-M upgrade process upgrades your current version of Control-M/Enterprise Manager, Control-M/Server, and Control-M/Agent to the latest version (annual or fix pack) on the same computer. This eliminates the need to migrate data and reduces downtime. To minimize downtime, Control-M processes are up during the upgrade preparation process, which prepares all the required files. After the preparation completes, you are prompted to confirm the shutdown of Control-M processes. After the processes are shut down, the upgrade begins and completes with minimum downtime.

**NOTE:** If you are using 9.0.00.100 or higher, you can do this upgrade procedure. However, if you are using a previous version, you must migrate your data, as described in Introduction to Control-M Migration.

The upgrade process supports compatibility across all Control-M components, as follows:

- An upgraded Control-M/EM is compatible with lower versions of Control-M/Server (from 8.0.00.000 and higher).
- An upgraded Control-M/Server is compatible with lower versions of Control-M/EM (from 9.0.00.000 and higher)
- An upgraded Control-M/EM is compatible with lower versions of Control-M client (from 9.0.00.000 and higher). However, the new features of the upgrade are disabled. For more information, see Compatibility Mode.

The following is a typical scenario of the upgrade flow:

- Control-M/EM server: After the upgrade completes, Control-M/EM is in Compatibility Mode and older Control-M clients that weren’t upgraded can still work with the upgraded Control-M/EM server.
- Control-M clients: The new features are disabled in Compatibility Mode. You can upgrade manually or with Client Distribution.
- Control-M/Server
- Turn off Compatibility Mode, as described in Turning off Compatibility Mode.
- Control-M/Agents: You can upgrade manually or with Control-M/Agent deployment.

Before you upgrade, review the Upgrade requirements and considerations (on page 13) that might affect your environment.

The following procedures describe how to upgrade Control-M/EM, Control-M/Server, and Control-M/Agent:

- Upgrading Control-M/EM on UNIX (on page 13)
- Upgrading Control-M/EM on Windows (on page 15)
- Upgrading Control-M/Server on UNIX (on page 16)
- Upgrading Control-M/Server on Windows (on page 17)
- Upgrading Control-M/Agent on UNIX (on page 18)
- Upgrading Control-M/Agent on Windows (on page 19)
Upgrade requirements and considerations

Before you upgrade, review the following requirements and considerations to ensure that your environment is ready for the changes.

- During the upgrade, the Client Distribution feature is disabled. After the upgrade, you can only distribute Control-M client version 9.0.18 and higher.
- Ensure that all of your existing Control-M Reporting Facility reports and data are migrated and converted into Control-M Reports, as described in Control-M Reporting Facility migration.
- To benefit from the new features of the upgrade, both Control-M/EM and Control-M/Server must be upgraded to the latest version. For Application Pack deployment, Control-M/Agent must be upgraded to the latest version as well.
- After the client upgrade, you need to set the correct Host and port in the promotion environments. Control-M client 9.0.18 with Compatibility on can promote to all 9.0.18 environments. Control-M client 9.0.18 with Compatibility off can only promote to 9.0.18 environments with compatibility mode turned off. After the client upgrade you cannot promote to Control-M 9.0.00.
- The Control-M client connects to the Control-M/EM server via the Control-M Web Server. If you have upgraded from version 9.0.00, verify that the Web Server hostname and port number are correct. After the upgrade, if HTTPS is not configured on the Control-M Web Server, all Control-M clients communicate with HTTP (not secured).
- If your environment is encrypted with SSL, you need to verify that the Control-M Web Server is configured with SSL and save the Windows keystore before you upgrade the client or use Control-M/EM API, as described in Configuring Control-M/EM Web Server to work with HTTPS.
- Control-M automatically collects information on your product usage patterns. This information helps BMC to identify trends, enhance Control-M capabilities, and improve the quality. BMC does not collect any of your personal or organizational identifiable data. Your participation in the usage collection is optional. You can opt-out at any time by changing the values of the UsageCollectionDisabled system parameter to 1, as described in CMS parameters.

Upgrading Control-M/EM on UNIX

This procedure describes how to upgrade from Control-EM 9.0.00.100 and higher to the latest version of Control-M/EM on UNIX. If you want to upgrade multiple instances of Control-M/EM on several computers using the same configuration, use the automatic installation, as described in this procedure.

**NOTE:** The default upgrade is interactive and uses a GUI display. XServer must be running and configured using the DISPLAY environment variable. If you do not have XServer available, BMC recommends that you continue with the console upgrade or perform an automatic upgrade.
Before You Begin

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the new version of Control-M/EM, as described in Control-M/EM UNIX system requirements (on page 77).
- If you are upgrading Control-M in a cluster environment, see Control-M/EM UNIX cluster configuration (on page 115).

➢ To upgrade Control-M/EM on UNIX:

1. Do one of the following:
   - Mount the Installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the .tar.Z file.

2. Set your DISPLAY environment variable, as described in Setting environment variables in UNIX (on page 31).

3. From your home directory, type the following command:
   `<source_path>/setup.sh`

4. Do one of the following:
   - Interactive upgrade: Select the Control-M/Enterprise Manager option and continue with the on-screen instructions until the upgrade is complete.
   - Automatic upgrade: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Enterprise Manager option and continue with the on-screen instructions until the Summary window.
        
        **NOTE:** There is no confirmation to shut down Control-M/EM processes. It is done automatically.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the upgrade.
        A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic upgrade parameters file to a network location that is accessible to all computers where you want to perform an automatic upgrade.
     f. To run the upgrade script, type the following command:
        `<source_path>/setup.sh -silent <xml_path>/<filename.xml`

The upgrade logs can be found at the following location:

`<$HOME>/BMCIINSTALL/log/BMC_Control-M_Enterprise_Manager_<date-time>.log`

To ensure compatibility between older versions of Control-M client, Control-M/EM is now running in Compatibility Mode.
Upgrading Control-M/EM on Windows

This procedure describes how to upgrade from Control-EM 9.0.00.100 and higher and Control-M client 9.0.00 and higher to the latest version of Control-M/EM on Windows. If you want to install multiple instances of Control-M/EM on several computers using the same configuration, use the automatic installation, as described in this procedure.

Before You Begin

- Ensure that your operating system and database software is compatible with the new version of Control-M/EM, as described in Control-M/EM Windows system requirements (on page 78).
- If you are installing on cluster environment, see Control-M/EM Windows cluster configuration (on page 107).

To upgrade Control-M/EM on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.
2. Do one of the following:
   - From the Installation DVD, double-click the `setup.exe` file.
   - From a command prompt window, enter `<source_path>\setup.exe`.
3. Do one of the following:
   - **Interactive upgrade**: Select the Control-M/Enterprise Manager option and continue with the on-screen instructions until the upgrade is complete.
   - **Automatic upgrade**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Enterprise Manager option and continue with the on-screen instructions until the Summary window.
        
        **NOTE**: There is no confirmation to shut down Control-M/EM processes. It is done automatically.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the upgrade.
        
        A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic upgrade parameters file to a network location that is accessible to all computers where you want to perform an automatic upgrade.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the upgrade DVD is still in the DVD drive, and run the upgrade script, as follows:
        
        `<source_path>\Setup_files\components\em\setup.exe -silent <xml_path>\<filename.xml>`
        
        The upgrade log can be found at the following location:
        
        `%temp%\BMC_Control-M_Enterprise_Manager_<date-time>.log`
To ensure compatibility between older versions of Control-M client, Control-M/EM is now running in Compatibility Mode.

Upgrading Control-M/Server on UNIX

This procedure describes how to upgrade from Control-M/Server 9.0.00.100 and higher to the latest version of Control-M/Server on UNIX. If you want to upgrade multiple instances of Control-M/Server on several computers using the same configuration, use the automatic upgrade, as described in this procedure.

NOTE: The default upgrade is interactive and uses a GUI display. XServer must be running and configured using the DISPLAY environment variable. If you do not have XServer available, BMC recommends that you continue with the console upgrade or perform an automatic upgrade.

Before You Begin

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the new version of Control-M/Server, as described in Control-M/Server UNIX system requirements (on page 83).
- If you are upgrading on cluster environment, see Control-M/Server UNIX cluster configuration (on page 122).

➢ To upgrade Control-M/Server on UNIX:

1. Do one of the following:
   - Mount the Installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the .tar.Z file.

2. Set your DISPLAY environment variable, as described in Setting environment variables in UNIX (on page 31).

3. From your home directory, type the following command:
   `<source_path>/setup.sh`

4. Do one of the following:
   - Interactive upgrade: Select the Control-M/Server option and continue with the on-screen instructions until the upgrade is complete.
   - Automatic upgrade: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Server option and continue with the on-screen instructions until the Summary window.
        NOTE: There is no confirmation to shut down Control-M/Server processes. It is done automatically.
     b. Click Generate and select the location to create the XML parameter file.
c. Click Yes to quit the upgrade.  
A confirmation message appears.

d. Click Yes.

e. Copy the automatic upgrade parameters file to a network location that is accessible to all computers where you want to perform an automatic upgrade.

f. To run the upgrade script, type the following command:

```
<source_path>/Setup_files/components/ctm/setup.sh -silent
<xml_path>\<filename.xml>
```

The upgrade log can be found at the following location:

```
<$HOME>/BMCINSTALL/log/BMC_Control-M_Server_<date-time>.log
```

### Upgrading Control-M/Server on Windows

This procedure describes how to upgrade from Control-M/Server 9.0.00.100 and higher to the latest version of Control-M/Server on Windows. If you want to upgrade multiple instances of Control-M/Server on several computers using the same configuration, use the automatic upgrade, as described in this procedure.

#### Before You Begin

- Ensure that your operating system and database software is compatible with the new version of Control-M/Server, as described in Control-M/Server Windows system requirements (on page 84).
- If you are upgrading on cluster environment, see Control-M/Server Windows cluster configuration (on page 121).

To upgrade Control-M/Server on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.

2. Do one of the following:
   - From the Installation DVD, double-click the `setup.exe` file.
   - From a command prompt window, enter `<source_path>\setup.exe`.

3. Do one of the following:
   - **Interactive upgrade**: Select the Control-M/Server option and continue with the on-screen instructions until the upgrade is complete.
   - **Automatic upgrade**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Server option and continue with the on-screen instructions until the Summary window.
        **NOTE**: There is no confirmation to shut down Control-M/Server processes. It is done automatically.
     b. Click Generate and select the location to create the XML parameter file.
Control-M Installation Guide

c. Click **Yes** to quit the upgrade.

A confirmation message appears.

d. Click **Yes**.

e. Copy the automatic upgrade parameters file to a network location that is accessible to all computers where you want to perform an automatic upgrade.

f. Log in using a user ID that has Administrator permissions on the current computer.

g. Ensure that the upgrade DVD is still in the DVD drive, and run the upgrade script, as follows:

\[ <\text{source\_path}>\text{\{Setup\_files\}\{components\}\{ctm\}\{setup.sh\ \ -silent} \\\n<\text{xml\_path}>\text{\{filename.xml} \\\n\]

The upgrade log can be found at the following location:

\%temp\%\ BMC\_Control-M\_Server\_ <\text{date\_time}>.log

Upgrading Control-M/Agent on UNIX

This procedure describes how to upgrade from Control-M/Agent 9.0.00 and higher to the latest version of Control-M/Agent on UNIX. If you want to upgrade multiple instances of Control-M/Agent on several computers using the same configuration, use the automatic upgrade, as described in this procedure.

**NOTE:** This procedure upgrades Control-M/Agent locally. To deploy and upgrade multiple Control-M/Agents from the CCM, see Control-M/Agent deployment.

**NOTE:** The default upgrade is interactive and uses a GUI display. XServer must be running and configured using the `DISPLAY` environment variable. If you do not have XServer available, BMC recommends that you continue with the console upgrade or perform an automatic upgrade.

**Before You Begin**

Ensure that you have met the following requirements:

- Ensure that your operating system and database software is compatible with the new version of Control-M/Agent, as described in Control-M/Agent system requirements (on page 46).
- Ensure that the Internal Process Communication (IPC) subsystem is enabled.
- Verify that your locale is set to **English** before beginning the upgrade.

**To upgrade Control-M/Agent on UNIX:**

1. Log in as a Control-M/Agent user and then switch to user **root**.
2. Do one of the following:
   - Mount the Installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the `.tar.Z` file.

If you are upgrading Control-M/Agent in non-root mode, log out user root and log in as the Control-M/Agent user.
3. Set your `DISPLAY` environment variable, as described in Setting environment variables in UNIX (on page 31).

4. From your home directory, type the following command:

   `<source_path>/setup.sh`

5. Do one of the following:

   - **Interactive upgrade**: Select the **Control-M/Agent** option and continue with the on-screen instructions until the upgrade is complete.
   - **Automatic upgrade**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     - Select the **Control-M/Agent** option and continue with the on-screen instructions until the Summary window.
       
       **NOTE**: There is no confirmation to shut down Control-M/Agent processes. It is done automatically.
     - Click **Generate** and select the location to create the XML parameter file.
     - Click **Yes** to quit the upgrade.
       
       A confirmation message appears.
     - Click **Yes**.
     - Copy the automatic upgrade parameters file to a network location that is accessible to all computers where you want to perform an automatic upgrade.
     - To run the upgrade script, type the following command:
       
       `<source_path>/Setup_files/components/agent/setup.sh -silent <xml_path>/<filename.xml>`

       The upgrade log can be found at the following location:

       `<$HOME>/BMCINSTALL/log/BMC_Control-M_Agent_<date-time>.log`

**Upgrading Control-M/Agent on Windows**

This procedure describes how to upgrade from Control-M/Agent 9.0.00 and higher to the latest version of Control-M/Agent on Windows. If you want to upgrade multiple instances of Control-M/Agent on several computers using the same configuration, use the automatic upgrade, as described in this procedure.

**NOTE**: This procedure upgrades Control-M/Agent locally. To deploy and upgrade multiple Control-M/Agents from the CCM, see Control-M/Agent deployment.

**NOTE**: You can only upgrade Control-M/Agent with no down time from version 9.0.00.200

**Before You Begin**

Ensure that your operating system and database software is compatible with the new version of Control-M/Agent, as described in **Control-M/Agent system requirements** (on page 46).
To upgrade Control-M/Agent on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.

2. Do one of the following:
   - From the Installation DVD, double-click the setup.exe file.
   - From a command prompt window, enter <source_path>\setup.exe.

3. Do one of the following:
   - **Interactive upgrade**: Select the Control-M/Agent option and continue with the on-screen instructions until the upgrade is complete.
   - **Automatic upgrade**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Agent option and continue with the on-screen instructions until the Summary window.
        - **NOTE**: There is no confirmation to shut down Control-M/Agent processes. It is done automatically.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the upgrade.
        A confirmation message appears.
     d. Click Yes.
        The automatic upgrade XML parameters file that is created (<filename>.xml) is relevant only for computers with the same agent instance name. Otherwise, a separate <filename>.xml file must be created for each computer, or modified manually for each computer.
     e. Copy the automatic upgrade parameters file to a network location that is accessible to all computers where you want to perform an automatic upgrade.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the upgrade DVD is still in the DVD drive, and run the upgrade script, as follows:
        <source_path>\Setup_files\components\agent\setup.exe -silent
        <xml_path>\<filename>.xml

The upgrade log can be found at the following location:

%temp% \ BMC_Control-M_Agent_ <date-time>.log
Control-M full installation

The Control-M full installation installs the Control-M package with all Control-M components including Application Plug-ins, add-ons, and Automation API on UNIX and Windows via an interactive or automatic installation. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings.

Before you install Control-M, verify the requirements, as described in Control-M full installation system requirements (on page 22).

If you are installing Control-M on UNIX, complete the pre-install procedures, as described in Control-M pre-installation procedures on UNIX (on page 29) and the post install procedures, as described in Control-M post installation procedures on UNIX (on page 37).

The following procedures describe how to install Control-M on UNIX and Windows:

- Installing Control-M on UNIX (on page 36) (You need to install the Control-M client on a Windows computer)
- Installing Control-M on Windows (on page 44)

**NOTE**: Control-M automatically collects information on your product usage patterns. This information helps BMC to identify trends, enhance Control-M capabilities, and improve the quality. BMC does not collect any of your personal or organizational identifiable data. Your participation in the usage collection is optional. You can opt-out at any time by changing the values of the UsageCollectionDisabled system parameter to 1, as described in CMS parameters.
Control-M full installation system requirements

Before you install Control-M, verify that your operating system, processor, and database server are supported and have the correct amount of memory and disk space. For a full list of requirements, see the Control-M 9.0.18 Release Notes.

Depending on your operating system, verify that your system meets one of the following requirements:

- **Full installation UNIX system requirements** (on page 22)
- **Full installation Windows system requirements** (on page 23)

**NOTE:** The number of processes limit must be equal to or greater than the number of expected parallel running jobs.

### Full installation UNIX system requirements

The following table lists the prerequisite requirements for a UNIX platform. These values represent the minimum requirements for an entry level deployment. For higher capacity workloads, add resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible processors</td>
<td>AIX</td>
<td>IBM RISC System/6000</td>
</tr>
<tr>
<td></td>
<td>Oracle Solaris</td>
<td>SPARC</td>
</tr>
<tr>
<td></td>
<td>Linux</td>
<td>x86_64</td>
</tr>
<tr>
<td>Memory</td>
<td>N/A</td>
<td>8 GB</td>
</tr>
<tr>
<td>Diskspace</td>
<td>N/A</td>
<td>100 GB</td>
</tr>
</tbody>
</table>

BMC Software recommends that you reserve three times the amount of RAM in the system for swap space.

If you are installing Control-M with a remote database server, 15 GB are required on the database server.
Full installation Windows system requirements

The following table lists the prerequisite requirements for a Windows platform. These values represent the minimum requirements for an entry level deployment. For higher capacity workloads, add resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>• Pentium IV 2 GHz or higher</td>
</tr>
<tr>
<td></td>
<td>• Intel Xeon 64 bit</td>
</tr>
<tr>
<td></td>
<td>• AMD Opteron</td>
</tr>
<tr>
<td>Compatible processors</td>
<td>x86_64</td>
</tr>
<tr>
<td>Display</td>
<td>16-bit (65536) colors or higher</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB</td>
</tr>
<tr>
<td>Diskspace</td>
<td>100GB</td>
</tr>
<tr>
<td></td>
<td>If you are installing Control-M with a remote database server, 15 GB are required on the database server.</td>
</tr>
<tr>
<td>Related software</td>
<td>• Internet Explorer version 11</td>
</tr>
<tr>
<td></td>
<td>• Microsoft .Net Framework 4.5.2</td>
</tr>
</tbody>
</table>

**NOTE:** The <install folder> must have Read, List folder contents, Write, and Read & execute permissions assigned to the Users group.

Control-M/Server & Control-M/EM Hardware Sizing Template

Provide the following input:

All values must be maximum values including future planning.

**Control-M/Enterprise Manager**

- **New Installation (First time install of EM on site)**
  - Number of Jobs defined for this EM:
  - Maximum Number of Active Jobs per Day (from Peak Usage Report):
  - Maximum Number of Executions per Day (from Peak Usage Report):
  - Maximum defined EM users:
  - Maximum concurrent EM users (logged in at the same time):
  - Database Type and Version (e.g. PostgreSQL, Oracle, MSSQL):
  - Database configuration (local or remote)
• Number of Datacenters (CTM/Servers) connect:
• Is BIM/Forecasting/SelfService enabled:
  o If BIM is enabled how many Services are defined:
  o What is the average number of jobs per Service:
  o Is Forecast enabled:
  o Is Self Service enabled:
• O.S. Platform and Version (e.g., Solaris, AIX)
• List of other applications/programs that will be residing on the machine
• Intended Hardware to be used if there is any:
  o Model:
  o Number of CPU's:
  o Number of Cores/CPU:
  o Speed of CPU Mhz:
  o RAM:
• Version of EM that is intended to be installed
• If possible, Machine Spec according to the following website –

**Upgrade from an Existing Installation**
• Is response time today on existing installation satisfactory?
• How loaded is the machine today? (Measurement of CPU and Memory peek values)
• Current Existing EM Version

**Control-M/Server (For each Datacenter)**
• Maximum Daily Job Count
• Maximum Daily Job Executions
• Number of Agents connected to the server
• How many of the Agents are using Agentless technology
• Required Average Job Processing Rate for 15 Minutes (optional)
• Required Job Submission Rate for 15 Minutes (optional)
• O.S. Platform and Version (e.g. Solaris, AIX)
• Database Type and Version (e.g. PostgreSQL, Oracle, MSSQL)
• Database configuration (local or remote)
• Intended Hardware to be used - if there is any (Model, Number of CPU's, CPU MHz, RAM, Disks)
• Version of Control-M/Server that is Intended to be Installed
Database server requirements

The following table lists the database server options for the Control-M full installation.

**NOTE:** You might experience performance degradation when the following occurs:

- Too much workload is placed on too few hard disks.
- RedoLog files are placed on RAID-5 disks
- Rollback tablespace is placed on RAID-5 disks

For more information, see 000105549.

<table>
<thead>
<tr>
<th>Database server</th>
<th>Description</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>PostgreSQL (BMC-supplied)</td>
<td>Installs automatically in the background when you install Control-M.</td>
<td>9.5.5</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> During an upgrade, the PostgreSQL database server versions is not updated.</td>
<td></td>
</tr>
<tr>
<td>PostgreSQL (Existing)</td>
<td>A customer-supplied existing PostgreSQL full database server must be present (non-BMC source).</td>
<td>9.5.x</td>
</tr>
<tr>
<td></td>
<td>The database server must have the following two extensions:</td>
<td>9.6.x</td>
</tr>
<tr>
<td></td>
<td>- plpgsql</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- dblink</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> The database Administrator name must be postgres.</td>
<td></td>
</tr>
</tbody>
</table>
Database server | Description | Version |
---|---|---|
Oracle | A customer-supplied existing Oracle full enterprise/standard edition database server must be present. An Oracle instant client is supplied in the background when you install Control-M. For more details, see Oracle requirements (on page 27). **NOTE:** Oracle 12c is supported in the following scenarios:
- Installed as a regular database server that is not part of a Container database.
- Installed as a regular pluggable database (PDB)
**NOTE:** Control-M/EM or Control-M/Server cannot be installed on an Oracle 12c Container database (CDB). | 11g, 12c |
MSSQL | A customer-supplied existing MSSQL full database server must be present. A Full MSSQL 2012, 2014, or 2016 client that includes the OSQL and SQLCMD components must be present on any computer that hosts Control-M/EM or Control-M/Server. Mixed mode, which enables both Windows and SQL Server Authentication must be turned on. **NOTE:** Control-M installation with MSSQL must always be performed using an existing English language MSSQL database server. | 2016, 2014, 2012 |

The following table contains the parameter information required to install Control-M on supported existing database servers. Check with your system administrator for the exact information required.

<table>
<thead>
<tr>
<th>Database server</th>
<th>Host name</th>
<th>Port</th>
<th>Service name</th>
<th>Database server administrator password</th>
<th>Database location</th>
<th>Log location</th>
</tr>
</thead>
<tbody>
<tr>
<td>PostgreSQL</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (UNIX only)</td>
<td></td>
</tr>
<tr>
<td>Oracle</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Optional</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>MSSQL</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The password must begin with a letter (A-Z, a-z) followed by 5-29 alphanumeric characters, underscores, or ."#@*%" special characters.
Oracle requirements


An Oracle instant client is supplied in the background when you install one of the Control-M products. The following topics lists the Oracle requirements needed to install Control-M, Control-M/EM, Control-M/Server, and Control-M Workload Archiving on UNIX:

- Oracle database server memory requirements (on page 27)
- Oracle database server storage requirements (on page 28)
- Oracle schema checklist (on page 28)

Oracle database server memory requirements

The following table lists the parameters and recommended values for an existing Oracle database server.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB_BLOCK_SIZE</td>
<td>8192</td>
</tr>
<tr>
<td>OPTIMIZER_MODE</td>
<td>ALL_ROWS</td>
</tr>
<tr>
<td>CURSOR_SHARING</td>
<td>FORCE</td>
</tr>
<tr>
<td>PROCESSES</td>
<td>500</td>
</tr>
<tr>
<td>SGA_TARGET</td>
<td>1200 MB</td>
</tr>
<tr>
<td>PGA_AGGREGATE_TARGET</td>
<td>400 MB</td>
</tr>
<tr>
<td>MEMORY_TARGET</td>
<td>1600 MB</td>
</tr>
</tbody>
</table>

**NOTE:** If MEMORY_TARGET is defined, you do not need to define SGA_TARGET and PGA_AGGREGATE_TARGET.
Oracle database server storage requirements

The following table lists the minimum storage requirements for an existing Oracle database server.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redolog groups</td>
<td>3</td>
</tr>
<tr>
<td>Redolog size</td>
<td>250</td>
</tr>
<tr>
<td>SYSTEM tablespace size</td>
<td>1 GB</td>
</tr>
<tr>
<td>UNDO tablespace size</td>
<td>500 MB</td>
</tr>
<tr>
<td>TEMP tablespace size</td>
<td>300 MB</td>
</tr>
</tbody>
</table>

Oracle schema checklist

The following table lists the Oracle resources you need for a Control-M, Control-M/EM, or a Control-M/Server installation. For the correct values, contact your Oracle site DBA.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data tablespace size for both Control-M/EM and Control-M/Server</td>
<td>10 GB</td>
</tr>
<tr>
<td>Oracle tablespace name</td>
<td></td>
</tr>
<tr>
<td>Database username</td>
<td></td>
</tr>
<tr>
<td>Oracle Database Service name</td>
<td></td>
</tr>
<tr>
<td>Oracle LISTENER port number</td>
<td></td>
</tr>
<tr>
<td>Oracle Server hostname</td>
<td></td>
</tr>
<tr>
<td>Oracle SYSTEM password</td>
<td><strong>NOTE:</strong> Due to security reasons, the DBA might not be able to give you the password. If so, see [Control-M installation without Oracle database system parameter](on page 101).</td>
</tr>
<tr>
<td>CJK installation</td>
<td>Supports East Asian languages (Simplified Chinese, Traditional Chinese, Japanese, and Korean)</td>
</tr>
<tr>
<td></td>
<td>Verify that the database server character set is UTF-8.</td>
</tr>
<tr>
<td>User password</td>
<td></td>
</tr>
</tbody>
</table>
Control-M Application Plug-ins

Control-M Application Plug-ins enable Control-M/Agents to interface with external applications (for example, SAP and Oracle applications), bringing Control-M functionality to an external application environment.

The following Control-M Application Plug-ins are automatically installed with the Control-M full installation option:

- Control-M for Web Services, Java, and Messaging
- Control-M for SAP
- Control-M for Informatica
- Control-M for Oracle E-Business Suite
- Application Pack (see Application Pack deployment):
  - Control-M for Backup
  - Control-M for Databases
  - Control-M Application Integrator

To install other Control-M Application Plug-ins, you can install them individually from the Control-M Application Plug-in DVD. After you have installed the application plug-in, verify that you have installed the latest fix pack or patch. For more information, see Product Distribution in the Control-M version 9.0.18 Release Notes.

**NOTE:** You can only install Control-M for SAP version 8.0.00 on a Linux 64-bit computer.

**NOTE:** You cannot install an Application Plug-in on a Control-M/Agent on NFS.

Control-M pre-installation procedures on UNIX

Before you install Control-M, you need to complete the following procedures:

- **Configuring a user account on UNIX** (on page 30): Describes how to configure specific parameters for Control-M
- **Setting environment variables in UNIX** (on page 31): Describes how to set environment variables in UNIX, which enables you to view messages from the console
- **Verifying operating system levels and patches** (on page 35): Describes how to verify operating system level and patches with Control-M requirements
- **PostgreSQL UNIX kernel parameters** (on page 32): Describes how to modify Oracle Solaris and Linux system parameters, which enables you to allocate resources for Control-M components

**NOTE:** If you are installing a Control-M/Agent, note the following:

- The Control-M/Agent can be installed only in the home directory of the account or in one of its subdirectories. The home directory must be located on the local file system.
- The home directory can be a symbolic link to another location if the location is on the local disk.
The permissions of the account home directory must allow read and execute permissions to all users and full permission to the account owner (755 as a minimum).

If you plan to use non-root mode for this agent, BMC Software recommends that the agent owner be the only user in its primary group. The reason is that in non-root mode, some of the files created by the agent are accessed using group permissions and are therefore writable by any user in the agent primary group.

Configuring a user account on UNIX

This procedure describes how to configure specific parameters for Control-M. The account cannot contain any data in the account and the name must not exceed 8 characters.

The Control-M/EM, Control-M/Server, and Control-M/Agent owner can be a local user, an LDAP user, or an NIS user. The Control-M/EM, Control-M/Server, and Control-M/Agent account home directory can be located on a local disk or NFS.

➢ To configure a user account on UNIX:

1. Create a user account, as shown in the following example.

   
   ```
   /usr/sbin/useradd -u <numeric_user_id>-g <user_group>-d <user_home>
   -s <user_shell> <user_name>
   ```
   
   **NOTE:** In a clustered environment, you need to create two accounts (one for each node). Both accounts must have identical names and IDs. Both home directories must point to the same location on the shared disk.

   The `<user_shell>` account must be defined as one of the following names or programs:

   • `/bin/csh`
   • `/bin/tcsh`
   • `/bin/sh` (Control-M/Agent and Control-M/EM only)
   • `/bin/ksh` (Control-M/Agent and Control-M/EM only)
   • `/bin/bash` (Control-M/Agent only)

2. Configure the predefined limits that are designed to limit or prevent the excessive use of resources by a single process, as described in Control-M limits on UNIX accounts (on page 31).

3. Verify that the `HOST` environment variable is defined on all shells.
Control-M limits on UNIX accounts

The following table describes Control-M limits on UNIX accounts.

### Control-M limits on UNIX accounts

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>datasize</td>
<td>Determines the maximum size of the data segment of a process.</td>
</tr>
<tr>
<td></td>
<td>NOTE: BMC recommends setting this value to <strong>unlimited</strong>.</td>
</tr>
<tr>
<td>stacksize</td>
<td>Determines the maximum size of the stack segment of a process.</td>
</tr>
<tr>
<td></td>
<td>BMC recommends 8 MB on all UNIX computers.</td>
</tr>
<tr>
<td>coredumpsize</td>
<td>Determines the maximum size that a core dump can reach.</td>
</tr>
<tr>
<td></td>
<td>BMC recommends setting this value to <strong>datasize</strong> to generate a complete</td>
</tr>
<tr>
<td></td>
<td>core dump if a failure occurs.</td>
</tr>
<tr>
<td>descriptors</td>
<td>Determines the maximum number of descriptors in use by a single process.</td>
</tr>
<tr>
<td></td>
<td>BMC recommends the value of 4096.</td>
</tr>
<tr>
<td></td>
<td>NOTE: Do not set the parameter value to <strong>unlimited</strong>.</td>
</tr>
<tr>
<td>memoryuse</td>
<td>Determines the maximum amount of memory to be used by a single process.</td>
</tr>
<tr>
<td></td>
<td>BMC recommends setting this value to <strong>unlimited</strong>.</td>
</tr>
</tbody>
</table>

Setting environment variables in UNIX

This procedure describes how to set environment variables in UNIX, which enables you to see messages from the console.

**NOTE:** If you want to enable IPV6 before the installation, set the **CTM_IPV_MODE** variable to **DUAL**. If Control-M/Server and/or Control-M/Agent are installed on AIX, verify that the fix for APAR IV23320 is installed.

- To set environment variables in UNIX:
  - Do one of the following:
    - If you use **csh** or **tcsh**, use the following syntax:
      ```
      setenv <envVar> <value>
      
      EXAMPLE: setenv DISPLAY myhost:0.0
      ```
    - If you use **sh** or **ksh**, use the following syntax:
      ```
      <envVar>=<value>
      export <envVar>
      ```
EXAMPLE: DISPLAY=myhost:0.0
export DISPLAY

<envVar> is the name of the environment variable.
<value> is the value assigned to the environment variable.

PostgreSQL UNIX kernel parameters

Before you can install Control-M, several UNIX system (kernel) parameters must be changed to allocate
resources for Control-M components, as follows:

- Linux kernel system parameters (on page 32)
- Oracle Solaris kernel parameters (on page 33)
- PostgreSQL hardware and software limits (on page 34)

These parameters are only relevant with a dedicated PostgreSQL database.

Linux kernel system parameters

The following table describes Linux kernel parameters with one instance of PostgreSQL.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>semmsl</td>
<td>Determines the maximum number of semaphores per semaphore set</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S: 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 250</td>
</tr>
<tr>
<td>semmns</td>
<td>Determines the total number of semaphores</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S: 600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 4000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 32000</td>
</tr>
<tr>
<td>semopm</td>
<td>Determines the maximum number of semaphore operations per semop(2) system calls</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>semnmi</td>
<td>Checks the maximum number of semaphore sets for the entire Linux system</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S: 300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 1000</td>
</tr>
</tbody>
</table>
### Oracle Solaris kernel parameters

The following table describes Oracle Solaris kernel parameters with one instance of PostgreSQL.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>project.max-msg-ids</td>
<td>Determines the maximum number of message IDs</td>
<td>S: 512</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 2048</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 4096</td>
</tr>
<tr>
<td>project.max-sem-ids</td>
<td>Determines the maximum number of semaphores IDs</td>
<td>S: 2048</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 3072</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 4096</td>
</tr>
<tr>
<td>project.max-shm-memory</td>
<td>Determines the size of shared memory</td>
<td>S: 2 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 4 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 8 GB</td>
</tr>
<tr>
<td>project.max-shm-ids</td>
<td>Determines the total size of shared memory segments</td>
<td>S: 500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M: 4096</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L: 16384</td>
</tr>
</tbody>
</table>
PostgreSQL hardware and software limits

The following table describes system hardware and software limits on UNIX platforms with PostgreSQL.

<table>
<thead>
<tr>
<th>Limit</th>
<th>Table Header</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum file descriptors</td>
<td>• S: 1024</td>
</tr>
<tr>
<td></td>
<td>• M: 2048</td>
</tr>
<tr>
<td></td>
<td>• L: 4096</td>
</tr>
<tr>
<td>Maximum file size</td>
<td>unlimited</td>
</tr>
<tr>
<td>Free swap size</td>
<td>• S: 4 GB</td>
</tr>
<tr>
<td></td>
<td>• M: 6 GB</td>
</tr>
<tr>
<td></td>
<td>• L: 10 GB</td>
</tr>
<tr>
<td>RAM size</td>
<td>• S: 4 GB</td>
</tr>
<tr>
<td></td>
<td>• M: 8 GB</td>
</tr>
<tr>
<td></td>
<td>• L: 12 GB</td>
</tr>
</tbody>
</table>

Control-M kernel parameters

The following table lists kernel parameter values for Control-M/Server that must be added to the values in some of the UNIX systems, as described in PostgreSQL UNIX kernel parameters (on page 32).

**Kernel parameters for Control-M/Server - additional values**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Additional values</th>
</tr>
</thead>
<tbody>
<tr>
<td>semmni</td>
<td>Add 20 + the number of Agents and remote hosts that will be connected to Control-M/Server + the number of Agents with configuration definitions that differ from the default.</td>
</tr>
<tr>
<td>semmns</td>
<td>For all platforms except Oracle Solaris 10, add 20 + the number of Agents and remote hosts that will be connected to Control-M/Server + the number of Agents with configuration definitions that differ from the default.</td>
</tr>
<tr>
<td>semmnu</td>
<td>For Oracle Solaris 9 (not Oracle Solaris 10), add 100 + 6 times the number agents connected to the server + the number utilities running simultaneously.</td>
</tr>
</tbody>
</table>
The following table lists the kernel parameter values for Control-M that must be added to the values in other UNIX systems (excluding Linux), as described in PostgreSQL UNIX kernel parameters (on page 32). If higher values for these parameters have already been specified for the database server, the higher values must remain.

### Kernel parameters for Control-M

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>semmnu</td>
<td>(NPROC - 4)</td>
</tr>
<tr>
<td>Ulimit</td>
<td><code>- fsize: unlimited</code>&lt;br&gt;<code>- nofiles: &gt;2 KB</code></td>
</tr>
</tbody>
</table>

Verifying operating system levels and patches

This procedure describes how to verify the operating system level and patches with Control-M requirements.

The check_req utility runs automatically in the background on every installation of Control-M full, Control-M/EM, Control-M/Server, and Control-M/Agent. The Health Check utility collects the logs after it runs.

The runCheckReq.sh file is located in the pre_req directory on the installation DVD.

➢ To verify operating system levels and patches:

1. Log in as a Control-M full installation, Control-M/EM, or Control-M/Server user.
2. Type the following command:

   `runCheckReq.sh -product=<PRODUCT_NAME> -memory_model=<MEMORY_MODEL> -database=<DATABASE>`

   Where:
   - `<PRODUCT_NAME>` is CTMS, EM, ONE, AGENT, or ARCHIVE
   - `<MEMORY_MODEL>` is SMALL, MEDIUM, LARGE, or NONE
   - `<DATABASE>` is ORACLE or PostgreSQL
3. Complete the instructions as necessary.

   If the operating system and patches meet Control-M requirements, you are advised that the product can be installed. Otherwise, a list of missing requirements appears.

   **NOTE:** If the script alerts you to a missing patch, check with your system administrator or database administrator to see if the patch is included in one of the bundled packages that are installed on your computer or database.
Installing Control-M on UNIX

This procedure describes how to install the Control-M suite with all Control-M components including Application Plug-ins, add-ons, and the Control-M Conversion tool on UNIX. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings.

**NOTE:** If you want to install multiple instances of Control-M on several computers using the same configuration, use the automatic installation, as described in this procedure.

**NOTE:** The default installation is interactive and uses a GUI display. XServer must be running and configured using the DISPLAY environment variable. If you do not have XServer available, BMC recommends that you continue with the console installation or perform an automatic installation.

**Before You Begin**

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the current version of Control-M, as described in Control-M full installation system requirements (on page 22).
- Verify that the target computer is clean and does not have any previous Control-M version installed.
- Successful completion of Control-M pre-installation procedures on UNIX (on page 29).
- If you are installing Control-M in a cluster environment, see Control-M cluster configuration (on page 105).

➢ To install Control-M on UNIX:

1. Do one of the following:
   - Mount the installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the .tar.Z file.

2. Set your DISPLAY environment variable, as described in Setting environment variables in UNIX (on page 31).

3. From your home directory, type the following command:
   `<source_path>/setup.sh`

4. Do one of the following:
   - **Interactive install:** Select the Control-M 9.0.18- Full Installation option and continue with the on-screen instructions until the installation is complete.
   - **Automatic install:** Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M 9.0.18- Full Installation option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
d. Click Yes.

e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.

f. To run the installation script, type the following command:

```bash
<source_path>/setup.sh -silent <xml_path>/filename.xml
```

The installation logs can be found at the following location:

```bash
<$HOME>/BMCINSTALL/log/BMC_Control-M_Install_<date-time>.log
```

**NOTE:** If you use Application Integrator, you must upgrade it to the latest version by deploying the Application Pack to your Control-M/Agents, as described in Application Pack deployment.

---

Control-M post installation procedures on UNIX

The following procedures describe the required and optional steps after you install Control-M:

- Enabling Control-M/Agent for non-root mode (on page 37)
- Configuring the automatic startup procedure for Control-M/Agent on UNIX (optional) (on page 41)
- Automatic startup procedure for Control-M/Server on UNIX (on page 39)

**NOTE:** If you installed Control-M/Server on NFS, you can only use the Control-M/Server user on the same host where Control-M/Server was installed.

---

Enabling Control-M/Agent for non-root mode

This procedure describes how to enable Control-M/Agent for non-root mode for jobs that are owned by a user that is different from the one running Control-M/Agent.

**NOTE:** If the only jobs that run are owned by the same user that runs the Control-M/Agent, it is not necessary to take any action to set up non-root operation mode.

- **To enable Control-M/Agent for non-root mode:**

  1. Log in as user `root` and run the `set_agent_mode` script using the `enable non root mode` option on each installed Control-M/Agent. The script need only be run once for each Control-M/Agent.

  2. From the Control-M Configuration Manager, define a job owner password for each job owner that is used by the Control-M/Agent.

  3. For an upgrade installation, you must replace the automatic startup script on each Control-M/Agent computer to reflect its root or non-root status.

  You can toggle between root mode and non-root mode on any Control-M/Agent by shutting down the Control-M/Agent from the user that is currently running the Control-M/Agent, and re-starting Control-M/Agent with the user necessary for the new mode.
Configuring the automatic startup/shutdown script for Control-M/EM on UNIX

This procedure describes how to configure the automatic startup/shutdown script for Control-M/EM on UNIX (optional).

**NOTE:** If not all Control-M/EM server components are installed on one account, you need to include the startup and shutdown commands in operating system startup and shutdown scripts of the host computer.

To configure the automatic startup/shutdown script for Control-M/EM on UNIX:

1. Add the following commands to the start-up script of your operating system as needed:
   - `su - em_account -c start_server`
   - `su - em_account -c start_config_agent`

2. Add the following commands to the shut-down script of your operating system as needed:
   ```
   Control-M/EM_database_owner_password -C Config_Agent-M hostname -cmd shutdown
   sleep 10
   su - em_account -c "stop_server -U db_server_administrator_name -P db_server_administrator_name"
   ```

Configuring the automatic startup/shutdown procedure for Control-M/EM (RedHat and Oracle Linux 7)

This procedure describes how to configure the automatic startup procedure for Control-M/EM on RedHat 7 and Oracle Linux 7.

To configure the automatic startup procedure for Control-M/EM:

1. Log in as root.
2. Navigate to the following location:
   ```
   /etc/systemd/system/
   ```
3. Create a new unit service file with 644 permissions.
   ```
   The extension must be .service.
   ```
   **EXAMPLE:** EM.service

4. Open the file and type the following:
   ```
   [Unit]
   Description=Control-M/EM
   After=systemd-user-sessions.service multi-user.target network.target
   [Service]
   User=<unit_service>
   ```
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ExecStart=/bin/sh -c [EM_home_dir]/bin/start_server;
[EM_home_dir]/bin/start_ns_daemon; [EM_home_dir]/bin/start_cms;
[EM_home_dir]/bin/start_config_agent
Type=forking
 RemainAfterExit=yes
ExecStop=/bin/sh -c [EM_home_dir]/bin/stop_config_agent;
[EM_home_dir]/bin/stop_cms; [EM_home_dir]/bin/stop_ns_daemon;
[EM_home_dir]/bin/home/em50/bin/stop_server
[Install]
 WantedBy=multi-user.target

5. Save the file.
6. From a command line, run the following commands:
   • systemctl daemon-reload
   • systemctl enable [unit service file].service
7. Restart the Control-M/EM computer.

Automatic startup procedure for Control-M/Server on UNIX

The database server and Control-M/Server must be running at all times on the initial Control-M/Server installation. BMC Software recommends that they be started at system startup time.

You can modify the startup procedure to ensure that the database server, Control-M/Server, and the Control-M/Server Configuration Agent are started during system startup. The command to copy the necessary startup instructions to your system startup directory is listed below.

All commands shown below must be executed as the root user.
Do not perform this procedure when installing Control-M/Server on a mirror (backup) environment.
Depending on your operating system, modify the automatic startup procedure as described in the following table:

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Startup procedure</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>cp <code>&lt;ctmHome&gt;/ctm_server/data/rc.&lt;controlmUser&gt;</code></td>
<td>For a user called <code>controlm</code>, specify the following command:</td>
</tr>
<tr>
<td></td>
<td>Open the <code>/etc/inittab</code> file in an editor, and append the following line at the end of the file.</td>
<td><code>cp /home/controilm/ctm_server/data/rc controilm /etc/rc controilm</code></td>
</tr>
<tr>
<td></td>
<td><code>&lt;controlmUser&gt;:2:respawn:/etc/rc.&lt;controlmUser&gt;</code></td>
<td>and in file <code>/etc/inittab</code> add:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>controilm:2:respawn:/etc/rc controilm</code></td>
</tr>
<tr>
<td>Oracle Solaris</td>
<td><code>cp </code>&lt;ctmHome&gt;/ctm_server/data/rc.&lt;controlmUser&gt;`</td>
<td><code>cp</code></td>
</tr>
<tr>
<td></td>
<td><code>/etc/rc2.d/S98&lt;controlmUser&gt;</code></td>
<td><code>/home/controilm/ctm_server/data/rc controilm /etc/rc controilm</code></td>
</tr>
<tr>
<td></td>
<td><code>cp</code> <code>/home/controilm/ctm_server/data/rc controilm</code></td>
<td><code>/etc/rc2.d/S98controilm</code></td>
</tr>
<tr>
<td></td>
<td><code>/etc/rc2.d/S98&lt;controlmUser&gt;</code></td>
<td></td>
</tr>
<tr>
<td>Linux</td>
<td><code>cp </code>&lt;ctmHome&gt;/ctm_server/data/rc.&lt;controlmUser&gt;`</td>
<td><code>cp</code></td>
</tr>
<tr>
<td></td>
<td><code>/etc/rc.d</code> <code>&lt;controlmUser&gt;</code></td>
<td><code>/home/controilm/ctm_server/data/rc controilm</code></td>
</tr>
<tr>
<td></td>
<td><code>ln -s /etc/rc.d/&lt;controlmUser&gt;</code></td>
<td><code>/etc/rc.d/controilm</code></td>
</tr>
<tr>
<td></td>
<td><code>/etc/rc.d/rc2.d/S98&lt;controlmUser&gt;</code></td>
<td><code>ln</code></td>
</tr>
<tr>
<td></td>
<td><code>ln -s /etc/rc.d/controilm /etc/rc.d/rc2.d/S98controilm</code></td>
<td><code>/etc/rc.d/controilm</code></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 11</td>
<td>SuSEconfig</td>
<td></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 12</td>
<td>See Configuring the automatic startup procedure for Control-M/Server on UNIX (on page 41)</td>
<td></td>
</tr>
<tr>
<td>RedHat 7</td>
<td>See Configuring the automatic startup procedure for Control-M/Server on UNIX (on page 41)</td>
<td></td>
</tr>
<tr>
<td>Oracle Linux 7</td>
<td>See Configuring the automatic startup procedure for Control-M/Server on UNIX (on page 41)</td>
<td></td>
</tr>
</tbody>
</table>
Configuring the automatic startup procedure for Control-M/Server on UNIX

This procedure describes how to configure the automatic startup procedure for Control-M/Server on RedHat 7, Oracle Linux 7, and SUSE Linux Enterprise Server 12.

➢ To configure the automatic startup procedure for Control-M/Server:

1. Log in as root.
2. Navigate to the following to location:
   /etc/systemd/system/
3. Create a new unit service file with 644 permissions.
   The extension must be .service.
   EXAMPLE: CtmServer.service
4. Open the file and type the following:
   [Unit]
   Description=Control-M Server
   After=systemd-user-sessions.service multi-user.target network.target
   [Service]
   ExecStart=/bin/sh -c [server_home_dir]/ctm_server/data/rc.<account name>
   Type=forking
   RemainAfterExit=yes
   [Install]
   WantedBy=multi-user.target
5. Save the file.
6. From a command line, run the following commands:
   • systemctl daemon-reload
   • systemctl enable [unit service file].service
7. Restart the Control-M/Server computer.

Configuring the automatic startup procedure for Control-M/Agent on UNIX (optional)

This procedure describes how to configure the startup procedure for Control-M/Agents automatically at system startup time. Consult your system administrator for the correct commands with regard to Control-M/Agent on the platform you are using. During installation of Control-M/Agent, a ready-made startup script, rc.agent_user, is placed in <ctm_agentInstallFolder>/ctm/scripts.
NOTE: Control-M/Agents that were shut down manually are not restarted by the automatic startup procedure during a shutdown-restart operation.

➢ To configure the automatic startup procedure for Control-M/Agent on UNIX:

1. Copy the startup script `rc.agent_user` to the OS specific `init.d` directory, as described in Control-M/Agent automatic startup procedures (on page 43).
2. Create a relative path to the rc2.d directory pointing to the script in the init.d directory.
3. Run the startup procedure command as the root user.

Configuring the automatic startup/shutdown procedure for Control-M/Agent (RedHat/Oracle Linux/Ubuntu)

This procedure describes how to configure the automatic startup procedure for Control-M/Agent on RedHat 7, Oracle Linux 7, and Unbuntu 16.

➢ To configure the automatic startup procedure for Control-M/Agent:

1. Log in as root.
2. Navigate to the following to location:
   `/etc/systemd/system/`
3. Create a new unit service file with 644 permissions.
   The extension must be `.service`.
   EXAMPLE: `ctmag.service`
4. Open the file and type the following:
   ```
   [Unit]
   Description=Control-M Agent
   [Service]
   Type=forking
   RemainAfterExit=yes
   ExecStart=[agent_home_dir]/ctm/scripts/rc.agent_user start
   ExecStop=[agent_home_dir]/ctm/scripts/rc.agent_user stop
   [Install]
   WantedBy=multi-user.target
   ```
5. Save the file.
6. From a command line, run the following commands:
   - `systemctl daemon-reload`
   - `systemctl enable [unit service file].service`
7. Restart the Control-M/Agent computer.
The following table lists the scripts for each operating system to enable the automatic startup procedures for Control-M/Agent:

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Startup procedure</th>
<th>Example</th>
</tr>
</thead>
</table>
| AIX              | `cp <agentHome>/ctm/scripts/rc.<agent_user> /etc/<agentUser>`  
Open the `/etc/inittab` file in an editor, and append the following line at the end of the file.  
`<agentUser>:2:once:/etc/<agentUser>/rc.<agent_user>` | For a user called `agent1`, specify the following command:  
`cp /home/agent1/ctm/scripts/rc.agent_user /etc/agent1`  
and in file `/etc/inittab` add:  
`agent1:2:once:/etc/agent1/rc.agent_user` |
| Oracle Solaris   | `cp <agentHome>/ctm/scripts/rc.<agent_user> /etc/init.d/rc.<agentUser>`  
`ln -s ../init.d/rc.<agentUser> /etc/rc2.d/S13<agentUser>` | `cp home/ctm/scripts/rc.<agent_user> /etc/init.d/rc.agent1`  
`ln -s ../init.d/rc.agent1 /etc/rc2.d/S13agent1` |
| Linux            | `cp <agentHome>/ctm/scripts/rc.<agent_user> /etc/rc.d/<agentUser>`  
`ln -s /etc/rc.d/<agentUser> /etc/rc.d/rc5.d/S98<agentUser>` | `cp home/ctm/scripts/rc.<agent_user> /etc/rc.d/agent1`  
`ln -s /etc/rc.d/agent1 /etc/rc.d/rc5.d/S98agent1` |
| SUSE             | `>SuSEconfig`     |         |
| RedHat 7         | Configuring the automatic startup/shutdown procedure for Control-M/Agent (RedHat/Oracle Linux/Ubuntu) (on page 42) |         |
| Oracle Linux 7   | Configuring the automatic startup/shutdown procedure for Control-M/Agent (RedHat/Oracle Linux/Ubuntu) (on page 42) |         |
Installing Control-M on Windows

This procedure describes how to install the Control-M suite with all Control-M components including Application Plug-ins, add-ons, and Control-M Conversion tool on Windows. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings.

**NOTE:** If you want to install multiple instances of Control-M on several computers using the same configuration, use the automatic installation, as described in this procedure.

**Before You Begin**

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the current version of Control-M, as described in Control-M full installation system requirements (on page 22).
- Verify that the target computer is clean and does not have any previous Control-M version installed.
- If you are installing Control-M in a cluster environment, see Control-M cluster configuration (on page 105).

➢ **To install Control-M on Windows:**

1. Log in to the computer using a user ID that has Administrator permissions.
2. Do one of the following:
   - From the installation DVD, double-click the `Setup.exe` file.
   - From a command prompt window, enter `<source_path>\Setup.exe`.
3. Do one of the following:
   - **Interactive install:** Select the Control-M 9.0.18- Full Installation option and continue with the on-screen instructions until the installation is complete.
   - **Automatic install:** Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M 9.0.18- Full Installation option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.

        The automatic installation XML parameters file that is created (`<filename>.xml`) is relevant only for computers with the same agent instance name. Otherwise, a separate `<filename>.xml` file must be created for each computer, or modified manually for each computer.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
f. Log in using a user ID that has Administrator permissions on the current computer.

g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

\(<source\_path>\) Setup.exe -silent \(<xml\_path>/\<filename.xml>\)

The installation logs can be found at the following location:

\(<installFolder>BMCI\INSTALL\log/BMC\_Control-M\_Install\_<date-time>\).log

**NOTE:** If you use Application Integrator, you must upgrade it to the latest version by deploying the Application Pack to your Control-M/Agents, as described in Application Pack deployment.
Control-M/Agent installation

The Control-M/Agent installation installs Control-M/Agents on different computers throughout your organization. Additional Control-M/Agents enables you to run jobs on multiple computers. This enhances performance and creates greater load balancing control.

Before you install Control-M/Agent, verify the requirements, as described in Control-M/Agent system requirements (on page 46).

If you are installing Control-M/Agent on UNIX, complete the pre-install procedures, as described in Control-M/Agent pre-installation procedures on UNIX (on page 49) and the post install procedures, as described in Control-M/Agent post installation procedures (on page 52).

The following procedures describe how to install Control-M/Agent on UNIX and Windows via an interactive or automatic installation:

- Installing Control-M/Agent on UNIX (on page 49)
- Installing Control-M/Agent on Windows (on page 50)

Control-M/Agent system requirements

Before you install Control-M/Agent, verify that your operating system and processor are supported and that your minimum requirements for memory and disk space are met. For a full list of requirements, see the Control-M 9.0.18 Release Notes.

Depending on your operating system, verify that your system meets one of the following requirements:

- Control-M/Agent UNIX system requirements (on page 46)
- Control-M/Agent Windows system requirements (on page 48)

Control-M/Agent UNIX system requirements

The following table lists the prerequisite requirements for Control-M/Agent on a UNIX platform. These values represent the minimum requirement for an entry level deployment. For higher capacity workloads, add resources. For sizing, see Control-M/Server & Control-M/EM Hardware Sizing Template (on page 23).

<table>
<thead>
<tr>
<th>Resource</th>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>AIX</td>
<td>IBM RISC System/6000</td>
</tr>
<tr>
<td></td>
<td>HP-UX</td>
<td>▪ Itanium (ia64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ RISC</td>
</tr>
</tbody>
</table>
### Resource Specifications and Requirements

<table>
<thead>
<tr>
<th>Resource</th>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Solaris</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>x86</td>
<td>SPARC</td>
</tr>
<tr>
<td></td>
<td>x86_64</td>
<td></td>
</tr>
<tr>
<td>Linux</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>x86</td>
<td></td>
</tr>
<tr>
<td></td>
<td>x86_64</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IBM® zSeries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Itanium (ia64)</td>
</tr>
<tr>
<td>Memory</td>
<td>25 concurrent jobs</td>
<td>1 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>100 concurrent jobs</td>
<td>2 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>250 concurrent jobs</td>
<td>4 CPU 3 GHz</td>
</tr>
<tr>
<td>Memory</td>
<td>25 concurrent jobs</td>
<td>1 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>100 concurrent jobs</td>
<td>2 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>250 concurrent jobs</td>
<td>4 CPU 3 GHz</td>
</tr>
<tr>
<td>Diskspace</td>
<td></td>
<td>1150 MB</td>
</tr>
</tbody>
</table>

BMC Software recommends that you reserve three times the amount of RAM in the system for swap space.
Control-M/Agent Windows system requirements

The following table lists the prerequisite requirements for a Windows platform. These values represent the minimum requirement for an entry level deployment. For higher capacity workloads, add resources. For sizing, see Control-M/Server & Control-M/EM Hardware Sizing Template (on page 23).

<table>
<thead>
<tr>
<th>Resource</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer</strong></td>
<td>▪ Pentium IV 2 GHz or higher</td>
</tr>
<tr>
<td></td>
<td>▪ Intel Xeon 64 bit</td>
</tr>
<tr>
<td></td>
<td>▪ AMD Opteron</td>
</tr>
<tr>
<td><strong>Compatible processors</strong></td>
<td>▪ x86</td>
</tr>
<tr>
<td></td>
<td>▪ x86_64</td>
</tr>
<tr>
<td></td>
<td>▪ ia64</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>16-bit (65536) colors or higher</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>25 concurrent jobs:</td>
</tr>
<tr>
<td></td>
<td>▪ 1 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>▪ 2 GB</td>
</tr>
<tr>
<td></td>
<td>100 concurrent jobs:</td>
</tr>
<tr>
<td></td>
<td>▪ 2 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>▪ 4 GB</td>
</tr>
<tr>
<td></td>
<td>250 concurrent jobs:</td>
</tr>
<tr>
<td></td>
<td>▪ 4 CPU 3 GHz</td>
</tr>
<tr>
<td></td>
<td>▪ 8 GB</td>
</tr>
</tbody>
</table>
| **Diskspace**        | BMC Software recommends that you reserve three times the amount of RAM in the system for swap space. | 200 MB
Control-M/Agent pre-installation procedures on UNIX

Before you install Control-M/Agent, you need to complete the following procedures:

- **Configuring a user account on UNIX** (on page 30): Describes how to configure specific parameters for Control-M/Agent
- **Setting environment variables in UNIX** (on page 31): Describes how to set environment variables in UNIX, which enables you to view messages from the console
- **Verifying operating system levels and patches** (on page 35): Describes how to verify operating system level and patches with Control-M/Agent requirements

Installing Control-M/Agent on UNIX

This procedure describes how to install Control-M/Agent on UNIX. If you want to install multiple instances of Control-M/Agent on several computers using the same configuration, use the automatic installation, as described in this procedure.

**NOTE:** If a previous version of Control-M/Agent is detected, an upgrade is automatically performed and the parameters values from the previous version are used.

**NOTE:** The default installation is interactive and uses a GUI display. XServer must be running and configured using the `DISPLAY` environment variable. If you do not have XServer available, BMC recommends that you continue with the console installation or perform an automatic installation.

**Before You Begin**

Ensure that you have met the following requirements:

- Ensure that your operating system is compatible with the current version of Control-M/Agent, as described in **Control-M/Agent system requirements** (on page 46).
- Successful completion of **Control-M/Agent pre-installation procedures on UNIX** (on page 49).
- Ensure that the Internal Process Communication (IPC) subsystem is enabled.
- Verify that your locale is set to **English** before beginning the installation.

➢ **To install Control-M/Agent on UNIX:**

1. Log in as a Control-M/Agent user and then switch to user `root`.
2. Do one of the following:
   - Mount the installation DVD.
   - From the temporary directory that you created (see Product Distribution in the **Control-M version 9.0.18 Release Notes**), extract the `.tar.Z` file.

   If you are installing Control-M/Agent in non-root mode, log out user root and log in as the Control-M/Agent user.
3. Set your **DISPLAY** environment variable, as described in Setting environment variables in UNIX (on page 31).

   **NOTE:** If you are installing Control-M/Agent on Linux 64 bit, and you are installing any Application Plug-ins, you need to set the `INSTALL_AGENT_LINUX_X86_64` environment variable to **N**. For more information see 000085258.

4. From your home directory, type the following command:
   
   `<source_path>/setup.sh`

5. Do one of the following:
   
   - **Interactive install:** Select the **Control-M/Agent** option and continue with the on-screen instructions until the installation is complete.
   
   - **Automatic install:** Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     
     a. Select the **Control-M/Agent** option and continue with the on-screen instructions until the **Summary** window.
     
     b. Click **Generate** and select the location to create the XML parameter file.
     
     c. Click **Yes** to quit the installation.
        
        A confirmation message appears.
     
     d. Click **Yes**.
     
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     
     f. To run the installation script, type the following command:
        
        `<source_path>/Setup_files/components/agent/setup.sh -silent
        <xml_path>/<filename.xml`

   The installation log can be found at the following location:
   
   `<$HOME>/BMCINSTALL/log/BMC_Control-M_AGENT_Install <date-time>.log`

---

### Installing Control-M/Agent on Windows

This procedure describes how to install Control-M/Agent on Windows.

**NOTE:** If a previous version of Control-M/Agent is detected, an upgrade is automatically performed and the parameters values from the previous version are used.

If you want to install multiple instances of Control-M/Agent on several computers using the same configuration, use the automatic installation, as described in this procedure.

#### Before You Begin

Ensure that your operating system is compatible with the current version of Control-M/Agent, as described in Control-M/Agent system requirements (on page 46).
To install Control-M/Agent on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.

2. Do one of the following:
   - From the installation DVD, double-click the `setup.exe` file.
   - From a command prompt window, enter `<source_path>\setup.exe`.

3. Do one of the following:
   - **Interactive install**: Select the Control-M/Agent option and continue with the on-screen instructions until the installation is complete.
   - **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Agent option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.
        The automatic installation XML parameters file that is created (`<filename>.xml`) is relevant only for computers with the same agent instance name. Otherwise, a separate `<filename>.xml` file must be created for each computer, or modified manually for each computer.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:
        `<source_path>\Setup_files\components\agent\setup.exe -silent <xml_path>\<filename.xml>`

The installation log can be found at the following location:

`<installFolder>\BMCINSTALL\log\BMC_Control-M_AGENT_Install<date-time>.log`
Control-M/Agent post installation procedures

The following procedures describe the required and optional steps after you install Control-M/Agent on UNIX:

- Enabling Control-M/Agent for non-root mode (on page 37)
- Configuring the automatic startup procedure for Control-M/Agent on UNIX (optional) (on page 41)

**NOTE:** If you installed Control-M/Agent on NFS, you can only use the Control-M/Agent user on the same host where Control-M/Agent was installed and you cannot install an Application Plug-in on a Control-M/Agent on NFS. If you installed on AIX, you must update the OS path level, as described in 000111319.

**NOTE:** To avoid performance issues, BMC recommends consulting with your IT/Security personnel and work with them to exclude the following from anti-virus scanning:

- All the files and sub-directories under the Control-M/Agent installation directory.
- All Control-M/Agent processes (for example p_ctmam) and binary programs.
- All communication ports used by Control-M/Agent processes and binary programs.

**NOTE:** (Windows only)

- If you want a different user to start up the Control-M/Agent Windows service, you must define that user as a member of the **Local Administrative Group** (\<Domain\>\<User\>).
- The administrator selected as part of **This Account**, must have the **Adjust memory quotas for a process**, **Replace a process level token**, **Act as Part of Operating System**, **Log on as a Batch Job**, and **Log on as a service** permissions in the **Local Security Settings** window (see 000024690).
- If you changed the Control-M/Agent Windows service **Log on as** option to **Local System account** or **This account**, or modified its properties, you must terminate all Control-M/Agent processes before new jobs can run with the new **Log On** details.
Control-M client installation

The Control-M client installation option enables you to install additional Control-M clients on different computers throughout your organization. Additional clients enable multiple users in your organization to access Control-M.

Verify that your operating system meets all requirements, as described in Control-M client system requirements (on page 54).

To install the Control-M client on a Windows computer, see Installing Control-M client (on page 55).

**NOTE:** To deploy and install Control-M clients, BMC recommends using Client Distribution. However, if you installed the Control-M client manually, you cannot use Client Distribution. If you want to use this feature, you must uninstall the Control-M client and then reinstall using the Client Distribution URL.
Control-M client system requirements

The following table lists the prerequisite requirements for the Control-M client on Windows. These values represent the minimum requirement for an entry level deployment. For a full list of requirements, see the Control-M 9.0.18 Release Notes.

**NOTE:** The specific resource requirements vary based on the number of jobs that are loaded in the viewpoints, and the frequency of job executions.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer</strong></td>
<td>- Intel Core 4 Duo 2 GHz or higher</td>
</tr>
<tr>
<td></td>
<td>- Intel Xeon 64 bit</td>
</tr>
<tr>
<td></td>
<td>- AMD Opteron</td>
</tr>
<tr>
<td><strong>Operating system</strong></td>
<td>- Windows 7</td>
</tr>
<tr>
<td></td>
<td>- Windows 8</td>
</tr>
<tr>
<td></td>
<td>- Windows 10</td>
</tr>
<tr>
<td></td>
<td>- Windows Server 2008</td>
</tr>
<tr>
<td></td>
<td>- Windows Server 2008 R2</td>
</tr>
<tr>
<td></td>
<td>- Windows Server 2012</td>
</tr>
<tr>
<td></td>
<td>- Windows Server 2012 R2</td>
</tr>
<tr>
<td><strong>Compatible processors</strong></td>
<td>x86_64</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>16-bit (65536) colors or higher</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>4 GB</td>
</tr>
<tr>
<td><strong>Diskspace</strong></td>
<td>12 GB</td>
</tr>
<tr>
<td></td>
<td>BMC Software recommends that you reserve three times the amount of RAM in the system for swap space.</td>
</tr>
<tr>
<td><strong>Related software</strong></td>
<td>- Internet Explorer version 11</td>
</tr>
<tr>
<td></td>
<td>- Microsoft .Net Framework 4.5.2</td>
</tr>
</tbody>
</table>
Installing Control-M client

This procedure describes how to install the Control-M client on Windows. If you want to install multiple instances of the Control-M client on several computers using the same configuration, use the automatic installation, as described in this procedure.

Before You Begin

Ensure that your operating system and database software are compatible with the current version of the Control-M client, as described in Control-M client system requirements (on page 54).

➢ To install on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.
2. Do one of the following:
   • From the installation DVD, double-click the setup.exe file.
   • From a command prompt window, enter `<source_path>\Setup.exe`.
3. Do one of the following:
   • Interactive install: Select the Control-M client option and continue with the on-screen instructions until the installation is complete.
   • Automatic install: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M client option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:
        `<source_path>\Setup_files\components\clientem\setup.exe -silent <xml_path>\<filename.xml>`

The installation log can be found at the following location:

`<installFolder>\BMCINSTALL\log\BMC_Control-M_client_<date-time>.log`
Control-M Add-on installation

The following topics describe how to install Batch Impact Manager, Control-M/Forecast, Control-M Self Service, Control-M Workload Change Manager, Control-M Workload Archiving, and Control-M MFT on UNIX and Windows in non-trial mode:

- Control-M Workload Change Manager installation (on page 56)
- Control-M Self Service installation (on page 59)
- Batch Impact Manager installation (on page 61)
- Control-M/Forecast installation (on page 63)
- Control-M Workload Archiving installation (on page 66)
- Control-M Managed File Transfer installation (on page 69)

Control-M Workload Change Manager installation

The following procedures describe how to install Control-M Workload Change Manager on a Control-M/EM server on UNIX and Windows, which enables you to define Control-M Workload Change Manager system parameters, define rules for web application users, and create requests and job flows from the Control-M Workload Change Manager site:

- Installing Control-M Workload Change Manager on Windows (on page 57)
- Installing Control-M Workload Change Manager on UNIX (on page 58)

Control-M Workload Change Manager is a Control-M/EM component, which utilizes Control-M/EM memory and CPU resources. Therefore, Control-M Workload Change Manager requires additional memory and CPU resources, depending on the number of concurrent Control-M Workload Change Manager users and the number of requests. In most cases after installation, Control-M Workload Change Manager requires the same amount of memory that is consumed by the current Control-M/EM GUI server.
Installing Control-M Workload Change Manager on Windows

This procedure describes how to install Control-M Workload Change Manager on a Control-M/EM server on Windows, which enables you to start working with Control-M Workload Change Manager.

**NOTE:** In a high availability environment, you must perform this procedure on the primary host only when it is active.

**Before you begin**

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Verify that the default web server port 18080, 8443 for HTTPS, or another configured port that you want to use is open and free for use.
- Download the Control-M Workload Change Manager installation files (see Product Distribution in the Control-M Release Notes).

➢ To install Control-M Workload Change Manager on Windows:

1. From the Control-M Workload Change Manager activation CD, double-click the `setup.exe` file.
   
   The **Control-M Workload Change Manager Installation** Wizard appears.

2. Do one of the following:
   
   - **Interactive install:** Follow the on-screen instructions until the installation is complete.
   - **Automatic install:** Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     
     - Follow the on-screen instructions until the **Summary** window.
     - Click **Generate** and select the location to create the XML parameter file.
     - Click **Yes** to quit the installation.
       
       A confirmation message appears.

     - Click **Yes**.
     - Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     - Log in using a user ID that has Administrator permissions on the current computer.
     - Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

       `<source_path>\Setup.exe -silent <xml_path>\<filename.xml>`

     The installation log can be found at the following location:

       `<installFolder>\BMCINSTALL\log\BMC_Control-M_Workload_Automation_Change_Manager_Install_<date-time>.log`

3. Click **Done**.
Installing Control-M Workload Change Manager on UNIX

This procedure describes how to install Control-M Workload Change Manager on a Control-M/EM server on UNIX, which enables you to start working with Control-M Workload Change Manager.

**NOTE:** In a high availability environment, you must perform this procedure on the primary host only when it is active.

**Before you begin**
- Ensure that the database server that contains the Control-M/EM database is up and running.
- Verify that the default web server port 18080, 8443 for HTTPS, or another configured port that you want to use is open and free for use.
- Download the Control-M Workload Change Manager installation files (see Product Distribution in the Control-M Release Notes).

➢ To install Control-M Workload Change Manager on UNIX:

1. Mount the installation CD from the root user and log off the root user before continuing with the installation.
2. Log in to the Control-M/EM account.
   **NOTE:** If you are using the GUI, set the environment variable `DISPLAY` to value `<hostName>:0.0`. It is not necessary to set `DISPLAY` for console mode or silent mode. (For more information, see Setting environment variables in UNIX (on page 31).)
3. Type the following command:
   ```bash
   <cdPath>/setup.sh
   ```
4. Follow the on-screen instructions until the installation is complete.

Uninstalling Control-M Workload Change Manager from Windows

This procedure describes how to uninstall Control-M Workload Change Manager from Windows.

➢ To uninstall Control-M Workload Change Manager from Windows:

1. From the **Start** menu, select **Control Panel**.
2. Double-click **Programs and Features**.
3. Select **Control-M Workload Change Manager**, and click **Uninstall**.
4. Click **OK** to continue.

Control-M Workload Change Manager is successfully removed from your computer.
Uninstalling Control-M Workload Change Manager from UNIX

This procedure describes how to uninstall Control-M Workload Change Manager from UNIX.

To uninstall Control-M Workload Change Manager from UNIX:

1. Log in as a Control-M user.
2. Navigate to the following directory:
   `<WCM_InstallFolder>/BMCINSTALL/uninstall/DRWCM`
3. Type one of the following commands:
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`

Control-M Workload Change Manager is successfully removed from your computer.

Control-M Self Service installation

The following procedures describe how to activate Control-M Self Service on a Control-M/EM server on UNIX and Windows, which enables you to define Control-M Self Service system parameters, create services and service rules from the Service Manager, and monitor services and jobs from the Control-M Self Service site:

- Installing Control-M Self Service on Windows (on page 59)
- Installing Control-M Self Service on UNIX (on page 60)

Control-M Self Service is a Control-M/EM component, which utilizes Control-M/EM memory and CPU resources. Therefore, Control-M Self Service requires additional memory and CPU resources, depending on the number of concurrent Control-M Self Service users and the number of services. In most cases after installation, Control-M Self Service requires the same amount of memory that is consumed by the current Control-M/EM GUI server.

Installing Control-M Self Service on Windows

This procedure describes how to install Control-M Self Service on a Control-M/EM server on Windows, which enables you to start working with Control-M Self Service.

Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Verify that either the default web server port 18080 or another configured port that you want to use is open.
- Download the Control-M Self Service installation files (see Product Distribution in the Control-M Release Notes).
To install Control-M Self Service on Windows:

1. Double-click the setup.exe file that you downloaded or obtained from the Control-M Self Service activation CD.
   A confirmation message appears.

2. Click Run.
   The Control-M Self Service Installation wizard appears.

3. Follow the on-screen instructions until the installation is complete.
   In the last screen of the installation you will find the URL to provide to users for accessing the Control-M Self Service web component.
   You can also find the URL by opening the Control-M Configuration Manager, and under All Components, select and right-click Web Server, and Web server URLs.

4. Click Done.

5. To verify installation, open the Control-M Configuration Manager, and verify that Self Service Server and Web Server components are with a state of Up.

Installing Control-M Self Service on UNIX

This procedure describes how to install Control-M Self Service on a Control-M/EM server on UNIX.

Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Verify that either the default web server port 18080 or another configured port that you want to use is open.

To install Control-M Self Service on UNIX:

1. Mount the installation CD from the root user and log off the root user before continuing with the installation.

2. Log in to the Control-M/EM account.
   **NOTE:** If you are using the Graphical User Interface, set the environment variable DISPLAY to value <hostname>:0.0. It is not necessary to set DISPLAY for console mode or silent mode. (For more information, see Setting environment variables in UNIX (on page 31).)

3. Type the following command:
   `<cdPath>/setup.sh`

4. Follow the on-screen instructions until the installation is complete.
   In the last screen of the installation you will find the URL to provide to users for accessing the Control-M Self Service web component.
   You can also find the URL by opening the Control-M Configuration Manager, and under All Components, select and right-click Web Server, and Web server URLs.

5. To verify installation, open the Control-M Configuration Manager, and verify that Self Service Server and Web Server components are with a state of Up.
Uninstalling Control-M Self Service from Windows

This procedure describes how to uninstall Control-M Self Service from Windows.

➢ To uninstall Control-M Self Service from Windows:

1. From the Start menu, select Control Panel.
2. Double-click Programs and Features.
4. Click OK to continue.

Control-M Self Service is successfully removed from your computer.

Uninstalling Control-M Self Service from UNIX

This procedure describes how to uninstall Control-M Self Service from UNIX.

➢ To uninstall Control-M Self Service from UNIX:

1. Log in as a Control-M user.
2. Navigate to the following directory:
   `<Self_Service_InstallFolder>/BMCINSTALL/uninstall/DRCAG`
3. Type one of the following commands:
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`

Control-M Self Service is successfully removed from your computer.

Batch Impact Manager installation

The following procedures describe how to install Batch Impact Manager (BIM) on UNIX and Windows:

- Installing BIM on Windows (on page 61)
- Installing BIM on UNIX (on page 62)

Installing BIM on Windows

This procedure describes how to install BIM on a Control-M/EM server on Windows, which enables you to start working with BIM.

Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Download the BIM installation files (see Product Distribution in the Control-M Release Notes).
To install BIM on Windows:

1. From the BMC Batch Impact Manager activation CD, double-click the `setup.exe` file.
   
   The Batch Impact Manager Installation wizard appears.

2. Do one of the following:
   
   - **Interactive install**: Follow the on-screen instructions until the installation is complete.
   
   - **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     
     a. Follow the on-screen instructions until the **Summary** window.
     
     b. Click **Generate** and select the location to create the XML parameter file.
     
     c. Click **Yes** to quit the installation.
       
       A confirmation message appears.
     
     d. Click **Yes**.
     
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     
     f. Log in using a user ID that has Administrator permissions on the current computer.
     
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

     ```bash
     <source_path>\Setup.exe -silent <xml_path>\<filename.xml>
     ``
     
     The installation log can be found at the following location:

     ```bash
     <installFolder>\BMCI\INSTALL\log\BMC_Batch_Impact_Manager_Install_<date-time>.log
     ```

3. Click **Done**.

Installing BIM on UNIX

This procedure describes how to install BIM on a Control-M/EM server on UNIX, which enables you to start working with BIM.

**Before you begin**

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Download the BIM installation files (see Product Distribution in the Control-M Release Notes).

➢ **To install BIM on UNIX:**

1. Mount the installation CD from the root user and log off the root user before continuing with the installation.

2. Log in to the Control-M/EM account.

   **NOTE:** If you are using the GUI, set the environment variable `DISPLAY` to value `<hostName>:0.0`. It is not necessary to set `DISPLAY` for console mode or silent mode. (For more information, see Setting environment variables in UNIX (on page 31).)
3. Type the following command:
   <cdPath>/setup.sh

4. Follow the on-screen instructions until the installation is complete.

Uninstalling BIM from Windows

This procedure describes how to uninstall BIM from Windows.

➢ To uninstall BIM from Windows:
1. From the Start menu, select Control Panel.
2. Double-click Programs and Features.
3. Select BMC Batch Impact Manager, and click Uninstall.
4. Click OK to continue.

BIM is successfully removed from your computer.

Uninstalling BIM from UNIX

This procedure describes how to uninstall BIM from UNIX.

➢ To uninstall BIM from UNIX:
1. Log in as a Control-M user.
2. Navigate to the following directory:

   <BIM_InstallFolder>/BMCINSTALL/uninstall/DRCBM

3. Type one of the following commands:
   • Interactive uninstall: ./uninstall.sh
   • Automatic uninstall: ./uninstall.sh -silent

BIM is successfully removed from your computer.

Control-M/Forecast installation

The following procedures describe how to install Control-M/Forecast on UNIX and Windows:

▪ Installing Control-M/Forecast on Windows (on page 64)
▪ Installing Control-M/Forecast on UNIX (on page 64)
Installing Control-M/Forecast on Windows

This procedure describes how to install Control-M/Forecast on Windows.

Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Download the Control-M/Forecast installation files (see Product Distribution in the Control-M Release Notes).

➢ To install Control-M/Forecast on Windows:

1. From the Control-M/Forecast activation CD, double-click the setup.exe file.

   The Control-M/Forecast Installation wizard appears.

2. Do one of the following:

   - Interactive install: Follow the on-screen instructions until the installation is complete.
   - Automatic install: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Follow the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.

     A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

        ```
        <source_path>\Setup.exe -silent <xml_path>/filename.xml
        ```

        The installation log can be found at the following location:

        ```
        <installFolder>\BMCI NSTALL\log\BMC_Control-M_Forecast_Install_<date-time>.log
        ```

3. Click Done.

Installing Control-M/Forecast on UNIX

This procedure describes how to install Control-M/Forecast on a Control-M/EM server on UNIX, which enables you to start working with Control-M/Forecast.
Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Download the Control-M Self Service installation files (see Product Distribution in the *Control-M Release Notes*).

➢ To install Control-M/Forecast on UNIX:

1. Mount the installation CD from the root user and log off the root user before continuing with the installation.
2. Log in to the Control-M/EM account.
   
   **NOTE:** If you are using the GUI, set the environment variable `DISPLAY` to value `<hostName>:0.0`. It is not necessary to set `DISPLAY` for console mode or silent mode. (For more information, see *Setting environment variables in UNIX* (on page 31).)
3. Type the following command:
   
   `<cdPath>/setup.sh`
4. Follow the on-screen instructions until the installation is complete.

Uninstalling Control-M/Forecast from Windows

This procedure describes how to uninstall Control-M/Forecast from Windows.

➢ To uninstall Control-M/Forecast from Windows:

1. From the **Start** menu, select **Control Panel**.
2. Double-click **Programs and Features**.
3. Select **Control-M/Forecast**, and click **Uninstall**.
4. Click **OK** to continue.

Control-M/Forecast is successfully removed from your computer.

Uninstalling Control-M/Forecast from UNIX

This procedure describes how to uninstall Control-M/Forecast from UNIX.

➢ To uninstall Control-M/Forecast from UNIX:

1. Log in as a Control-M user.
2. Navigate to the following directory:
   
   `<Forecast_InstallFolder>/BMCINSTALL/uninstall/DRFOR`
3. Type one of the following commands:
   
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`

Control-M/Forecast is successfully removed from your computer.
Control-M Workload Archiving installation

The following procedures describe how to install Control-M Workload Archiving on UNIX and Windows, which enables you to archive job logs and outputs in a secure and central repository:

- Installing Control-M Workload Archiving on Windows (on page 66)
- Installing Control-M Workload Archiving on UNIX (on page 67)

Control-M Workload Archiving is installed with a dedicated PostgreSQL database server or an existing Oracle database server and cannot reside on the same computer as another database server. You must install a secondary instance of Control-M/EM server that is installed in a distributed configuration, as described in Control-M/Enterprise Manager installation (on page 76). The installation process installs a dedicated GUI Server.

To install on a cluster environment, see Control-M/EM cluster configuration (on page 107).

After you've completed the installation, you need to define Workload Archiving policies, as described in Defining Workload Archiving policies.

**NOTE:** To avoid slow performance on Control-M/EM, set the Control-M/Server `IOALOGLM` system parameter to 7 or less.

Installing Control-M Workload Archiving on Windows

This procedure describes how to install Control-M Workload Archiving on Windows on a distributed Control-M/EM. You must install it on a distributed Control-M/EM.

**NOTE**: If you are using an Oracle database, you do not need to install the fix pack.

**Before you begin**

- Verify that the Control-M/EM database server is up and running.
- Install Control-M/Enterprise Manager version 9.0.00.300 or later on both Control-M/EM server and the Workload Archiving server.
- Download the Control-M Workload Archiving installation files (see Product Distribution in the Control-M Workload Archiving Release Notes).

**To install Control-M Workload Archiving on Windows:**

1. From the Control-M Workload Archiving activation CD, double-click the `setup.exe` file.
   
   The **Control-M Workload Archiving Installation** wizard appears.

2. Do one of the following:
   
   - **Interactive install**: Follow the on-screen instructions until the installation is complete.
   - **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     
     a. Follow the on-screen instructions until the **Summary** window.
     
     b. Click **Generate** and select the location to create the XML parameter file.
c. Click **Yes** to quit the installation.

A confirmation message appears.

d. Click **Yes**.

e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.

f. Log in using a user ID that has Administrator permissions on the current computer.

g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

```
<source_path>\Setup.exe -silent <xml_path>|<filename.xml>
```

The installation log can be found at the following location:

```
<installFolder>\<Control-M/EM home dir>BMCLNSSTALL\log\BMC_Control-M_Workload_Archiving_Install_<date-time>.log
```

3. Click **Done**.

**NOTE:** If you cannot connect to Control-M Workload Archiving from the CCM, see 000087384.

### Installing Control-M Workload Archiving on UNIX

This procedure describes how to install Control-M Workload Archiving on UNIX on a distributed Control-M/EM.

**NOTE:** If Control-M/Server is installed on AIX, add the `IPC_SOCK_RCVBUF 131072` parameter to `config.dat` file on the Control-M/Server installation. After you have updated the file, recycle the Control-M/Server.

**NOTE:** If you are using an Oracle database, you do not need to install the fix pack.

#### Before you begin

- Verify that the Control-M/EM database server is up and running.
- Install Control-M/Enterprise Manager version 9.0.00.300 or later on both Control-M/EM server and the Workload Archiving server.
- Download the Control-M Workload Archiving installation files (see Product Distribution in the Control-M Workload Archiving Release Notes).

To install Control-M Workload Archiving on UNIX:

1. Mount the installation CD from the root user and log off the root user before continuing with the installation.

2. Log in to the Control-M Workload Archiving account.

   **NOTE:** If you are using the GUI, set the environment variable `DISPLAY` to value `<hostName>:0.0`. It is not necessary to set `DISPLAY` for console mode or silent mode. (For more information, see Setting environment variables in UNIX (on page 31).)

3. Type the following command:

   `<cdPath>/setup.sh`
4. Do one of the following:
   - **Interactive install**: Follow the on-screen instructions until the installation is complete.
   - **Automatic install**: Do the following:
     a. Follow the on-screen instructions until the **Summary** window.
     b. Click **Generate** and select the location to create the XML parameter file.
     c. Click **Yes** to quit the installation.
        A confirmation message appears.
     d. Click **Yes**.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. To run the installation script, type the following command:
        ```bash
        <source_path>/setup.sh -silent <source_path/filename.xml>
        ```

5. Follow the on-screen instructions until the installation is complete.

   **NOTE:** If you cannot connect to Control-M Workload Archiving from the CCM, see 000087384.

### Uninstalling Control-M Workload Archiving from Windows

This procedure describes how to uninstall Control-M Workload Archiving from Windows.

➢ **To uninstall Control-M Workload Archiving from Windows:**

1. From the **Start** menu, select **Control Panel**.
2. Double-click **Programs and Features**.
3. Select **Control-M Workload Archiving 9.0.18**, and click **Uninstall**.
4. Click **OK** to continue.

   Control-M Workload Archiving is successfully removed from your computer.

### Uninstalling Control-M Workload Archiving from UNIX

This procedure describes how to uninstall Control-M Workload Archiving from UNIX.

➢ **To uninstall Control-M Workload Archiving from UNIX:**

1. Log in as a Control-M user.
2. Navigate to the following directory:
   ```bash
   <Workload_Archiving_InstallFolder>/BMCINSTALL/uninstall/DRARB
   ```
3. Type one of the following commands:
   - **Interactive uninstall**: `./uninstall.sh`
   - **Automatic uninstall**: `./uninstall.sh -silent`

   Control-M Workload Archiving is successfully removed from your computer.
Control-M Managed File Transfer installation

The following procedures describe how to install Control-M Managed File Transfer (MFT) on a Control-M/EM server on UNIX and Windows:

- Installing Control-M MFT on Windows (on page 69)
- Installing Control-M MFT on UNIX (on page 70)

The installation copies the MFT packages repository for each OS to EM_HOME/Client_Updates. The packages are used to deploy MFT to multiple Control-M/Agents, as described in Deploying Control-M for MFT.

Installing Control-M MFT on Windows

This procedure describes how to install Control-M MFT on a Control-M/EM server on Windows.

Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Download the MFT installation files (see Product Distribution in the Control-M Managed File Transfer Release Notes).

➢ To install MFT on Windows:

1. From the Control-M MFT Deployment Package CD, double-click the setup.exe file.

   The Control-M Managed File Transfer Deployment Package 9.0.18 wizard appears.

2. Do one of the following:

   - **Interactive install**: Follow the on-screen instructions until the installation is complete.
   - **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Follow the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

       <source_path>\Setup.exe -silent <xml_path>|<filename.xml>
The installation log can be found at the following location:

<installFolder>\BMCINSTALL\log\BMC_Control-M_Managed_File_Transfer_Install_<date-time>.log

3. Click Done.

Installing Control-M MFT on UNIX

This procedure describes how to install Control-M MFT on a Control-M/EM server on UNIX.

Before you begin

- Ensure that the database server that contains the Control-M/EM database is up and running.
- Download the MFT installation files (see Product Distribution in the Control-M Managed File Transfer Release Notes).

➢ To install MFT on UNIX:

1. Mount the installation CD from the root user and log off the root user before continuing with the installation.
2. Log in to the Control-M/EM account.
   
   **NOTE:** If you are using the GUI, set the environment variable `DISPLAY` to value `<hostName>:0.0`. It is not necessary to set `DISPLAY` for console mode or silent mode. (For more information, see Setting environment variables in UNIX (on page 31).)
3. Type the following command:
   
   `<cdPath>/setup.sh`

4. Follow the on-screen instructions until the installation is complete.

Uninstalling Control-M MFT from Windows

This procedure describes how to uninstall Control-M MFT from Windows.

➢ To uninstall MFT from Windows:

1. From the Start menu, select Control Panel.
2. Double-click Programs and Features.
4. Click OK to continue.

Control-M MFT is successfully removed from your computer.
Uninstalling Control-M MFT from UNIX

This procedure describes how to uninstall Control-M MFT from UNIX.

➢ To uninstall MFT from UNIX:

1. Log in as a Control-M user.
2. Navigate to the following directory:

   `<InstallFolder>/BMCINSTALL/uninstall/DRAFP.9.0.18`

3. Type one of the following commands:
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`

   Control-M MFT is successfully removed from your computer.
Control-M uninstall

To uninstall Control-M and all components including add-ons from UNIX and Windows computers, see Control-M full uninstall (on page 72).

To uninstall individual Control-M/Agents from UNIX and Windows computers, see Control-M/Agent uninstall (on page 73).

Control-M full uninstall

The following procedures describe how to uninstall Control-M and all components including add-ons from UNIX and Windows computers:

- Uninstalling Control-M from UNIX (on page 72)
- Uninstalling Control-M from Windows (on page 73)
- Performing an automatic Control-M uninstall on Windows (on page 73)

**NOTE:** If you are using an existing Oracle, MSSQL, or PostgreSQL database, the data is not deleted, when you uninstall.

**NOTE:** In a high availability environment, you must uninstall the secondary as well as the primary.

Uninstalling Control-M from UNIX

This procedure describes how to uninstall Control-M including all components from UNIX.

**Before You Begin**

Ensure that all jobs have ended.

➢ To uninstall Control-M from UNIX:

1. Log in as a Control-M user.
2. Navigate to the following directory:
   
   `<ctm_InstallFolder>/BMCINSTALL/uninstall/DROST.9.0.18`
3. Type one of the following commands:
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`

Control-M is successfully removed from your computer.
Uninstalling Control-M from Windows

This procedure describes how to uninstall Control-M including all components from Windows.

Before You Begin

Ensure that all jobs have ended.

➢ To uninstall Control-M from Windows:

1. From the Start menu, select Control Panel.
2. Double-click Programs and Features.
3. Select Control-M 9.0.18, and click Uninstall.
4. Click OK to continue.
   Control-M is successfully removed from your computer.

Performing an automatic Control-M uninstall on Windows

This procedure describes how to uninstall Control-M including all components from Windows via an automatic uninstall.

Before You Begin

Ensure that all jobs have ended.

➢ To perform an automatic Control-M uninstall on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.
2. Navigate to the following directory:
   `<ctm_InstallFolder>\BMCINSTALL\uninstall\DROST.9.0.18`
3. Type the following command:
   `uninstall.exe -silent`
   Control-M is successfully removed from your computer.

Control-M/Agent uninstall

The following procedures describe how to uninstall individual instances of Control-M/Agent from UNIX and Windows computers:

- Uninstalling Control-M/Agent from UNIX (on page 73)
- Uninstalling Control-M/Agent from Windows (on page 74)
- Performing an automatic Control-M/Agent uninstall on Windows (on page 74)

Uninstalling Control-M/Agent from UNIX

This procedure describes how to uninstall Control-M/Agent from UNIX.
Before You Begin
Ensure that all jobs have ended.

➢ To uninstall from UNIX:

1. Do one of the following:
   • If Control-M/Agent is running as root, log in as a user root.
   • If Control-M/Agent is running as non-root and non-root mode is enabled, do the following:
     a. Type the following command:
        `<ctm_agentInstallFolder>/ctm/scripts/set_agent_mode`
     b. Select the prepare for non root uninstall option, and then log in as the Control-M/Agent owner.

2. Navigate to the following directory:
   `<Agent_InstallFolder>/BMCINSTALL/uninstall/DRKAI.9.0.18`

3. Type one of the following commands:
   • Interactive uninstall: `./uninstall.sh`
   • Automatic uninstall: `./uninstall.sh -silent`

Control-M/Agent is successfully removed from your computer.

Uninstalling Control-M/Agent from Windows

This procedure describes how to uninstall Control-M/Agent from Windows.

Before You Begin
Ensure that all jobs have ended.

➢ To uninstall Control-M/Agent from Windows:

1. From the Start menu, select Control Panel.
2. Double-click Programs and Features.
3. Select Control-M/Agent 9.0.18, and click Uninstall.
4. Click OK to continue.

   Control-M/Agent is successfully removed from your computer.

Performing an automatic Control-M/Agent uninstall on Windows

This procedure describes how to uninstall Control-M/Agent from Windows via an automatic uninstall.

Before You Begin
Ensure that all jobs have ended.

➢ To perform an automatic Control-M/Agent uninstall on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.
2. Navigate to the following directory:
   `<Agent_InstallFolder>\BMCINSTALL\uninstall\DRKAI.9.0.18`

3. Type the following command:
   ```
   Uninstall.exe -silent
   ```
   Control-M is successfully removed from your computer.

Control-M client uninstall

The following procedures describe how to uninstall individual instances of Control-M/Agent from UNIX and Windows computers:

- Uninstalling Control-M client from Windows (on page 75)
- Performing an automatic Control-M client uninstall on Windows (on page 75)

Uninstalling Control-M client from Windows

This procedure describes how to uninstall the Control-M client from Windows.

➢ To uninstall Control-M client from Windows:
   1. From the Start menu, select Control Panel.
   2. Double-click Programs and Features.
   3. Select Control-M 9.0.18, and click Uninstall.
   4. Click OK to continue.
      Control-M is successfully removed from your computer.

Performing an automatic Control-M client uninstall on Windows

This procedure describes how to uninstall Control-M client from Windows via an automatic uninstall.

➢ To perform an automatic Control-M client uninstall on Windows:
   1. Log in to the computer using a user ID that has Administrator permissions.
   2. Navigate to the following directory:
      `<em_InstallFolder>\BMCINSTALL\uninstall\DRNFT.9.0.18`
   3. Type the following command:
      ```
      Uninstall.exe -silent
      ```
      Control-M is successfully removed from your computer.
Control-M additional installations

If you have additional load balancing and geo-redundancy requirements, you can install multiple instances of Control-M/EM and Control-M/Server.

- Control-M/Enterprise Manager installation (on page 76).
- Control-M/Server installation (on page 83).

If you want to install a secondary Control-M/EM, Control-M/Server, or Control-M full to create a high availability environment, see High availability installation (on page 95).

To install an additional Application Plug-in, see Control-M Application Plug-ins (on page 29).

**NOTE**: You cannot install an Application Plug-in on a Control-M/Agent on NFS.

Control-M/Enterprise Manager installation

If you have additional load balancing and geo-redundancy requirements, you can install multiple instances of Control-M/EM with client and server components.

Before you install Control-M/EM, verify the requirements, as described in Control-M/EM system requirements (on page 77).

If you are installing Control-M/EM on UNIX, complete the pre-install procedures, as described in Control-M/EM pre-installation procedures on UNIX (on page 78).

You can install Control-M/EM with one of the following options:

- **Default**: Installs Control-M/EM with a dedicated PostgreSQL database server, default database name, default username and default ports.
- **Custom**: Enables you to select a database server, database name, username and ports.
- **Distributed**: Installs an additional Control-M/EM without a database server. This Control-M/EM is connected to a database server on another Control-M/EM. By default, there are no components defined in a Control-M/EM distributed, except for the Control-M/EM Configuration Agent.

The following procedures describe how to install Control-M/EM on UNIX and Windows:

- Installing Control-M/EM on UNIX (on page 79)
- Installing Control-M/EM on Windows (on page 80)
Control-M/EM system requirements

Before you install Control-M/EM, verify that your operating system, processor, and database server are supported and have the correct amount of memory and disk space. For a full list of requirements, see the Control-M 9.0.18 Release Notes.

Depending on your operating system, verify that your system meets one of the following requirements:

- Control-M/EM UNIX system requirements (on page 77)
- Control-M/EM Windows system requirements (on page 78)

**NOTE:** The number of processes limit must be equal to or greater than the number of expected parallel running jobs.

Control-M/EM UNIX system requirements

The following table lists the prerequisite requirements for a UNIX platform. These values represent the minimum requirements for an entry level deployment. For higher capacity workloads, add resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible processors</td>
<td>AIX</td>
<td>IBM RISC System/6000</td>
</tr>
<tr>
<td></td>
<td>Oracle Solaris</td>
<td>SPARC</td>
</tr>
<tr>
<td></td>
<td>Linux</td>
<td>x86_64</td>
</tr>
<tr>
<td>Memory</td>
<td>N/A</td>
<td>8 GB</td>
</tr>
<tr>
<td>Diskspace</td>
<td>BMC Software recommends that you reserve three times the amount of RAM in the system for swap space.</td>
<td>60 GB If you are installing Control-M with a remote database server, 10 GB are required on the database server.</td>
</tr>
</tbody>
</table>
Control-M/EM Windows system requirements

The following table lists the prerequisite requirements for a Windows platform. These values represent the minimum requirements for an entry level deployment. For higher capacity workloads, add resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| CPU                 | • Pentium IV 2 GHz or higher  
                       | • Intel Xeon 64 bit  
                       | • AMD Opteron                                                           |
| Compatible processors | x86_64                                                                    |
| Display             | 16-bit (65536) colors or higher                                            |
| Memory              | 8 GB                                                                       |
| Diskspace           | 60 GB  
                       | If you are installing Control-M with a remote database server, 10 GB are required on the database server. |
| BMC Software recommends that you reserve three times the amount of RAM in the system for swap space. | 
| Related software    | • Internet Explorer version 11  
                       | • Microsoft .Net Framework 4.5.2                                       |

**NOTE:** The `<install folder>` must have **Read**, **List folder contents**, **Write**, and **Read & execute** permissions assigned to the **Users** group.

Control-M/EM pre-installation procedures on UNIX

Before you install Control-M/EM, you need to complete the following procedures:

- **Configuring a user account on UNIX** (on page 30): Describes how to configure specific parameters for Control-M/EM
- **Setting environment variables in UNIX** (on page 31): Describes how to set environment variables in UNIX, which enables you to see messages from the console
- **Verifying operating system levels and patches** (on page 35): Describes how to verify operating system level and patches with Control-M/EM requirements
- **PostgreSQL UNIX kernel parameters** (on page 32): Describes how to modify HP-UX, AIX, Oracle Solaris, and Linux system parameters, which enables you to allocate resources for Control-M components
Installing Control-M/EM on UNIX

This procedure describes how to install Control-M/EM on UNIX. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings. If you want to install multiple instances of Control-M/EM on several computers using the same configuration, use the automatic installation, as described in this procedure.

**NOTE:** You need to install the Control-M client on a Windows computer.

**NOTE:** The default installation is interactive and uses a GUI display. XServer must be running and configured using the `DISPLAY` environment variable. If you do not have XServer available, BMC recommends that you continue with the console installation or perform an automatic installation.

**Before You Begin**

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the current version of Control-M/EM, as described in Control-M/EM UNIX system requirements (on page 77).
- Successful completion of Control-M pre-installation procedures on UNIX (on page 29).
- If you are installing on cluster environment, see Control-M/EM UNIX cluster configuration (on page 115).

➢ To install Control-M/EM on UNIX:

1. Do one of the following:
   - Mount the installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the `.tar.Z` file.
2. Set your `DISPLAY` environment variable, as described in Setting environment variables in UNIX (on page 31).
3. From your home directory, type the following command:
   
   ```bash
   <source_path>/setup.sh
   ```
4. Do one of the following:
   - **Interactive install:** Select the Control-M/Enterprise Manager option and continue with the on-screen instructions until the installation is complete, as described in Installing Control-M/EM on UNIX (video).
   - **Automatic install:** Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Enterprise Manager option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.
Control-M Installation Guide

e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.

f. To run the installation script, type the following command:

\<source\_path>\|Setup\_files/\ components/\ em/\ setup.sh -silent
\<xml\_path>\|\<filename.xml\>

The installation log can be found at the following location:

\<HOME\>\|BMCI\_INSTALL/\ log/\ BMC\_Control-M\_Enterprise\_Manager\_<date\_time>\.log

5. Continue with Control-M post installation procedures on UNIX (on page 37).

Installing Control-M/EM on Windows

This procedure describes how to install Control-M/EM on Windows. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings. If you want to install multiple instances of Control-M/EM on several computers using the same configuration, use the automatic installation, as described in this procedure.

Before You Begin

- Ensure that your operating system and database software is compatible with the current version of Control-M/EM, as described in Control-M/EM Windows system requirements (on page 78).
- If you are installing on cluster environment, see Control-M/EM Windows cluster configuration (on page 107).

➢ To install Control-M/EM on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.

2. Do one of the following:
   - From the installation DVD, double-click the setup.exe file.
   - From a command prompt window, enter \<source\_path\\setup.exe.

3. Do one of the following:
   - **Interactive install**: Select the Control-M/ Enterprise Manager option and continue with the on-screen instructions until the installation is complete.
   - **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/ Enterprise Manager option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
f. Log in using a user ID that has Administrator permissions on the current computer.

g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

```<source_path>\Setup_files\components\em\setup.exe -silent
<xml_path>|filename.xml```  

The installation log can be found at the following location:

```
<installFolder>\BMCIINSTALL\log\BMC_Control-M_Enterprise_Manager_ <date-time>.log```  

Changing the JRE Package

This procedure describes how to change the JRE package from the default installation to a custom package.

➢ To change the JRE package:

   ▪ Do one of the following:
     - **UNIX**: Define an alternative Java home directory with the parameter **BMC_JAVA_HOME**.
     - **Windows**: Update the **PATH** environment variable with the required Java path.

**EXAMPLE**: Replace the existing JRE location, `C:\Program Files\BMC Software\Control-M EM 9.0.00\Default\JRE\bin\server` with the custom Java location `C:\Program Files\Java\jre1.8.0_66\bin\server`

Control-M/EM uninstall

The following procedures describe how to uninstall Control-M/EM on UNIX and Windows.

▪ Uninstalling Control-M/EM from UNIX (on page 81)
▪ Uninstalling Control-M/EM from Windows (on page 82)
▪ Performing an automatic Control-M/EM uninstall on Windows (on page 82)

**NOTE**: In a high availability environment, you must uninstall the secondary as well as the primary.

Uninstalling Control-M/EM from UNIX

This procedure describes how to uninstall Control-M/EM from UNIX.

**Before You Begin**

Ensure that all jobs have ended.

➢ To uninstall Control-M/EM from UNIX:

1. Log in as a Control-M/EM user.
2. Navigate to the following directory:

```
<em_InstallFolder>/BMCIINSTALL/uninstall/DRNFT.9.0.18```  

81
3. Type one of the following commands:
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`

   Control-M/EM is successfully removed from your computer.

Uninstalling Control-M/EM from Windows

This procedure describes how to uninstall Control-M/EM from Windows.

Before You Begin

Ensure that all jobs have ended.

➢ To uninstall Control-M/EM on Windows:
   1. From the Start menu, select Control Panel.
   2. Double-click or Programs and Features.
   3. Select Control-M/Enterprise Manager 9.0.18, and click Uninstall.
   4. Click OK to continue.

   Control-M/EM is successfully removed from your computer.

Performing an automatic Control-M/EM uninstall on Windows

This procedure describes how to uninstall Control-M/EM from Windows via an automatic uninstall.

Before You Begin

Ensure that all jobs have ended.

➢ To perform an automatic Control-M/EM uninstall on Windows:
   1. Log into the computer using a user ID that has Administrator permissions.
   2. Navigate to the following directory:

   `<em_InstallFolder>\BMCI NSTALL\uninstall\DRNFT.9.0.18`

   3. Type the following command:

   `Uninstall.exe -silent`

   Control-M/EM is successfully removed from your computer.
Control-M/Server installation

If you have additional load balancing and geo-redundancy requirements, you can install multiple instances of Control-M/Server.

Before you install Control-M/Server, verify the requirements, as described in Control-M/Server system requirements (on page 83).

If you are installing Control-M/Server on UNIX, complete the pre-installation procedures, as described in Control-M/Server pre-installation procedures on UNIX (on page 85) and the post installation procedures, as described in Control-M/Server post installation on UNIX.

You can install Control-M/Server with one of the following options:

- **Default**: Installs Control-M/Server with a dedicated PostgreSQL database server, default database name, default username and default ports.
- **Custom**: Enables you to select a database server, database name, username and ports.

**NOTE**: If you are installing Control-M/Server with a PostgreSQL database on the same computer where Control-M/EM with a PostgreSQL database was installed, you must use a different port for the second database instance.

The following procedures describe how to install Control-M/Server on UNIX and Windows via an interactive or automatic installation:

- Installing Control-M/Server on UNIX (on page 85)
- Installing Control-M/Server on Windows (on page 86)

Control-M/Server system requirements

Before you install Control-M/Server, verify that your operating system, processor, and database server are supported and have the correct amount of memory and disk space. For a full list of requirements, see the Control-M 9.0.18 Release Notes.

Depending on your operating system, verify that your system meets one of the following requirements:

- **Control-M/Server UNIX system requirements** (on page 83)
- **Control-M/Server Windows system requirements** (on page 84)

**NOTE**: The number of processes limit must be equal to or greater than the number of expected parallel running jobs.

Control-M/Server UNIX system requirements

The following table lists the prerequisite requirements for a UNIX platform. These values represent the minimum requirements for an entry level deployment. For higher capacity workloads, add resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible processors</td>
<td>AIX</td>
<td>IBM RISC System/6000</td>
</tr>
</tbody>
</table>
## Resource Specification Requirement

<table>
<thead>
<tr>
<th>Resource</th>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>All systems</td>
<td>DVD drive</td>
</tr>
<tr>
<td>Memory</td>
<td>N/A</td>
<td>8 GB</td>
</tr>
<tr>
<td>Diskspace</td>
<td>N/A</td>
<td>40 GB</td>
</tr>
</tbody>
</table>

BMC Software recommends that you reserve three times the amount of RAM in the system for swap space.

If you are installing Control-M with a remote database server, 5 GB are required on the database server.

### Control-M/Server Windows system requirements

The following table lists the prerequisite requirements for a Windows platform. These values represent the minimum requirements for an entry level deployment. For higher capacity workloads, add resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>• Pentium IV 2 GHz or higher</td>
</tr>
<tr>
<td></td>
<td>• Intel Xeon 64 bit</td>
</tr>
<tr>
<td></td>
<td>• AMD Opteron</td>
</tr>
<tr>
<td>Compatible processors</td>
<td>x86_64</td>
</tr>
<tr>
<td>Display</td>
<td>16-bit (65536) colors or higher</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB</td>
</tr>
<tr>
<td>Diskspace</td>
<td>40 GB</td>
</tr>
</tbody>
</table>

BMC Software recommends that you reserve three times the amount of RAM in the system for swap space.

If you are installing Control-M with a remote database server, 5 GB are required on the database server.

**NOTE:** The `<install folder>` must have Read, List folder contents, Write, and Read & execute permissions assigned to the Users group.
Control-M/Server pre-installation procedures on UNIX

Before you install Control-M/Server, you need to complete the following procedures:

- **Configuring a user account on UNIX** (on page 30): Describes how to configure specific parameters for Control-M/Server.
- **Setting environment variables in UNIX** (on page 31): Describes how to set environment variables in UNIX, which enables you to see messages from the console.
- **Verifying operating system levels and patches** (on page 35): Describes how to verify operating system level and patches with Control-M/Server requirements.
- **PostgreSQL UNIX kernel parameters** (on page 32): Describes how to modify HP-UX, AIX, Oracle Solaris, and Linux system parameters, which enables you to allocate resources for Control-M components.

Installing Control-M/Server on UNIX

This procedure describes how to install Control-M/Server on UNIX. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings. If you want to install multiple instances of Control-M/Server on several computers using the same configuration, use the automatic installation, as described in this procedure.

**NOTE:** The default installation is interactive and uses a GUI display. XServer must be running and configured using the `DISPLAY` environment variable. If you do not have XServer available, BMC recommends that you continue with the console installation or perform an automatic installation.

**Before You Begin**

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the current version of Control-M/Server, as described in Control-M/Server UNIX system requirements (on page 83).
- Successful completion of Control-M/Server pre-installation procedures on UNIX (on page 85).
- If you are installing on cluster environment, see Control-M/Server UNIX cluster configuration (on page 122).

To install Control-M/Server on UNIX:

1. Do one of the following:
   - Mount the installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the `.tar.Z` file.
2. Set your `DISPLAY` environment variable, as described in Setting environment variables in UNIX (on page 31).
3. From your home directory, type the following command:
   ```bash
   <source_path>/setup.sh
   ```
4. Do one of the following:

- **Interactive install**: Select the **Control-M/Server** option and continue with the on-screen instructions until the installation is complete.

- **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
  
  a. Select the **Control-M/Server** option and continue with the on-screen instructions until the **Summary** window.
  
  b. Click **Generate** and select the location to create the XML parameter file.
  
  c. Click **Yes** to quit the installation.
      
      A confirmation message appears.
  
  d. Click **Yes**.
  
  e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
  
  f. To run the installation script, type the following command:

     `<source_path>/Setup_files/components/ctm/setup.sh -silent
<br>`

     `<xml_path>/<filename.xml`

     The installation log can be found at the following location:

     `<$HOME>/BMCINSTALL/log/BMC_Control-M_Server_<date-time>.log`

5. Continue with **Automatic startup procedure for Control-M/Server on UNIX** (on page 39)

   **NOTE**: If you installed Control-M/Server on NFS, you can only use the Control-M/Server user on the same host where Control-M/Server was installed.

---

### Installing Control-M/Server on Windows

This procedure describes how to install Control-M/Server on Windows. You can install with the default settings, or choose the custom installation to select the database server, database names, usernames, hostnames, and port settings.

If you want to install multiple instances of Control-M/Server on several computers using the same configuration, use the automatic installation, as described in this procedure.

#### Before You Begin

- Ensure that your operating system and database software is compatible with the current version of Control-M/Server, as described in **Control-M/Server Windows system requirements** (on page 84).
- If you are installing on cluster environment, see **Control-M/Server Windows cluster configuration** (on page 121).

  ➢ **To install Control-M/Server on Windows**:

  1. Log in to the computer using a user ID that has Administrator permissions.
2. Do one of the following:
   • From the installation DVD, double-click the setup.exe file.
   • From a command prompt window, enter `<source_path>\setup.exe`.

3. Do one of the following:
   • **Interactive install**: Select the Control-M/Server option and continue with the on-screen instructions until the installation is complete.
   • **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Control-M/Server option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
        A confirmation message appears.
     d. Click Yes.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:
        ```
        <source_path>\Setup_files\components\ctm\setup.sh -silent
        <xml_path>\<filename.xml
        ```
        The installation log can be found at the following location:
        ```
        <installFolder>\BMCINSTALL\log\BMC_Control-M_Server_<date-time>.log
        ```

**Control-M/Server uninstall**

The following procedures describe how to uninstall Control-M/Server on UNIX and Windows.

- Uninstalling Control-M/Server from UNIX (on page 87)
- Uninstalling Control-M/Server from Windows (on page 88)
- Performing an automatic Control-M/Server uninstall on Windows (on page 88)

**NOTE**: In a high availability environment, you must uninstall the secondary as well as the primary.

**Uninstalling Control-M/Server from UNIX**

This procedure describes how to uninstall Control-M/Server from UNIX.

**Before You Begin**

Ensure that all jobs have ended.
To uninstall Control-M/Server from UNIX:
1. Log in as a Control-M/Server user.
2. Navigate to the following directory:
   `<ctmserver_InstallFolder>/BMCINSTALL/uninstall/DRCTV.9.0.18`
3. Type one of the following commands:
   - Interactive uninstall: `./uninstall.sh`
   - Automatic uninstall: `./uninstall.sh -silent`
   Control-M/Server is successfully removed from your computer.

Uninstalling Control-M/Server from Windows

This procedure describes how to uninstall Control-M/Server from Windows.

Before You Begin
Ensure that all jobs have ended.

To uninstall Control-M/Server from Windows:
1. From the **Start** menu, select **Control Panel**.
2. Double-click **Programs and Features**.
3. Select **Control-M/Server 9.0.18**, and click **Uninstall**.
4. Click **OK** to continue.
   Control-M/Server is successfully removed from your computer.

Performing an automatic Control-M/Server uninstall on Windows

This procedure describes how to uninstall Control-M/Server from Windows via an automatic uninstall.

Before You Begin
Ensure that all jobs have ended.

To perform an automatic Control-M/Server uninstall on Windows:
1. Log in to the computer using a user ID that has Administrator permissions.
2. Navigate to the following directory:
   `<ctmserver_InstallFolder>/BMCINSTALL/uninstall/DRCTV.9.0.18`
3. Type the following command:
   `Uninstall.exe -silent`
   Control-M/Server is successfully removed from your computer.
Control-M Installation on a Cloud Environment

The following procedures describe how to install Control-M on a Cloud environment:

- Installing Control-M on EC2 Linux platform (on page 89)
- Installing Control-M on EC2 Windows Platform (on page 91)
- Installing Control-M on AWS Marketplace (on page 92)
- Activating Control-M from AWS Marketplace (on page 93)
- Updating the DNS server after recycling the AMI (on page 93)

Installing Control-M on EC2 Linux platform

The following procedure describes how to install Control-M on EC2 Linux platform.

**NOTE:** If you are using an Oracle database, swap memory must be enabled on AWS Linux.

➢ To install Control-M on EC2 Linux platform:

1. Create a Control-M supported Linux OS instance (for example, Red Hat 6.5 or higher instance) by doing the following:
   a. In the Cloud Services Management Console, select the instance operating system.
   b. Select the instance type
   c. Use the default configuration except for the following:
      o Select a supported Control-M OS with at least 4GB of RAM or as specified in the installation for hardware requirements for the components you will be installing.
      o Add at least 30GB of storage or as specified in the installation guide for disk space requirements.
   d. Tag the instance with a name for easy reference, e.g. CONTROLM.
   e. Configure the Security Group as follows:
      o TCP port 22 for SSH access to login to the server
      o TCP port 13075 for Control-M EM CORBA Naming Service
      o TCP ports 13076-13098 for Control-M EM components (or any range of 22 ports)
      o TCP port 18080 for the Control-M EM Web Server
      o TCP port 7105 for Control-M Agent-Server communication
      o TCP port 7106 for Control-M/Server-Agent communication
      o TCP port 2368 for Control-M/Server High Availability, communication between Primary and Secondary
      o TCP port 2369 for Control-M/Server to Control-M EM Configuration Server communication
      o TCP port 2370 for Control-M/Server to Control-M EM Gateway communication
TCP port 8443 for Control-M Automation API
- Open inbound traffic for RDS Oracle/PG or your own MSSQL ports

f. Review the instance configuration and launch the instance.
g. Create and Store a Public/Private security key pair for logging in with SSH.
h. In the Cloud Instance Network, create an Elastic IP address (Public IP) and associate it with your server instance.

2. Log in to the Cloud Services server using SSH by doing the following:
   a. Login user name is **Cloud Instance** user, not root.
   b. Set the SSH login format as follows:
      ```plaintext
      ssh -i <path>/<private key file>   <Cloud Instance user>@<public hostname>
      ```
   c. Login as root: **sudo su -**

   **NOTE:** you may not be able to SSH from within the company network to the Cloud Services instance. You may need to have IT open the Cloud Services instance IP address for SSH or access the Cloud Services instance from inside the company network.

3. Configure the cloud instance by doing the following:
   a. Create the controlm unix group: **groupadd control**
      - For Linux environment, it is recommended that Control-M Enterprise Manager and Control-M/Server are installed in its own individual OS accounts.
      - Create the Control/EM unix user: `useradd -d /home/ctmem -g controlm -s /bin/csh ctmem`
      - Create the Control/Server unix user: `useradd -d /home/ctmserv -g controlm -s /bin/csh ctmserv`
      - After installing Control-M/EM repeat steps 4 – 7 below for Control-M/Server. Step 5 should be performed only once on a given machine.
      - Using Full Install:
      - Create the controlm unix user: `useradd -d /home/ctm -g controlm -s /bin/csh ctm`
   b. Change permissions in the Control-M/EM and Control-M/Server home directory to 755:
      ```plaintext
      chmod 755 /home/ctm
      ```

4. sftp the Control-M installation image to the Cloud Services server as follows:
   - Post Cloud Services only supports sftp and not ftp, however the BMC EPD does not support sftp
   a. Use ftp to transfer the Control-M installation image to a server
   b. Use sftp to transfer the Control-M image to the Cloud Services server

5. Run check_req.sh to verify server by doing the following:
   a. Copy the file check_req.tar.Z from the installation media.
   b. Ensure Korn shell is installed on the system. If not, install Korn shell by running **yum install ksh**.
      The Korn shell will be needed later for installing fixpacks
c. Ensure csh, psmisc, bc, flex, io libraries are installed. If not, install the libraries as follows:
   o yum install csh
   o yum install psmisc
   o yum install libaio
   o yum install bc
   o yum install flex

   **NOTE:** If the following check_req error occurs `Not enough free swap space. At least 4GB free swap is required`, then the following steps will create a 6GB swap space file but for production systems you should allocate a swap device instead, as follows:
   a. Create the swap file: `dd if=/dev/zero of=/swapfile bs=1024 count=6291456`
   b. Change the permission of the new swap file: `chmod 0600 /swapfile`
   c. Setup the swap file with the command: `mkswap /swapfile`
   d. enable the swap file: `swapon /swapfile`
   e. Enable it at boot time- edit `/etc/fstab` to include: `/swapfile swap swap defaults 0 0`
   f. Verify the swap file space: `cat /proc/swaps` or `free`

   If the following check_req error occurs `Change the kernel.sem (semmni) value to higher or equal to 500` do the following:
   g. To view current settings run: `cat /proc/sys/kernel/sem`
   h. To change settings run: `sysctl –w kernel.sem="250 32000 100 500"`

6. Run the Control-M Setup logged in to Control-M account.
7. (Optional) If you need to add a storage volume do the following:
   a. Log in to the server and create the partition on it using fdisk: `fdisk`
   b. Create the file system using mkfs: `mkfs -t ext4 /dev/xvdb`
   c. Mount it to a directory: `mount -t ext4 /dev/xvdb /media/controlm`
   d. Add it to the `/etc/fstab` file so it automatically mounts on reboot.
      For example, `/dev/xvdf    /media/controlm  ext4 defaults  1 2`

---

**Installing Control-M on EC2 Windows Platform**

The following procedure describes how to install Control-M on EC2 Windows platform, which enables you to use AWS to create a Windows virtual server and to install Control-M.

**Before you begin**

To install Control-M, do the following to assign AMI a hostname in the format of ‘ip-<hex Internal IP>’, so the AMIs can communicate with each other by private hostname:
Control-M Installation Guide

- Launch the **EC2 Service Properties**
- Select the **General** tab
- Check the **Set Computer Name** checkbox

➢ **To install Control-M on EC2 Windows platform:**

1. Create a Control-M Supported Windows Operating system (for example Windows 2012 Server instance). For the procedure, please refer to Step 1 in *Installing Control-M on EC2 Linux platform* (on page 89), and select the desired Windows O5.


3. Get a password by doing the following:
   a. Click **Get Password**
   b. Browse the PEM file and decrypt password

4. Log in to the Windows Image using Remote Desktop File as follows:
   a. Launch the downloaded RDP file
   b. Type in the username/password

5. sftp the Control-M installation image to the Cloud Services server as follows:
   a. Use ftp to transfer the Control-M installation image to a server
   b. Use sftp to transfer the Control-M image to the Cloud Services server

   **NOTE:** Post Cloud Services only supports sftp and not ftp, however the BMC EPD does not support sftp.

6. Run the Control-M 9.0.18 Setup.

7. Log in to the Control-M Configuration Manager, then create a GUI server, GCS, Web Server and a Control-M/Server.

---

**Installing Control-M on AWS Marketplace**

The following procedure describes how to create a Linux based Control-M 9.0.00 environment from AWS Marketplace.

➢ **Installing Control-M on AWS Marketplace:**

1. Create instance by doing one of the following:
   - **Create instance from AWS Marketplace as follows:**
     a. Log in to the AWS Marketplace, and search by keyword **BMC**.
     b. Select Control-M (BYOL), and click **Continue**.
     c. Launch by **1-Click Launch** or **Manual Launch**.
     d. Navigate to **Your Software Subscriptions**, and Click **View Instances**.
     e. Find your AWS instance, and click **Manage in AWS Console**.

         Now, Control-M (BYOL) instance is manageable in AWS Console.
Create instance from AWS Marketplace under EC2 Console. This option enables you to customize instances, with an option to assign an existing security group and create brand new pem key file. Do the following:

a. Log in to the EC2 Console and select AWS Marketplace.
b. Find Control-M by searching for BMC.
c. Choose the instance type and configure instance details, add storage, and add tags.
d. Configure Security Group. You can choose either to create a new security group or select an existing one.
e. Click Launch and select key pair. You can choose either to use the existing key pair or create a new one.
f. Launch Control-M Instance.

Activating Control-M from AWS Marketplace

This procedure describes how to activate Control-M after the Control-M Instance has been created under AWS Marketplace or AWS Marketplace EC2 Console.

1. Connect to the created Linux platform.
2. Follow the prompt to setup the required username/password.
3. Download and install the Control-M Client from the BMC Control-M website.

   **NOTE:** Ensure that the connection to Control-M/EM Web Server port at 18080 can be established.

In order to connect to Control-M instance created from AWS Marketplace, note the following:

- The ec2-user needs to be used to connect to the Control-M instance.
- The created pem key file is also used for ec2-user authentication during connection.
- The Control-M is installed under the user of control.
- Each AWS instance has its internal (private) name and public DNS, Control-M listens on public DNS only.
- Switch to controlm user from ecs-user
  
  By default, controlm user will be given the full administrative permission to manage the installed Control-M.
- View installed Control-M products using OneInstall installation type.

Updating the DNS server after recycling the AMI

This procedure describes how to update the local DNS Server to use the new host name and public IP Address of the Amazon EC2 after recycling the AMI, and publishing Control-M/EM on the new public DNS name.

Amazon EC2 instance host names are derived from the IP address that is dynamically assigned to the instance at startup. Unless the Amazon EC2 instance is allocated with an Elastic IP address (static IP address), the instance will be assigned to a new public IPv4 address after a server restart.
To update the DNS server:

1. Stop Control-M/Enterprise Manager Configuration Agent.
2. Launch the Windows task manager, ensure all the following processes are stopped:
   - emwa.exe
   - emcms.exe
   - emcmsg.exe
   - emgtw.exe
   - emguisr.exe
   - emmaintag.exe
   - eaming_service.exe
3. Open the cmd.exe console and navigate to path to:
   
   `<Drive:>\Program Files\BMC Software\Control-M EM 9.0.00\Default\bin>

4. Run the command `updateEmPublicHost.bat` to update the Control-M/EM with the new IP Address
5. Start Control-M/Enterprise Manager Server as per normal procedure.

Control-M installation on Azure

The installation of Control-M on an Azure instance (Windows or UNIX) is the same of Control-M installation for off premises. To install, see Control-M full installation (on page 21).

Azure instances have a public name and a private name. The private name enables communication only within the network of the instance, whereas the public name enables communication over the Internet. The public name can change when the instance is stopped or started.

If the private name is not recognized by a Control-M component, you need to use the public name, as described in the following examples:

**EXAMPLE:** Control-M clients reside on off premise instances.

**EXAMPLE:** Control-M Self Service or Control-M Workload Change Manager are accessed from a browser that does not reside on network where the Control-M/EM server is installed.

**EXAMPLE:** Control-M/EM is on premise and Control-M/Server is off premise.

Setting the Public name on Control-M/EM

This procedure describes how to set the Public name on Control-M/EM.

To set the Public name:

1. Stop all Control-M/EM processes.
2. Do one of the following:
   - **UNIX:** From a Control-M/EM account, type the following commands:
     - `em ./ctm_em/bin/updateEmPublicName <PUBLIC_NAME>`
Setting the Public name on Control-M/Server

This procedure describes how to set the Public name on Control-M/Server, which sets the interface name with the Public name.

➢ To set the Public name:
1. From a command line, type ctm_menu.
4. Select 1. Local IP Host Interface Name.
5. Type the Public name and press S.

High availability installation

Control-M High Availability enables you to install a secondary instance of Control-M full installation, Control-M/EM, or Control-M/Server. If there is a failure on the primary host, Control-M continues to run on the secondary host.

A secondary installation uses the same installation parameters, database and schema, as the primary installation and must be installed on the same operating system. If there is a conflict in one of the parameters, such as the port, update the port number in the primary prior to installing the secondary.

NOTE: You must have an existing Control-M environment before you can install the secondary instance. For a more detailed list of requirements, see High availability requirements (on page 96).

The following procedures describe how to install a secondary on UNIX and Windows:

- Installing a secondary on UNIX (on page 98)
- Installing a secondary on Windows (on page 100)

After you have installed the secondary, the following occurs:

- The Configuration Agents of Control-M/EM and Control-M/Server are up and running and monitoring the Configuration Agent on the primary.

NOTE: If you restarted your machine, you need start up the Control-M/EM and Control-M/Server Configuration Agent. To configure the automatic startup/shutdown script for Control-M/EM on UNIX, see Configuring the automatic startup/shutdown script for Control-M/EM on UNIX (on page 38). To configure the automatic startup procedure for Control-M/Server on UNIX, see Automatic startup procedure for Control-M/Server on UNIX (on page 39).
The secondary hostname is automatically added to the Authorized Control-M/Server hosts list and its Control-M/Agents on the primary are updated.

Files are synced between the primary and secondary (see High availability compatibility (on page 97)).

(PostgreSQL only) Access to the shared directory and data replication is periodically checked after you have initialized the replication process (see Starting database replication).

For more information about failover and fallback, see High availability configuration.

To uninstall a secondary Control-M full, Control-M/EM or Control-M/Server, see Control-M full uninstall (on page 72), Control-M/EM uninstall (on page 81), or Control-M/Server uninstall (on page 87).

High availability requirements

Before installing or uninstalling in a High availability environment, ensure the following:

- The secondary Control-M/EM Configuration Agent and Control-M/Server Configuration Agent is down.
- The Control-M/EM database and Control-M/Server database must always be up at the time of the installation.
- The installation must be performed on the primary and then on the secondary or distributed.
- After installing on the primary, you must install on the secondary before starting up the secondary Configuration Agent.
- High availability is not available until you install on the secondary.

The following table lists the supported components, operating systems, and databases for Control-M High availability.

<table>
<thead>
<tr>
<th>Component</th>
<th>Operating System</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control-M full installation</td>
<td>UNIX</td>
<td>Oracle</td>
</tr>
<tr>
<td></td>
<td>Windows</td>
<td>MSSQL</td>
</tr>
<tr>
<td>Control-M/EM</td>
<td>UNIX</td>
<td>Oracle</td>
</tr>
<tr>
<td></td>
<td>Windows</td>
<td>MSSQL</td>
</tr>
<tr>
<td>Control-M/Server</td>
<td>UNIX</td>
<td>Oracle</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PostgreSQL</td>
</tr>
<tr>
<td></td>
<td>Windows</td>
<td>MSSQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PostgreSQL</td>
</tr>
</tbody>
</table>
The following requirements must be met if you are using Control-M/Server with PostgreSQL:

- The secondary Control-M/Server and PostgreSQL database server must be on the same computer.
- You must provide a shared drive on a third server, that is always available, to back up the replicated data. It is used if the primary or secondary are temporarily unavailable.
  - Both the primary and secondary hosts must have read/write permissions on the shared drive.
  - The shared drive must have at least 15 GB of available disk space.
  - Both the primary and secondary UNIX accounts must have the same group ID and the shared drive must have the permissions for the group. To change the shared drive directory, see Running the ctmchangeshdir utility.
- The following shared drive requirements must be in a Windows environment:
  - The primary and the secondary installations must use the same Domain user
  - The Control-M/Server service **Log On as** must be set to **This account** with the same Domain user
  - Verify that the Domain user has full privileges for the entire Control-M/Server directory and for the shared drive.
  - To run Control-M/Server utilities in batch or online, you must use the same Domain user or another user with full access to the shared drive.

### High availability compatibility

The following table describes how various Control-M components, products, and security settings work in a high availability configuration.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Batch Impact Manager</td>
<td>High availability does not support BMC Batch Impact Manager on a dedicated separate server in a distributed environment.</td>
</tr>
<tr>
<td>Control-M Workload Archiving</td>
<td>High availability does not support Control-M Workload Archiving on a dedicated separate server.</td>
</tr>
<tr>
<td>Fix packs</td>
<td>If you install a fix pack on the primary, you must manually install it on the secondary. A failover cannot occur if the fix packs on both hosts are not the same.</td>
</tr>
<tr>
<td>Cluster</td>
<td>Control-M high availability is supported in a clustered environment if the primary is installed on a dedicated PostgreSQL database and the Control-M components are not managed by the cluster manager. The failover mode is set to manual and it cannot be changed.</td>
</tr>
</tbody>
</table>
## Component Description

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control-M/EM sync files</td>
<td>The following files are synced to the secondary:</td>
</tr>
<tr>
<td></td>
<td>• etc/site/resource/Defaults.rsc</td>
</tr>
<tr>
<td></td>
<td>• etc/DirectoryServiceType.cfg</td>
</tr>
<tr>
<td></td>
<td>• etc/resource/Defaults.rsc</td>
</tr>
<tr>
<td></td>
<td>• TimeZone.dat</td>
</tr>
<tr>
<td></td>
<td>• etc/ldap.conf</td>
</tr>
<tr>
<td></td>
<td>• etc/log4j.selfservice</td>
</tr>
<tr>
<td></td>
<td>• etc/log4j.wcm</td>
</tr>
<tr>
<td>Control-M/Server sync files</td>
<td>The following files are synced to the secondary:</td>
</tr>
<tr>
<td></td>
<td>• data/Config.dat</td>
</tr>
<tr>
<td></td>
<td>• data/Time_Zone.dat</td>
</tr>
<tr>
<td></td>
<td>• data/AGDEFS/AGDEFS</td>
</tr>
<tr>
<td></td>
<td>• data/AGDEFS/AGUTILS_PERMIT</td>
</tr>
<tr>
<td></td>
<td>• data/AGENTS_ALIASES.txt</td>
</tr>
<tr>
<td></td>
<td>• data/AGPERMIT_UTILS All files in directory</td>
</tr>
<tr>
<td></td>
<td>• data/REMEDY/Remedy_Conf.xml</td>
</tr>
<tr>
<td></td>
<td>• data/SSL/cert/Remedy,kbd</td>
</tr>
</tbody>
</table>

**NOTE:** This file keeps the remedy server hostname, port, and username. These parameters are defined by the remedy_configure utility and are saved in this file. The encrypted file is saved in the remedy.kbd file.

## Installing a secondary on UNIX

This procedure describes how to install a secondary Control-M full, Control-M/EM, or Control-M/Server for high availability on UNIX. A secondary installation uses the same installation parameters, database and schema, as the primary installation.

**NOTE:** The default installation is interactive and uses a GUI display. XServer must be running and configured using the `DISPLAY` environment variable. If you do not have XServer available, BMC recommends that you continue with the console installation or perform an automatic installation.
Before You Begin

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the current version of Control-M, as described in Control-M full installation system requirements (on page 22).
- Verify that the target computer is clean and does not have any previous Control-M version installed.
- Successful completion of Control-M pre-installation procedures on UNIX (on page 29).

➢ To install a secondary on UNIX:

1. Do one of the following:
   - Mount the installation DVD.
   - From the temporary directory that you created (see Product Distribution in the Control-M version 9.0.18 Release Notes), extract the .tar.Z file.

2. Set your DISPLAY environment variable, as described in Setting environment variables in UNIX (on page 31).

3. From your home directory, type the following command:

   `<source_path>/setup.sh`

4. Do one of the following:

   - **Interactive install**: Select the Additional Installations > Secondary installation for High Availability option and continue with the on-screen instructions until the installation is complete.
   
   - **Automatic install**: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     
     a. Select the Additional Installations > Secondary installation for High Availability option and continue with the on-screen instructions until the Summary window.
     
     b. Click Generate and select the location to create the XML parameter file.
     
     c. Click Yes to quit the installation.

     A confirmation message appears.

     d. Click Yes.

     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.

     f. To run the installation script, type the following command:

         `<source_path>/setup.sh -silent <xml_path>/filename.xml`

     The installation logs can be found at the following location:

         `<$HOME>/BMCINSTALL/log/BMC_Control-M_Install_<date-time>.log`

     If you are using Oracle or MSSQL, the high availability environment is now activated. If you are using PostgreSQL, start the replication process, as described in Starting database replication.
Installing a secondary on Windows

This procedure describes how to install a secondary Control-M full, Control-M/EM, or Control-M/Server for high availability on Windows. A secondary installation uses the same installation parameters, database and schema, as the primary installation.

Before You Begin

Ensure that you have met the following requirements:

- Verify that your operating system and database software is compatible with the current version of Control-M, as described in Control-M full installation system requirements (on page 22).
- Verify that the target computer is clean and does not have any previous Control-M version installed.

To install a secondary on Windows:

1. Log in to the computer using a user ID that has Administrator permissions.
2. Do one of the following:
   - From the installation DVD, double-click the Setup.exe file.
   - From a command prompt window, enter <source_path>\Setup.exe.
3. Do one of the following:
   - Interactive install: Select the Additional Installations > Secondary installation for High Availability option and continue with the on-screen instructions until the installation is complete.
   - Automatic install: Create a parameter file and then run the automatic install in a non-interactive mode, as follows:
     a. Select the Additional Installations > Secondary installation for High Availability option and continue with the on-screen instructions until the Summary window.
     b. Click Generate and select the location to create the XML parameter file.
     c. Click Yes to quit the installation.
     
     A confirmation message appears.
     d. Click Yes.

     The automatic installation XML parameters file that is created (<filename>.xml) is relevant only for computers with the same agent instance name. Otherwise, a separate <filename>.xml file must be created for each computer, or modified manually for each computer.
     e. Copy the automatic installation parameters file to a network location that is accessible to all computers where you want to perform an automatic installation.
     f. Log in using a user ID that has Administrator permissions on the current computer.
     g. Ensure that the installation DVD is still in the DVD drive, and run the installation script, as follows:

     <source_path>\Setup.exe -silent <xml_path>|<filename.xml>

     The installation logs can be found at the following location:

     <installFolder>\BMCINSTALL\log\BMC_Control-M_Install_<date-time>.log
If you are using Oracle or MSSQL, the high availability environment is now activated. If you are using PostgreSQL, verify that all requirements have been met, as described in High availability requirements (on page 96), and then start the replication process, as described in Starting database replication.

Connecting components

This procedure describes how to connect Control-M/EM to at least one instance of Control-M/Server for both UNIX and Windows.

You do not need to do this procedure if you installed the Control-M full installation option.

➢ To connect components:

1. From a Windows computer that has Control-M/EM (full or client) installed, log in to the Control-M Configuration Manager, as described in Logging in to CCM.
   
   Start up the following components that are necessary to run Control-M as prompted:
   
   • GUI Server
   • Global Conditions Server

2. From the Components menu, select New > Control-M/Server and Gateway.

3. Select Discover and click OK.

4. In the Specifying Control-M/Server parameters window, type a name for the new Control-M/Server.

5. Type the name of the host computer of the Control-M host (the computer where Control-M/Server is installed).

   **NOTE:** If Control-M/EM and Control-M/Server were installed with the suggested default parameters, accept the suggested defaults for Control-M ID and Configuration Agent Port, otherwise, check with your system administrator.

6. Click Next as required.

   The Discover process detects and defines the new Control-M/Server and its gateway in the Control-M Configuration Manager.

7. If you installed Control-M on UNIX go to Control-M post installation procedures on UNIX (on page 37).

Control-M installation without Oracle database system parameter

Due to security or organizational reasons, you might not be able to log in to the Oracle database server with the system user credentials during the Control-M/EM or Control-M installation process. In this situation, the Control-M user needs to be created on the Oracle database before you install Control-M, as described in Creating a Control-M user in an Oracle database (on page 102).

After you have created the Control-M user in the Oracle database, you need to change an environment variable, as described in Enabling Control-M installation without system user credentials (on page 103).
Creating a Control-M user in an Oracle database

This procedure describes how to create a Control-M user in an Oracle database. The database administrator must create this user before you install Control-M without defining the database username and password.

➢ To create a Control-M user in an Oracle database:

1. Create table space with name that does not consist of one of the following strings:
   - users
   - example
   - temp
   - system
   - syasaux
   - perfstat
   BMC recommends the following table space features:
   - logging (Oracle default)
   - size
   - auto extend on extend management: automatic allocation (Oracle default)
   - segment space management automatic (Oracle default)
   EXAMPLE: CREATE TABLESPACE "MY_TABLESPACE" LOGGING DATAFILE
   'E:\ORACLE11\ORADATA\ORCL\MY_TABLESPACE.ora' SIZE 250M EXTENT MANAGEMENT
   LOCAL SEGMENT SPACE MANAGEMENT AUTO

2. Create a profile with Oracle defaults, but it is strongly recommended to use the following profile features:
   - Unlimited idle time
   - Unlimited password life time
   EXAMPLE: create profile BMC_PROFILE_$USERNAME limit idle_time unlimited password_life_time
   unlimited

3. Create role in the database to use for the Control-M user.
   EXAMPLE: create role BMC_ROLE_$USERNAME

4. Assign the following permissions to the created role:
   - alter session
   - create procedure
   - create sequence
   - create session
   - select any dictionary
• create synonym
• create table
• create trigger
• create view

**EXAMPLE:** grant alter session, create procedure, create sequence, create session, select any
dictionary, create synonym, create table, create trigger, create view to
BMC_ROLE_CTMUSER;

5. Create a database username that does not consist of one of the following strings and assign the
created table pace, profile, and role to it:
• anonymous
• perfstat
• public
• scott
• sys
• sysman
• system

**EXAMPLE:** create user CTMUSER identified by CTMPASS default tablespace $TABLESPACE_NAME
quota unlimited on $TABLESPACE_NAME profile BMC_PROFILE_$USERNAME

6. Grant explicit permissions to the user, as follows:
• grant create table to CTMUSER;
• grant create view to CTMUSER;
• grant select any dictionary to CTMUSER;

### Enabling Control-M installation without system user credentials

This procedure describes how to enable Control-M installation without system user credentials from the
installation process. If you perform this procedure, the Control-M user must be created in the Oracle
database before you install Control-M.

**NOTE:** This procedure is not supported if you are installing the Full installation on UNIX.

➢ **To enable Control-M installation without system user credentials:**

   ▪ From a command line, set the following environment variable to **Y**:

     ```
     DBUBUILD_WITH_NO_SYS_PASS
     ```
Removing the SELECT ANY DICTIONARY privilege

This procedure describes how to remove the SELECT ANY DICTIONARY privilege using an Oracle database before or after a Control-M installation.

➢ To remove the privilege:

■ Do one of the following:
  • If you are doing a regular installation, set the environment variable `NO_DICT`.
  • If you are doing a non-system installation, verify that your DBA does not grant the `SELECT ANY DICTIONARY`.
  • If Control-M is already installed, open a request with your DBA to remove the privilege.
Control-M cluster configuration

This appendix contains detailed information on how to prepare the database server and Control-M (Control-M/EM or Control-M/Server) database data files (tablespaces or data files), for a cluster installation, as described in **Database components cluster configuration** (on page 105). After you have completed the database server and data files preparation, you can install Control-M interactively or automatically, on UNIX or Windows.

The following describes how to configure Control-M in a cluster environment, as follows:
- **Control-M/EM cluster configuration** (on page 107)
- **Control-M/Server cluster configuration** (on page 121)
- **Control-M/Agent cluster configuration** (on page 123)

Database components cluster configuration

Plan and prepare the configuration according to the information set out in this appendix. The appendix contains information specific to BMC-supplied PostgreSQL and third-party database servers (for example, Oracle, MSSQL) that are dedicated to a Control-M application.

If you are planning for clusters on a third-party database server that is not dedicated to a Control-M application, contact the site DBA and Control-M administrator regarding specific cluster requirements.

In a PostgreSQL or existing third-party database server installation, the database server is always installed within the same file system, and the Control-M tablespace can reside on a different file system. Both file systems must belong to the same resource group.

You can use the following types of implementations for the Control-M database in a Windows cluster environment:
- **clustered configuration**: A single database installation on the cluster can be accessed by both nodes. The database files are located on the shared disk and the database server availability is controlled by the cluster.
- **remote database configuration**: The database is installed on a non-clustered server or on a cluster different from where Control-M is installed. In this case, only database clients are installed on each of the Control-M cluster nodes.

The database server and the Control-M database must be located on the same file system as Control-M.
Microsoft SQL (MSSQL) Server

When MSSQL is installed on a cluster, the software binaries of the product are placed on the local drives of each one of the selected nodes and the data files are placed on the assigned disk resource on the shared drive.

The MSSQL Server services (one service is created on each cluster node) are named by default as the virtual server name. When the MSSQL resource group is moved from one node to another, the MSSQL services are stopped on the original (primary) node and started on the alternate node.

In addition to the MSSQL services resources, installation of MSSQL Server on a Windows cluster automatically creates the network name and IP address resources in the selected resource group. At that point, the MSSQL resource group becomes a virtual server and can be accessed by client applications using the virtual name.


Oracle Real Application Cluster (RAC)

A normal Oracle installation consists of a single Oracle instance that accesses a database on the same computer system. With RAC (formerly known as Oracle Parallel Server), multiple instances on different nodes can access the same database files simultaneously. In case of a node failure, the workload of this node will be handled by the other node of the cluster.

When the system is prepared for installation, the Oracle Universal Installer (OUI) presents the list of all cluster nodes, enabling the selection of a subset as targets. The OUI copies the Oracle software onto the first node, and then propagates the software onto the rest of the chosen nodes of the cluster. Along with all the Oracle software, Oracle Enterprise Manager (the central managing console) is automatically installed and set up. When the installation is finished, the database creation wizard and the network configuration wizard are automatically invoked.

For more information about Oracle RAC installation, see the Oracle installation documentation or the Oracle RAC whitepapers at (http://www.oracle.com/technology/products/database/clustering/RACWhitepapers.html).

Oracle high availability features are only relevant for Control-M/Enterprise Manager.

Remote database server configuration

When the database server is located on a remote node (not one of the cluster nodes), a database client can be installed on each of the cluster nodes and which can then be connected to the remote database server. In this type of implementation, except for the database client, additional database software does not need to be installed on the cluster.

This configuration is common when database platforms reside in a centralized location. However, the availability of Control-M in this type of configuration is tied to and dependent upon the remote database server availability.
Control-M/EM cluster configuration

You can configure Control-M/EM in a cluster environment on UNIX and Windows:

- **Control-M/EM Windows cluster configuration** (on page 107): The Control-M/EM Windows installation is cluster aware. All components defined as part of the installation are defined as cluster resource and are managed by the cluster manager.

- **Control-M/EM UNIX cluster configuration** (on page 115): The Control-M/EM UNIX installation is not cluster aware. You need to configure the components using BMC demo scripts.

Control-M/EM Windows cluster configuration

The Control-M/EM installation automatically recognizes the cluster environment and prompts you to define the Cluster group (cluster aware) or Local install (cluster non-aware). To install, see Installing Control-M/EM on Windows (on page 80).

**NOTE:** If a previous version of Control-M/EM was uninstalled on the Windows cluster and you are attempting to install a new Control-M/EM installation on it, you must restart the resource manager or the cluster nodes.

**NOTE:** You must run `setup_em.bat` on each node. The batch script checks the version of .Net and installs MDAC2.7.

The Cluster Group installation defines the following Control-M components in the CCM with the Desired state set to **Ignore** and as a resource in the cluster manager in online status:

- Control-M-EM GCS (Global Condition Server)
- Control-M-EM WEB (Tomcat server)
- Control-M-EM GSR (Default GUI server)

In the Cluster Group installation, the following component are always managed by the Cluster even though these component are set to **Up** in the CCM:

- Control-M PostgreSQL (If installed with PostgreSQL)
- Control-M-EM NS (Naming Service)
- Control-M-EM CMS (Configuration Server)

The Cluster Group installation defines the Control-M-EM configuration agent resource in the cluster manager in online status.

The CD activation of the following Control-M add-ons define the components in the CCM with a Desired state set to **Up** and as a resource in the cluster manager in offline status:

- Control-M-EM BIM (Batch Impact Manager server)
- Control-M-EM Forecast
- Control-M-EM SLS (Self Service Server)
- Control-M Workload Archiving
To avoid a scenario where the Control-M-EM Configuration Agent and the cluster manager control the same component, verify the following:

- All components managed by the cluster must be set to **Ignore** in the CCM and in online status in cluster manager.
- All components managed by the Control-M-EM Configuration Agent must be in offline status in the cluster manager and set with a Desired state to **Up** or **Down** in the CCM.

**NOTE:** Control-M/EM Distributed functions the same as a regular Control-M/EM in a cluster. The Cluster Group installation defines the Control-M-EM configuration agent resource in the cluster manager in online status.

The following procedures describe how to configure Control-M/EM in a clustered environment on Windows:

- Creating an additional Control-M/EM component as a cluster resource (on page 108)
- Cluster resource parameters (on page 110)

Creating an additional Control-M/EM component as a cluster resource

This procedure describes how to create an additional Gateway, GUI Server, or Forecast server component as a cluster resource in the cluster manager.

➢ **To create an additional Control-M/EM component as a cluster resource:**

1. Define a GUI Server, Gateway, or Forecast component in the CCM, as described in Defining a Control-M/EM component.

2. Set the desired state of the GUI Server component to **Ignore**.
   
   **NOTE:** If the component is not set to **Ignore**, both the cluster manager and the Configuration Agent manage the component.

3. For each Control-M/EM component defined, define a cluster resource component in the cluster manager using one of the following parameters:
   - Gateway cluster resource parameters (on page 109)
   - GUI Server cluster resource parameters (on page 109)
   - Control-M/Forecast cluster resource parameters (on page 110)
## Gateway cluster resource parameters

The following table describes the Gateway cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-Gateway (CTM/ SRVName)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Control-M/EM Gateway</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Command line</td>
<td><code>&lt;EM_HOME&gt;\bin\emgtw.exe</code></td>
</tr>
<tr>
<td>Parameters</td>
<td>-dc <code>&lt;Control-M name&gt;</code></td>
</tr>
<tr>
<td>Current directory</td>
<td><code>&lt;EM_HOME&gt;\bin\</code></td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td>Control-M PostgreSQL (If installed using PostgreSQL)</td>
</tr>
</tbody>
</table>

## GUI Server cluster resource parameters

The following table describes the GUI Server cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>GUI Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>GUI Server</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Command line</td>
<td><code>&lt;EM_HOME&gt;\bin\emguisrv.exe</code></td>
</tr>
<tr>
<td>Parameters</td>
<td>-name <code>&lt;unique name&gt;</code></td>
</tr>
<tr>
<td>Current directory</td>
<td><code>&lt;EM_HOME&gt;\bin\</code></td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td>- Control-M Naming Service</td>
</tr>
<tr>
<td></td>
<td>- Control-M PostgreSQL (If installed using PostgreSQL)</td>
</tr>
</tbody>
</table>
Control-M/Forecast cluster resource parameters

The following table describes the Forecast cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M/ Forecast (CTM/ SRVName)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Control-M/Forecast</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Group</td>
<td>EMxxx</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;/bin/emforecastsrv.exe</td>
</tr>
<tr>
<td>Parameters</td>
<td>-gsr &lt;GUI server name&gt; -n &lt;unique name&gt;</td>
</tr>
<tr>
<td>Current directory</td>
<td>&lt;EM_HOME&gt;/bin</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control-M/ EM: Control-M Naming Service</td>
</tr>
<tr>
<td></td>
<td>Distributed Control-M/ EM: Control-M-EM-Configuration-Agent</td>
</tr>
</tbody>
</table>

Cluster resource parameters

The following describes the parameters for each Control-M/EM component that is created by the installation. The parameters are described here if you deleted a cluster resource and need to recreate it.

- [Control-M-EM Configuration Agent](#) (on page 111)
- [Configuration Server resource parameters](#) (on page 111)
- [Naming service resource parameters](#) (on page 112)
- [Web Server resource parameters](#) (on page 112)
- [Global Condition Server resource parameters](#) (on page 113)
- [Batch Impact Manager Server resource parameters](#) (on page 113)
- [Control-M/EM Self Service Server resource parameters](#) (on page 114)
- [Workload Archiving resource parameters](#) (on page 114)
Control-M Installation Guide

Control-M-EM Configuration Agent

The following table describes the Configuration Agent cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-Configuration Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Configuration Agent</td>
</tr>
<tr>
<td>Resource type</td>
<td>Generic script</td>
</tr>
<tr>
<td>Command line</td>
<td><code>&lt;EM_HOME&gt;in\ClusterSupportCA.vbs</code></td>
</tr>
<tr>
<td>Parameters</td>
<td>N/A</td>
</tr>
<tr>
<td>Current directory</td>
<td>N/A</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>30</td>
</tr>
<tr>
<td>Dependencies</td>
<td>Network name</td>
</tr>
</tbody>
</table>

Configuration Server resource parameters

The following table describes the Configuration cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-CMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Control-M/EM Configuration server</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Command line</td>
<td><code>&lt;EM_HOME&gt;in\emcms.exe</code></td>
</tr>
<tr>
<td>Parameters</td>
<td>-name <code>&lt;Cluster network name&gt;</code></td>
</tr>
<tr>
<td>Current directory</td>
<td><code>&lt;EM_HOME&gt;in</code></td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td>▪ Control-M Naming Service</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M PostgreSQL (If installed using PostgreSQL)</td>
</tr>
</tbody>
</table>
Naming service resource parameters
The following table describes the Naming server cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Naming server</td>
</tr>
<tr>
<td>Resource type</td>
<td>Generic Script</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;/bin/ClusterSupportNS.vbs</td>
</tr>
<tr>
<td>Parameters</td>
<td>N/A</td>
</tr>
<tr>
<td>Current directory</td>
<td>N/A</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>30</td>
</tr>
<tr>
<td>Dependencies</td>
<td>Network name</td>
</tr>
</tbody>
</table>

Web Server resource parameters
The following table describes the Web Server cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-WEB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Web server</td>
</tr>
<tr>
<td>Resource type</td>
<td>Generic Script</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;/bin/ClusterSupportWebServer.vbs</td>
</tr>
<tr>
<td>Parameters</td>
<td>N/A</td>
</tr>
<tr>
<td>Current directory</td>
<td>N/A</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>60</td>
</tr>
<tr>
<td>Dependencies</td>
<td>Control-M-EM-GSR</td>
</tr>
</tbody>
</table>
Global Condition Server resource parameters

The following table describes the Global Condition Server cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-GCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Control-M/EM Global Condition server</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;\bin\emgcsrv.bat</td>
</tr>
<tr>
<td>Parameters</td>
<td>N/A</td>
</tr>
<tr>
<td>Current directory</td>
<td>&lt;EM_HOME&gt;\bin</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td>▪ Network name</td>
</tr>
<tr>
<td></td>
<td>▪ Control-M PostgreSQL (If installed using PostgreSQL)</td>
</tr>
</tbody>
</table>

Batch Impact Manager Server resource parameters

The following table describes the Batch Impact Manager Server cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-BIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Batch Impact Manager server</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;\bin\embimsrv.exe</td>
</tr>
<tr>
<td>Parameters</td>
<td>-gsr=&lt;GUI server name&gt; -name &lt;unique name&gt;</td>
</tr>
<tr>
<td>Current directory</td>
<td>&lt;EM_HOME&gt;\bin</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td>▪ Control-M/ EM: Control-M Naming Service</td>
</tr>
<tr>
<td></td>
<td>▪ Distributed Control-M/ EM: Control-M-EM-Configuration-Agent</td>
</tr>
</tbody>
</table>
Control-M/EM Self Service Server resource parameters

The following table describes the Self Service Server cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M-EM-SLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Control-M/EM Self Service Server</td>
</tr>
<tr>
<td>Resource type</td>
<td>generic application</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;/bin/emselfservicesrv.exe</td>
</tr>
<tr>
<td>Parameters</td>
<td>-gsr=&lt;GUI server name&gt; -name &lt;unique name&gt;</td>
</tr>
<tr>
<td>Current directory</td>
<td>&lt;EM_HOME&gt;/bin</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>120</td>
</tr>
<tr>
<td>Dependencies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Control-M Naming Service</td>
</tr>
<tr>
<td></td>
<td>• Control-M-EM-GSR (The GUI server with name provided in the parameters)</td>
</tr>
<tr>
<td></td>
<td>• Control-M PostgreSQL (If installed using PostgreSQL)</td>
</tr>
</tbody>
</table>

Workload Archiving resource parameters

The following table describes the Workload Archiving cluster resource parameters.

<table>
<thead>
<tr>
<th>Resource attribute</th>
<th>Control-M Workload Archiving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Workload Archiving</td>
</tr>
<tr>
<td>Resource type</td>
<td>Generic script</td>
</tr>
<tr>
<td>Group</td>
<td>EMxxx</td>
</tr>
<tr>
<td>Command line</td>
<td>&lt;EM_HOME&gt;/archive/script/ClusterSupportWrapper.vbs</td>
</tr>
<tr>
<td>Parameters</td>
<td>N/A</td>
</tr>
<tr>
<td>Current directory</td>
<td>&lt;EM_HOME&gt;/archive/</td>
</tr>
<tr>
<td>Pending timeout in seconds</td>
<td>30</td>
</tr>
<tr>
<td>Dependencies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Control-M Naming Service</td>
</tr>
<tr>
<td></td>
<td>• Control-M-EM-GSR (If Workload Archiving is using the cluster GUI server)</td>
</tr>
</tbody>
</table>
Control-M/EM UNIX cluster configuration

The Control-M/EM UNIX installation is not cluster aware. Therefore, you need to configure the UNIX cluster manager to manage Control-M/EM components.

Before you can configure Control-M/EM in a cluster environment on UNIX, you must do the following:

- Create two user accounts, as described in Configuring a user account on UNIX (on page 30).
- Set the $BMC_HOST_INSTALL environment variable to the virtual cluster hostname designated for the Control-M/EM resource group prior to installation. For information on setting variables, see Setting environment variables in UNIX (on page 31).
- Install, as described in Installing Control-M/EM on UNIX (on page 79).

BMC provides demo scripts that start, check, and stop Control-M/EM components. You can build your own scripts and use the provided scripts as an example or update the scripts to match your installation. After your scripts are ready, you can configure the cluster manager to use the scripts.

The following demo scripts are located at <Control-M/EM_HOME>/bin:

- demo_ha_cluster_start
- demo_ha_cluster_check
- demo_ha_cluster_stop
- demo_ha_cluster (Main script)

To get the usage, run the scripts with –help (or with no parameter).

The following procedures describe how to configure Control-M/EM in a clustered environment on UNIX using BMC provided demo scripts:

- Modifying the demo ha cluster script (on page 115)
- Configuring the Control-M/EM Configuration Agent as a cluster resource (on page 116)
- Configuring Control-M/EM kernel components as cluster resources on UNIX (on page 116)
- Configuring additional Control-M/EM components as cluster resources on UNIX (on page 117)

Modifying the demo ha cluster script

This procedure describes how to modify the demo ha cluster script with the Control-M/EM home directory and the UNIX account name. This enables you to provide the cluster manager with the required scripts to start, check, and stop components.

➢ To modify the ha cluster script:

1. Navigate to the following directory:
   
   `<Control-M/ EM home dir>/ bin`

2. Open the demo_ha_cluster script.
3. In the User definition section, do the following:
   a. Change the EM install directory to the location where Control-M/EM is installed.
      EXAMPLE: EM_DIR="/data/emuser/ctm_em"
   b. Change the UNIX install account name to the Control-M/EM user account that you created (see Configuring a user account on UNIX (on page 30)).
      EXAMPLE: EM_ACC="emuser"

Configuring the Control-M/EM Configuration Agent as a cluster resource
This procedure describes how to configure the Control-M/EM Configuration Agent as a cluster resource using the BMC provided demo scripts. You must perform this procedure to activate your cluster environment.

➢ To configure the Control-M/EM Configuration Agent cluster resource:
   ▪ From your cluster manager, add the following commands:
     • Start: dummy_ha_cluster_start -C Config_Agent
     • Check: dummy_ha_cluster_check -C Config_Agent
     • Stop: dummy_ha_cluster_stop -C Config_Agent
   The Configuration Agent is now managed by the cluster manager. If there is a failover/move, the cluster manager starts up the Configuration Agent on the other host.

Configuring Control-M/EM kernel components as cluster resources on UNIX
This procedure describes how to configure the CMS, Naming Service, and PostgreSQL database (if installed) components as cluster resources on UNIX.

NOTE: This procedure is optional. If you do not do it, the Configuration Agent continues to manage the Control-M/EM components.

➢ To configure Control-M/EM kernel cluster resources on UNIX:
1. Set the system parameter ClusterInstall to 1, as described in General parameters.
   The CMS, Naming Service, and PostgreSQL database components are no longer managed by the Configuration Agent.
2. From your cluster manager, add the start, check, and stop commands, as described in Control-M/EM UNIX cluster commands (on page 117).
   The Control-M/EM components are now managed by the cluster manager.
Configuring additional Control-M/EM components as cluster resources on UNIX

This procedure describes how to configure additional Control-M/EM components as cluster resources on UNIX using the BMC provided demo scripts.

**NOTE:** This procedure is optional. If you do not do it, the Configuration Agent continues to manage the Control-M/EM components.

➢ To configure additional Control-M/EM components as cluster resources on UNIX:

1. From the CCM, set the following components to **Ignore**, as described in Ignoring a component:
   - Gateway
   - GUI Server
   - Web Server
   - GCS
   - BIM
   - Forecast Server
   - Self Service Server

2. From your cluster manager, enter the start, check, and stop commands, as described in Control-M/EM UNIX cluster commands (on page 117).

   The Control-M/EM components are now managed by the cluster manager.

Control-M/EM UNIX cluster commands

The following table lists the start, check, and stop commands for each Control-M/EM component.

**NOTE:** The demo_ha_cluster_check command returns a 0 value if the component is up and a different value if the component is down.

<table>
<thead>
<tr>
<th>Control-M/EM component</th>
<th>Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS</td>
<td>Start: demo_ha_cluster_start -C CMS&lt;br&gt;Check: demo_ha_cluster_check -C CMS&lt;br&gt;Stop: demo_ha_cluster_stop -C CMS</td>
</tr>
<tr>
<td>Naming Service</td>
<td>Start: demo_ha_cluster_start -C Naming_Server&lt;br&gt;Check: demo_ha_cluster_check -C Naming_Server&lt;br&gt;Stop: demo_ha_cluster_stop -C Naming_Server</td>
</tr>
<tr>
<td>PostgreSQL Database</td>
<td>Start: demo_ha_cluster_start -C DBPostgres&lt;br&gt;Check: demo_ha_cluster_check -C DBPostgres&lt;br&gt;Stop: demo_ha_cluster_stop -C DBPostgres</td>
</tr>
</tbody>
</table>
## Control-M/EM component Commands

<table>
<thead>
<tr>
<th>Control-M/EM component</th>
<th>Commands</th>
</tr>
</thead>
</table>
| **Gateway**            | ▪ **Start:** demo_ha_cluster_start -C Gateway -dc <Data Center Name>  
▪ **Check:** demo_ha_cluster_check -C Gateway -dc <Data Center Name>  
▪ **Stop:** demo_ha_cluster_stop -C Gateway -dc <Data Center Name> |
| **GUI Server**         | ▪ **Start:** demo_ha_cluster_start -C GUI_Server -name <Logical Name>  
▪ **Check:** demo_ha_cluster_check -C GUI_Server -name <Logical Name>  
▪ **Stop:** demo_ha_cluster_stop -C GUI_Server -name <Logical Name> |
| **GCS**                | ▪ **Start:** demo_ha_cluster_start -C GCS  
▪ **Check:** demo_ha_cluster_check -C GCS  
▪ **Stop:** demo_ha_cluster_stop -C GCS |
| **Web Server**         | ▪ **Start:** demo_ha_cluster_start -C Web_Server  
▪ **Check:** demo_ha_cluster_check -C Web_Server |
| **BIM**                | ▪ **Start:** demo_ha_cluster_start -C BIM  
▪ **Check:** demo_ha_cluster_check -C BIM  
▪ **Stop:** demo_ha_cluster_stop -C BIM |
| **Forecast Server**    | ▪ **Start:** demo_ha_cluster_start -C Forecast_Server -name <Logical Name>  
▪ **Check:** demo_ha_cluster_check -C Forecast_Server -name <Logical Name>  
▪ **Stop:** demo_ha_cluster_stop --C Forecast_Server -name <Logical Name> |
| **Self Service Server**| ▪ **Start:** demo_ha_cluster_start -C Self_Service_Server  
▪ **Check:** demo_ha_cluster_check -C Self_Service_Server  
▪ **Stop:** demo_ha_cluster_stop --C Self_Service_Server |
Control-M/EM Configuration Agent

**NOTE:** In some cases, after setting a virtual host name online, the physical host name of the cluster node becomes unavailable. In such case, additional configuration is required for the Control-M/EM Configuration Agent. This configuration provides the ability to send life check communications to the Control-M/EM Configuration Agent using the virtual host name.

This configuration should only be used if the Control-M/EM Configuration Agent appears in the Control-M Configuration Manager as Not Responding after starting the Control-M/EM Configuration Agent.

➢ To add a HostPort system parameter for the Control-M/EM Configuration Agent:

1. Stop the Control-M/EM Configuration Agent from root_menu or by running the command `stop_config_agent` from the shell prompt (this requires the Control-M/EM DBO password).
2. In the Control-M Configuration Manager, choose **Tools > System Parameters**.
3. In the general section, select the HostPort parameter and click **New** to open the "Add New Parameter" dialog box.
4. In the **Add New Parameter** dialog box, click **Advanced**.
5. Modify the following field values:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>General (the default value)</td>
</tr>
<tr>
<td>Name</td>
<td>HostPort (the default value)</td>
</tr>
<tr>
<td>Value</td>
<td>vhemxxx:0, which is specified in the format:</td>
</tr>
<tr>
<td></td>
<td>virtualHostName:port</td>
</tr>
<tr>
<td></td>
<td>By specifying 0 (zero) as the port number, the Control-M/EM Configuration Agent will listen on a random port that is chosen when the Control-M/EM Configuration Agent starts. If a port other than zero is specified, the Control-M/EM Configuration Agent will use the specified port number.</td>
</tr>
<tr>
<td>Advanced field:</td>
<td>Type Config Agent</td>
</tr>
<tr>
<td>Advanced field:</td>
<td>Name * (the default value)</td>
</tr>
<tr>
<td>Advanced field:</td>
<td>Host * (the default value) Computer hostname</td>
</tr>
</tbody>
</table>

**NOTE:** If the installation of the Control-M/EM components is distributed between additional hosts other than the cluster nodes, a separate condition must be specified with the physical host names of each cluster node specified in the Host Name parameter.

6. Click **Save**.
7. Start the Control-M/EM Configuration Agent.
Global Condition Server

In some cases, after setting a virtual host name online, the physical host name of the cluster node becomes unavailable. In such case, additional configuration is required for the GCS. This configuration should only be used if the GCS failed to start after a failover.

➢ To add a HostPort system parameter for the GCS:

1. Start the Control-M Configuration Manager and change the desired state of the GCS to DOWN.
2. Ensure that the GCS is not running on any of the cluster nodes (ps -ef | grep gcs).
3. In the Control-M Configuration Manager, choose Tools => System Parameters.
4. In the general section, select the HostPort parameter and click New to open the "Add New Parameter" dialog box.
5. In the "Add New Parameter" dialog box, click Advanced.
6. Modify the following field values:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>General (the default value)</td>
</tr>
<tr>
<td>Name</td>
<td>HostPort (the default value)</td>
</tr>
<tr>
<td>Value</td>
<td>vhemxxx:55443, which is specified in the format: virtualHostName,port</td>
</tr>
<tr>
<td></td>
<td>Do not specify 0 as the port number.</td>
</tr>
<tr>
<td>Advanced field: Type</td>
<td>GCS</td>
</tr>
<tr>
<td>Advanced field: Name</td>
<td>* (the default value)</td>
</tr>
<tr>
<td>Advanced field: Host</td>
<td>* (the default value)</td>
</tr>
</tbody>
</table>

7. Click Save.
8. Start the GCS using the Control-M Configuration Manager.
Control-M Server cluster configuration

You can configure Control-M Server in a cluster environment on UNIX and Windows:

- **Control-M Server Windows cluster configuration** (on page 121): The Control-M Server Windows installation is cluster aware. All components defined as part of the installation are defined as cluster resource and are managed by the cluster manager.

- **Control-M Server UNIX cluster configuration** (on page 122): The Control-M Server UNIX installation is not cluster aware. You need to configure the components using scripts.

### Control-M Server Windows cluster configuration

The Control-M Server installation on Windows automatically recognizes the cluster environment and prompts you to define the Cluster group (cluster aware) or Local install (cluster non-aware). To install, see [Control-M Server installation](#) (on page 83).

The Cluster Group installation defines the following components and as a resource in the cluster manager in online status:

- Control-M/Server
- Control-M PostgreSQL (If installed with PostgreSQL)
- Control-M/Server Configuration Agent

By default, the Control-M Server components are automatically defined as resources in the cluster manager. If a component shuts down, you must start it up from the cluster manager.

To configure Control-M Server as a cluster resource, see [Configuring Control-M Server as a cluster resource on Windows](#) (on page 121).

### Configuring Control-M Server as a cluster resource on Windows

This procedure describes how to configure Control-M Server in a cluster-aware environment on Windows.

1. **To configure Control-M Server cluster environment:**
   1. Install Control-M Server on the primary host, as described in [Installing Control-M Server on Windows](#) (on page 86).
      
      The Control-M/Server, Control-M Server Configuration Agent, and the PostgreSQL for Server900 (if installed) cluster resource components are installed and online.
   2. From the cluster manager on the primary node, run the **Move Group** command to move the Control-M Server cluster group to the secondary node.
   3. Verify that the **Disk**, **IP address**, and **Network Name** resources are online on the secondary node.
   4. Do one of the following:
      - Verify that the DVD drive is available to both nodes and run `Setup_files\3RD\setup_ctm.bat`.
      - From the DVD, copy the `Setup_files\3RD\setup_ctm.bat` file to the secondary node and run `setup_ctm.bat`.
   5. Verify that the secondary node is online in the Windows Cluster Administrator window.
You have now completed the configuration of Control-M/Server with clusters on Windows.

**Control-M/Server UNIX cluster configuration**

The Control-M/EM UNIX installation is not cluster aware. Therefore, you need to configure the UNIX cluster manager to manage Control-M/EM components.

Before you can configure Control-M/EM in a cluster environment on UNIX, you must do the following:

- Create two user accounts, as described in Configuring a user account on UNIX (on page 30).
- Set the `$BMC_HOST_INSTALL` environment variable to the virtual cluster hostname designated for the Control-M/Server resource group prior to installation. For information on setting variables, see Setting environment variables in UNIX (on page 31).
- Install, as described in Installing Control-M/Server on UNIX (on page 85).

To configure Control-M/Server as a cluster resource, see Configuring Control-M/Server as cluster resource on UNIX (on page 122).

**Configuring Control-M/Server as cluster resource on UNIX**

This procedure describes how to configure Control-M/Server as a cluster resource on UNIX, which enables the cluster manager to start, check, and stop Control-M/Server processes.

➢ To configure Control-M/Server as a cluster resource on UNIX:

1. From the CCM, set the Control-M/Server component to **Ignore**, as described in Ignoring a component:

2. On the active host create the following scripts in a directory that is not on the shared disk:

   - **start_all**: `startdb && start_ca && start_ctm && start-ag -u 'whoami' -p ALL -s`
   - **show_all**: `show_ca && shctm && shagent`
   - **shut_all**: `shut_ca && shut_ctm && shut-ag -u 'whoami' -p ALL && shutdb`

3. Copy the scripts to the other host and allow access to the Control-M/Server user.

4. On the active host, create the following scripts in a directory that is not on the shared disk:

   - **ctms_start_all**: `sudo -u <ctmuser> -i start_all`
   - **ctms_show_all**: `sudo -u <ctmuser> -i show_all`
     
     ```bash
     ret=0
     if [ $ret = -eq 0 ]
     then
       exit 0
     fi
     exit 100
     ```
   - **ctms_shut_all**: `sudo -u <ctmuser> -i shut_all`
5. Copy the scripts to the other host and allow access to the cluster user.

6. Verify that resource group and logical hostname resource are already defined on the cluster.

7. From the cluster manager, run the following command to create a Control-M/Server resource, register it with required resource group, and allocate it to a virtual host:

```bash
sudo /usr/cluster/bin/clrs create -g <resource_group> -t SUNW.gds:6 -p Scalable=false -p Start_timeout=120 -p Stop_timeout=300 -p Probe_timeout=20 -p Start_command="/<host_private_directory>/ctms_start_all.sh" -p Stop_command="/<host_private_directory>/ctms_shut_all.sh" -p Probe_command="/<host_private_directory>/ctms_show_all.sh" -p Child_mon_level=-1 -p Port_list="2369/tcp" -p Resource_dependencies=<logical_hostname> -p Failover_enabled=TRUE -p Stop_signal=9 <Control-M/Server_resource>
```

Control-M/Agent cluster configuration

The following procedures describe how to configure clusters on Control-M/Server:

- Control-M with active/active (load balancing) clusters (on page 123)
- Control-M with active/passive (high availability) clusters (on page 124)
- Creating Control-M/Agent UNIX accounts (on page 124)
- Installing Control-M/Agent (on page 125)
- Monitoring Control-M/Agent processes (on page 126)
- Control-M/Agent cluster environment on Windows (on page 126)

Control-M with active/active (load balancing) clusters

Control-M does not support the use of network load balancers or broadcast IP addressing, to describe an active/active cluster. Control-M/Server must be able to connect to a definitive address on a Control-M/Agent computer that runs the job. For this reason, the following configuration is recommended for an active/active cluster:

- Each node in the cluster should have a Control-M/Agent installed that listens on a non-load balanced, or broadcast IP, address. The Server-to-Agent port should be reachable without going through any network load balancer or port address translation.
- Discover each agent through Control-M/Server.
- Create a node group for the application. This is the name that should be used when scheduling jobs for this application. We recommend using the virtual name or the application name for familiarity with schedulers.
- Update or create your job definitions to refer to the node group that was created in the previous step.
Control-M with active/passive (high availability) clusters

When you implement Control-M/Agent on a UNIX cluster, a dedicated Control-M Agent is installed within each resource group to which Control-M should submit jobs. When a single application is running on the cluster, a single Control-M Agent should be installed. When multiple applications are running on the cluster, Control-M submits jobs to those applications using different Control-M Agents.

The file system on which Control-M/Agent is installed should be located on the shared disk. This file system should always be mounted to the same node as the application to which Control-M submits jobs. This file system can be:

- the same file system as the application file system
- a different file system, as long as both file systems are always active on the same node (if they are not members in the same application resource group)

Each Agent should be configured to use the application virtual host name for the communication with Control-M/Server. When submitting jobs to this Agent, the NODEID parameter value for the jobs should be the virtual host name.

Before starting the implementation of Control-M/Agent on a UNIX cluster, first identify the file system where the Agent should be installed, and determine the resource group where the agent should be installed.

Creating Control-M/Agent UNIX accounts

In this procedure, Control-M/Agent is installed into the same file system as Control-M/Server (referred to in the example: /export2), and uses the same virtual network name as Control-M/Server (referred to in the example: vhctmxxx). The same procedure can be used if Control-M/Agent is installed for any other external application.

1. Create two user accounts as shown in the following example, one on each node.

   ```
   useradd -g controlm -s /bin/tcsh -m -d /export2/agxxxctm agxxxctm
   ```
   This command should be invoked by a user with administrative permissions

2. Both users must have identical names (referred to in the example as: agxxxctm) and identical user IDs (UID).

3. Both user home directories should point to the same location on a shared disk (referred to in the example as: /export2/agxxxctm).
Installing Control-M/Agent

1. Install Control-M/Agent on the relevant file system on the shared disk according to the instructions provided in Control-M/Agent installation (on page 46).

2. Install the latest Fix Pack to apply the most recent software updates.

3. Run the Control-M/Agent configuration utility (either `ctmag` or `ctmagcfg`) to configure the logical Agent name. In the configuration utility, select **Logical Agent Name** from the **Advanced** menu. The logical agent name should contain the virtual network name.

4. In the Control-M/Agent configuration menu, define the Control-M/Server host name as authorized to submit jobs to this Control-M/Agent. If Control-M/Server is installed on a cluster, only the virtual network name of Control-M/Server (referred to in the example: `vhctmxxx`) should be specified.

Missing jobs

Every time a job is submitted, a process is created to monitor the job and report about its completion. This process is called Agent Monitor (AM). When the AM is started (with every job), it creates two files for the job: a status file and a "procid" file.

In a normal scenario, the AM detects the job completion, updates the "procid" file and sends a trigger to the Agent Tracker (AT) about the completion. The AT then sends the update to Control-M/Server.

In a failover scenario, while the job is still executing, the agent process is stopped and the agent file system is unmounted from the first host. In this case the job can keep running, but the "procid" file will not be updated when the job completes (the agent file system will be mounted to the backup node). Therefore, when the agent is started on the backup node, and the next AT track time arrives, it will find the original "procid" file but it will not find the actual process. This is why the job is marked as disappeared.

Workaround for missing jobs

As an optional workaround, you can define a JLOST ON statement for the jobs that run on the clustered agent (Statement=*, Code=JLOST) and execute a DO RERUN command. In this case the jobs will be automatically restarted (rerun) on the backup server when Control-M/Server determines that they have disappeared.

You must enter value greater than 0 in the MAX RERUN parameter in order for the job to be resubmitted.
Monitoring Control-M/Agent processes

When monitoring Control-M/Agent processes on a cluster, use the following process names for cluster monitoring definitions:

<table>
<thead>
<tr>
<th>Control-M/Agent component</th>
<th>Process name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control-M/Agent Listener</td>
<td>p_ctmag</td>
</tr>
<tr>
<td>Control-M/Agent Tracker</td>
<td>p_ctmat</td>
</tr>
<tr>
<td>Control-M/Agent Router</td>
<td>p_ctmar</td>
</tr>
<tr>
<td>Control-M/Agent Tracker-Worker</td>
<td>p_ctmatw</td>
</tr>
<tr>
<td>Control-M/Agent Remote Utilities Listener</td>
<td>p_ctmru</td>
</tr>
<tr>
<td>Control-M/Agent SSH connection pool</td>
<td>sshcourier.jar</td>
</tr>
<tr>
<td>Control-M/Agent Recovery (Windows only)</td>
<td>p_ctmam</td>
</tr>
</tbody>
</table>

**NOTE:** The Control-M/Agent Router (p_ctmar) is only active when working in persistent connection mode. When working in transient connection mode, only the Control M/Agent Listener (p_ctmag) and Tracker (p_ctmat) are active.

On UNIX, you might see more than one p_ctmag (one for each job).

Control-M/Agent cluster environment on Windows

Note the following:

- Install Control-M/Agent, as described in Installing Control-M/Agent on Windows (on page 50). The Control-M/Agent and File Watcher cluster resources are installed and online.
- Multiple Agents can be installed on the same virtual server group or in separate virtual server groups.
- Control-M/Agents that share the same IP and Network name resources must be associated with separate Control-M/Servers.
- Disk, IP, and Network Name resources must be online in the virtual server group where Control-M/Agent is installed.
- Automatic installation and automatic upgrade of Control-M/Agent is not supported for Microsoft Windows cluster environments.