Installation and Configuration Guide for Cisco Unified Contact Center Management Portal

Release 11.6

Updated July 2019
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# Preface

## Purpose
This document explains how to install the Unified Contact Center Management Portal (Unified CCMP) components.

## Audience
This document is intended for System Administrators with knowledge of their Unified Contact Center Enterprise (Unified CCE) system architecture. Microsoft SQL Server database administration experience is also helpful.

## Organization
The sections of this guide are as follows:

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## Document Conventions

This document uses the following conventions:

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| **boldface** font | Boldface font is used to indicate commands, such as entries, keys, buttons, folders and submenu names. For example:  
  - Choose **Edit > Find**  
  - Click **Finish** |
| **italic** font | Italic font is used to indicate the following:  
  - To introduce a new term; for example:  
    A *skill group* is a collection of agents who share similar skills  
  - For emphasis; for example:  
    *Do not* use the numerical naming convention  
  - A syntax value that the user must replace; for example:  
    IF (*condition*, *true-value*, *false-value*)  
  - A title of a publication; for example:  
    Refer to the *Cisco CRS Installation Guide* |
| `< >` | Angle brackets are used to indicate the following:  
  - For arguments where the context does not allow italic, such as ASCII output  
  - A character string that the user enters but that does not appear on the window, such as a password |
Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation, at:


Subscribe to What's New in Cisco Product Documentation, which lists all new and revised Cisco technical documentation as an RSS feed and delivers content directly to your desktop using a reader application. The RSS feeds are a free service.

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Log into www.cisco.com and then access the tool at http://www.cisco.com/cisco/support/notifications.html

Documentation Feedback

To provide comments about this document, send an email message to the following address: contactcenterproducts_docfeedback@cisco.com

We appreciate your comments.
Planning Your Installation

About Your Installation

A successful installation of Unified CCMP requires some understanding of the platform components, the environment in which they are deployed and how they are configured in a cluster of linked servers. File systems and storage options are also discussed as well as user accounts and security considerations in an internet facing environment.

Deployment Specifics

Unified CCMP Resource Management deployments are limited to standard and hosted Unified CCE deployments, with the following restrictions:

Each configured Unified CCE instance must have its own:

- Unified ICM instance.
- Dedicated Admin Workstation Real Time Distributor Server. Multiple Distributor instances on a single server are not allowed.
- Dedicated Admin Workstation CMS Server. Multiple CMS Server instances on a single server are not allowed.

Infrastructure Software

Unified CCMP requires:

- Windows 2012 Server R2

Unified CCMP Components

A Unified CCMP installation comprises the following components.

- the Database Server, which holds information about resources (such as agents, skill groups and dialed numbers) and actions (such as phone calls and agent state changes) in the system. It consists of:
• the **Portal Database**, which holds the data that has been provisioned through Unified CCMP or imported from Unified CCE

• the **Data Import Server**, which imports and synchronizes resources and changes to resources from back-end contact center systems (for example, Unified CCE)

• the **Provisioning Server**, which applies resource changes made by Unified CCMP users to the back-end contact center systems

• the **Partitioning Server**, which manages the creation and removal of Unified CCMP partition tables, used to store contact center data

• the **App/Web Server** which provides two components for interfacing with Unified CCMP:
  - **Application Server** delivers application services such as search, security and resilience to the Unified CCMP Web Server
  - **Web Server** provides the web front end that enables users perform resource management and administrative tasks.

• the **Identity Server**, which provides a two factor identification system that allows implementation of single sign-on, and access control. The lightweight authentication service includes Local, Windows, and ADFS authentication. Users can have mixed authentication modes, which define how a user can access the system.

---

**Deployment Models**

In many environments, Unified CCMP is installed using a dual-sided deployment model to provide load balancing, resiliency, and high availability. For deployments that require layered security, such as Internet-facing environments, both sides are split across separate Database Servers and App/Web Servers are separated by a demilitarized zone (DMZ).

Because Unified CCMP scales up with equipment and scales out with servers, a variety of cost-effective deployment models are possible. Review the Hardware and System Software Specification (Bill of Materials) for Cisco Unified ICM / Contact Center Enterprise & Hosted carefully prior to deployment model selection.

The following deployment models assumes the possibility of a dual-sided server configuration that replicates data between sites.

• **Two Tier (Secure Deployment)**. Unified CCMP Application and Web components are hosted on one server. The Provisioning, Data Import and Database components are hosted on a second server.

Figure 1.1 "Component Layout for a Dual Tier Deployment" below, describes the software installation layout for dual tier deployment. The web server and application server components reside on a separate server. This configuration can optionally have a second side in the same configuration for resilience.
Figure 1.1  Component Layout for a Dual Tier Deployment
Installation Requirements

About the Installation Prerequisites

This section describes the installation prerequisite requirements for Unified CCMP.

The Unified CCMP Installer checks that the prerequisites for each component are present and correctly configured before allowing you to install that component. Where possible, prerequisite software is included with the Unified CCMP Installer, and is installed and configured directly from the Installer. SQL Server is licensed separately, so is not included with the Unified CCMP Installer.

General Requirements

This section describes the general requirements for your installation.

- Do not install any Unified CCMP component on a domain controller.
- Unified CCMP server names must consist of alphanumeric characters only, without underscores or hyphens.
- Your system infrastructure and domain controller must be configured to handle IPv6 configured servers and addresses.
- All app/web servers must be configured to support IPv4 addressing for internal component communication.
- All other Unified CCMP servers must have an IPv4 address only.
- Unified CCMP does not support SQL Server named instances. All SQL Server installations must use the default instance name.
- It is recommended that the SQL Server TempDB directory and TempDB log directory are not located on the same disk as the operating system.

Windows Requirements

All Unified CCMP servers require the following version of Windows:

- Windows Server 2012 R2.
Additional Software Requirements

This section lists the additional software required for each Unified CCMP server. Detailed instructions for installing and configuring these items are provided at the appropriate point in the installation instructions.


Database Servers

The Unified CCMP Database Server will require Microsoft SQL Server 2014 64-bit, Standard Edition. The following components should be deployed:

- Database Engine.
- Workspace Components.

Application Servers

There are no additional software requirements for the App/Web Servers.

Clients running the Web Application

The Unified CCMP web application supports the following browsers:

- Google Chrome version 49.0.2623 m
- Internet Explorer version 11 (Windows 7 or Windows 8.1)
- Mozilla Firefox versions 45.0.1 (Windows 7, Windows 8.1, or Mac).

Note. The Unified CCMP web application may not work with virtual desktops or application virtualization technologies (for example, Citrix XenDesktop, Citrix XenApp, VMware Horizon View). You may use these technologies but we cannot provide support in the event of a problem, unless the issue can be replicated using one of the supported browser configurations.
Firewall Configuration

About Firewall Configuration

Firewalls may be deployed between the various Unified CCMP servers (to create a DMZ) and possibly also between the Unified CCMP database servers and the Unified CCE AWs. In such configurations, the appropriate firewall ports must be opened to both-way traffic.

The Windows firewall must be configured to enable the various components of Unified CCMP to communicate with one another in a distributed environment. It is recommended that port restrictions are limited to only the servers that require the specified communications channels.

The incoming firewall requirements for the Unified CCMP software components are listed in the tables below.

These tables do not include standard Windows ports such as DNS and Kerberos, or the ports required to access the Unified CCMP servers for support purposes (either Terminal Services or Remote Desktop).

Note
If required, configure the firewall ports before you install Unified CCMP.

Web Server Port Usage

<table>
<thead>
<tr>
<th>Application Protocol/Service</th>
<th>Protocol</th>
<th>Incoming Ports</th>
<th>Used by</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP</td>
<td>TCP</td>
<td>80</td>
<td>End User</td>
<td>Web application</td>
</tr>
<tr>
<td>HTTPS</td>
<td>TCP</td>
<td>443</td>
<td>End User</td>
<td>Web application</td>
</tr>
<tr>
<td>Web Service Subscriptions</td>
<td>TCP</td>
<td>8083</td>
<td>Customer Applications</td>
<td>Customer-specific</td>
</tr>
<tr>
<td>Web Service Resource Management</td>
<td>TCP</td>
<td>8085</td>
<td>Customer Applications</td>
<td>Customer-specific</td>
</tr>
</tbody>
</table>
# Unified CCMP Database Server Port Usage

<table>
<thead>
<tr>
<th>Application Protocol/Service</th>
<th>Protocol</th>
<th>Incoming Ports</th>
<th>Servers Requiring Access</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server</td>
<td>TCP</td>
<td>1433</td>
<td>Other Database Servers, Application Servers</td>
<td>General</td>
</tr>
<tr>
<td>DTC</td>
<td>TCP</td>
<td>2103</td>
<td>Other Database Servers</td>
<td>Audit Archive</td>
</tr>
<tr>
<td>DTC</td>
<td>TCP</td>
<td>2105</td>
<td>Other Database Servers</td>
<td>Audit Archive</td>
</tr>
<tr>
<td>DTC (RPC)</td>
<td>TCP</td>
<td>135</td>
<td>Other Database Servers</td>
<td>Audit Archive</td>
</tr>
<tr>
<td>DTC (RPC)</td>
<td>TCP</td>
<td>5000-5100*</td>
<td>Other Database Servers</td>
<td>Audit Archive</td>
</tr>
<tr>
<td>NetBIOS File Share</td>
<td>UDP</td>
<td>137-138</td>
<td>Other Database Servers, Application Servers</td>
<td>Replication, Unified CVP File Upload</td>
</tr>
<tr>
<td>NetBIOS File Share</td>
<td>TCP</td>
<td>139</td>
<td>Other Database Servers, Application Servers</td>
<td>Replication, Unified CVP File Upload</td>
</tr>
<tr>
<td>SMB (DFS)</td>
<td>TCP</td>
<td>445</td>
<td>Other Database Servers, Application Servers</td>
<td>Unified CVP File Upload File**</td>
</tr>
<tr>
<td>ConAPI Local Registry</td>
<td>TCP</td>
<td>2099***</td>
<td>Unified CCE Admin Workstation</td>
<td>Provisioning</td>
</tr>
<tr>
<td>ConAPI Local Port</td>
<td>TCP</td>
<td>3333***</td>
<td>Unified CCE Admin Workstation</td>
<td>Provisioning</td>
</tr>
<tr>
<td>ConAPI Local Port</td>
<td>TCP</td>
<td>3334****</td>
<td>Unified CCE Admin Workstation</td>
<td>Provisioning (Dual-sided deployments only)</td>
</tr>
</tbody>
</table>

* Dynamically assigned RPC port range used by MSDTC. Configured in registry as:

```
HKEY_LOCAL_MACHINE\Software\Microsoft\Rpc\Internet
```

After each change the machine must be restarted.

** Only required if Unified CVP Media File Upload is configured. If configured, also ensure that required ports for the Distributed File Systems are open on the Domain Controller.

*** Default value for Side A - configured in Cluster Configuration. Must be open on both sides of a dual-sided deployments.

**** Default value for Side B - configured in Cluster Configuration. Must be open on both sides of a dual-sided deployments. Not required for single sided deployments.
### Cisco Unified CCE Port Usage

<table>
<thead>
<tr>
<th>Application Protocol/Service</th>
<th>Protocol</th>
<th>Incoming Ports</th>
<th>Servers Requiring Access</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server</td>
<td>TCP</td>
<td>1433</td>
<td>Database Servers and Application Servers</td>
<td>Importing Dimension Data, Provisioning Activities.</td>
</tr>
<tr>
<td>ConAPI Remote Registry</td>
<td>TCP</td>
<td>2099*</td>
<td>Database Servers</td>
<td>Provisioning</td>
</tr>
<tr>
<td>CMS Node</td>
<td>UDP</td>
<td>9000</td>
<td>Database Servers</td>
<td>Ping Port for ConAPI services</td>
</tr>
<tr>
<td>Web Service API</td>
<td>TCP</td>
<td>443</td>
<td>Database Servers</td>
<td>Provisioning</td>
</tr>
</tbody>
</table>

* Default value for Side A - use configured in Cluster Configuration.

### Domain Controllers for Unified CCE Instances Port Usage

<table>
<thead>
<tr>
<th>Application Protocol/Service</th>
<th>Protocol</th>
<th>Incoming Ports</th>
<th>Servers Requiring Access</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDAP</td>
<td>TCP</td>
<td>389</td>
<td>Database Servers and Application Servers</td>
<td>Supervisor domain account provisioning</td>
</tr>
</tbody>
</table>

### Cisco Unified Communications Manager Port Usage

<table>
<thead>
<tr>
<th>Application Protocol/Service</th>
<th>Protocol</th>
<th>Incoming Ports</th>
<th>Servers Requiring Access</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXL Web Service (HTTPS)</td>
<td>TCP</td>
<td>443</td>
<td>Database Servers</td>
<td>Importing and Provisioning</td>
</tr>
</tbody>
</table>

### Cisco Unified CVP Port Usage

<table>
<thead>
<tr>
<th>Application Protocol/Service</th>
<th>Protocol</th>
<th>Incoming Ports</th>
<th>Servers Requiring Access</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations Web Service API</td>
<td>TCP</td>
<td>443</td>
<td>Database Servers, Application Servers</td>
<td>Provisioning</td>
</tr>
</tbody>
</table>

### Other Information

When configuring DTC and File Sharing on the Windows firewall then the appropriate options within the Windows Firewall exceptions list may be selected. These options are labeled as follows:

- Distributed Transaction Coordinator
Security Considerations

Mandatory Security Configuration
This section describes the steps you must take in order to secure your system. Detailed instructions are provided at the appropriate point in the installation instructions. If you omit any of the steps in this section, some Unified CCMP functionality may not work properly.

You must:
- Configure Secure Sockets Layer (HTTP) for the Unified CCMP web application (see section "Configure SSL" for instructions).

Recommended Security Configuration
This section describes the steps that are strongly recommended to secure your system. Detailed instructions are provided at the appropriate point in the installation instructions. If you omit any of the steps in this section, your installation may be vulnerable to attack.

It is strongly recommended that you:
- Disable SSL v3 for the Unified CCMP web application (see section "Disable SSL3 V3" for instructions). This helps prevent "man in the middle" attacks that could intercept data that is encrypted using SSL v3. For more information, see [http://en.wikipedia.org/wiki/POODLE](http://en.wikipedia.org/wiki/POODLE) (link checked November 2014).

Optional Security Configuration
This section describes the steps you may consider to secure your system. Detailed instructions are provided at the appropriate point in the installation instructions.

To secure your system, you may consider the following steps:
- Disable anonymous sessions on all Unified CCMP servers (see section "Disable Anonymous Sessions" for instructions). This prevents anonymous users from enumerating user names and shares, and from using this information to guess passwords or perform social engineering attacks. For more information, consult the Microsoft documentation [http://technet.microsoft.com/en-us/library/dd349805(WS.10).aspx#BKMK_38](http://technet.microsoft.com/en-us/library/dd349805(WS.10).aspx#BKMK_38) (link checked November 2014).
- Disable cached logins on all Unified CCMP servers (see section "Disable Cached Logins" for instructions). This prevents attackers from accessing the cached login information and from using a brute force attack to determine user passwords. If cached logins are disabled, windows domain users will be unable to log in if the connection to the domain controller is...
unavailable. For more information, consult the Microsoft documentation 

- Disable DCOM on all Unified CCMP servers (see section "Disable DCOM" for instructions). This makes the server less attractive to malware, which may be used to gain elevated privileges and compromise the system. For more information, consult the Microsoft documentation http://technet.microsoft.com/en-us/library/dd632946.aspx (link checked November 2014).

- Enable mandatory Server Message Block (SMB) signing (see section "Enable Mandatory SMB Signing for all Unified CCMP Servers" for instructions). This prevents “man in the middle” attacks that modify SMB packets in transit and ensures the integrity of file sharing and other network operations. For more information, consult the Microsoft documentation http://technet.microsoft.com/en-us/library/cc786681(v=ws.10).aspx (link checked August 2013).

**Note**

If you enable SMB signing, the server will not be able to communicate with a Microsoft network client unless that client agrees to perform SMB packet signing. So SMB signing will need to be enabled on every client machine in the cluster, including all clients running the web application.

- Disable SSL v2 on all App/Web Servers (see section "Disable SSL V2" for instructions). This ensures that the latest security encryption technology and the most recent security fixes are being used.

- Remove the "aspnet_client" folder, which is installed with .Net, typically in the C:\inetpub\wwwroot folder. This folder appears by default on an IIS Server, but is not used by Unified CCMP.
Windows and SQL Installation and Configuration

Windows Configuration

Firewalls
If your installation requires it, configure the firewall ports as described in section "Firewall Configuration".

All Unified CCMP Servers
1. On each of the Unified CCMP servers in your installation:
   - configure the server to use the US English character set
   - configure Microsoft Terminal Services for remote configuration and support
   - in the Event Viewer, set the Application Log, Security Log and System Log to Overwrite events as needed.
2. Using the Windows Time Service, ensure the date and time are synchronized across all Unified CCMP servers. Unified CCMP will not be able to synchronize application data correctly between servers otherwise, and this may cause unexpected behavior.

SQL Server

Install SQL Server
Follow these instructions to install SQL Server 2014 64-bit Standard Edition on the server or servers that will be hosting the Unified CCMP database.

On the Side A server:
1. In the SQL Server Installation Center, select Installation.
2. Select New SQL Server stand-alone installation or add features to an existing installation.
3. Enter the SQL Server product key and click Next.
4. Read the license terms. If you agree with the terms, select I accept the license terms and click Next.
5. The Global Rules window displays, validating the system for the SQL Server installation. Once validation passes, click Next.

6. Ensure that Microsoft updates are not selected, then click Next.

7. The installation of setup files starts, then the system setup is validated. Once validation is completed, click Next.

8. Select Perform a new installation of SQL Server 2014, then click Next.

9. In the Setup Role window, select SQL Server Feature Installation and click Next.

10. In the Feature Selection window, select the following instance features:
    - Database Engine Services
      - SQL Server Replication
    - Shared Features
      - Client Tools Connectivity
      - Integration Services
      - Client Tools Backwards Compatibility
      - Management Tools – Basic
      - Management Tools – Complete

11. Update the installation directories to the required locations. Click Next.

12. The installation rules are then checked. If any problems are reported, correct them, then click Next.

13. The Instance Configuration window is displayed. Select Default Instance, with an Instance ID of MSSQLSERVER. Update the Instance root directory to be installed on the required drive, then click Next.

14. In the Server Configuration window, on the Service Accounts tab, set the following service configuration:
    - Locate the SQL Server Agent entry in the Service column, set the Account Name to NT AUTHORITY\SYSTEM and the Startup Type to Automatic.
    - Locate the SQL Server Database Engine entry in the Service column and set the Account Name to NT Service\MSSQLSERVER.

15. In the Server Configuration window, on the Collation tab, ensure that the Database Engine Collation is Latin1_General_CI_AS. If it is not, click Customize, and select a collation designator of Latin1_General, ensure that Case-sensitive is cleared and Accent-sensitive is selected, then click OK. When the collation is correct, click Next to proceed.

16. The Database Engine Configuration window is displayed.
    - Select Mixed Mode authentication and enter a password for the sa user.
• In the Specify SQL Server Administrators panel click the Add Current User
  button. Also add any other accounts that require administrator permissions to the
database, for example, domain admins, service accounts etc.

• Select the Data Directories tab. It is strongly recommended that Temp DB directory
  and Temp DB log directory are not located on the same drive as the Windows
  operating system. You will see a warning during Unified CCMP installation if they are.
  Make any required changes to the data directory locations.

• Click Next to proceed.

17. You may see the Feature Configuration Rules window while installation checks are
  performed. If so, wait until the checks complete successfully.

18. Review the installation summary and click Install.

19. Once the installation is complete click Close.

20. When the SQL Server 2014 installation is complete, locate and install SQL Server 2014
    Service Pack 2.

For a dual-sided deployment, repeat these steps on the Side B server.

Configure SQL Server Network Protocols

On the server or servers that will host the Unified CCMP Database, configure the SQL Server
network protocols as follows:

1. Launch SQL Server 2014 Configuration Manager to open the SQL Server Configuration
   Manager.

2. In the left hand pane, expand SQL Server Network Configuration and click Protocols for
   MSSQLSERVER.

3. In the right hand pane right-click on Named Pipes, select Enable, and click OK at the
   confirmation message.

4. In the right hand pane, right-click on TCP/IP, select Enable, and click OK at the
   confirmation message.

5. In the left hand pane, click on SQL Server Services, then right-click on SQL Server
   (MSSQLSERVER) and select Restart to restart the SQL Server process.

6. Close the SQL Server Configuration Manager window.

Configure Windows Firewall for SQL Server

By default the Windows firewall will not allow incoming traffic for SQL Server. If the Windows
firewall is enabled, on the server or servers that will host the Unified CCMP Database, follow
these steps to create a rule to allow SQL Server traffic:

1. In Server Manager, click Tools, select Windows Firewall with Advanced Security and
   click Inbound Rules. A list of firewall rules is displayed.
2. In the Actions pane, click New Rule. The New Inbound Rule Wizard is displayed.
3. Select Port as the rule type and click Next.
4. Select TCP as the protocol and enter 1433 as the specific local port. Click Next. The Action options are displayed.
5. Choose Allow the connection. Click Next. The Profile options are displayed.
6. Select the profile options that are appropriate to your deployment and click Next.
7. Enter a name for the rule and click Finish to create the rule. The new rule appears in the list of inbound rules as an enabled rule.
8. Close the Server Manager window.

**SQL Server Backup Guidelines**
- Regularly backup the SQL Server databases and truncate transaction logs to prevent them becoming excessively large.
- Schedule backups for quiet times of the day.

**User Accounts**

**Unified CCMP Service Accounts**
Unified CCMP Services are installed to run under Windows system accounts (such as Network Service) by default.

Unified CCMP requires the following domain account to communicate between components.

**SQL Agent User**
SQL Server uses this account to replicate data between SQL Server databases. By default Unified CCMP expects the account name to be sql_agent_user, but you can specify a different name when Unified CCMP is installed.

**Notes**
The domain account for the sql_agent_user needs to have write permission to the SQL Server common files folder COM. The default folder is `<Install Drive>:\<Program Files>\Microsoft SQL Server\<SQL Version>\COM`, where:
- `<Install Drive>` is the drive letter of the drive SQL Server was installed on.
- `<Program Files>` is the folder that SQL Server was installed to.
- `<SQL Version>` is the version number for the SQL Server common folder.
For single-sided installations containing a single all-in-one server, you can choose to allow Unified CCMP to create this account automatically as a local account. But if you choose this option, then want to add additional servers to your deployment later, you will need to reinstall the system.

To create the required account:

1. Using Active Directory, create the domain account sql_agent_user (or a name of your choice) with the following attributes:
   - Password never expires
   - User cannot change password.

## Optional Security Configuration

### Disable SSL3 V3

**Caution!**
This step concludes by rebooting the App/Web server automatically. Please ensure you have saved your work before continuing.

**Note**
This step is optional, but it is strongly recommended for maximum security. See section "Security Considerations" for more information.

Some of the other security configurations in this section also require a server reboot, so if you are applying those too, you may want to make this step the final one.

On each App/Web Server:

1. In Windows Explorer, open the folder below the Unified CCMP installation containing the Hardy security tool. If you have used the default installation location, this will be C:\Program Files\Management Portal\Hardy.

2. Double click on the Hardy executable to run it. The name of the file to choose depends on whether you have kept or changed the default Windows folder option **Hide extensions for known file types**:
   - if you have opted to show extensions for all file types, choose Exony.Portal.Tools.Hardy.exe.

3. The server will reboot automatically.
Disable Anonymous Sessions

**Note**
This step is optional, although it is recommended for maximum security. See section "Security Considerations" for more information.

This security setting applies to all Unified CCMP servers. There are several ways to configure this security setting. This section describes two possible ways.

One way is to use the Group Policy Editor to view the following path

```
Computer Configuration\Windows Settings\Security Settings\Local Policies\Security Options
```

then enable the setting

**Network access: Do not allow anonymous enumeration of SAM accounts and shares.**

Alternatively, you can update the registry directly as follows:

1. In the Run command dialog box, enter **regedit**.
2. In the left hand pane, select the `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa` node.
3. In the right hand pane, if the `REG_DWORD` value **restrictanonymous** is present, set it to 1, otherwise, create it and set it to 1. Click **OK**.
4. Close the registry editor.

Disable Cached Logins

**Note**
This step is optional, although it is recommended for maximum security. See section "Security Considerations" for more information.

This security setting applies to all Unified CCMP servers. There are several ways to configure this security setting. This section describes two possible ways.

One way is to use the Group Policy Editor to view the following path

```
Computer Configuration\Windows Settings\Security Settings\Local Policies\Security Options
```

then set the following setting to **0**

**Interactive logon: Number of previous logons to cache (in case domain controller is not available).**

Alternatively, you can update the registry directly as follows:
1. In the Run command dialog box, enter regedit.
2. In the left hand pane, select the **HKEY_LOCAL_MACHINE\Software\Microsoft\Windows Nt\CurrentVersion\Winlogon** node.
3. In the right hand pane, if the **REG_SZ** value **CachedLogonsCount** is present, set it to 0, otherwise, create it and set it to 0. Click **OK**.
4. Close the registry editor.

**Disable DCOM**

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>This step is optional, although it is recommended for maximum security. See section &quot;Security Considerations&quot; for more information.</td>
</tr>
</tbody>
</table>

This security setting applies to all Unified CCMP servers.

1. Launch **Component Services** (from the Administrative Tools group).
2. Expand **Component Services**, and then **Computers**. Right-click on **My Computer** and select **Properties**.
3. Select the **Default Properties** tab and clear **Enable Distributed COM on this computer**. Click **OK**, then **Yes** when asked to confirm that you want to update the DCOM Settings.
4. Close the Component Services dialog box, then reboot the server.

**Enable Mandatory SMB Signing for all Unified CCMP Servers**

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>This step is optional, although it is recommended for maximum security. See section &quot;Security Considerations&quot; for more information.</td>
</tr>
</tbody>
</table>

This security setting applies to all Unified CCMP servers.

1. In **Server Manager**, click **Tools** and select **Local Security Policy**. Navigate to **Local Policies > Security Options**.
2. In the right hand pane, click on **Microsoft network client: Digitally sign communications (always)**. Select **Enabled** and click **OK**.
3. Close the Local Security Policy dialog box.
4. On every client that needs to communicate with the Unified CCMP servers (including all clients running the Web UI), ensure that the following security options are set in the local security policy (launch **Server Manager**, click **Tools** select **Local Security Policy** and navigate to **Local Policies > Security Options**):
- **Microsoft network client: Digitally sign communications (always):** ensure this is **Disabled** (the default value), unless other systems specifically require it to be enabled.
- **Microsoft network client: Digitally sign communications (if server agrees):** ensure this is **Enabled** (this is the default value).

**Disable SSL V2**

*Note*
This step is optional, although it is recommended for maximum security. See section "Security Considerations" for more information.

On each App/Web Server:
1. In the Run command dialog box, enter `regedit`.
2. In the left hand pane, select the `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\SSL 2.0` node.
3. If the registry key `Server` does not exist, right-click the `SSL 2.0` node, select `New > Key`, and create it.
4. Under the registry key `Server`, create a DWORD value named `Enabled` and set the value data to `00000000`.
5. Close the registry editor and reboot the server.

**Disable Remote Access to Unified CCMP Servers**

Unified CCMP servers can be administered remotely using tools such as Microsoft Terminal Services. Unified CCMP does not require remote access in order to work correctly, so for additional security you can disable remote access and use console access to administer the Unified CCMP servers.
Unified CCMP Installation

Before You Start

Note
The installation instructions assume that you are installing the product software on the C: drive. If you are installing the software on another drive, then where the instructions reference a specific drive, replace the reference to the C: drive with the drive you are using.

Installing Dual-Sided Systems
For dual-sided systems, perform a complete installation on the Side A servers, and then a complete installation on the Side B servers. It is recommended that you install the components in the order described here.

Recording Your Settings
During the installation procedure, there will be occasions where you need to record what settings you chose for later reference. It is recommended that you record the following information and store it in a secure location, for future reference.

<table>
<thead>
<tr>
<th>System Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Catalog Name</td>
<td></td>
</tr>
<tr>
<td>sql_agent_user Password</td>
<td></td>
</tr>
<tr>
<td>Cryptographic Passphrase</td>
<td></td>
</tr>
<tr>
<td>Administrator Password</td>
<td></td>
</tr>
<tr>
<td>Java.RMI.Hostname</td>
<td></td>
</tr>
<tr>
<td>Unified CCE</td>
<td></td>
</tr>
<tr>
<td>Application Name</td>
<td></td>
</tr>
<tr>
<td>Application Key</td>
<td></td>
</tr>
<tr>
<td>RMI Registry Port</td>
<td></td>
</tr>
<tr>
<td>LocalPort</td>
<td></td>
</tr>
</tbody>
</table>
The Unified CCMP Installer

About the Unified CCMP Installer

Starting the Installer
The Unified CCMP DVD contains the Unified CCMP Installer. To start the Installer, insert the DVD.

- If auto-run is enabled, a window opens automatically showing a list of Unified CCMP components that can be installed.
- If auto-run is disabled and you do not see the Installation Components screen, double-click autorun.bat to launch the Unified CCMP installer manually.
- If UAC has not been disabled, launch the installation manually by right-clicking autorun.bat and selecting Run as administrator option.

Note
Some anti-virus software may state that the autorun.hta script file is malicious. Please ignore this message.

Installation Prerequisites
When you click on a component to install it, the installer displays a list of prerequisites for that component and checks that each prerequisite is present. As each check completes, you will see a green tick (check successful) or a red cross (check failed).

Where possible, the Unified CCMP DVD includes redistributable packages for prerequisites, so if a prerequisite check fails, you can click on the link in the Unified CCMP installer to install the missing prerequisite. Once all the prerequisite software is installed, you can click on the component again, then click Rerun to rerun the tests.

When all the prerequisites display a green tick, you will be able to click Install to install the chosen component.

Install the Database Components
On the Side A Database Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select Database Server, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click Install. At this point, the Informix client is installed first if necessary. If you see the Informix client installation screen, click Install.

4. When the Informix client has been installed, the installation of the database components starts, and the Setup window displays.

5. Click Next to go through each window in turn. You will need to enter the following details:

6. In the License Agreement window:
   - **I accept the terms in the license agreement** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.

7. In the Cryptography Configuration window:
   - **Passphrase.** Create a cryptographic passphrase of between 6 and 35 characters. This passphrase is used for encrypting and decrypting system passwords and must be the same for all servers in the Unified CCMP installation.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.

   **Warning**
   The cryptographic passphrase is a vital piece of information and will be needed when installing later components and when adding or replacing servers in the future. Be sure to record and retain it.

   If you are upgrading from a previous version of Unified CCMP, or adding a new server to an existing cluster, you must use the same cryptographic passphrase as was originally used. If you continue the installation with a new passphrase you will be unable to access your existing data.

8. In the Configure Database window:
   - **Database Name.** Enter the name of the database catalog for Unified CCMP. By default this is Portal.
   - **Connect Using.** Select the login credentials you want to use:
     - **Windows Authentication Credentials of Application.** This is the recommended option.
     - **SQL Server Authentication using the login and password below.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter your SQL Server Login Name and Password in the fields provided.
   - **Click Next.**
9. In the **Destination Folder** window, if you want to change the location where the database components are stored, click **Change** and select the new location. The Unified CCMP components need to be installed in the same directory location on each of the servers.

10. Click **Install** to install the database components. During this process, the J2SE prerequisite will be automatically installed if it is not already present. If this happens, follow the screen prompts to complete the J2SE installation. If you see a Security Alert dialog box during the installation, saying 'Revocation Information for the security certificate for this site is not available', click **Yes** to continue.

11. To install or upgrade your database immediately after installing the database components, select the **Launch Database Management Utility** check box at the end of the installation before clicking Finish.

12. Click **Finish**.

## Install the Portal Database

**Note**
The installation of the Portal Database will fail unless the SQL Server installation has been configured to use US English. If this is not the case, instructions for changing the installation language are given in section "Changing the SQL Server Installation Language to US English".

To install the portal database:

1. If you selected the Launch Database Management Utility check box after installing the database components, the database setup wizard will start automatically. Otherwise launch the Unified CCMP **Database Installer**.

2. Click **Next** to begin the installation.

3. In the **Select an Action to Perform** window, choose **Install a new database**. You can maintain this database at a later date by running the installer again and selecting the appropriate option.

4. In the **SQL Server Connection Details** window:
   - **Server Name**. Enter the name of the machine that is to be the Database Server. This should normally be left as the default (localhost). Logon for the SQL Server service needs full control over the folder (or the individual files in the folder) that contains the database files. The folder that you put the SQL database files into cannot be compressed.
   
   **Database Name**. Enter or select the name of the database catalog that will be used for Unified CCMP. It is recommended that you use the default name of **Portal**. This should match the database catalog name specified when you installed the database components. If not, you will see a warning message.

   - **Connect Using**. Select the login credentials you want to use:
• **The Windows account information I use to logon to my computer.** This is the recommended option.

• **The SQL Server login information assigned by the system administrator.** Only select this option if you are using a database catalog on a different domain. For this option you must enter your SQL Server Login Name and Password in the fields provided.

• Click **Test Connection.** This makes sure the connection to the SQL Server is established. If the connection can be established, you will see the message ‘Connection succeeded but database does not exist’.

• Click **Next.**

5. In the **Optimize System Databases** window, you can change the configuration of the Unified CCMP database file groups and files to improve performance, if required. All file groups will automatically be split in to multiple files on the drive based on the number of logical processors on system divided by 4. You can reconfigure your database files manually after completing the installation.

For optimum performance, it is recommended that **TempDB** is not installed on the same disk as the operating system.

• **To split a file group,** choose the **Split** option, click the drop-down arrow to filter the list of file groups by database, select the file group or file groups you want to split, then click **Go.** The selected file group or file groups will be split into the optimal number of files for your server configuration (one file for every two logical CPUs).

• **To move a file,** choose the **Move** option, click the drop-down arrow to filter the list of files by database, select the file or files you want to move, click **Location** to select the new location, then click **Go.** The selected file or files will be moved to the new location.

• When you have made the changes you require, click **Next.**

6. In the **Setup Replication** window, if this database installation is not Side B of a replicated system, just click **Next.** If this database installation is Side B of a replicated system, select **Replicated Configuration** and set up the replication folder share as follows:

• **Share Name.** The name of the share for the ReplData folder. By default this is **ReplData.**

• **Folder Path.** The path of the ReplData folder. This is configured in SQL Server, and is by default **C:\Program Files\Microsoft SQL Server\MSSQL\repldata.**

• Click **Next.**

7. In the **Configure the Location of Data Files** window, if you are not using a custom installation of SQL Server, accept the defaults and click **Next.** If you are using a custom installation of SQL Server, configure the data files as follows:

• Select the check box or boxes beside the file group or file groups you want to change.
- To change the **Location**, browse to the new location.
- To change the **Max Size**, specify the amount of space that should be allocated for the chosen file group or file groups. The default value is based on Unified CCMP’s analysis of your system.
- To specify a different **Initial Size**, first clear **Set Initial Size to Max Size**.
- To enable or disable the new minimum file size limit of 15mb, select the **Enable/Disable Minimum File Group Sizes** check box.
- You can also choose an unlimited file size by selecting **Unrestricted Size**, but this is not recommended.
- Click **Update** to save your changes to the selected file group or file groups.
- Click **Default** (in the top right corner of the window) to restore the settings for all file groups to their default.
- Click **Next** when you have finished.

**Note**
After the size of the database has been set, the system calculates the recommended size of the TempDB and TempDBLog sizes. It is recommended that the file sizes be adjusted to the recommended values in SSMS.

If the database is bigger than the size allocated to the PortalLog file, a warning will be displayed. You can choose to ignore it, or to go back and specify a different size.

8. **The Configure Local Administrator Details** window sets the identity details for the default administrator account:
   - **Account Type**. The type of user account that will be used. This is set to **Administrator** and cannot be changed.
   - **Password**. Enter a password for the administrator, conforming to your individual system’s complexity requirements.

   **Note**
   This password cannot be retrieved or reset.

   - **Confirm Password**. You will not be able to continue until the contents of this field are identical to the password entered above.

9. **The Configure SQL Server Agent Service Identity** window sets up a user account that is used by SQL Server for replication:
   - **Account Type**. The type of user account that will be used. For a distributed installation, this must be **Domain**.
• **User Name.** The name of the SQL agent user account. This defaults to `sql_agent_user`. If you have not already created this account, set it up now as described in section "User Accounts". If you used a different name when setting up the account, enter that name instead. If you have specified a domain user, you will need to prefix the user name with the domain name, followed by a backslash. For example if the SQL agent user belongs to the ACMDOM domain then enter `ACMEDOM\sql_agent_user`.

• **Automatically create the user account if missing.** For a single-sided system that contains a single all-in-one server, you can optionally select this check box and create the required user automatically. But if you select this option and need to add a additional servers in future, you will need to reinstall the system.

• **Password.** If you are using an existing SQL agent user account, enter the password for that account. Otherwise, if you have a single-sided system and are creating the account automatically, create a password for the new user, conforming to the complexity requirements for your system.

• **Confirm Password.** You will not be able to continue until the contents of this field are identical to the password entered above.

• Click Next.

10. In the **Configure the Location of the Identity Data Files** select the location of the identity data files.

   • To change the location, click **Location**.
   
   • Select the location of each file group.
   
   • Click **OK** to save your changes.
   
   • Click **Next** when you have selected the location for each file group.

11. In the **Ready to install the Database** window, click **Next** to begin installation. Installation will take several minutes.

    **Note**
    
    If the installation reports an error saying that the SQL Server language must be US English, you will need to fix this before you can install the Portal Database. For instructions, see section "Changing the SQL Server Installation Language to US English". Then repeat the installation of the Portal Database.

12. Click **Close** to close the installer.

**Install the App/Web Server**

Install the new App/Web Server components. In most installations, the App/Web Server component should be installed on a different physical server than the Database Server component.

On the Side A App/Web Server:
1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select **App/Web Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click **Install** to begin the App/Web Server installation. The **Management Portal: Application Server Components** window displays.
4. Click **Next** to go through each window in turn.
5. If the **Management Portal: Application Server Components** dialog is displayed, click **Install** to install the additional required components.
6. If the Microsoft .NET 4.5 Framework prerequisite is missing, it will be installed at this point. Click **Install** to install the component and follow the on-screen instructions. When the .NET 4.6 Framework is complete, restart the server to continue the installation of the App/Web Server.
7. In the **License Agreement** window:
   - **I accept the terms in the license agreement.** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.
8. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you used for the installation of the Database Server component.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.
   - **Click Next** to continue.

**Warning!**
You must use the same cryptographic passphrase for all servers in the Unified CCMP installation. If you continue the installation with a new passphrase you will be unable to access your existing data.
9. In the **Destination Folder** window, you can click **Change** to change the location where the App/Web Server components are installed. Click **Next** to continue.
10. In the **Configure Database** window:
    - **SQL Server Name.** Enter the host name or IP Address of the server hosting the Unified CCMP database. The default name of **localhost** is only valid if you are installing this component on the Database Server. Otherwise, specify the name of the Database Server. For a dual-sided deployment enter the name of the Side A Database server when installing the Side A components and enter the name of the Side B Database Server when installing the Side B components.
- **Catalog Name.** Enter or select the database catalog name you specified when installing the Database Server component. If you used the default value, this will be Portal.

- **Connect Using.** Select the login credentials you want to use:
  - **Windows authentication.** This is the recommended option.
  - **SQL Server authentication.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter a SQL Server Login Name and Password in the fields provided.

- Click **Next** to continue.

11. Click **Install**.

12. When the installation has completed, click **Finish**. When installation is complete, the machine will restart.

### Install the Identity Server

Install the new Identity Server components. Ensure that you have successfully installed the App/Web Server before attempting to install the Identity Server.

1. Start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").

2. Select **Identity Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.

3. When all checks have passed, click **Install** to begin the Identity Server installation.

4. In the **License Agreement** window:
   - **I accept the terms in the license agreement.** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.

5. In the **Destination Folder** window:
   - Click **Change...** to browse to the destination folder you want to install into.

6. In the **Ready to install Identity Server** window, click **Next** to begin installation. Installation will take several minutes.

7. When the installation has completed, click **Finish**.

### Load Balancing the Identity Server

These extra steps are required if the solution is going to use a load balancer to serve multiple identity or web servers.
Notes
Without these steps, logins may fail if requests are sent to the Identity Server using a different database from the first part of the login flow - replication can not happen that quickly.

If you are using a load balancer then the URL must be used in the eGain Analytics setup ICE wizard - the web server machine names should not be used. This means a load balancer needs to be setup before configuring eGain Analytics.

Step 1: Share the same signing certificate
1. On Side A, export the signing certificate (including the private key) that is being used. By default the signing certificate is called "idsrv3". If a custom certificate is being used, the web.config file enables you to configure the name using a subject name or a thumbprint under setting svr.signingCertificate. The svr.signingCertificate setting can be either:
   - CN=somename
   - somethumbprint.

   Warning!
   If you are using a custom certificate, please ensure that only one certificate with the same subject name exists on the machine. You can use a thumbprint rather than a subject name to avoid duplicates.

2. On Side B, import the signing certificated certificate. You will need to update the identity server web.config ("D:\Program Files\eGain Analytics\Identity Server\Identity.Server\web.config") if a custom certificate is used. You will also need to give NetworkService Read permissions to the private key. To do this:
   - Click Certificate, and then All Tasks.
   - Select Manage Private Keys.

Step 2: Ensure identity server affinity
To ensure that the web application uses the same server as the incoming client request the load balancer URL must resolve on the web server to itself. To do this:
1. Edit the web server host file "C:\Windows\system32\drivers\etc\hosts" to resolve the load balancer hostname to the loopback ip address "127.0.0.1 awww.loadbalancer.com".
2. Import the SSL certificate and private key (PFX file format) used on the load balancer.
3. Add the SSL certificate to the Local Machine personal store. This must be done even if the load balancer is doing SSL-Offloading.
4. Within IIS Manager, change the Bindings so that port 443 is using the newly imported load balancer SSL certificate.
5. Restart IIS.

These steps now apply the web application to use the loadbalancer URL for its own internal requests during logins. This means the web application will correctly use the Identity Server running on the same physical machine.

**Install the Second Side (Replicated Systems Only)**

For replicated systems this installation needs to be repeated for Side B. It is recommended that you complete the Side A installation of all components before installing Side B.

---

**Support Tools**

**About the Support Tools**

Unified CCMP includes support for integration with the Cisco Real Time Monitoring Tool (RTMT). This allows remote monitoring and support for your Unified CCMP installation. To use RTMT you need to install the Diagnostic Framework component of Unified CCMP which provides access to relevant support APIs. These APIs can be used by the RTMT for gathering trace levels, log files etc.

**Install the Diagnostic Framework**

1. To install the Diagnostic Framework component, start the Unified CCMP Installer, click **Support Tools** and select **Diagnostic Framework**. The **Management Portal: Diagnostic Framework InstallShield Wizard** window displays.

2. Click **Next** to go through each window in turn. You will need to enter the following details:

3. In the **License Agreement** window:
   - **I accept the terms in the license agreement.** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.
   - Click **Next**.

4. In the **Select Certificate** window, select the type of certificate installed with the Diagnostic Framework:
   - **Self Signed.** A new certificate will be generated by the installer. This type of certificate should be used only for lab or test deployments.
   - **Trusted Certificate.** An existing certificate issued by a valid certificate server will be associated at a later date. This option should be used for production deployments.
   - Click **Next**.
5. In the **wsmadmin Password Information** window, enter the password for the **wsmadmin** user that will be created to access the Unified System CLI tool. Enter your chosen password again to confirm it. Click **Next**.

6. Click **Install**.

7. When the installation is completed, click **Finish**.

The installation of the Diagnostic Framework component is now complete.
Unified CCMP Configuration

About Unified CCMP Configuration
Unified CCMP will normally be hosted on multiple servers for performance and data security. This chapter describes how to configure the server cluster and perform data replication.

This section describes the following steps:
- configuring ADFS
- configuring Unified CCE Admin Workstations
- configuring Unified CCE for provisioning
- configuring the Unified CCMP cluster
- configuring replication
- configuring Unified CVP media file upload.

Configure Active Directory Federation Services (ADFS)

About ADFS
By default, Unified CCMP users need to log in to Unified CCMP every time they connect. Unified CCMP can optionally be configured to use ADFS, which links each Unified CCMP user account to their ADFS user account and enables users to connect to Unified CCMP without logging in.

This section provides information on how to configure the ADFS application. To use ADFS to login to Unified CCMP, it is necessary to map it to the Identity Server within Unified CCMP.

Configure ADFS per identity server
To manually add the Unified CCMP identity server to ADFS:
1. Open AD FS Management.
2. Open Trust Relationships, and Relying Party Trusts
3. Select Add Relying Party Trust... The Add Relying Party Trust Wizard opens. Click Start.
4. Select **Enter data about the relying party manually**, then click **Next**.

5. Enter an appropriate display name, for example "Unified CCMP Identity Server", then click **Next**.

6. Select **AD FS profile**, then click **Next**.

7. Click **Next**, as Unified CCMP do not support an optional token encryption certificates.

8. Select **Enable support for the WS-Federation Passive protocol**, and enter the full URL to the identity server ADFS endpoint.

   **Note**
   The URL must use a SSL certificate that ADFS trusts, and must be in the correct format. For example, "https://webapphostname/Identity/adfs".

9. Under **Relying party trust identifier**, enter the full URL to the identity server. Click **Add**, then **Next**.

10. Select **I do not want to configure multi-factor authentication settings for this relying party trust at this time**, and click **Next**.

11. Select **Permit all user to access this relying trust party**, and click **Next**.

12. Review the settings. You can go back and change any settings, or, if you are happy with the current settings, click **Next** to add the relying party trust to the ADFS configuration database.

13. Select **Open the Edit Claim Rules dialog for this relying party trust when the wizard closes** if you want to edit claim rules immediately.

14. Click **Close** to exit the wizard.

**To edit the claim rules for Unified CCMP:**

1. Open **Trust Relationships**, and **Relying Party Trusts**.

2. Select the Unified CCMP trust, and click **Edit Claim Rules...** to open the Edit Claim Rules dialog.

3. Select the **Issuance Transform Rules** tab.

4. For each of the below **Claim Rules**, click **Add Rule**, select **Send LDAP Attributes as Claims** and complete the Add Transform Claim Wizard.
<table>
<thead>
<tr>
<th>Claim Rule Name</th>
<th>Store</th>
<th>LDAP Attribute</th>
<th>Outgoing Claim Type</th>
<th>Mandatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD: SID as NameID</td>
<td>Active Directory</td>
<td>objectSid (type directly)</td>
<td>Name ID</td>
<td>Yes</td>
</tr>
<tr>
<td>AD: UPN as Name</td>
<td>Active Directory</td>
<td>User-Principal-Name</td>
<td>Name</td>
<td>Yes</td>
</tr>
<tr>
<td>AD: GivenName (optional)</td>
<td>Active Directory</td>
<td>Given-Name</td>
<td>Given Name</td>
<td>Optional</td>
</tr>
<tr>
<td>AD: Surname (optional)</td>
<td>Active Directory</td>
<td>Surname</td>
<td>Surname</td>
<td>Optional</td>
</tr>
<tr>
<td>AD: Email (optional)</td>
<td>Active Directory</td>
<td>E-Mail-Addresses</td>
<td>E-Mail Address</td>
<td>Optional</td>
</tr>
</tbody>
</table>

**Note**

It is recommended that you use a System Identification Number (SID) as NameID, as it is necessary for the NameID to be unique to each user.

5. Once the claims have been setup, click **Finish** to close the dialog.

6. Alternatively, if you wish to support automatic user provisioning:
   - Click **Add Rule** to add a new claim.
   - Select **Send Group Membership as a Claim** as the claim rule template, and click **Next**.
   - Enter the following additional claim rules.

<table>
<thead>
<tr>
<th>Claim Rule Name</th>
<th>User's Group</th>
<th>Outgoing Claim Type</th>
<th>Outgoing Claim Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD: Role = Supervisor</td>
<td>&lt;windows group&gt;</td>
<td>Role</td>
<td>Supervisor</td>
</tr>
<tr>
<td>AD: Role = Advanced</td>
<td>&lt;windows group&gt;</td>
<td>Role</td>
<td>Advanced</td>
</tr>
</tbody>
</table>

7. Once the additional claims have been setup, click **OK** to close the dialog.
Configure ADFS as a one time setup

A one time setup configuration of ADFS is only required if you want to support automatic user provisioning. As a one time step (not per identity server), you need to add a custom rule to allow Unified CCMP to map tenants to ADFS.

1. Open AD FS Management.
2. Select Trust Relationships > Claims Provider Trusts.
4. Click Add Rule....
5. Select the Send LDAP Attributes as Claims claim rule template. Click Next.
6. Type in "Pass-thru DN" as the Claim Rule name.
7. Select Active Directory as the Attribute Store.
8. Map the following:

<table>
<thead>
<tr>
<th>LDAP Attribute (Select or type to add more)</th>
<th>Ongoing Claim Type (Select or type to add more)</th>
</tr>
</thead>
<tbody>
<tr>
<td>distinguishedname</td>
<td><a href="http://temp.org/claims/DistinguishedName">http://temp.org/claims/DistinguishedName</a></td>
</tr>
</tbody>
</table>

9. Click Finish to save the claim rule for Active Directory.

Once you have set up ADFS to support automatic provisioning, you can map tenants to ADFS.

Once you have configured ADFS, you must restart the Unified CCMP server for the changes to come into effect.

To map tenants to ADFS

It is only required to map tenants to ADFS if you want to support automatic user provisioning.

1. Select the Unified CCMP trust, and click Edit Claim Rules... to open the Edit Claim Rules dialog.
2. Select the Issuance Transform Rules tab.
3. To add claims, click Add. The Add Transform Claim Rule Wizard opens.
4. Select Send Claims Using a Custom Rule as the claim rule template, and click Next.
5. Enter the claim rule name in the format:
   AD: Tenant(<TenantPath>)
6. Enter Custom rule text in the format, with the values you want to use:
c:[:Type == "http://temp.org/claims/DistinguishedName", Value =~ "^.*\(\)" ];
=> issue(Type = "http://egain.net/claims/identity/tenant", Value = "/");

7. Click **Apply**.
8. Click **Finish** to close the dialog.

---

**Configure Windows Login**

**About Windows Login**

By default, Unified CCMP users need to log in to Unified CCMP every time they connect. Unified CCMP can optionally be configured to use Windows, which links each Unified CCMP user account to their Windows user account and enables users to connect to Unified CCMP without logging in.

**Set Up Administrator Account**

1. Login to Unified CCMP as **administrator**.
2. In **User Manager**, create a user account to be the new administrator account as follows:
   - The login name must correspond to an existing Windows Active Directory user, and must be formatted as `<username\domain-name>`, where `<username>` is the Windows username and `<domain-name>` is the NetBIOS domain name. The login name must exactly match the details in the corresponding Active Directory entry,
   - The password should conform to the password security specified in System Settings, but will never be used.
3. Click **New User** and open **Groups** tab.
4. Click **Add to Group**.
5. Select the check box for the **Administrators** group.
6. Close and save.

**Configure Windows Authentication**

To configure Windows for Unified CCMP, on the Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name**: Enter the name of the primary database server.
   - **Database Name**: Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
• **Authentication.** Select any authentication configured on the database.

2. Click **OK.** The ICE Cluster Configuration tool starts by default.

3. In the **Tools** drop-down, select **System Properties.** The System Properties tool is displayed.

4. Click **Save** to save the configuration change, then **Exit.**

5. On the App/Web Server, go to the location where Unified CCMP was installed (usually `C:\Program Files\Management Portal`), right-click the **Web** folder and select **Properties.**

6. Select the **Security** tab, and ensure that all domain users have **Read** and **Read & Execute** permissions on this folder.

7. Click **Advanced** and ensure that **Include inheritable permissions from this object’s parent** is selected. If this option is not selected, click **Change Permissions,** select it, and click **OK.**

8. Click **OK** to close the properties dialog.

9. From a command window, execute the **iisreset** command.

10. Log in to the domain controller as a user with administrator access to the domain. Enter the following command on the command line, where `<custom-address>` is the custom address in the additional web URL and `<Unified CCMP-webserver-name>` is the name of your Unified CCMP App/Web Server. If you have a load-balanced system, `<Unified CCMP-webserver-name>` must be the name of the load-balanced node, not the name of any of the individual servers.

    ```
    setspn -a http/<custom-address> <Unified CCMP-webserver-name>
    ```

    For example, if your web URL for the Unified CCMP web application is `https://mycompany/portal` and the name of your Unified CCMP App/Web Server is `Unified CCMPWeb1`, you would enter

    ```
    setspn -a http/mycompany Unified CCMPWebfqdn
    ```

    Reboot the Unified CCMP App/Web Server or servers.

You have now configured Windows and users will be able to access Unified CCMP directly from their domain account without needing to login again.
Note
Depending on the way that Active Directory is configured in your installation, you may also need to change additional properties in the Login Authentication Configuration group in ICE System Properties. The default settings will be sufficient for most installations, but in some cases, you may need to change one or both of Active Directory Binding Options and Active Directory Context Type properties too.

For more information about the Active Directory Binding Options and Active Directory Context Type properties, see the Administration Guide for Cisco Unified Contact Center Management Portal. For information about the values to choose for your Active Directory configuration, consult your Windows system administrator.

Manage Users with Windows
Login names for new users should be in the \\
username>\<domain-name> format, for example,
user1@testdomain.local.

Note
Unified CCMP Users located on an external domain from the Unified CCMP hosting domain require a trust relationship to be configured between the hosting and external domain.

For more information about creating Unified CCMP user accounts, see the User Guide for Cisco Unified Contact Center Management Portal, Security Manager section.

Configure Unified CCE Admin Workstations
Unified CCMP database server(s) requires access to the Admin Workstation database to import data resource information.

If SQL Server Authentication is not in use for Admin Workstation (AW) SQL connections, then the following configuration is required for each database server:

1. Login to the AW as a user with local administrative privileges.
3. Open up the Security folder, and right-click Logins.
4. Select New Login from the drop-down list. The Login – New window displays.
5. Add SQL logins for the Network Service accounts of each server hosting Unified CCMP (Database Servers and App Servers), by filling in the fields as follows:
   - General page:
- **Login Name**: Enter the machine name (or the windows service account name) in the form `<DOMAIN>\<MACHINENAME>$`, for example `ACMEDOM\ACMESERVER1` where ACMESERVER1 is the Unified CCMP database server. This configures access for the NETWORK SERVICE account from the Unified CCMP database servers. On dual-sided deployments, both Unified CCMP database servers must have machine accounts set up.

- **Authentication**: Select Windows Authentication unless connecting to a server on a different domain

- **User Mapping** page:
  - **Users mapped to this login**: Select AWDB.
  - **Database role membership for**: For AWDB, select *Public* and *db_datareader*.

6. Click **OK**.

---

### Configure Unified CCE Provisioning

#### About Provisioning Configuration

Cisco Unified Contact Center Enterprise (Unified CCE) components must be correctly configured before Unified CCMP can connect to them for Provisioning.

For each Unified CCE instance that Unified CCMP Resource Management connects to, certain essential criteria must be met:

- Unified CCMP Resource Management uses Cisco ConAPI for the Provisioning connections: this interface requires that all connections are made to a Primary Distributor AW. If the AW is dual-sided, both sides must be Primary Distributors.

- Multiple Unified CCE instances can be supported, but each requires a distinct primary Distributor AW to connect to:
  - ConAPI only supports connection to one Application Instance on each physical server. You must therefore have a separate physical AW distributor for each instance.
  - Parent/Child AW configurations are supported as multiple instances in Unified CCMP.

---

**Note**

Please contact your vendor support if you have any queries about this configuration.

- If your deployment will include resource management, you must set up the ConAPI application instance and the CMS server on your Unified Communications Manager and Unified CCE instances.
Set Up ConAPI

To set up the ConAPI application instance, you must run Configuration Manager on the Unified CCE Admin Workstation (AW) as follows:

1. Open Configuration Manager. This can normally be done from Start > Program Files > Cisco Unified CCE Tools > Administration Tools > Configuration Manager.

   **Note**
   If you are connecting to the Unified CCE server using Remote Desktop, you will need to set the /admin switch in order to run Unified Communications Manager.

2. Under Tools > List Tools you will find the Application Instance List. Double-click this to open it.

3. Click Retrieve to display the list of configured application instances. You can use an application instance from this list for Unified CCMP or create a new one. To create a new application instance, click Add, and enter the following details:
   - **Name**: A unique name to be used for the application instance.
   - **Application Key**: A password to be used by Unified CCMP to connect. This may be between 1 and 32 characters.
   - **Confirm Application Key**: Ensure that no typographical errors were made while choosing the application key.
   - **Application Type**: Select Cisco Voice.
   - **Permission Level**: Give the application full read and write permissions.

4. Record these details for use during the configuration of the cluster.

5. Click Save and then click Close.

Set Up the CMS Server

Ensure that the CMS Server(s) are set up correctly on each Unified CCE.

Firstly, check that the CMS Node option was selected when the Admin Workstation was configured. You can determine if this was the case by looking for a cmsnode and a cms_jserver process running on the Unified CCE.

If these processes are not present, set the CMS Node option on the Unified CCE. See the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* for details on how to do this.

You must define a new application connection on each configured Unified CCE instance for each Database Server (this connection is used by the Data Import Server component). This ensures that in a dual-sided system, the alternate side can also connect to the Unified CCE in a failover scenario. To do this:
1. On the Unified CCE being configured, launch **CMS Control**. This opens the CMS control console.

2. Click **Add** on the right hand side of the window to launch the **Application connection details** window and fill in the fields as follows:
   - **Administration & Data Server Link.** The name of the Unified CCMP Database Server, in capital letters, with **Server** appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBServer**.
   - **Administration & Data Server RMI registry port.** The port on the Unified CCE AW for the Unified CCMP Provisioning service to connect to. This will usually be 2099, but if the Unified CCMP Provisioning service is connecting to multiple Unified CCE instances, each Unified CCE instance should use a different port.
   - **Application link.** The name of the Unified CCMP Database Server, in capital letters, with **Client** appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBClient**.
   - **Application RMI registry port.** The port on the Unified CCMP Database Server for the Unified CCE AW to connect to. For convenience, this should be the same as for the ICM Distributor AW RMI registry port specified above. Each Unified CCE AW must connect to a different port on the Database Server. You should record this information for future use.
   - **Application host name.** The name of the Unified CCMP Database Server, in capital letters, for example, **PRODUCTDB**.

3. Click **OK**, and **OK** again to cycle the CMSJServer, save your changes and close the CMS control console.

---

**Configure the Unified CCMP Cluster**

**About Cluster Configuration**

Use the Cluster Configuration tool in the Unified CCMP Integrated Configuration Environment (ICE) to:

- configure the servers in the Unified CCMP cluster (the Unified CCMP servers, Unified CCEs and Unified Communications Managers)
- set up the equipment mappings between remote tenants and Unified CCMP resources.

Follow the instructions below to configure your system when you first install it. For more information about using the ICE tools to modify your system configuration at a later date, see the *Integrated Configuration Environment (ICE) for Cisco Unified Contact Center Management Portal.*
Start ICE Cluster Configuration

To start ICE, on the Side A Database Server:

1. Launch Integrated Configuration Environment (installed as part of Unified CCMP). In the Database Connection dialog box, set:
   - **Server Name**: Enter the name of the primary database server.
   - **Database Name**: Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be Portal.
   - **Authentication**: Select Windows Authentication.
2. Click OK. The ICE Cluster Configuration tool starts by default.
3. In the ICE Cluster Configuration tool, select the Setup tab in the left hand pane. This displays a series of wizards to set up the servers.

The following sections explain how to use each of the wizards.

**Set Up Unified CCMP Servers**

**About the Setup Unified CCMP Servers Wizard**

The Setup Unified CCMP Servers wizard configures the servers on which Unified CCMP components are installed. The wizard guides you through the steps to configure all Unified CCMP components based on your chosen deployment model.

**Setting Up the Unified CCMP Servers**

**Note**

The exact windows displayed by the wizard may depend on the options you choose as you complete each step below.

To set up the Unified CCMP servers:

1. In the ICE Cluster Configuration tool, select the **Setup tab** and click **Setup UCCMP Servers** to start the wizard. Click **Next** to go through each window in turn.
2. On the **Select Deployment Type** page, select your chosen deployment type.
3. On the **Configure Redundancy** page, select whether you would like to configure a single-sided or a dual-sided system. Click **Next**.
4. If you are performing a two tier deployment then you will be asked to enter the number of web servers for each side. Enter the number of app/web servers on each side of your deployment. Dual-sided configurations must have an equal number of app/web servers on each side. Click **Next**.

Unified CCMP Configuration
5. On the **Configure Servers** pages, enter the server names for each of the Unified CCMP servers. The number of pages and servers to specify will depend on the deployment options you chose above. The database catalog name for the Identity Server is fixed to IdSvr3Config.

6. On each page, enter the following, then click **Next**:
   - **Primary Server**
     - **Server Name**. This is the non-domain qualified machine name.
     - **Server Address**. This defaults to Server Name. This can be changed to an IP Address or a domain qualified name of the server.
     - **FQDN Web Url**. The Fully Qualified Domain Name used to access this web application server. The FQDN will depend on the method of access to the application website, based on whether it is with or without load balancer. With load balancer, the FQDN will be the load balancer FQDN and must be specified in all Configure Application Server pages. Without load balancer, this will be the FQDN used to access each website separately.

   **Note**
   The FQDN must match the SSL certificate.

   - **Secondary Server**
     - If you chose a dual-sided setup, provide the corresponding details for the Side B server.

7. Click **Next** and enter the relevant server information for each Unified CCMP server until you reach one of the following pages: **Primary Database Administrator Login, Secondary Database Administrator Login** or **Configure Relational Database Connection**.

   **Note**
   The Primary and Secondary Database Administrator Login pages are only shown if the database user you specified when you started ICE does not have sufficient permissions to create new SQL Server users and grant permissions to them. If the current database user has sufficient permissions on a server then you will not see the Database Administrator Login page for that server.

8. If the **Primary Database Administrator Login** page is shown, provide details of a SQL Server user account on the primary database server that has sufficient permissions to create new SQL Server users and grant permissions to them. This account is used to set up the users and permissions required by Unified CCMP to connect the Unified CCMP services to the portal database. This account is only used during system setup.
   - **Authentication**. Select the authentication mode for this user.
     - **Windows Authentication**. Select this option to use the currently logged in Windows domain user.
• **SQL Authentication.** Select this option to use a specific SQL Server user. Either accept the default sa user (created when the Unified CCMP database was installed, and which does have sufficient permissions) or enter another SQL Server user, then specify the password.

• **Click Next.**

9. If you have specified a dual-sided installation, and the **Secondary Database Administrator Login** page is shown, follow the instructions in step 8. to provide details of a database user account with sufficient privileges on the secondary database server.

10. On the **Configure Relational Database Connection** page, enter the connection details to be used by each Unified CCMP server to connect to the Unified CCMP portal database:

• **Catalog.** This is the name of the Unified CCMP database. The default is **Portal**.

• **Authentication.** Select the authentication mode to use to connect to the Unified CCMP database.

• **Windows Authentication.** The recommended authentication mode. If this mode is selected, each Unified CCMP service will connect to the portal database using the Windows account under which the service is running (by default, all Unified CCMP services run under the Network Service account).

• **SQL Authentication.** Only select this option if you are using a Database Server on a different domain. For this option you must enter the SQL Server user name and password in the fields provided.

• **Click Next.** If you selected SQL Authentication and the specified account does not yet exist, you will be prompted to create it.

11. The **Deployment Summary** page summarizes the choices you have made.

12. Check the deployment details, and if you are satisfied, click **Next**.

13. A confirmation message is displayed to indicate that the wizard has completed successfully. Click **Exit** to close the wizard.

14. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

**Configure Cisco Unified CCE Servers**

**About the Configure Cisco Unified CCE Servers Wizard**

The Configure Cisco Unified CCE Servers wizard configures Cisco Unified CCE instances. This wizard guides you through the steps to:

• add a new Cisco Unified CCE instance to the deployment

• update an existing Cisco Unified CCE instance in the deployment

• remove an existing Cisco Unified CCE instance from the deployment.
About Unified CCE Deployment Models
Unified CCE offers a number of different deployment models depending on customers’ requirements. Unified CCMP supports the following Unified CCE deployment:

- Administration Server and Real-time Data Server (AW)

About Unified CCMP Connection Requirements
Depending on the deployment model, Unified CCMP may require a connection to:

- Unified CCE real-time AWDB for data import
- Unified CCE AW for Unified CCMP Provisioning Server requests.

Configuring Cisco Unified CCE Servers

Note
This wizard configures the Unified CCE servers using an SQL Connection. You will need to know the connection credentials to complete the configuration.

If you require resource management (provisioning), you will also need to know the login details for a user with appropriate access to the Unified CCE used for provisioning. On the domain controller, this user must be in the domain security group <Server>_<UCCEInstance>_Config, where <Server> is the name of the server running Unified CCE and <UCCEInstance> is the name of the Unified CCE Instance on this server.

To configure the Cisco Unified CCE servers:

1. In the ICE Cluster Configuration tool, select the Setup tab and click Configure Cisco Unified CCE Servers to start the wizard. Click Next to go through each page in turn.

2. On the Select Task page, select the action. The options are:
   - Add a new instance
   - Modify an existing instance
   - Remove an existing instance.

   Note
   The Modify and Remove options are only enabled when at least one Cisco Unified CCE has already been configured.

3. On the Specify Resource Name page, specify the name for the instance being configured. You can use the default name or choose another name.

4. On the Select Required Components page, select all the required components in the deployment.
   - Admin Workstation. Select this component for all configurations.
• **ConAPI Server (Provisioning)**. Select this component if you require resource management.

5. On the **Configure Redundancy** page, select whether you want to configure a single-sided or a dual-sided setup.

6. On the **Configure AW Server** page, enter the following:
   - **Primary Server**:
     - **Server Name**. This is the non-domain qualified machine name where the Admin Workstation and ConAPI components are deployed.
     - **Server Address**. This defaults to Server Name. This may be changed to an IP Address or a domain qualified name of the server.
   - **Secondary Server**:
     - If you chose a dual-sided setup, provide the corresponding server details for the Side B server.

7. On the **Configure Connection Details** page, enter the authentication details to connect to the Admin Workstation database.
   - **Windows Authentication**. This is the default recommended authentication mode.
   - **SQL Authentication**. If this mode is chosen then specify the SQL Server user name and the corresponding password to connect to the databases.

8. On the **Select Unified CCE Instance** page, select the AW instance to be used in the deployment. Click Next.

9. On the **Configure Primary Unified Config Web Service** page, (only shown if the Unified CCE instance is running Unified CCE version 10.5 or later), enter the following details
   - **URL**. This is the auto-generated URL of the primary unified config web service on the Unified CCE
   - **User Name**. This is a user name with appropriate access to the Unified CCE that the web service is running on. This user must be in the domain security group `<Server>`-<UCCE-Instance>-Setup, where `<Server>` is the name of the server running Unified CCE and `<UCCE-Instance>` is the name of the Unified CE Instance on this server. Enter the user name as `<user>@<domain>`, where `<user>` is the Unified CCE user name, and `<domain>` is the name of the domain.
   - **Password**. This is the password for the user.

**Note**
If the user permissions are changed then we need to start "Apache Tomcat" service on UCCE.

10. On the **Configure Primary ConAPI RMI Ports** page, (only shown if you selected the ConAPI Server (Provisioning) option above) enter the following ConAPI details:
- **Local Registry Port.** This is the port on the Unified CCE for the Unified CCMP Provisioning service to connect to. This will usually be 2099.
- **Remote Registry Port.** This is the port on the Unified CCMP Database Server for the Unified CCE to connect to. This will usually be 2099.
- **Local Port.** This is selected as the designated port for live provisioning traffic between the Unified CCE and Unified CCMP servers. It must be uniquely assigned for each Unified CCE and any firewalls between the CICM and Unified CCMP server must be configured to allow both-way traffic on this port.

**Note**

If dual-sided setup is being configured you will need to provide these details for the Secondary (Side B) server in the next page.

11. On the **Configure ConAPI Application Instance** page (only shown if you selected the ConAPI Server (Provisioning) option above), enter the following details:
   - **Application Name.** The name of the application to be used for provisioning Unified CCE from Unified CCMP. Specify the name of the application you configured in section "Set Up ConAPI" Credentials.
   - **Application Key.** Use the password for the application you specified above.

12. On the **Multi Media Support** page, select **Yes** if you are using a Cisco Unified Web and E-Mail Interaction Manager application instance to provide support for non-voice interactions. The default is No.

13. On the **Purge On Delete** page, select **Yes** if you want to purge items from Unified CCE automatically when they are deleted from Unified CCMP. The default is Yes.

14. On the **Supervisor Active Directory Integration** page, select **Yes** if you want to enable support for associating existing Active Directory user accounts for Unified CCE Supervisors. The default is No. If you select Yes then you will be prompted to provide Active Directory information so that Windows user accounts can be listed.

15. On the **Configure Linked Unified CM Servers** page, select the Unified Communications Manager servers that the Unified CCE being configured is capable of routing calls to.

**Note**

The Configure Linked Unified Communications Manager Servers page only appears if at least one Unified Communications Manager server has been configured. You can also link the Unified Communications Manager servers to Unified CCE from the Unified Communications Manager Configuration Wizard, or modify the Unified CCE configuration later to link to the Unified Communications Manager servers.

16. The **Summary** page summarizes the details of the Unified CCE being configured and the settings you have chosen.
17. Check the details, and if you are satisfied, click Next.
18. A confirmation message is displayed to indicate that the wizard has completed successfully. Click Exit to close the wizard.
19. To save and action your changes, either click the Save icon in the tool bar or select File > Save from the menu.

Configure Cisco Unified Communications Manager Servers

About the Configure Cisco Unified Communications Manager Servers Wizard
The Configure Cisco Unified Communications Manager Servers wizard configures Cisco Unified Communications Manager instances. This wizard guides you through the steps to:
- add a new Cisco Unified Communications Manager instance to the deployment
- update an existing Cisco Unified Communications Manager instance in the deployment
- remove an existing Cisco Unified Communications Manager instance from the deployment.

Configuring Cisco Unified Communications Manager Servers
To configure the Cisco Unified Communications Manager servers:
1. In the ICE Cluster Configuration tool, select the Setup tab and click Configure Cisco Unified Communications Manager Servers to start the wizard. Click Next to go through each page in turn.
2. On the Select Task page, select the action. The options are:
   - Add a new instance
   - Modify an existing instance
   - Remove an existing instance

   **Note**
The Modify and Remove options are only enabled when at least one Cisco Unified Communications Manager has already been configured.

3. On the Specify Resource Name page, specify a name for the instance being configured. You can use the default name or choose another name.
4. On the Configure Unified Communications Manager Servers page, enter the following:
   - **Primary Server**
     - **Server Name**. This is the non-domain qualified machine name where the Cisco Unified Communications Manager components are deployed.
     - **Server Address**. This defaults to Server Name. This can be changed to an IP Address or a domain qualified name of the server.
Note
When configuring a Unified Communications Manager Cluster ensure that only the publisher of the cluster is configured.

- **Secondary Server**: This option is always disabled.

5. On the **Select Version** page, select the version of Unified Communications Manager being configured from the drop-down list.

6. On the **Connection Details** page, enter the following details:
   - **URL**: This is used to access the Unified Communications Manager AXL interface. The default is the default URL for the Unified Communications Manager version that has been selected. It is recommended that you use the default URL.
   - **User Name**: This is the name of the Unified Communications Manager Administrator user. This is the user name that the Unified CCMP components use when connecting to the Unified Communications Manager AXL web service.
   - **Password**: This is the Unified Communications Manager Administrator user’s password.

7. On the **Configure Linked Unified CCE Servers** page, select the configured Cisco Unified CCE servers that can route calls to the Unified Communications Manager being configured.

Note
The **Configure Linked Unified CCE Servers** page only appears if at least one Unified CCE server has been configured. You can also link the Unified Communications Manager server to Unified CCEs from the Cisco Unified CCE Configuration Wizard, or modify the Unified Communications Manager configuration later to link to the Unified CCE servers.

8. The **Summary** page summarizes the details of the Unified Communications Manager being configured and the settings you have chosen.

9. Check the details, and if you are satisfied, click **Next**.

10. A confirmation message is displayed to indicate that the wizard has completed successfully. Click **Exit** to close the wizard.

11. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

**Configure Cisco Unified CVP Servers**

**About the Configure Cisco Unified CVP Servers Wizard**

The Configure Cisco Unified CVP Servers wizard configures Cisco Unified CVP server clusters. A Cisco Unified CVP server cluster consists of a Unified CVP Operations Console and, optionally, one or more call servers.
This wizard guides you through the steps to:

- add a new Cisco Unified CVP cluster instance to the deployment
- update an existing Cisco Unified CVP cluster instance in the deployment
- remove an existing Cisco Unified CVP cluster instance from the deployment.

**Configuring Cisco Unified CVP Servers**

To configure a Cisco Unified CVP server cluster:

1. In the ICE Cluster Configuration tool, select the **Setup** tab and click **Configure Cisco Unified CVP Servers** to start the wizard. Click **Next** to go through each page in turn.

2. On the **Select Task** page, select the action. The options are:
   - Add a new instance
   - Modify an existing instance
   - Remove an existing instance.

   The Modify and Remove options are only enabled when at least one Cisco Unified CVP cluster instance has already been configured.

3. On the **Specify Unified CVP Operations Console Resource Name** page, specify a name for the Unified CVP operations console.

4. On the **Select Version** page, specify the version of Unified CVP that is running on the CVP cluster you are configuring.

5. On the **Configure Unified CVP Operations Console** page, enter the following:
   - **Primary Server**:
     - **Server Name**: This is the non-domain qualified machine name where the Cisco Unified CVP Operations Console is deployed.
     - **Server Address**: This defaults to Server Name. You can change this to an IP Address or a domain qualified name of the server.
   - **Secondary Server**: This option is always disabled.

6. On the **Configure Primary Unified Config Web Service** page (only shown when the selected Unified CVP version is 10.0 or later), enter the following details:
   - **URL**: This is the auto-generated URL of the primary unified config web service on the Unified CVP cluster.
   - **User Name**: This is a user name with appropriate access to the Unified CVP that the web service is running on.
   - **Password**: This is the password for the user.
7. On the **Select Number of Call Servers** page, specify the number of CVP call servers in the CVP cluster.

**Note**
All CVP call servers must be on the same Unified CCE as the Unified CVP operations console.

8. If you specified at least one call server:
   a. On the **Specify Unified CVP Call Server 1 Resource Name** page, enter a name for the call server.
   b. On the **Configure Unified CVP Call Server 1** page, enter the following:
      - **Primary Server**:
        - **Server Name**: This is the non-domain qualified machine name of the Cisco Unified CVP call server.
        - **Server Address**: This defaults to Server Name. You can change this to an IP Address or a domain qualified name of the server.
      - **Secondary Server**: This option is always disabled.

9. If you specified more than one call server, repeat step 8. to provide the details for the each of the remaining call servers.

10. The **Summary** page summarizes the details of the Unified CVP cluster being configured and the settings you have chosen.

11. Check the details, and if you are satisfied, click **Next**.

12. A confirmation message is displayed to indicate that the wizard has completed successfully. Click **Exit** to close the wizard.

13. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

### Create and Map Tenants

#### About Creating and Mapping Tenants

The Equipment Mapping tab of the ICE Cluster Configuration tool enables you to create new tenants and folders and map them to the contact center equipment you have just configured. Use this tool to:

- create the Unified CCMP folder structure for your deployment
- specify the rules for importing resources into your Unified CCMP folder structure from the contact center equipment (for example, Unified CCE, Unified Communications Manager).
Creating Tenants and Folders
To create a Unified CCMP tenant:

1. In the ICE Cluster Configuration tool, select the Equipment Mapping tab. In the center pane, right-click on the root node and select Add Tenant.

2. In the Name field enter the name of the tenant, and optionally, in the Description field, enter a description.

3. Select File > Save to save your changes. If you exit the tool without saving your changes you will be asked whether you want to save your changes when you exit the tool.

To create a Unified CCMP folder:

1. In the ICE Cluster Configuration tool, select the Equipment Mapping tab. In the center pane, right-click on the folder tree at the location where you want to add the folder and select Add Folder.

2. In the Name field enter the name of the folder, and optionally, in the Description field, enter a description.

3. Select File > Save to save your changes. If you exit the tool without saving your changes you will be asked whether you want to save your changes when you exit the tool.

Creating an Equipment Mapping
To create an equipment mapping between a tenant or folder and the contact center equipment:

1. In the ICE Cluster Configuration tool, select the Equipment Mapping tab. In the folder tree, select the tenant or folder where you want to place the resources you import from the contact center equipment.

2. In the adjoining pane select the check box next to each item of contact center equipment you want to associate with the selected folder or tenant.

3. Highlight each selected item in turn, and, in the right hand pane, select one of the following:

   - **Default Import Location.** All resources from the highlighted contact center equipment will be imported into the selected folder or tenant in Unified CCMP. You may see a warning if you select this option. If the selection was intentional, you can ignore the warning.

   - **Customer Resource Mapping.** Allows more control over the import process. You can specify the items on the highlighted contact center equipment to be placed in the selected folder or tenant in Unified CCMP.

4. If you select the Customer Resource Mapping option, complete the following information:
   
   a. Click to add a new customer resource mapping that defines the resource types and the specific resources of that type to be mapped to the selected import location.
b. In the **Customer Resource Mapping** dialog box, select the resource type from the **Type** drop-down list (one of Peripheral, Routing Client, Media Routing Domain and Remote Tenant) then select the specific item of that type that you want to map from the **Resource** drop-down list.

c. If you select the **Remote Tenant** option, you can optionally specify one of the following to use for the tenant mapping:

- active directory settings, which enable you to associate a specific active directory with a tenant or folder.
- small contact center settings, which enable you to configure a tenant or folder as a small contact center, create a department, and define department-level mappings.

d. If you want to specify active directory settings, select the **Active Directory Configuration** tab, and select **Configure Active Directory Settings**.

Specify the domain controller and the authentication modes required, then click **Next**. Browse to the Active Directory folder you want to use, select it, and click **Update**.

**Note.** The Active Directory settings for the remote tenant are updated immediately and will be retained even if you later exit ICE without saving your changes.

e. If you want to configure a small contact center, select the **Small Contact Center Settings** tab and select **Enable Small Contact Center**. Enter the name of the department you want to create and click **Create Department**. The department will be created and provisioned, and any resources from the remote tenant that are associated with this department will be imported into the selected folder or tenant.

**Note.** The specified department is provisioned and created immediately, and will be retained even if you later exit ICE without saving your changes. You cannot subsequently edit this department in ICE.

**Note.** Once a folder has been mapped as a small contact center folder, no other item mappings are allowed for this folder or any subfolders.

f. When you have defined the customer resource mapping, click **OK**. Repeat these steps to add additional customer resource mappings if required.

---

**Note**

If you want to use the customer resource mapping option, you will not be able to configure this until you have imported the customer resources you want to use to define the mappings.

In this case, for the first import, **do not** select the Default Import Location option, as once you have selected this, the items from the remote equipment will be imported to that location and cannot be re-imported. Instead, for the first import, **do not specify any import location**, so everything is imported into the /Unallocated folder. Once the customer resources have been imported, you can specify the customer resource mapping you require, and the items in the /Unallocated folder will be moved to the required locations.
Note
If Customer Resource Mapping is selected then any resources on the contact center equipment that are not associated with the selected mapping will be placed in the source equipment subfolder under the **Unallocated** folder.

5. When you have finished defining the equipment mappings, click **File > Save** to save your changes. If you exit the tool without saving your changes you will be asked whether you want to save your changes when you exit the tool.

---

**Replication**

**About Replication**

In a dual-sided deployment, use the ICE Replication Manager to configure and monitor database replication between publisher and subscriber databases. The publisher is usually on Side A, but it may occasionally be necessary to configure Side B as the publisher.

The Replication manager has two modes, setup and monitor. Setup is used to configure or disable replication and monitor is used to monitor the status of a configured replication.

When your system is first installed you should:

- configure replication as described in section "Configure Replication"
- monitor replication as described in section "Monitor the Replication Snapshot"

For more information about using the ICE Replication Manager to manage replication at a later date, see the *Integrated Configuration Environment (ICE) for Cisco Unified Contact Center Management Portal*.

**About The Snapshot Process**

When replication is configured, the existing data from the publisher database is pushed to the subscriber database. This is referred to as the **snapshot process**.

The snapshot process takes a variable time depending in the amount of data contained in the publisher database. For new deployments where the import from Unified CCE or Unified Communications Manager has not yet been performed, this is likely to be a few minutes. On large deployments where Unified CCE or Unified Communications Manager resources have already been imported to the publisher database this could take a lot longer.

Note
The subscriber database cannot be used until the snapshot process has completed.
About Replication Publications

When replication is configured the following publications are set up (assuming you have used the default database name of \textit{Portal}):

- \textit{[Portal]}: \textit{BasePubWin}
- \textit{[Portal]}: \textit{BaseSubWin}
- \textit{[Portal]}: \textit{NonQueued}

Each of these publications contains a series of tables which are replicated between the publisher and subscriber as part of the snapshot process. \textit{[Portal]}: \textit{BaseSubWin} is the largest publication and will take the longest for the snapshot process to complete. Each of the publications will migrate through the following steps during the snapshot process:

- \textbf{Pre} preparation
- \textbf{Sch} schema
- \textbf{Data copy}
- \textbf{Dri} referential integrity
- \textbf{Post Snapshot Commands}

You can monitor the progress of the snapshot process using the Monitor tab which is automatically shown after the replication configuration has completed.

Configure Replication

\begin{note}

The user running Replication Manager must have administrator permissions in both Windows and SQL Server, for both the publisher and subscriber Database Servers.

Before configuring replication you should have already configured Unified CCMP in dual-sided mode using the Cluster Configuration tool as described in section "Configure the Unified CCMP Cluster."

\end{note}

To configure replication, on the Database Server that will be the publisher:

1. Launch \textbf{Integrated Configuration Environment} (installed as part of Unified CCMP). In the \textbf{Database Connection} dialog box, set:

   - \textbf{Server Name}. Enter the name of the primary database server.
   - \textbf{Database Name}. Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be \textit{Portal}.
   - \textbf{Authentication}. Select Windows Authentication.

2. Click \textbf{OK}. The ICE Cluster Configuration tool starts by default.
3. From the Tool drop-down list, select Replication Manager. The Replication Manager opens in the Setup tab. The Setup tab has the following sections:
   - **Unified CCMP Database Server Properties** contains the publisher and subscriber Unified CCMP database details.
   - **Distributor Properties** contains the SQL Server Replication distributor properties.
   The default values shown in the Setup tab are derived from the values initially configured in the Cluster Configuration tool and will be suitable in most cases.

4. If required, modify the Unified CCMP Database Server Properties.
   - **Server Name** (publisher and subscriber). This is the value specified in ICE Cluster Configuration and cannot be changed in Replication Manager.
   - **Catalog Name** (publisher and subscriber). This is the value specified in ICE Cluster Configuration. It may be changed, but if so, a valid database with the new name must already exist on the corresponding server.

5. The Identity Server should be replicated by default. To replicate the Identity Server Database, click the **Identity Database Replication Enabled** checkbox.

6. If required, modify the distributor properties.
   - **Server Name**. The name of the subscriber server hosting the Unified CCMP database. This is the value specified in ICE Cluster Configuration and cannot be changed in Replication Manager.
   - **Catalog Name**. The name to be assigned to the distribution database. The recommended value is **distribution_portal**.
   - **Data Folder**. The folder path on the distributor server where the data file for the distribution database will be created.

   **Note**
   If you are setting up replication after performing an upgrade, be particularly careful with the Data Folder path, as it may be different from the value used in previous versions of Unified CCMP. Make sure you use the path that was specified when the database was set up.

   - **Log Folder**. The folder path on the distributor server where the transaction log file for the distribution database will be created.
   - **Distribution Share**. The distribution share folder where replication snapshot files will be generated.
   - **Override Distributor Admin Password**. Select to override the auto-generated replication password which will be used to establish connectivity. The auto-generated password is 14 characters long, and will contain alpha-numeric characters (both upper
and lower case) and a special character. If this does not meet the complexity requirements of the server then select this option and specify a password of your choice.

7. When you have set the required replication properties, click Configure to configure replication.

8. You may be prompted to save pending changes to the database before continuing. If so, click Yes to save pending changes and continue.

9. It may take several minutes to configure replication. Once replication has been configured, the Replication Manager automatically switches to the Monitor tab, which enables you to monitor the progress of the replication snapshot.

Monitor the Replication Snapshot

**Note**
The subscriber Database Server is not available for use until the replication snapshot has completed and all the data has been copied from the publisher database to the subscriber database.

To monitor the progress of the replication snapshot:

1. In the ICE Replication Manager, select the Monitor tab. The Monitor tab has the following panes:
   - **Publications** (top left) lists the publisher servers and the publications on each publisher that need to be shared with the subscribers.
   - **Subscriptions and Agents** (top right) shows the subscriptions to a publication and the replication agents associated with a publication. This pane has two tabs, Subscriptions and Agents.
   - **Subscriptions** shows the subscriptions to the selected publication. You can right-click on a subscription to start or stop the subscription.
   - **Agents** shows the replication agents associated with the selected publication. You can right-click on a replication agent to start or stop the agent.
   - **Sessions** (bottom left) shows all sessions for the selected publication and replication agent in the last 24 hours.
   - **Actions** (bottom right) shows the activity for the selected session.

2. In the top left hand pane, select the first Unified CCMP database publication from the list of publications. If you have used the default database name, this will start with [Portal].

3. Wait for the replication snapshot for this publication to complete.
To check the replication status for a Unified CCMP database publication, in the bottom right hand pane of the Monitor tab, inspect the messages in the Action Message list. Once the replication snapshot is complete and replication is operational for a publication, you will see the following two messages:

“Delivered snapshot from . . .”

“No replicated transactions are available”.

After this, the second message is replaced with messages showing new replicated transactions as they are sent through the system, for example:

“4 transaction(s) with 14 command(s) were delivered”.

4. Repeat the two steps above for each of the remaining Unified CCMP database publications.

5. When replication is complete for all portal database publications, close the ICE tool.

The subscriber database can now be used to service requests. For more information about the Replication Manager see the Integrated Configuration Environment (ICE) for Cisco Unified Contact Center Management Portal.

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**Unified CVP Media File Upload**

**About Unified CVP Media File Upload**

**Note**
This configuration is only required where Unified CCMP Resource Management is deployed.

The Unified CVP media file upload enables you to provision WAV media files directly to the Unified CVP media server. This enables the associated WAV announcement for a Network VRU Script in Unified CCE to be replaced in near real-time. This solution requires your Unified CVP media server or servers to be hosted on Microsoft Windows 2000 Server, Microsoft Windows Server 2003 or Microsoft Windows Server 2008. The Unified CVP media servers and the web servers hosting Unified CCMP must belong to the same domain.

Unified CCMP writes media files to a domain share called PortalMedia on the domain controller. We recommend the use of Microsoft Distributed File System (DFS) to access the file system on the Unified CVP media servers. If you have multiple Unified CVP media servers, then Microsoft File Replication can be used to keep the announcement files in step across the servers.

**Prepare the Configuration**

Before configuring the Unified CVP Media File Upload solution for your network perform the following tasks:
1. Make a note of the Host Name and IP Addresses of the Unified CVP media server or servers.
2. Make a note of the User Name and Password of a user with administrator rights on the domain so that you can configure DFS and File Replication.
3. Ensure that Microsoft DFS, File Replication and Remote Procedure Call services are installed and running on the Unified CVP media servers and the domain controller.

Configure Unified CVP Media File Upload - Windows Server 2003

Follow the instructions in this section to configure Unified CVP media file upload if your domain controller is running Windows Server 2003.

Configure DFS for Unified CVP Media File Upload

This section describes how to create the shared folder to be used by each Unified CVP media server in the domain (Windows Server 2003 domain controllers only).

1. Log in to the Domain Controller as a user with administrator rights.
2. Click Start > Program Files > Administrative Tools > Distributed File System to open the Distributed File System configuration utility.
3. Right-click on the Distributed File System node in the left of the screen and select New Root option to open the New Root Wizard.
4. Ensure that the option for Domain Root is selected in the Root Type window.
5. Follow the wizard by entering the default values. When you reach the Host Server window enter the Host Name of the Domain Controller.
6. For the Root Name field enter PortalMedia in the field provided.
7. For the Folder to Share, select the folder to contain the Unified CVP media files that are uploaded.

Note
This folder requires full access security permissions for the Domain Computers group. Configure this for both the shared permissions and the security credentials.

8. Click Finish to complete the action and add the root to the DFS utility.

Configure DFS Root Targets

For each media server that the Unified CVP Media File Upload will add files to, perform the following actions on the domain controller (Windows Server 2003 domain controllers only):

1. Right-click on the new root and select New Root Target.
2. Enter the server name for the Unified CVP media server.
3. For the **Folder to Share**, select the folder to contain the Unified CVP media files that are uploaded.

   **Note**
   This folder requires full access security permissions for the Domain Computers group. Configure this for both the shared permissions and the security credentials.

4. Click **Next** to create the Root Target.

**Configure File Replication for Unified CVP Media File Upload**

DFS shares must be setup on all the machines to which the media files should be copied, and file replication enabled among all of them.

The following steps will take you through the process of replicating files between the DFS shares (Windows Server 2003 domain controllers only). To enable this functionality you will need to ensure that the File Replication service is set to Automatic and is currently running.

To begin file replication:

1. Log in to the Domain Controller as an administrative user.

2. Click **Start > Program Files > Administrative Tools > Distributed File System** to open the Distributed File System configuration utility.

3. Right-click Distributed File System node in the left hand panel and select **Show Root** option.

4. Select **PortalMedia** node.

5. Right-click **PortalMedia** node located in the left hand panel of the Distributed File System window. Select **Configure Replication** option from the menu. The Configure Replication Wizard displays.

6. When prompted to select the initial master, select the share located on the domain controller.

7. Select **Full Mesh** topology for the replication set.

8. Click **Finish** to set up replication between the selected folders.

**Configure Unified CVP Media File Upload - Windows Server 2008**

Follow the instructions in this section to configure Unified CVP Media File Upload if your domain controller is running Windows Server 2008.

**Create a Shared Namespace**

To create a namespace on the domain controller to be used for replication (Windows Server 2008 domain controllers only):

1. Log in to the Domain Controller as a user with administrator rights.
2. Click **Start > Program Files > Administrative Tools > Server Manager** to open the Server Manager utility.

3. In Server Manager, expand the **Roles** node, the **File Services** node, and the **DFS Management** node to see the Namespaces node. Right click on **Namespaces**, and select **New Namespace** to run the New Namespace Wizard.

4. In the Namespace Server window, enter the name of the primary Unified CCMP Database Server and click **Next**.

5. In the Namespace Name and Settings window, enter **PortalMedia** for the namespace name.

   **Note**
   The namespace name specified here must match the name shown by the ICE System Properties Manager tool, Media Upload group, Media Share property. The default is **PortalMedia**.

6. Click **Edit Settings**, review the shared folder permissions, and change them as required, if necessary. Click **OK**, then click **Next**.

7. In the Namespace Type window, select **Domain-based namespace** and click **Next**.

8. Review the namespace settings, and click **Create** to create the namespace you have specified. When the namespace has been created, click **Close**.

**Configure Replication**

To configure replication using the namespace you have just created (Windows Server 2008 domain controllers only):

1. On the domain controller, in the Server Manager utility, expand the **Roles** node, the **File Services** node, and the **DFS Management** node to see the Replication node. Right click on **Replication**, and select **New Replication Group** to run the New Replication Group Wizard.

2. In the Replication Group Type window, select **Multipurpose replication group**, and click **Next**.

3. In the Name and Domain window, enter a name for the replication group, for example, **sharePortalMedia**. Click **Next**.

4. In the Replication Group Members window, click **Add**, and in the Select Computers window, enter the name of one of the CVP media servers to be included in the replication group. Click **OK** to add the specified server to the replication group.

5. Repeat the step above to add each of the remaining CVP media servers to the replication group.

6. Click **Next**.

7. In the Topology Selection Window, select **Full mesh** and click **Next**.

8. In the Replication Group Schedule and Bandwidth window, select **Replicate continuously using the specified bandwidth** and click **Next**.
9. In the Primary Member window, choose one of the CVP media servers in the replication group to be the Primary member, and click Next.

10. In the Folders to Replicate window, click Add, then Browse. Select the folder on the primary server where the CVP media files are stored and click OK.

11. In the Local path on Other Members window, select one of the other CVP media servers in the replication group and click Edit.

12. In the Edit window, select Enabled, then Browse, and locate the folder on this server where the CVP media files are stored. Click OK.

13. Repeat the previous two steps for any other CVP media servers in the list of servers. Click Next.

14. Review the replication settings, and click Create to set up the replication you have specified. When the replication has been set up, click Close.

**Share and Publish the Replicated Folder**

To share and publish the replicated folder (Windows Server 2008 domain controllers only):

1. On the domain controller, in the Server Manager utility, expand the Roles node, the File Services node, and the DFS Management node to see the Replication node. Click on the replication group you created above, and select the Replicated Folders tab.

2. In the Publishing Method window, select Share and Publish the Replicated Folder in a Namespace and click Next.

3. In the Share Replicated Folders window, select one of the CVP media servers in the replication members section, and click Edit. Review the shared folder permissions, and change them as required, if necessary. Click OK.

4. Repeat the step above to set the folder permissions for each of the remaining CVP media servers in the replication group. Click Next when you have finished.

5. To set Parent folder in namespace, in the Namespace Path window click Browse, select \<domain>\PortalMedia from the list (this is the namespace you created above), and click OK.

6. In the Namespace Path window, enter the New folder name as CVP. Click Next.

7. Review the settings and click Share to publish the replicated folder.

**Configure the Replicated Folder for Media File Upload**

To configure Unified CCMP to use the replicated folder for CVP media file upload (Windows Server 2008 domain controllers only):

1. Launch Integrated Configuration Environment (installed as part of Unified CCMP). In the Database Connection dialog box, set:
   - Server Name. Enter the name of the primary database server.
- **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be Portal.

- **Authentication.** Select Windows Authentication.

2. Click OK. The ICE Cluster Configuration tool starts by default.

3. In the Tools drop-down, select **System Properties Manager** and on the Global tab, navigate to the Media Upload group.

4. Change the Media Share property from the default value of PortalMedia to PortalMedia\CVP.

5. Select File > Save to save your changes. If you exit the tool without saving your changes you will be asked whether you want to save your changes.

6. Close ICE.

### Test the CVP Upload Configuration

You have now created and configured a DFS replicated location for Unified CCMP to use to upload media files.

The replicated location is of the form `\<DomainName>\PortalMedia` and can be accessed by any machine in the domain. Files written to this location will be replicated to the specified folders on the servers in the replication group.

You can confirm that the replication for CVP media file upload is working by creating a file in `\<DomainName>\PortalMedia` and ensuring that it is copied to all replication destinations.
Post-Installation Steps

About Post-Installation Steps
This chapter describes the remaining actions that must be taken to secure, configure and tune your installation. This chapter describes the following actions:

- configure SSL for the Unified CCMP web application and Web Services (required)
- configuring Single Sign-on (optional)
- configuring anti-virus options
- tuning your system for optimal performance
- performing the first log in and verifying the system

Configure SSL

About Configuring SSL for Unified CCMP
Follow the instructions below to configure SSL for the Unified CCMP web application.

Note
These steps are mandatory and some features of the Unified CCMP web application will not work properly unless you do this.

These steps are also required if you are upgrading Unified CCMP, even if you have already configured SSL for a previous version.

To configure SSL for Unified CCMP you need to:

- obtain a digital certificate if you do not already have a suitable one (see section "Obtain a Digital Certificate")
- export the certificate in PFX format (see section "Export the Certificate in PFX Format")
- configure SSL for the Unified CCMP web application (see section "Configure SSL for the Web Application")

Obtain a Digital Certificate
If required, a digital certificate may be obtained in either of the following ways:

- purchased from an external certificate authority, for public use
- generated internally, for secure use within the issuing organization.

**Note**
We recommend a digital certificate with a key length of at least 2048 bits. Some recent browsers may reject certificates with shorted key lengths.

If you do not already have a suitable certificate, you can request or generate one as follows:

1. Open **Internet Information Services (IIS) Manager** and select the web server in the folder hierarchy.
2. Select the **Features View** tab, and in the **IIS** group, click on **Server Certificates**.
3. Create a digital certificate in one of the following ways:

**Note**
The Common Name is the application domain name. Take care to enter it exactly as specified here. The certificate will not work otherwise. The Common Name is derived as follows:

- For deployments with a registered address (including load-balanced deployments) enter the registered address, starting from www. For example, if your registered address is https://www.Unified CCMP.com, enter www.Unified CCMP.com.
- For deployments with a single internal address (including load-balanced deployments) enter the part of the address after https://. For example, if your internal address is https://Unified CCMP.intranet.local, enter Unified CCMP.intranet.local
- For deployments where the web servers will be accessed directly with no load-balancing, enter the fully qualified domain name of the server being configured. For example, webserver1.mydomain.com.

- To request an external certificate:
  - In the **Actions** pane, select **Create Certificate Request** to display the **Request Certificate** dialog box.
  - In the **Common Name** field, enter the application domain name as defined above.
  - Complete the other fields as appropriate, and click **Next**.
  - In the **Cryptographic Service Provider Properties** dialog box leave the default **Cryptographic Service Provider**. Select a bit length of at least 2048. Click **Next**.
  - Specify a file name for the certificate, and then click **Finish**.
  - When you receive the certificate from the certificate authority, repeat step 1. and step 2. above to show the Server Certificates and Action panes, and in the **Action** pane, select **Complete Certificate Request**.
  - Enter the file name of the certificate, and a Friendly Name of your choice and click **OK**.
To generate an internal certificate:

- Select Create Domain Certificate in the Actions pane to display the Distinguished Name Properties dialog box.
- In the Common Name field, enter the application domain name as defined above.
- Complete the other fields as appropriate, and click Next.
- In the Online Certification Authority dialog box specify the Online Authority and a Friendly Name. Click Finish.

Export the Certificate in PFX Format

To export the certificate in PFX format:

1. In IIS Manager, select the Features View tab, and in the IIS group, click on Server Certificates.
2. Select the certificate in the Actions pane and click Export.
3. In the Export Certificate dialog box, do the following:
   a. Either type a file name in the Export to box or click Browse and specify the file in which to store the exported certificate.
   b. If you want to protect the exported certificate with a password, enter a password in the Password box, and repeat the same password in the Confirm password box.
   c. Click OK. The certificate is exported as a PFX file.

Configure SSL for the Web Application

To configure SSL for the web application:

1. In a web browser, navigate to https://<web-address>/SSLConfig, where <web-address> is the web address of your Unified CCMP deployment. For example, if your web address is https://Unified CCMP.intranet.local, enter https://Unified CCMP.intranet.local/SSLConfig.
2. In the authentication dialog box, enter the user name and password of a Windows domain user with administrator rights on the domain.
3. On the SSL Certificate Configuration page, click Choose File and browse to the PFX file you created in the previous section. Click Open to select the file.
4. If the PFX file is password-protected, enter the password in Password. If not, leave Password blank.
5. Click Upload to start the SSL configuration. When the SSL configuration is complete, the following message is shown:

   SSL Configuration Complete.
Bind Server Ports to IPv6 Addresses

The server ports that will be used for http and https communications must be bound to IPv6 addresses only. To do this, on the App/Web server:

1. In IIS Manager expand the Sites node and select Default Web Site. Under Actions, select Bindings.
2. Select http and click Edit. In the IP Address field enter [::1]. Click OK.
3. Select https and click Edit. In the IP Address field select the IPv6 address assigned to the App/Web server. In the HTTPS certificate field, select the HTTPS certificate that has the fully qualified domain name installed on the server.
4. Click OK, then Close.
5. At the command prompt, enter iisreset.

Configure Antivirus Options

If you have antivirus software on the Unified CCMP servers, we recommend that you exclude the following directories from the antivirus checks:

- The folders containing the database files (*.ldf, *.mdf and *.ndf) on the Database Server. To locate these files, start SQL Management Studio, expand the Databases node, and select Properties for the database. If you selected the default database name at installation, the database will be Portal. In the Database Properties dialog box, select the Files page to see the folder and file names of the database files.
- The Importer folder on the Database Server. If you selected the default installation location, this will be C:\Program Files\Management Portal\Data Import Server\IMPORTER.
- The Web folder and all subfolders on the App/Web Server. If you selected the default installation location, this will be C:\Program Files\Management Portal\Web.

Performance Tuning Checklists

The following performance tuning steps will ensure optimal performance of Unified CCMP.
App/Web Servers

<table>
<thead>
<tr>
<th>Description</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a new page file, on a non-system drive, specifying the option to allow Windows to manage the page file size.</td>
<td></td>
</tr>
</tbody>
</table>

Database Servers

<table>
<thead>
<tr>
<th>Description</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a new page file, on a non-system drive, specifying the option to allow Windows to manage the page file size.</td>
<td></td>
</tr>
<tr>
<td>Ensure the Portal database is set to Simple Recovery Mode on all systems.</td>
<td></td>
</tr>
</tbody>
</table>

Database Servers - Additional Actions for Deployments with More Than 8,000 Agents

For deployments with more than 8,000 agents you should also do the following steps on all database servers.
Restrict SQL Server memory usage as follows:
1. In SQL Server Management Studio, right-click the database server, select Properties and go to the Memory page.
2. Set Minimum server memory to 4096 MB (4 GB) and Maximum server memory to 11264 MB (11 GB).
3. Click Save to apply the setting then close SSMS.

Increase the Data Importer SQL command timeout as follows:
1. In Windows Explorer locate the Data Importer configuration file. If you have used the default installation location this will be at C:\Program Files\Management Portal\Data Import Server\DataPipelineService.exe.config.
2. Open this file in Notepad or another text editor.
3. Search for name="SqlCommandTimeout" and in the <value> tag that follows, change the time from 00:00:30 to 00:01:30.
4. Save the file.
5. Stop and restart the UCCMP: Data Importer windows service.

After the initial import has completed following a new installation or upgrade, update the database statistics to improve query performance.
1. In SQL Server Management Studio, click New Query and enter the following (replace Portal with the name of your database if necessary):

```
USE Portal;
GO
EXEC sp_updatestats;
GO
```
2. Close SSMS.

---

**Final Post-Installation Actions**

**Restart the System**
Reboot the servers after installation has finished, making sure that the Unified CCMP services start automatically on boot.

**Log in to Unified CCMP**
Launch the Management Portal application. This will open a web page, which you can bookmark.

To login to a new system, use the user name administrator and a blank password. You will be prompted to change this. If you are logging into an upgraded system, the administrator password will be the same as before.
**Note**

If you lose the administrator password, it cannot be reset except by another user with equal permissions. It is recommended that you note down the chosen password and keep it somewhere secure.

**Verify the Installation**

Once the system is installed and configured, you should run through the following checks to ensure that data is imported and the system running normally.

1. Log in to the Unified CCMP web application using the pre-configured **administrator** user and confirm that the Unified CCMP home page successfully displays.

2. On each Unified CCMP server, in the **Run** command dialog box, enter **Services.msc**. Check that all the installed Unified CCMP services have been started.

3. Use the following SQL statement to confirm that resource data is being imported to the database:
   
   ```sql
   SELECT count(*)
   FROM [dbo].[TB_DIM_AGENT]
   ```
   
   This query should return a value of at least 3.
### Single-Sided Upgrade

#### About a Single-Sided Upgrade

This chapter describes the steps involved to upgrade a single-sided deployment. The description assumes that you have a two-tier deployment (separate database and app/web servers), although you can still use these instructions if you have an all-in-one installation.

**Warning!**
Ensure that you have up-to-date backups of all Unified CCMP databases before you begin the upgrade. Instructions for doing this are included here.

**Note**
Before starting the upgrade please ensure you have the original cryptographic passphrase from the original Unified CCMP installation as you will need it during the upgrade.

#### Checklist for Single-Sided Upgrades

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</table>
### Prepare to Upgrade

**Stop the Unified CCMP Services**

Before starting the upgrade, you must stop all Unified CCMP services on all servers.

**Stop the Unified CCMP Database Server Services**

On the Database Server:

1. In `services.msc`, stop the **UCCMP: Data Import Server** service.
2. Repeat this step for the UCCMP: **Partitioning Table Manager** service.
3. Repeat this step for the UCCMP: **Provisioning Server** service.

**Stop the Unified CCMP App/Web Server Services**

On the App/Web Server:

1. In `services.msc`, stop the **UCCMP: System Monitoring Services** service.
2. If you see a prompt saying that all other services will stop, and asking you if you want to continue, select Yes.
3. If there are any other running Unified CCMP services, stop them too.

**Back up the Portal Database**

Back up the Portal database and copy the backup to a safe location where it can be accessed once the latest version of Unified CCMP has been installed on the new servers.

To back up the Portal database, on the Database Server:

1. Launch **SQL Server Management Studio**.
2. Navigate to the Portal database.
3. Right-click Portal and select Tasks > Backup. Save the .bak file to a suitable location.

Configure New Windows Servers
On the new servers running Windows Server 2012 R2, apply the Windows post-installation configuration in section "Windows Configuration".

Create User Accounts
Create the SQL Agent User account as described in section "User Accounts"

Apply Optional Security Configuration
On the new servers running Windows Server 2012 R2, apply the security settings described in section "Optional Security Configuration"

Uninstall Unified CCMP Components
Uninstall Unified CCMP Components as described in section "About Uninstalling Unified CCMP".

Install SQL Server and Restore Database

Install and Configure SQL Server
On the Database Server:
1. Install SQL Server 2014 as described in section "Install SQL Server".
2. Configure the SQL Server network protocols as described in section "Configure SQL Server Network Protocols".
3. Configure the Windows Firewall for SQL Server as described in section "Configure Windows Firewall for SQL Server".

Restore the Portal Database
Restore the portal database from the backup you made earlier.

On the Database Server:
1. Launch SQL Server Management Studio.
2. Right-click the Databases folder and click Restore Database.
3. In the Restore Database window choose From Device, click Add and add the location of the database back up file you want to restore from. You may need to copy the backup file to a local file in order to access it. Click OK.
4. Select the check box next to the backup set you just added.

5. From the **To Database** drop-down list, select the **Portal** database as the restore destination.

6. Select **Options** and choose **Overwrite the existing database**. This will restore the database to the same location as the previous database. If you would like to choose a different location, update the **Restore As** path for each file to your preferred data file location.

7. Click **OK** to start the restore.

**Add Network Service Accounts**

You must add the NETWORK SERVICE account for all web servers to the database logins with appropriate access permissions. Before this can be done the existing accounts must be deleted from the Portal database logins.

**On the Database Server:**

1. Launch **SQL Server Management Studio** and in the Object Explorer, expand the **Portal** database. A list of folders is displayed.

2. Expand the **Portal > Security > Users** folder. A list of database logins is displayed.

3. For each occurrence of the NETWORK SERVICE account for a remote web server in the deployment, right-click it and select **Delete**.

   **Note**

   Do not delete the entry for the NETWORK SERVICE account for the local machine (NT AUTHORITY\NETWORK SERVICE).

   The NETWORK SERVICE logins for remote web server machines in the deployment are of the form `<DOMAIN>\<WEBSERVER MACHINE NAME>$`. For example, if your web server is called WEBSERVERA and belongs to the UCCMPDOM domain, the NETWORK SERVICE login would be UCCMP\WEBSERVERAS.

4. In the Object Explorer, expand the top-level **Security** folder. A list of folders is displayed.

5. Right-click the **Logins** folder and select **New Login**.

6. Ensure the **Windows authentication** option is selected and enter the NT AUTHORITY\NETWORK SERVICE account for the Side A web server in the form `<DOMAIN>\<WEBSERVER MACHINE NAME>$`.

7. In the Select a page pane on the left hand side, click **User Mapping**.

8. In the **Users mapped to this login** section, select the **Portal** database.

9. Ensure that the User column correctly contains the Network Service account for the web server.

10. In the **Database Role Membership** section, select the **portalapp** role, **portalrs** role and **portalreporting** role.
11. Click **OK**.
12. For deployments with multiple web servers, repeat step 5. to step 11. for each additional web server.

**Upgrade and Configure Unified CCMP Components**

The previous Unified CCMP components need to be uninstalled prior to the installation of upgraded components.

**Install the Database Components**

On the Database Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select **Database Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click **Install**. At this point, the Informix client is installed first if necessary. If you see the Informix client installation screen, click **Install**.
4. When the Informix client has been installed, the installation of the database components starts, and the **Setup** window displays.
5. Click **Next** to go through each window in turn. You will need to enter the following details:
6. In the **License Agreement** window:
   - **I accept the terms in the license agreement** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.
7. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you created during the installation of the Database Server component when you first installed Unified CCMP. If you continue installation with a new passphrase, you will be unable to access your existing data.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.

**Warning!**

You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

8. In the **Configure Database** window:
- **Database Name.** Enter the name of the database catalog for Unified CCMP. By default this is **Portal**.

- **Connect Using.** Select the login credentials you want to use:
  - **Windows Authentication Credentials of Application.** This is the recommended option.
  - **SQL Server Authentication using the login and password below.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter your SQL Server Login Name and Password in the fields provided.

- **Click Next.**

9. In the **Destination Folder** window, if you want to change the location where the database components are stored, click **Change** and select the new location. The Unified CCMP components need to be installed in the same directory location on each of the servers.

10. Click **Install** to install the database components. During this process, the J2SE prerequisite will be automatically installed if it is not already present. If this happens, follow the screen prompts to complete the J2SE installation. If you see a Security Alert dialog box during the installation, saying ‘Revocation Information for the security certificate for this site is not available’, click **Yes** to continue.

11. To install or upgrade your database immediately after installing the database components, select the **Launch Database Management Utility** check box at the end of the installation before clicking Finish.

12. Click **Finish**.

**Upgrade the Portal Database**

On the Database Server:

1. If you selected the Launch Database Management Utility check box when you installed the database components, the Database Installer starts automatically after the installation. Otherwise, launch Unified CCMP **Database Installer.** The Database Installer is a wizard which guides you through the steps to upgrade the database.

2. Click **Next** to begin the upgrade process.

3. In the Database Setup Window choose **Upgrade an Existing Database.** Click **Next** to continue.

4. In the SQL Server Connection Details window, take the following actions:
   - **Server Name.** Select the Microsoft SQL Server where the Unified CCMP database is located. In this case this is the machine running the application, and so it must be left as the default (local).
• **Database Name.** Enter or select the name of the database catalog that was originally used for the Unified CCMP database.

• **Connect Using.** Select the login credentials you want to use:
  - The *Windows account information you use to log in to your computer*. This is the recommended option.
  - The *Microsoft SQL Server login information assigned by the system administrator*. Only select this option if you are using a database catalog on a different domain. For this option you must enter your Login Name and Password in the fields provided.

• **Test Connection.** Click to make sure the connection to the Microsoft SQL Server is established. If you see the message ‘Connection succeeded but database does not exist’ then you must rectify this problem before continuing. Check that the database catalog name and security credentials are correct.

• When the database connection details have been tested and the connection is successful, click Next.

5. Click Next to perform the upgrade. The upgrade may take several minutes.

6. When the Portal database upgrade is complete, click Close to close the Database Installer.

**Install the App/Web Server**

On the App/Web Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").

2. Select App/Web Server, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.

3. When all checks have passed, click Install to begin the App/Web Server installation. The Management Portal: Application Server Components window displays.

4. Click Next to go through each window in turn.

5. If the Management Portal: Application Server Components dialog is displayed, click Install to install the additional required components.

6. If the Microsoft .NET 4.5 Framework prerequisite is missing, it will be installed at this point. Click Install to install the component and follow the on screen instructions. When the .NET 4.6 Framework is complete, restart the server to continue the installation of the App/Web Server.

7. In the License Agreement window:
   - I accept the terms in the license agreement. You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.
8. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you used for the installation of the Database Server component.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.
   - Click **Next** to continue.

   **Warning!**
   You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

9. In the **Destination Folder** window, you can click **Change** to change the location where the App/Web Server components are installed. Click **Next** to continue.

10. In the **Configure Database** window:
    - **SQL Server Name.** Enter the host name or IP Address of the server hosting the Unified CCMP database. The default name of **localhost** is only valid if you are installing this component on the Database Server. Otherwise, specify the name of the Database Server. For a dual-sided deployment enter the name of the Side A Database server when installing the Side A components and enter the name of the Side B Database Server when installing the Side B components.
    - **Catalog Name.** Enter or select the database catalog name you specified when installing the Database Server component. If you used the default value, this will be **Portal**.
    - **Connect Using.** Select the login credentials you want to use:
      - **Windows authentication.** This is the recommended option.
      - **SQL Server authentication.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter a SQL Server Login Name and Password in the fields provided.
    - Click **Next** to continue.

11. Click **Install**.

12. When the installation has completed, click **Finish.** When installation is complete, the machine will restart.
Reconfigure the Unified CCMP Servers

Note
This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If the Unified CCMP server names have changed, the Unified CCMP cluster configuration must be updated to reference the new server names.

To update the cluster configuration, on the Database Server:

1. Launch Integrated Configuration Environment (installed as part of Unified CCMP). In the Database Connection dialog box, set:
   - Server Name. Enter the name of the primary database server.
   - Database Name. Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be Portal.

2. Click OK. The ICE Cluster Configuration tool starts by default.

   Note
   If the Unified CCMP server names have changed, several errors may be reported when ICE starts for the first time after an upgrade. The steps in this section will fix the errors.

3. Select the Setup tab and click Setup UCCMP Servers to start the wizard. Click Next to go through each window in turn.

4. On the various Configure Servers pages, change the existing server name for each of the Unified CCMP servers to the new server name. The number of pages and servers to specify will depend on your deployment type. On each page, enter the following, then click Next:
   - Primary Server
     - Server Name. This is the non-domain qualified machine name.
     - Server Address. This defaults to Server Name. This can be changed to an IP Address or a domain qualified name of the server.
   - Secondary Server:
     - If you chose a dual-sided setup, provide the corresponding details for the Side B server.

5. Click Next and enter the relevant server information for each Unified CCMP server until you reach one of the following pages: Primary Database Administrator Login, Secondary Database Administrator Login or Configure Relational Database Connection.
6. Click **Next** to go through the remaining windows in turn, without changing anything.

7. When you see the confirmation message indicating that the wizard has completed successfully, click **Exit** to close the wizard.

8. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

9. In **ICE**, select the **Servers** tab. The list of servers will show both the old servers and the new servers. Right-click each of the old servers and select **Remove Server**.

10. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu. Exit **ICE**.

**Reconfigure the Unified CCE Servers**

**Note**

This step is only required if you have upgraded Unified CCE at the same time as upgrading Unified CCMP. This step is not required if you have not upgraded Unified CCE.

If you have upgraded Unified CCE at the same time upgrading Unified CCMP, the Unified CCMP cluster must be updated to ensure that Unified CCMP can communicate with Unified CCE. It may also be necessary to configure the Unified CCE Config Web Service, which wasn't present in some earlier versions of Unified CCE.

To reconfigure the Unified CCE servers after Unified CCE has been upgraded, on the Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name**: Enter the name of the primary database server.
   - **Database Name**: Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication**: Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. Select the **Setup** tab and click **Configure Cisco Unified CCE Servers** to start the wizard.

4. On the **Select Task** page, select **Modify an existing instance**. Select the Unified CCE instance that has been updated, and click **Next** to go through each page in turn.

5. If you see the **Configure Primary Unified Config Web Service** page, enter or confirm the following details:
   - **URL**: This is the auto-generated URL of the primary Unified Config Web Service on the Unified CCE.
6. If you see the **Configure Primary ConAPI RMI Ports** page, enter or confirm the following ConAPI details:
   - **Local Registry Port.** This is the port on the Unified CCE for the Unified CCMP Provisioning service to connect to. This will usually be 2099.
   - **Remote Registry Port.** This is the port on the Unified CCMP Database Server for the Unified CCE to connect to. This will usually be 2099.
   - **Local Port.** This is selected as the designated port for live provisioning traffic between the Unified CCE and unified CCMP servers. It must be uniquely assigned for each Unified CCE and any firewalls between the CICM and Unified CCMP server must be configured to allow both-way traffic on this port.

7. If you see the **Configure ConAPI Application Instance** page enter the following details:
   - **Application Name.** The name of the application to be used for provisioning Unified CCE from Unified CCMP. Specify the name of the application you configured in section "Set Up ConAPI".
   - **Application Key.** Use the password for the application you specified above.

8. On the **Multi Media Support** page, if you are using a Cisco Unified Web and E-Mail Interaction Manager application instance to provide support for non-voice interactions, select **Yes**. The default is No.

9. On the **Purge On Delete** page, if you want to purge items from Unified CCE automatically when they are deleted from Unified CCMP, select **Yes**. The default is Yes.

10. On the **Supervisor Active Directory Integration** page, if you want to enable support for associating existing Active Directory user accounts for Unified CCE Supervisors, select **Yes**. The default is No. If you select Yes, you will be prompted to provide Active Directory information so that Windows user accounts can be listed.

11. The Summary dialog box summarizes the details of the Unified CCE being configured and the settings you have chosen. Check the details, and if you are satisfied, click **Next**.

12. A confirmation message is displayed to indicate that the wizard has completed successfully. Click **Exit** to close the wizard.

13. For each remaining Unified CCE Server that has been upgraded, click **Configure Cisco Unified CCE Servers**, and repeat the steps above.

14. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.
Reconfigure Unified CCE to Use the New Servers

**Note**
This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If you have reinstalled Unified CCMP on new servers with different names, Unified CCE must be updated to reference the new Unified CCMP servers.

To do this, on each Unified CCE instance in your deployment:

1. **Launch CMS Control.** This opens the CMS control console.
2. **On the Application tab,** select the Unified CCMP database server and click **Edit.**
3. **In the Application connection details tab,** change the existing server name to the new server name. There are three places where this needs to be done:
   - **Administration & Data Server Link.** The name of the new Unified CCMP Database Server, in capital letters, with **Server** appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBServer**.
   - **Application link.** The name of the new Unified CCMP Database Server, in capital letters, with **Client** appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBClient**.
   - **Application host name.** The name of the new Unified CCMP Database Server, in capital letters, for example, **PRODUCTDB**.
4. **Click OK, then OK again** to save the changes and exit CMS Control.

**Post-Upgrade Actions**

After you have upgraded Unified CCMP, complete the following post-installation steps:

- configure HTTPS as described in section "Configure SSL"
- bind server ports to IPv6 addresses as described in section section "Bind Server Ports to IPv6 Addresses"
- configure anti-virus operations as described in section "Configure Antivirus Options"
- implement the performance tuning steps described in section "Performance Tuning Checklists"
- complete the final post-installation actions described in section "Final Post-Installation Actions"
Note
If your installation uses single sign-on, the configuration is restored when the database is restored, so you do not need to reconfigure single sign-on as described in section "Configure Windows Login"

Restart and Validate

Restart the Unified CCMP Services
Following an upgrade it is good practice to restart all Unified CCMP services.
Repeat the following steps on each upgraded Unified CCMP Database Server and each and upgraded Unified CCMP App/Web Server:

1. In the Run command dialog box, enter Services.msc and click OK.
2. For each Unified CCMP service listed:
   - if the selected service is in the Started state, right-click the service name and click Restart
   - if the selected service is not started, right-click the service name and click Start.

Note
After starting the System Monitoring Service and Application Service on the App/Web Server, you will need to wait a few minutes before logging in to allow the services to load completely.

Validate the Upgrade
Check that the system is functional following the upgrade using the validation tests in section "Validating an Upgrade".
Upgrading From a Previous Version

About the Upgrade Procedure

General Information
This chapter describes how to upgrade from Unified CCMP 9.9 or later. For information about upgrading from an earlier version, please contact your vendor support.

Before upgrading

Notes
Before proceeding with the upgrade, previous Unified CCMP components must be uninstalled.

This version of Unified CCMP requires Windows Server 2012 R2 and SQL Server 2014 SP2. Earlier versions of Unified CCMP used Windows Server 2008 and SQL Server 2008. Before upgrading from Unified CCMP 10.5(1) or earlier, the servers must be completely rebuilt. In-situ upgrades are not supported. You can either prepare new servers running Windows Server 2012, or you can rebuild your existing servers.

Upgrade Options
The upgrade procedure for Unified CCMP depends on your deployment model, and your requirements for the upgrade. For example, upgrading a single server system is simpler than upgrading a resilient two-tier system where down-time must be minimized. You should choose the method that best suits your system configuration and upgrade requirements.

This table lists the different upgrade procedures and the scenarios where they can be used.

<table>
<thead>
<tr>
<th>Upgrade Procedure</th>
<th>Upgrade Requirement</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Single-sided system</td>
</tr>
<tr>
<td>Single Sided Upgrade (see Chapter &quot;Single-Sided Upgrade&quot;)</td>
<td>✓</td>
</tr>
<tr>
<td>Total Outage Upgrade (see Chapter &quot;Total Outage Upgrade&quot;)</td>
<td>✓</td>
</tr>
<tr>
<td>Split Side Upgrade (see Chapter &quot;Split Sided Upgrade&quot;)</td>
<td>✓</td>
</tr>
</tbody>
</table>
More About Upgrading Dual-Sided Systems

Unified CCMP employs a distributed architecture for dual-sided systems. Resilience is achieved by the use of a second side of the system containing the same components as the primary side. SQL Server replication is used to replicate data from Side A to Side B and Side B to Side A.

Failover information for the individual Unified CCMP components is stored in the databases on Side A and B. This information is also replicated using SQL Server replication. This means that both sides have knowledge of the primary and secondary server configuration made through the Unified CCMP Integrated Configuration Management tool, even when replication has been removed.

Figure 8.1  Replication and Failover Connections

When a replicated system is upgraded one side at a time, it is possible for the individual components of Unified CCMP to fail-over to the other non-upgraded side. This will result in data inconsistencies as some data is entered to Side A and some to Side B with no replication running to synchronize the two sides.

There are two ways to upgrade dual-sided systems:

- If it is acceptable for the system to be completely unavailable whilst the upgrade is performed, then use the Total Outage Upgrade method. This is the quicker upgrade method.
- If high-availability is required, then use the Split-Sided Upgrade method. This method maximizes the system up time during the upgrade but adds additional complexity.
Identity Server

The Identity Server is now a required component. You will have to follow the installation steps of Identity Server from the Product Installation section of this guide. The Identity server should be installed after installing the Web/App component. For rest of the components you can refer to the upgrade section as usual.

Once the Upgrade has finished

After the database has been upgraded, the Setup UCCMP Servers Wizard must be run to set the FQDN to access the web site.

User Migration Tool

You can access the User Migration Tool from the Unified CCMP CD Drive, by opening the SSO folder, and then the MigrateUsers folder.

The User Migration Tool can be run post upgrade on the application server. It converts old users settings by updating ISE users to local users. Their username must match the unique principal name of the Active Directory user, for example "user@domain.local". The password must be set and marked as "must change at next login". The user must set the password to be the same as the Active Directory password on login. Any other users that are using SSO need to have their login name set to "DOMAIN\user".

On running the tool, there are the following options:

- **SSO**: Whether the system was in SSO mode before upgrade.
- **Authentication Types**: The type of authentication you want the tool to look for. The tool will look for ISE users by default. Set to True to look for all authentication types.
- **ActiveDirectoryPath**: The Active Directory path. If left empty, the tool will attempt to bind to the global catalog of the domain the application server is connected to with default settings.
- **UserPassword**: The password you want to set local users to use, mark as "must change at next login".
- **HashingAlgorithm**: The hashing algorithm that the system uses to hash passwords. Set to "SHA256Salt = 6" by default.
- **DeleteUsersThatFailToMigrate**: Select to delete local users that have a "NULL" password or Active Directory users with the wrong name format. Default is set to false. All deleted users can be restored if necessary.

Once the tool has been run, a log file is generated. The log file displays the User IDs of all the users that have been updated, and for all that have failed.

The tool can be run as many times as necessary.
Validating an Upgrade

After you have upgraded your installation of Unified CCMP, check that the system is functional following the upgrade with the following tests.

<table>
<thead>
<tr>
<th>Check</th>
<th>Success Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unified CCE Provisioning Tests</strong></td>
<td></td>
</tr>
<tr>
<td>Log in to the web application on Side A and create a new Skill Group</td>
<td>The Skill Group should be successfully created, and</td>
</tr>
<tr>
<td>This tests provisioning from the Side A App/Web Server. Run this</td>
<td>visible on Side A, and, if applicable, Side B.</td>
</tr>
<tr>
<td>test against each configured Unified CCE instance.</td>
<td></td>
</tr>
<tr>
<td>Log in to the web application on Side A and create a new Agent</td>
<td>The Agent should be successfully created and visible</td>
</tr>
<tr>
<td>This tests provisioning from the Side A App/Web Server. Run this</td>
<td>on Side A, and, if applicable, Side B.</td>
</tr>
<tr>
<td>test against each configured Unified CCE instance.</td>
<td></td>
</tr>
<tr>
<td>Create a new Skill Group on the AW using the Cisco Skill Group</td>
<td>The Skill Group should be visible on Side A, and, if</td>
</tr>
<tr>
<td>Explorer tool. Wait a few minutes and check that the Skill Group</td>
<td>applicable, on Side B.</td>
</tr>
<tr>
<td>has been imported into Unified CCMP.</td>
<td></td>
</tr>
<tr>
<td><strong>CUCM Provisioning Tests</strong></td>
<td></td>
</tr>
<tr>
<td>Log in to the web application on Side A and create a new IP Phone.</td>
<td>The IP Phone should be successfully created, and be</td>
</tr>
<tr>
<td>This tests Unified Communications Manager provisioning from the Side A</td>
<td>visible on Side A, and, if applicable, on Side B.</td>
</tr>
<tr>
<td>App/Web Server.</td>
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</tr>
<tr>
<td>Create a new Skill Group on the AW using the Cisco Skill Group</td>
<td>The Skill Group should be visible on Side A and Side B.</td>
</tr>
<tr>
<td>Explorer tool. Wait a few minutes and check that the Skill Group</td>
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<tr>
<td>has been imported into Unified CCMP.</td>
<td></td>
</tr>
<tr>
<td>Log in to the web application on Side B and create a new Skill Group</td>
<td>The IP Phone should be visible on Side A and Side B.</td>
</tr>
<tr>
<td>This tests Unified Communications Manager provisioning from the Side B</td>
<td></td>
</tr>
<tr>
<td>App/Web Server.</td>
<td></td>
</tr>
</tbody>
</table>

**Replication Tests (dual-sided installations only)**

Log in to the web application on Side B and create a new Skill Group. This tests Unified CCE provisioning from the Side B App/Web Server. Run this test against each configured Unified CCE instance. The Skill Group should be visible on Side A and Side B.

Create a new Skill Group on the AW using the Cisco Skill Group Explorer tool. Wait a few minutes and check that the Skill Group has been imported into Unified CCMP. The Skill Group should be visible on Side A and Side B.

Log in to the web application on Side B and create a new IP Phone. This tests Unified Communications Manager provisioning from the Side B App/Web Server. The IP Phone should be visible on Side A and Side B.
Total Outage Upgrade

About a Total Outage Upgrade

This chapter describes the steps involved to upgrade a dual-sided deployment, where all servers will be taken down and upgraded at once. The description assumes that you have a two tier deployment (separate database and app/web servers) although you can still use these instructions if you have an all-in-one installation.

Warning!
Ensure that you have up-to-date backups of all Unified CCMP databases before you begin the upgrade. Instructions for doing this are included here.

Note
Before starting the upgrade please ensure you have the original cryptographic passphrase from the original Unified CCMP installation as you will need it during the upgrade.

Checklist for Total Outage Upgrades

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<td>Step</td>
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<tr>
<td>Restart the Unified CCMP services</td>
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</tr>
<tr>
<td>Validate the upgrade</td>
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</tr>
</tbody>
</table>

**Prepare to Upgrade**

**Stop the Unified CCMP Services**

Before starting the upgrade, you must stop all Unified CCMP services on all servers.

**Stop the Unified CCMP Database Server Services**

On the Side A Database Server:
1. In `services.msc`, stop the **UCCMP: Data Import Server** service.
2. Repeat this step for the UCCMP: **Partitioning Table Manager** service.
3. Repeat this step for the UCCMP: **Provisioning Server** service.

Repeat these steps on the Side B Database Server.
Stop the Unified CCMP App/Web Server Services
On the Side A App/Web Server:
1. In services.msc, stop the UCCMP: System Monitoring Services service.
2. If you see a prompt saying that all other services will stop, and asking you if you want to continue, select Yes.
3. If there are any other running Unified CCMP services, stop them too.
Repeat these steps on the Side B App/Web Server.

Remove Database Replication
Before you can upgrade a dual-sided system, database replication must be removed.
To remove database replication:
1. Ensure you are logged in to the Side A Database Server as a domain level user with administrative rights over both Database Servers.
2. Launch Integrated Configuration Environment (installed as part of Unified CCMP). In the Database Connection dialog box, set:
   - Server Name. Enter the name of the primary database server.
   - Database Name. Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be Portal.
3. Click OK. The ICE Cluster Configuration tool starts by default.
4. From the Tool drop-down list select Replication Manager.
5. Click the Setup tab to see the replication setup details.
6. Click Disable to remove replication from the Unified CCMP database. When prompted, click Yes to proceed with replication removal.
7. Replication removal may take several minutes. Wait for the ‘Replication Removed’ message to display in the Output Window and then exit ICE.

Back up the Portal Database
Back up the Portal database and copy the backup to a safe location where it can be accessed once the latest version of Unified CCMP has been installed on the new servers.
To back up the Portal database, on the Side A Database Server:
1. Launch SQL Server Management Studio.
2. Navigate to the Portal database.
3. Right-click **Portal** and select **Tasks > Backup**. Save the *.bak* file to a suitable location.


Repeat these steps on the Side B Database Server.

**Configure New Windows Servers**

On the new Side A and Side B servers running Windows Server 2012 R2, apply the Windows post-installation configuration in section "Windows Configuration".

**Create User Accounts**

Create the SQL Agent User account as described in section "User Accounts"

**Apply Optional Security Configuration**

On the new Side A and Side B servers running Windows Server 2012 R2, apply the security settings described in section "Optional Security Configuration"

**Uninstall Unified CCMP Components**

Uninstall Unified CCMP Components as described in section "About Uninstalling Unified CCMP".

---

**Install SQL Server and Restore the Database**

**Install and Configure SQL Server**

On the Side A Database Server:

1. Install SQL Server 2014 as described in section "Install SQL Server".

2. Configure the SQL Server network protocols as described in section "Configure SQL Server Network Protocols".

3. Configure the Windows Firewall for SQL Server as described in section "Configure Windows Firewall for SQL Server".

Repeat these steps on the Side B Database Server.

**Restore the Portal Database**

Restore the Side A portal database from the Side A backup you made earlier.

On the Side A Database Server:

1. Launch **SQL Server Management Studio**.

2. Right-click the **Databases** folder and click **Restore Database**.
3. In the Restore Database window choose From Device, click Add and add the location of the database back up file you want to restore from. You may need to copy the backup file to a local file in order to access it. Click OK.

4. Select the check box next to the backup set you just added.

5. From the To Database drop-down list, select the Portal database as the restore destination.

6. Select Options and choose Overwrite the existing database. This will restore the database to the same location as the previous database. If you would like to choose a different location, update the Restore As path for each file to your preferred data file location.

7. Click OK to start the restore.

Repeat the process on the Side B Database Server to restore the Side B portal database backup to the Side B Database Server.

**Configure the SQL Agent User**

For a dual-sided system, the SQL Agent User must be reconfigured.

On the Side A Database Server:

1. Launch SQL Server Management Studio and expand the Security folder. A list of subfolders is displayed.

2. Right-click the Logins folder and select New Login.

3. Ensure the Windows authentication option is selected and enter the SQL Agent User domain and login name in the form `<DOMAIN>\<LOGIN>`. This should be the user name that you specified for the SQL agent user account when you originally installed the portal database. For example, if your user is called `sql_agent_user` and belongs to the CISCO domain, enter `CISCO\sql_agent_user`.

4. In the Select a page pane on the left hand side, click User Mapping.

5. In the Users mapped to this login section, select the Portal database. The User column will auto-populate with the domain user name for the SQL Agent User.

6. In the Database Role Membership section, select the db_owner role.

7. Click OK to apply the changes.

Repeat these steps on the Side B Database Server.

**Add Network Service Accounts**

You must add the NETWORK SERVICE account for all web servers to the database logins with appropriate access permissions. Before this can be done the existing accounts must be deleted from the Portal database logins.

On the Side A Database Server:
1. Launch **SQL Server Management Studio** and in the Object Explorer, expand the **Portal** database. A list of folders is displayed.

2. Expand the **Portal > Security > Users** folder. A list of database logins is displayed.

3. For each occurrence of the **NETWORK SERVICE** account for a remote web server in the deployment, right-click it and select **Delete**.

   **Note**
   Do not delete the entry for the NETWORK SERVICE account for the local machine (NT AUTHORITY\NETWORK SERVICE).

   The NETWORK SERVICE logins for remote web server machines in the deployment are of the form `<DOMAIN>\<WEBSERVER MACHINE NAME>$`. For example, if your web server is called WEBSERVERA and belongs to the UCCMPDOM domain, the NETWORK SERVICE login would be **UCCMP\WEBSERVERAS**.

4. In the Object Explorer, expand the top-level **Security** folder. A list of folders is displayed.

5. Right-click the **Logins** folder and select **New Login**.

6. Ensure the **Windows authentication** option is selected and enter the NT AUTHORITY\NETWORK SERVICE account for the Side A web server in the form `<DOMAIN>\<WEBSERVER MACHINE NAME>$`.

7. In the **Select a page** pane on the left hand side, click **User Mapping**.

8. In the **Users mapped to this login** section, select the **Portal** database.

9. Ensure that the User column correctly contains the Network Service account for the web server.

10. In the **Database Role Membership** section, select the portalapp role, portalrs role and portalreporting role.

11. Click **OK**.

12. For deployments with multiple web servers, repeat step 5. to step 11. for each additional web server.

Repeat these steps on the Side B Database Server.

**Configure Replication Share**

For a dual-sided system, the replication share folder must be reconfigured.

On the Side B Database Server:

1. In the SQL Server installation folder, locate the replication folder. Typically this is located at C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\repldata.
2. Create a share for this folder, giving the **Everyone** group full control to the share, as follows:
   a. Right-click on the replication folder and select **Share With > Advanced sharing**.
   b. On the **Sharing** tab, click **Advanced Sharing**.
   c. Select **Share this folder** and specify the share name as the name that was used for the replication folder when you originally installed the portal database. The default name is **ReplData**.
   d. Click **Permissions**, select the group **Everyone**, and allow all permissions.
3. Click **OK** to apply the changes.

---

### Upgrade and Configure Unified CCMP Components

#### Install the Database Components

On the Side A Database Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select **Database Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click **Install**. At this point, the Informix client is installed first if necessary. If you see the Informix client installation screen, click **Install**.
4. When the Informix client has been installed, the installation of the database components starts, and the **Setup** window displays.
5. Click **Next** to go through each window in turn. You will need to enter the following details:
6. In the **License Agreement** window:
   - **I accept the terms in the license agreement** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.
7. In the **Cryptography Configuration** window:
   - **Passphrase**. Enter the cryptographic passphrase you created during the installation of the Database Server component when you first installed Unified CCMP. If you continue installation with a new passphrase, you will be unable to access your existing data.
- **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.

**Warning!**
You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

8. In the **Configure Database** window:
   - **Database Name.** Enter the name of the database catalog for Unified CCMP. By default this is **Portal**.
   - **Connect Using.** Select the login credentials you want to use:
     - **Windows Authentication Credentials of Application.** This is the recommended option.
     - **SQL Server Authentication using the login and password below.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter your SQL Server Login Name and Password in the fields provided.
   - Click **Next**.

9. In the **Destination Folder** window, if you want to change the location where the database components are stored, click **Change** and select the new location. The Unified CCMP components need to be installed in the same directory location on each of the servers.

10. Click **Install** to install the database components. During this process, the J2SE prerequisite will be automatically installed if it is not already present. If this happens, follow the screen prompts to complete the J2SE installation. If you see a Security Alert dialog box during the installation, saying 'Revocation Information for the security certificate for this site is not available', click **Yes** to continue.

11. To install or upgrade your database immediately after installing the database components, select the **Launch Database Management Utility** check box at the end of the installation before clicking **Finish**.

12. Click **Finish**.

### Upgrade the Portal Database

On the Side A Database Server:

1. If you selected the Launch Database Management Utility check box when you installed the database components, the Database Installer starts automatically after the installation. Otherwise, launch Unified CCMP **Database Installer**. The Database Installer is a wizard which guides you through the steps to upgrade the database.
2. Click Next to begin the upgrade process.
3. In the Database Setup Window choose **Upgrade an Existing Database**. Click Next to continue.
4. In the SQL Server Connection Details window, take the following actions:
   - **Server Name.** Select the Microsoft SQL Server where the Unified CCMP database is located. In this case this is the machine running the application, and so it must be left as the default (local).
   - **Database Name.** Enter or select the name of the database catalog that was originally used for the Unified CCMP database.
   - **Connect Using.** Select the login credentials you want to use:
     - The *Windows account information you use to log in to your computer*. This is the recommended option.
     - The *Microsoft SQL Server login information assigned by the system administrator*. Only select this option if you are using a database catalog on a different domain. For this option you must enter your Login Name and Password in the fields provided.
   - **Test Connection.** Click to make sure the connection to the Microsoft SQL Server is established. If you see the message ‘Connection succeeded but database does not exist’ then you must rectify this problem before continuing. Check that the database catalog name and security credentials are correct.
   - When the database connection details have been tested and the connection is successful, click Next.
5. Click **Next** to perform the upgrade. The upgrade may take several minutes.
6. When the Portal database upgrade is complete, click **Close** to close the Database Installer.

**Install Database Components and Upgrade Portal Database (Side B)**

On the Side B Database Server:

1. Install the database components as described in section "Install the Database Components".
2. Upgrade the Portal database as described in section "Upgrade the Portal Database".

**Install the App/Web Server**

On the Side A App/Web Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select **App/Web Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click **Install** to begin the App/Web Server installation. The **Management Portal: Application Server Components** window displays.

4. Click **Next** to go through each window in turn.

5. If the **Management Portal: Application Server Components** dialog is displayed, click **Install** to install the additional required components.

6. If the Microsoft .NET 4.5 Framework prerequisite is missing, it will be installed at this point. Click **Install** to install the component and follow the on screen instructions. When the .NET 4.6 Framework is complete, restart the server to continue the installation of the App/Web Server.

7. In the **License Agreement** window:
   - **I accept the terms in the license agreement**. You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.

8. In the **Cryptography Configuration** window:
   - **Passphrase**. Enter the cryptographic passphrase you used for the installation of the Database Server component.
   - **Confirm Passphrase**. You will not be able to continue until the contents of this field are identical to the passphrase entered above.
   - Click **Next** to continue.

   **Warning!**
   You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

9. In the **Destination Folder** window, you can click **Change** to change the location where the App/Web Server components are installed. Click **Next** to continue.

10. In the **Configure Database** window:
    - **SQL Server Name**. Enter the host name or IP Address of the server hosting the Unified CCMP database. The default name of **localhost** is only valid if you are installing this component on the Database Server. Otherwise, specify the name of the Database Server. For a dual-sided deployment enter the name of the Side A Database server when installing the Side A components and enter the name of the Side B Database Server when installing the Side B components.
    - **Catalog Name**. Enter or select the database catalog name you specified when installing the Database Server component. If you used the default value, this will be **Portal**.
    - **Connect Using**. Select the login credentials you want to use:
- **Windows authentication.** This is the recommended option.
- **SQL Server authentication.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter a SQL Server Login Name and Password in the fields provided.

- Click Next to continue.

11. Click **Install**.
12. When the installation has completed, click **Finish**. When installation is complete, the machine will restart.

Repeat these steps on the Side B App/Web Server.

**Reconfigure the Unified CCMP Servers**

**Note**
This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If the Unified CCMP server names have changed, the Unified CCMP cluster configuration must be updated to reference the new server names.

This only needs to be done on the Side A Database Server. The Side B servers will be updated when replication is reinstated. To update the cluster configuration, on the Side A Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the Database Connection dialog box, set:
   - **Server Name.** Enter the name of the primary database server.
   - **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication.** Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

**Note**
If the Unified CCMP server names have changed, several errors may be reported when ICE starts for the first time after an upgrade. The steps in this section will fix the errors.

3. Select the **Setup** tab and click **Setup UCCMP Servers** to start the wizard. Click **Next** to go through each window in turn.
4. On the various **Configure Servers** pages, change the existing server name for each of the Unified CCMP servers to the new server name. The number of pages and servers to specify will depend on your deployment type. On each page, enter the following, then click **Next**:

- **Primary Server**
  - **Server Name.** This is the non-domain qualified machine name.
  - **Server Address.** This defaults to Server Name. This can be changed to an IP Address or a domain qualified name of the server.

- **Secondary Server**:
  - If you chose a dual-sided setup, provide the corresponding details for the Side B server.

5. Click **Next** and enter the relevant server information for each Unified CCMP server until you reach one of the following pages: **Primary Database Administrator Login**, **Secondary Database Administrator Login** or **Configure Relational Database Connection**.

6. Click **Next** to go through the remaining windows in turn, without changing anything.

7. When you see the confirmation message indicating that the wizard has completed successfully, click **Exit** to close the wizard.

8. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

9. In **ICE**, select the **Servers** tab. The list of servers will show both the old servers and the new servers. Right-click each of the old servers and select **Remove Server**.

10. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu. Exit **ICE**.

These steps do not need to be repeated on the Side B Database Server as the necessary changes will be applied when replication is reinstated.

**Reconfigure the Unified CCE Servers**

**Note**
This step is only required if you have upgraded Unified CCE at the same time as upgrading Unified CCMP. This step is not required if you have not upgraded Unified CCE.

If you have upgraded Unified CCE at the same time upgrading Unified CCMP, the Unified CCMP cluster must be updated to ensure that Unified CCMP can communicate with Unified CCE. It may also be necessary to configure the Unified CCE Config Web Service, which wasn't present in some earlier versions of Unified CCE.

This only needs to be done on Side A. Side B will be updated when replication is reinstated. To reconfigure the Unified CCE servers after Unified CCE has been upgraded, on the Side A Database Server:
1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name**. Enter the name of the primary database server.
   - **Database Name**. Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. Select the **Setup** tab and click **Configure Cisco Unified CCE Servers** to start the wizard.

4. On the **Select Task** page, select **Modify an existing instance**. Select the Unified CCE instance that has been updated, and click **Next** to go through each page in turn.

5. If you see the **Configure Primary Unified Config Web Service** page, enter or confirm the following details:
   - **URL**. This is the auto-generated URL of the primary Unified Config Web Service on the Unified CCE.
   - **User Name**. This is a user name with appropriate access to the Unified CCE that the web service is running on. This user must be in the domain security group <Server>_ <UCCE-Instance>_Config, where <Server> is the name of the server running Unified CCE and <UCCE-Instance> is the name of the Unified CCE Instance on this server.
   - **Password**. This is the password for the user.

6. If you see the **Configure Primary ConAPI RMI Ports** page, enter or confirm the following ConAPI details:
   - **Local Registry Port**. This is the port on the Unified CCE for the Unified CCMP Provisioning service to connect to. This will usually be 2099.
   - **Remote Registry Port**. This is the port on the Unified CCMP Database Server for the Unified CCE to connect to. This will usually be 2099.
   - **Local Port**. This is selected as the designated port for live provisioning traffic between the Unified CCE and Unified CCMP servers. It must be uniquely assigned for each Unified CCE and any firewalls between the CICM and Unified CCMP server must be configured to allow both-way traffic on this port.

7. If you see the **Configure ConAPI Application Instance** page enter the following details:
   - **Application Name**. The name of the application to be used for provisioning Unified CCE from Unified CCMP. Specify the name of the application you configured in section "Set Up ConAPI".
   - **Application Key**. Use the password for the application you specified above.
8. On the Multi Media Support page, if you are using a Cisco Unified Web and E-Mail Interaction Manager application instance to provide support for non-voice interactions, select Yes. The default is No.

9. On the Purge On Delete page, if you want to purge items from Unified CCE automatically when they are deleted from Unified CCMP, select Yes. The default is Yes.

10. On the Supervisor Active Directory Integration page, if you want to enable support for associating existing Active Directory user accounts for Unified CCE Supervisors, select Yes. The default is No. If you select Yes, you will be prompted to provide Active Directory information so that Windows user accounts can be listed.

11. The Summary dialog box summarizes the details of the Unified CCE being configured and the settings you have chosen. Check the details, and if you are satisfied, click Next.

12. A confirmation message is displayed to indicate that the wizard has completed successfully. Click Exit to close the wizard.

13. For each remaining Unified CCE Server that has been upgraded, click Configure Cisco Unified CCE Servers, and repeat the steps above.

14. To save and action your changes, either click the Save icon in the tool bar or select File > Save from the menu.

These steps do not need to be repeated on the Side B Database Server as the necessary changes will be applied when replication is reinstated.

Reconfigure Unified CCE to Use the New Servers

Note
This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If you have reinstalled Unified CCMP on new servers with different names, Unified CCE must be updated to reference the new Unified CCMP servers.

To do this, on each Unified CCE instance in your Side A deployment:

1. Launch CMS Control. This opens the CMS control console.

2. On the Application tab, select the Unified CCMP database server and click Edit.

3. In the Application connection details tab, change the existing server name to the new server name. There are three places where this needs to be done:

   - Administration & Data Server Link. The name of the new Unified CCMP Database Server, in capital letters, with Server appended. For example, if your Database Server is PRODUCTDB, enter PRODUCTDBServer.
• **Application link.** The name of the new Unified CCMP Database Server, in capital letters, with Client appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBClient**.

• **Application host name.** The name of the new Unified CCMP Database Server, in capital letters, for example, **PRODUCTDB**.

4. **Click OK**, then **OK** again to save the changes and exit CMS Control.

Repeat these steps on each Unified CCE instance in your Side B deployment.

---

**Restore Replication**

**Configure Replication**

Replication between the databases is set up and monitored using the Replication Manager application which is available in the Unified CCMP Integrated Configuration Environment (ICE) tool.

**Note**

The user running Replication Manager must have administrator permissions in both Windows and SQL Server, for both the publisher and the subscriber Database Servers.

Usually, the publisher will be the Side A Database Server, but occasionally, it may be necessary to configure the Side B Database Server as the publisher.

To configure replication, on the publisher Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:

   • **Server Name.** Enter the name of the primary database server.

   • **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.

   • **Authentication.** Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. From the Tool drop-down list, select **Replication Manager**. The Replication Manager opens in the Setup tab. The Setup tab has the following sections:

   • **Unified CCMP Database Server Properties** contains the publisher and subscriber Unified CCMP database details.

   • **Distributor Properties** contains the SQL Server Replication distributor properties.
The default values shown in the Setup tab are derived from the values initially configured in the Cluster Configuration tool and will be suitable in most cases.

4. If required, modify the Unified CCMP Database Server Properties.
   - **Server Name** (publisher and subscriber). This is the value specified in ICE Cluster Configuration and cannot be changed in Replication Manager.
   - **Catalog Name** (publisher and subscriber). This is the value specified in ICE Cluster Configuration. It may be changed, but if so, a valid database with the new name must already exist on the corresponding server.

5. The Identity Server should be replicated by default. To replicate the Identity Server Database, click the **Identity Database Replication Enabled** checkbox.

6. If required, modify the distributor properties.
   - **Server Name**. The name of the subscriber server hosting the Unified CCMP database. This is the value specified in ICE Cluster Configuration and cannot be changed in Replication Manager.
   - **Catalog Name**. The name to be assigned to the distribution database. The recommended value is `distribution_portal`.
   - **Data Folder**. The folder path on the distributor server where the data file for the distribution database will be created.

   **Note**
   If you are setting up replication after performing an upgrade, be particularly careful with the Data Folder path, as it may be different from the value used in previous versions of Unified CCMP. Make sure you use the path that was specified when the database was set up.

   - **Log Folder**. The folder path on the distributor server where the transaction log file for the distribution database will be created.
   - **Distribution Share**. The distribution share folder where replication snapshot files will be generated.
   - **Override Distributor Admin Password**. Select to override the auto-generated replication password which will be used to establish connectivity. The auto-generated password is 14 characters long, and will contain alpha-numeric characters (both upper and lower case) and a special character. If this does not meet the complexity requirements of the server then select this option and specify a password of your choice.

7. When you have set the required replication properties, click **Configure** to configure replication.
8. You may be prompted to save pending changes to the database before continuing. If so, click **Yes** to save pending changes and continue.

9. It may take several minutes to configure replication. Once replication has been configured, the Replication Manager automatically switches to the Monitor tab, which enables you to monitor the progress of the replication snapshot.

**Monitor the Replication Snapshot**

**Note**
The subscriber Database Server is not available for use until the replication snapshot has completed and all the data has been copied from the publisher to the subscriber.

The time taken for the replication snapshot to complete depends on the volume of data in the publisher database and the bandwidth between the servers. For a large database, this may take several hours.

To monitor the progress of the replication snapshot:

1. In the ICE Replication Manager, select the **Monitor** tab. The Monitor tab has the following panes:
   - **Publications** (top left) lists the publisher servers and the publications on each publisher that need to be shared with the subscribers.
   - **Subscriptions and Agents** (top right) shows the subscriptions to a publication and the replication agents associated with a publication. This pane has two tabs, Subscriptions and Agents.
   - **Subscriptions** shows the subscriptions to the selected publication. You can right-click on a subscription to start or stop the subscription.
   - **Agents** shows the replication agents associated with the selected publication. You can right-click on a replication agent to start or stop the agent.
   - **Sessions** (bottom left) shows all sessions for the selected publication and replication agent in the last 24 hours.
   - **Actions** (bottom right) shows the activity for the selected session.

2. In the top left hand pane, select the first Unified CCMP database publication from the list of publications. If you have used the default database name, this will start with **[Portal]**.

3. Wait for the replication snapshot for this publication to complete.

   To check the replication status for a Unified CCMP database publication, in the bottom right hand pane of the Monitor tab, inspect the messages in the Action Message list. Once the replication snapshot is complete and replication is operational for a publication, you will see the following two messages:

   “Delivered snapshot from . . .”
“No replicated transactions are available”.
After this, the second message is replaced with messages showing new replicated transactions as they are sent through the system, for example:

“4 transaction(s) with 14 command(s) were delivered”.

4. Repeat the two steps above for each of the remaining Unified CCMP database publications.
5. When replication is complete for all portal database publications, close the ICE tool.

The subscriber database can now be used to service requests. For more information about the Replication Manager see the Integrated Configuration Environment (ICE) for Cisco Unified Contact Center Management Portal.

---

### Post-Upgrade Actions

After you have upgraded Unified CCMP, complete the following post-installation steps:

- configure HTTPS as described in section "Configure SSL"
- bind server ports to IPv6 addresses as described in section section "Bind Server Ports to IPv6 Addresses"
- configure anti-virus operations as described in section "Configure Antivirus Options"
- implement the performance tuning steps described in section "Performance Tuning Checklists"
- complete the final post-installation actions described in section "Final Post-Installation Actions"

Note

If your installation uses single sign-on, the configuration is restored when the database is restored, so you do not need to reconfigure single sign-on as described in section "Configure Windows Login"

---

### Restart and Validate

**Restart the Unified CCMP Services**

Following an upgrade it is good practice to restart all Unified CCMP services.

Repeat the following steps on each upgraded Unified CCMP Database Server and each and upgraded Unified CCMP App/Web Server:

1. In the Run command dialog box, enter Services.msc and click OK.
2. For each Unified CCMP service listed:
   - if the selected service is in the Started state, right-click the service name and click **Restart**
   - if the selected service is not started, right-click the service name and click **Start**.

**Note**
After starting the System Monitoring Service and Application Service on the App/Web Server, you will need to wait a few minutes before logging in to allow the services to load completely.

**Validate the Upgrade**
Check that the system is functional following the upgrade using the validation tests in section "Validating an Upgrade".
Split Sided Upgrade

About a Split Sided Upgrade

This chapter describes the steps involved to upgrade a dual-sided deployment, where the system is split, and one side is upgraded at a time. Until the second side is upgraded, you will be running two different versions of Unified CCMP side by side.

This upgrade process temporarily breaks the replication and communication channels between the two sides of the system so each side can operate independently as a single-sided system. When replication is restored, the configuration from Side A of the system will replace all configuration on Side B of the system.

Note
Use this mode of operation with caution. Unified CCE and Unified Communications Manager changes committed to Side B will be imported from the AW onto Side A, but any Unified CCMP specific configuration items (for example folders, users, security etc.) that are added, changed or deleted on Side B after the system was split will not be reflected on Side A, even after side B is upgraded and replication is restored.

This process has two parts.

- **Part 1** - split the dual-sided system and upgrade Side A (see section "Checklist for Split Side Upgrades (Side A)").
- **Part 2** - upgrade Side B and restore replication (see section "Checklist for Split Side Upgrades (Side B)").

There are two options for restoring the Side B database. They are:

- **Option 1.** Restore the Side B database from the Side B backup taken before the upgrade, then upgrade the restored database. This is the recommended method if the system has been running in single-sided mode for less than 24 hours.
- **Option 2.** Restore the Side B database from the upgraded Side A database. In this case, you will not need to upgrade the database after you have restored it. This is the recommended method if the system has been running in single-sided mode for more than 24 hours.

The description assumes that you have a two tier deployment (separate database and app/web servers) although you can still use these instructions if you have an all-in-one installation.

**Warning!**
Ensure that you have up-to-date backups of all Unified CCMP databases before you begin the upgrade. Instructions for doing this are included here.
**Note**
Before starting the upgrade please ensure you have the original cryptographic passphrase from the original Unified CCMP installation as you will need it during the upgrade.

---

**Checklist for Split Side Upgrades (Side A)**

The first part of the split side upgrade splits the dual-sided system and upgrades Side A.

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<td></td>
</tr>
<tr>
<td>Validate the upgrade</td>
<td></td>
</tr>
</tbody>
</table>

## Prepare to Upgrade (Side A)

### Stop the Unified CCMP Services

Before starting the upgrade, you must stop all Unified CCMP services on all servers.

**Stop the Unified CCMP Database Server Services**

On the Side A Database Server:

1. In `services.msc`, stop the UCCMP: **Data Import Server** service.
2. Repeat this step for the UCCMP: **Partitioning Table Manager** service.
3. Repeat this step for the UCCMP: **Provisioning Server** service.

**Stop the Unified CCMP App/Web Server Services**

On the Side A App/Web Server:

1. In `services.msc`, stop the UCCMP: **System Monitoring Services** service.
2. If you see a prompt saying that all other services will stop, and asking you if you want to continue, select **Yes**.
3. If there are any other running Unified CCMP services, stop them too.

### Force Failover Connections to the Active Side

To operate the two sides as independent systems, add host file entries to point failover connections to the current active side. This reduces the possibility that a failover will occur to the database on the other side when replication is down.

Since the failover information is held in the database, both sides know about the other side, even though they are currently not replicated or running the same version of Unified CCMP. If a failover occurs then data integrity will be lost. To avoid this, when operating in single-sided mode add the failover connections to the hosts file on each machine to point back to the active side.
For example, in the deployment shown in Figure 10.1 "Host File Entries For Failover in Single-sided Mode", the host file entries are:

**DBA**

127.0.0.1  

**DBB**

127.0.0.1  

**WEBBA**

<IP ADDRESS OF DBA>  
127.0.0.1  

**WEBBB**

<IP ADDRESS OF DBB>  
127.0.0.1  

Figure 10.1  **Host File Entries For Failover in Single-sided Mode**

These entries must be removed once the upgrade is complete and replication between Side A and Side B is restored.

**Update Side B to Enable Provisioning and Import (Optional)**

If the sides of the system are to be run independently for some time, you may need to enable provisioning and import to run on both Side A and Side B at the same time.
To do this, follow the “Manual Provisioning/Import Failover” steps described in the *Administration Guide for Cisco Unified Contact Center Management Portal* for the version of Unified CCMP that is currently running on the Side B Database Server.

**Remove Database Replication**

Before you can upgrade a dual-sided system, database replication must be removed.

To remove database replication:

1. Ensure you are logged in to the Side A Database Server as a domain level user with administrative rights over both Database Servers.
2. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name**: Enter the name of the primary database server.
   - **Database Name**: Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication**: Select Windows Authentication.
3. Click **OK**. The ICE Cluster Configuration tool starts by default.
4. From the Tool drop-down list select **Replication Manager**.
5. Click the **Setup** tab to see the replication setup details.
6. Click **Disable** to remove replication from the Unified CCMP database. When prompted, click **Yes** to proceed with replication removal.
7. Replication removal may take several minutes. Wait for the ‘Replication Removed’ message to display in the Output Window and then exit ICE.

**Back up the Portal Database**

Back up the Portal database and copy the backup to a safe location where it can be accessed once the latest version of Unified CCMP has been installed on the new servers.

To back up the Portal database, on the Side A Database Server:

1. Launch **SQL Server Management Studio**.
2. Navigate to the Portal database.
3. Right-click **Portal** and select **Tasks** > **Backup**. Save the .bak file to a suitable location.
Configure New Windows Servers
On the new Side A servers running Windows Server 2012 R2, apply the Windows post-installation configuration in section "Windows Configuration".

Create User Accounts
Create the SQL Agent User account as described in section "User Accounts"

Apply Optional Security Configuration
On the new Side A servers running Windows Server 2012 R2, apply the security settings described in section "Optional Security Configuration"

Uninstall Unified CCMP Components
Uninstall Unified CCMP Components as described in section "About Uninstalling Unified CCMP".

---

Install SQL Server and Restore the Portal Database (Side A)

Install and Configure SQL Server (Side A)
On the Side A Database Server:
1. Install SQL Server 2014 as described in section "Install SQL Server".
2. Configure the SQL Server network protocols as described in section "Configure SQL Server Network Protocols".
3. Configure the Windows Firewall for SQL Server as described in section "Configure Windows Firewall for SQL Server".

Restore the Portal Database (Side A)
Restore the Side A portal database from the Side A backup you made earlier.
On the Side A Database Server:
1. Launch SQL Server Management Studio.
2. Right-click the Databases folder and click Restore Database.
3. In the Restore Database window choose From Device, click Add and add the location of the database back up file you want to restore from. You may need to copy the backup file to a local file in order to access it. Click OK.
4. Select the check box next to the backup set you just added.
5. From the To Database drop-down list, select the Portal database as the restore destination.
6. Select Options and choose Overwrite the existing database. This will restore the database to the same location as the previous database. If you would like to choose a different location, update the Restore As path for each file to your preferred data file location.
7. Click OK to start the restore.

**Configure the SQL Agent User (Side A)**

For a dual-sided system, the SQL Agent User must be reconfigured.

On the Side A Database Server:

1. Launch SQL Server Management Studio and expand the Security folder. A list of subfolders is displayed.
2. Right-click the Logins folder and select New Login.
3. Ensure the Windows authentication option is selected and enter the SQL Agent User domain and login name in the form `<DOMAIN>\<LOGIN>`. This should be the user name that you specified for the SQL agent user account when you originally installed the portal database. For example, if your user is called sql_agent_user and belongs to the CISCO domain, enter CISCO\sql_agent_user.
4. In the Select a page pane on the left hand side, click User Mapping.
5. In the Users mapped to this login section, select the Portal database. The User column will auto-populate with the domain user name for the SQL Agent User.
6. In the Database Role Membership section, select the db_owner role.
7. Click OK to apply the changes.

**Add Network Service Accounts (Side A)**

You must add the NETWORK SERVICE account for all web servers to the database logins with appropriate access permissions. Before this can be done the existing accounts must be deleted from the Portal database logins.

On the Side A Database Server:

1. Launch SQL Server Management Studio and in the Object Explorer, expand the Portal database. A list of folders is displayed.
2. Expand the Portal > Security > Users folder. A list of database logins is displayed.
3. For each occurrence of the NETWORK SERVICE account for a remote web server in the deployment, right-click it and select Delete.
Note
Do not delete the entry for the NETWORK SERVICE account for the local machine (NT AUTHORITY\NETWORK SERVICE).

The NETWORK SERVICE logins for remote web server machines in the deployment are of the form <DOMAIN>\<WEBSERVER MACHINE NAME>$.

For example, if your web server is called WEBSERVERA and belongs to the UCCMPDOM domain, the NETWORK SERVICE login would be UCCMP\WEBSERVERA.

4. In the Object Explorer, expand the top-level Security folder. A list of folders is displayed.
5. Right-click the Logins folder and select New Login.
6. Ensure the Windows authentication option is selected and enter the NT AUTHORITY\NETWORK SERVICE account for the Side A web server in the form <DOMAIN>\<WEBSERVER MACHINE NAME>$.
7. In the Select a page pane on the left hand side, click User Mapping.
8. In the Users mapped to this login section, select the Portal database.
9. Ensure that the User column correctly contains the Network Service account for the web server.
10. In the Database Role Membership section, select the portalapp role, portalrs role and portalreporting role.
11. Click OK.
12. For deployments with multiple web servers, repeat step 5. to step 11. for each additional web server.

Upgrade and Configure Unified CCMP Components - Side A

Install the Database Components
On the Side A Database Server:
1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select Database Server, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click Install. At this point, the Informix client is installed first if necessary. If you see the Informix client installation screen, click Install.
4. When the Informix client has been installed, the installation of the database components starts, and the Setup window displays.

5. Click Next to go through each window in turn. You will need to enter the following details:

6. In the **License Agreement** window:
   - **I accept the terms in the license agreement** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.

7. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you created during the installation of the Database Server component when you first installed Unified CCMP. If you continue installation with a new passphrase, you will be unable to access your existing data.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.

   **Warning!**
   You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

8. In the **Configure Database** window:
   - **Database Name.** Enter the name of the database catalog for Unified CCMP. By default this is **Portal**.
   - **Connect Using.** Select the login credentials you want to use:
     - **Windows Authentication Credentials of Application.** This is the recommended option.
     - **SQL Server Authentication using the login and password below.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter your SQL Server Login Name and Password in the fields provided.
   - **Click Next.**

9. In the **Destination Folder** window, if you want to change the location where the database components are stored, click **Change** and select the new location. The Unified CCMP components need to be installed in the same directory location on each of the servers.

10. Click **Install** to install the database components. During this process, the J2SE prerequisite will be automatically installed if it is not already present. If this happens, follow the screen
10. Prompts to complete the J2SE installation. If you see a Security Alert dialog box during the installation, saying ‘Revocation Information for the security certificate for this site is not available’, click Yes to continue.

11. To install or upgrade your database immediately after installing the database components, select the Launch Database Management Utility check box at the end of the installation before clicking Finish.

12. Click Finish.

**Upgrade the Portal Database**

On the Side A Database Server:

1. If you selected the Launch Database Management Utility check box when you installed the database components, the Database Installer starts automatically after the installation. Otherwise, launch Unified CCMP Database Installer. The Database Installer is a wizard which guides you through the steps to upgrade the database.

2. Click Next to begin the upgrade process.

3. In the Database Setup Window choose Upgrade an Existing Database. Click Next to continue.

4. In the SQL Server Connection Details window, take the following actions:
   - **Server Name.** Select the Microsoft SQL Server where the Unified CCMP database is located. In this case this is the machine running the application, and so it must be left as the default (local).
   - **Database Name.** Enter or select the name of the database catalog that was originally used for the Unified CCMP database.
   - **Connect Using.** Select the login credentials you want to use:
     - The Windows account information you use to log in to your computer. This is the recommended option.
     - The Microsoft SQL Server login information assigned by the system administrator. Only select this option if you are using a database catalog on a different domain. For this option you must enter your Login Name and Password in the fields provided.
   - **Test Connection.** Click to make sure the connection to the Microsoft SQL Server is established. If you see the message ‘Connection succeeded but database does not exist’ then you must rectify this problem before continuing. Check that the database catalog name and security credentials are correct.
     - When the database connection details have been tested and the connection is successful, click Next.

5. Click Next to perform the upgrade. The upgrade may take several minutes.
6. When the Portal database upgrade is complete, click **Close** to close the Database Installer.

**Install the App/Web Server**

On the Side A App/Web Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").

2. Select **App/Web Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.

3. When all checks have passed, click **Install** to begin the App/Web Server installation. The **Management Portal: Application Server Components** window displays.

4. Click **Next** to go through each window in turn.

5. If the **Management Portal: Application Server Components** dialog is displayed, click **Install** to install the additional required components.

6. If the Microsoft .NET 4.5 Framework prerequisite is missing, it will be installed at this point. Click **Install** to install the component and follow the on screen instructions. When the .NET 4.6 Framework is complete, restart the server to continue the installation of the App/Web Server.

7. In the **License Agreement** window:
   - **I accept the terms in the license agreement.** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.

8. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you used for the installation of the Database Server component.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.
   - **Click Next** to continue.

**Warning!**

You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

9. In the **Destination Folder** window, you can click **Change** to change the location where the App/Web Server components are installed. Click **Next** to continue.

10. In the **Configure Database** window:
- **SQL Server Name.** Enter the host name or IP Address of the server hosting the Unified CCMP database. The default name of localhost is only valid if you are installing this component on the Database Server. Otherwise, specify the name of the Database Server. For a dual-sided deployment enter the name of the Side A Database server when installing the Side A components and enter the name of the Side B Database Server when installing the Side B components.

- **Catalog Name.** Enter or select the database catalog name you specified when installing the Database Server component. If you used the default value, this will be **Portal**.

- **Connect Using.** Select the login credentials you want to use:
  - **Windows authentication.** This is the recommended option.
  - **SQL Server authentication.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter a SQL Server Login Name and Password in the fields provided.

- **Click Next** to continue.

11. Click **Install**.

12. When the installation has completed, click **Finish**. When installation is complete, the machine will restart.

### Reconfigure the Unified CCMP Servers

**Note**

This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If the Unified CCMP server names have changed, the Unified CCMP cluster configuration must be updated to reference the new server names.

To update the cluster configuration, on the Side A Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name.** Enter the name of the primary database server.
   - **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication.** Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.
Note
If the Unified CCMP server names have changed, several errors may be reported when
ICE starts for the first time after an upgrade. The steps in this section will fix the errors.

3. Select the Setup tab and click Setup UCCMP Servers to start the wizard. Click Next to go
   through each window in turn.

4. On the various Configure Servers pages, change the existing server name for each of the
   Unified CCMP servers to the new server name. The number of pages and servers to specify
   will depend on your deployment type. On each page, enter the following, then click Next:

   - **Primary Server**
     - **Server Name**: This is the non-domain qualified machine name.
     - **Server Address**: This defaults to Server Name. This can be changed to an IP
       Address or a domain qualified name of the server.

   - **Secondary Server**:
     - If you chose a dual-sided setup, provide the corresponding details for the Side B
       server.

5. Click Next and enter the relevant server information for each Unified CCMP server until
   you reach one of the following pages: Primary Database Administrator Login, Secondary
   Database Administrator Login or Configure Relational Database Connection.

6. Click Next to go through the remaining windows in turn, without changing anything.

7. When you see the confirmation message indicating that the wizard has completed
   successfully, click Exit to close the wizard.

8. To save and action your changes, either click the Save icon in the tool bar or select File >
   Save from the menu.

9. In ICE, select the Servers tab. The list of servers will show both the old servers and the
    new servers. Right-click each of the old servers and select Remove Server.

10. To save and action your changes, either click the Save icon in the tool bar or select File >
    Save from the menu. Exit ICE.

Reconfigure the Unified CCE Servers

Note
This step is only required if you have upgraded Unified CCE at the same time as upgrading
Unified CCMP. This step is not required if you have not upgraded Unified CCE.
If you have upgraded Unified CCE at the same time upgrading Unified CCMP, the Unified CCMP cluster must be updated to ensure that Unified CCMP can communicate with Unified CCE. It may also be necessary to configure the Unified CCE Config Web Service, which wasn't present in some earlier versions of Unified CCE.

To reconfigure the Unified CCE servers after Unified CCE has been upgraded, on the Side A Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name.** Enter the name of the primary database server.
   - **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication.** Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. Select the **Setup** tab and click **Configure Cisco Unified CCE Servers** to start the wizard.

4. On the **Select Task** page, select **Modify an existing instance**. Select the Unified CCE instance that has been updated, and click **Next** to go through each page in turn.

5. If you see the **Configure Primary Unified Config Web Service** page, enter or confirm the following details
   - **URL.** This is the auto-generated URL of the primary Unified Config Web Service on the Unified CCE.
   - **User Name.** This is a user name with appropriate access to the Unified CCE that the web service is running on. This user must be in the domain security group <Server>_ <UCCE-Instance>_ Config, where <Server> is the name of the server running Unified CCE and <UCCE-Instance> is the name of the Unified CCE Instance on this server.
   - **Password.** This is the password for the user.

6. If you see the **Configure Primary ConAPI RMI Ports** page, enter or confirm the following ConAPI details:
   - **Local Registry Port.** This is the port on the Unified CCE for the Unified CCMP Provisioning service to connect to. This will usually be 2099.
   - **Remote Registry Port.** This is the port on the Unified CCMP Database Server for the Unified CCE to connect to. This will usually be 2099.
   - **Local Port.** This is selected as the designated port for live provisioning traffic between the Unified CCE and Unified CCMP servers. It must be uniquely assigned for each Unified CCE and any firewalls between the CICM and Unified CCMP server must be configured to allow both-way traffic on this port.
7. If you see the **Configure ConAPI Application Instance** page enter the following details:
   - **Application Name.** The name of the application to be used for provisioning Unified CCE from Unified CCMP. Specify the name of the application you configured in section "Set Up ConAPI".
   - **Application Key.** Use the password for the application you specified above.
8. On the **Multi Media Support** page, if you are using a Cisco Unified Web and E-Mail Interaction Manager application instance to provide support for non-voice interactions, select **Yes.** The default is No.
9. On the **Purge On Delete** page, if you want to purge items from Unified CCE automatically when they are deleted from Unified CCMP, select **Yes.** The default is Yes.
10. On the **Supervisor Active Directory Integration** page, if you want to enable support for associating existing Active Directory user accounts for Unified CCE Supervisors, select **Yes.** The default is No. If you select Yes, you will be prompted to provide Active Directory information so that Windows user accounts can be listed.
11. The Summary dialog box summarizes the details of the Unified CCE being configured and the settings you have chosen. Check the details, and if you are satisfied, click **Next.**
12. A confirmation message is displayed to indicate that the wizard has completed successfully. Click **Exit** to close the wizard.
13. For each remaining Unified CCE Server that has been upgraded, click **Configure Cisco Unified CCE Servers,** and repeat the steps above.
14. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

### Reconfigure Unified CCE to Use the New Servers

**Note**

This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If you have reinstalled Unified CCMP on new servers with different names, Unified CCE must be updated to reference the new Unified CCMP servers.

To do this, on each Unified CCE instance in your Side A deployment:

1. **Launch CMS Control.** This opens the CMS control console.
2. **On the Application tab,** select the Unified CCMP database server and click **Edit.**
3. **In the Application connection details** tab, change the existing server name to the new server name. There are three places where this needs to be done:
• **Administration & Data Server Link.** The name of the new Unified CCMP Database Server, in capital letters, with *Server* appended. For example, if your Database Server is *PRODUCTDB*, enter *PRODUCTDBServer*.

• **Application link.** The name of the new Unified CCMP Database Server, in capital letters, with *Client* appended. For example, if your Database Server is *PRODUCTDB*, enter *PRODUCTDBClient*.

• **Application host name.** The name of the new Unified CCMP Database Server, in capital letters, for example, *PRODUCTDB*.

4. **Click** OK, then **OK** again to save the changes and exit CMS Control.

---

### Post-Upgrade Actions

After you have upgraded Unified CCMP, complete the following post-installation steps:

- configure HTTPS as described in section "Configure SSL"
- bind server ports to IPv6 addresses as described in section "Bind Server Ports to IPv6 Addresses"
- configure anti-virus operations as described in section "Configure Antivirus Options"
- implement the performance tuning steps described in section "Performance Tuning Checklists"
- complete the final post-installation actions described in section "Final Post-Installation Actions"

**Note**

If your installation uses single sign-on, the configuration is restored when the database is restored, so you do not need to reconfigure single sign-on as described in section "Configure Windows Login"

---

### Restart and Validate (Side A)

**Restart the Unified CCMP Services**

Following an upgrade it is good practice to restart all Unified CCMP services.

Repeat the following steps on each upgraded Unified CCMP Database Server and each and upgraded Unified CCMP App/Web Server:

1. In the **Run** command dialog box, enter **Services.msc** and click **OK**.
2. For each Unified CCMP service listed:
   - if the selected service is in the Started state, right-click the service name and click Restart
   - if the selected service is not started, right-click the service name and click Start.

**Note**
After starting the System Monitoring Service and Application Service on the App/Web Server, you will need to wait a few minutes before logging in to allow the services to load completely.

**Validate the Upgrade**
Check that the system is functional following the upgrade using the validation tests in section "Validating an Upgrade".

**Checklist for Split Side Upgrades (Side B)**
The second part of the split side upgrade applies the upgrade to Side B and restores replication.

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</table>

**Prepare to Upgrade (Side B)**

**Stop the Unified CCMP Services**

Before starting the upgrade, you must stop all Unified CCMP services on all servers.

**Stop the Unified CCMP Database Server Services**

On the Side B Database Server:

1. In `services.msc`, stop the **UCCMP: Data Import Server** service.
2. Repeat this step for the UCCMP: **Partitioning Table Manager** service.
3. Repeat this step for the UCCMP: **Provisioning Server** service.

**Stop the Unified CCMP App/Web Server Services**

On the Side B App/Web Server:

1. In `services.msc`, stop the **UCCMP: System Monitoring Services** service.
2. If you see a prompt saying that all other services will stop, and asking you if you want to continue, select **Yes**.
3. If there are any other running Unified CCMP services, stop them too.
Back up the Portal Database

Back up the Portal database and copy the backup to a safe location where it can be accessed once the latest version of Unified CCMP has been installed on the new servers.

Identify the database to be backed up (see section "About a Split Sided Upgrade" for information about the options).

- If you are planning to restore the Side B database from the existing Side B database (option 1), you need to back up the existing Side B database now. So follow these instructions on the Side B Database Server.
- If you are planning to restore the Side B database from the upgraded Side A database (option 2), you need to back up the upgraded Side A database now. So follow these instructions on the Side A database server.

To back up the portal database, on the selected database server:

1. Launch SQL Server Management Studio.
2. Navigate to the Portal database.
3. Right-click Portal and select Tasks > Backup. Save the .bak file to a suitable location.

Configure New Windows Servers

On the new Side B servers running Windows Server 2012 R2, apply the Windows post-installation configuration in section "Windows Configuration".

Apply Optional Security Configuration

On the new Side B servers running Windows Server 2012 R2, apply the security settings described in section "Optional Security Configuration".

Uninstall Unified CCMP Components

Uninstall Unified CCMP Components as described in section "About Uninstalling Unified CCMP".

Install SQL Server and Restore the Portal Database (Side B)

Install and Configure SQL Server (Side B)

On the Side B Database Server:
1. Install SQL Server 2014 as described in section "Install SQL Server".
2. Configure the SQL Server network protocols as described in section "Configure SQL Server Network Protocols".
3. Configure the Windows Firewall for SQL Server as described in section "Configure Windows Firewall for SQL Server".

**Restore the Portal Database (Side B)**

Restore the Side B portal database from the database backup you made earlier (see section "Prepare to Upgrade (Side B)"). This backup may be a backup of the existing Side B database (option 1), or it may be a backup of the upgraded Side A database (option 2), depending on your requirements. See section "About a Split Sided Upgrade" for information about the backup and restore options for the Side B portal database.

On the Side B Database Server:

1. Launch SQL Server Management Studio.
2. Right-click the Databases folder and click Restore Database.
3. In the Restore Database window choose From Device, click Add and add the location of the database back up file you want to restore from. You may need to copy the backup file to a local file in order to access it. Click OK.
4. Select the check box next to the backup set you just added.
5. From the To Database drop-down list, select the Portal database as the restore destination.
6. Select Options and choose Overwrite the existing database. This will restore the database to the same location as the previous database. If you would like to choose a different location, update the Restore As path for each file to your preferred data file location.
7. Click OK to start the restore.

**Configure the SQL Agent User (Side B)**

For a dual-sided system, the SQL Agent User must be reconfigured.

On the Side B Database Server:

1. Launch SQL Server Management Studio and expand the Security folder. A list of subfolders is displayed.
2. Right-click the Logins folder and select New Login.
3. Ensure the Windows authentication option is selected and enter the SQL Agent User domain and login name in the form <DOMAIN>\<LOGIN>. This should be the user name that you specified for the SQL agent user account when you originally installed the portal database. For example, if your user is called sql_agent_user and belongs to the CISCO domain, enter CISCO\sql_agent_user.
4. In the Select a page pane on the left hand side, click User Mapping.
5. In the Users mapped to this login section, select the Portal database. The User column will auto-populate with the domain user name for the SQL Agent User.
6. In the Database Role Membership section, select the db_owner role.
7. Click OK to apply the changes.

Add Network Service Accounts (Side B)

You must add the NETWORK SERVICE account for all web servers to the database logins with appropriate access permissions. Before this can be done the existing accounts must be deleted from the Portal database logins.

On the Side B Database Server:

1. Launch SQL Server Management Studio and in the Object Explorer, expand the Portal database. A list of folders is displayed.
2. Expand the Portal > Security > Users folder. A list of database logins is displayed.
3. For each occurrence of the NETWORK SERVICE account for a remote web server in the deployment, right-click it and select Delete.

Note

Do not delete the entry for the NETWORK SERVICE account for the local machine (NT AUTHORITY\NETWORK SERVICE).

The NETWORK SERVICE logins for remote web server machines in the deployment are of the form <DOMAIN>\<WEBSERVER MACHINE NAME>$.$ For example, if your web server is called WEBSERVERA and belongs to the UCCMPDOM domain, the NETWORK SERVICE login would be UCCMP\WEBSERVERAS.

4. In the Object Explorer, expand the top-level Security folder. A list of folders is displayed.
5. Right-click the Logins folder and select New Login.
6. Ensure the Windows authentication option is selected and enter the NT AUTHORITY\NETWORK SERVICE account for the Side A web server in the form <DOMAIN>\<WEBSERVER MACHINE NAME>$.
7. In the Select a page pane on the left hand side, click User Mapping.
8. In the Users mapped to this login section, select the Portal database.
9. Ensure that the User column correctly contains the Network Service account for the web server.
10. In the Database Role Membership section, select the portalapp role, portals role and portalreporting role.
11. Click OK.
12. For deployments with multiple web servers, repeat step 5. to step 11. for each additional web server.

**Configure Replication Share**

For a dual-sided system, the replication share folder must be reconfigured.

On the Side B Database Server:

1. In the SQL Server installation folder, locate the replication folder. Typically this is located at C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\repldata.
2. Create a share for this folder, giving the **Everyone** group full control to the share, as follows:
   a. Right-click on the replication folder and select **Share With > Advanced sharing**.
   b. On the **Sharing** tab, click **Advanced Sharing**.
   c. Select **Share this folder** and specify the share name as the name that was used for the replication folder when you originally installed the portal database. The default name is **ReplData**.
   d. Click **Permissions**, select the group **Everyone**, and allow all permissions.
3. Click **OK** to apply the changes.

---

**Upgrade and Configure Unified CCMP Components - Side B**

**Install the Database Components**

On the Side B Database Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").
2. Select **Database Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.
3. When all checks have passed, click **Install**. At this point, the Informix client is installed first if necessary. If you see the Informix client installation screen, click **Install**.
4. When the Informix client has been installed, the installation of the database components starts, and the **Setup** window displays.
5. Click **Next** to go through each window in turn. You will need to enter the following details:
6. In the **License Agreement** window:
7. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you created during the installation of the Database Server component when you first installed Unified CCMP. If you continue installation with a new passphrase, you will be unable to access your existing data.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.

   **Warning!**
   You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

8. In the **Configure Database** window:
   - **Database Name.** Enter the name of the database catalog for Unified CCMP. By default this is Portal.
   - **Connect Using.** Select the login credentials you want to use:
     - **Windows Authentication Credentials of Application.** This is the recommended option.
     - **SQL Server Authentication using the login and password below.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter your SQL Server Login Name and Password in the fields provided.
   - **Click Next.**

9. In the **Destination Folder** window, if you want to change the location where the database components are stored, click **Change** and select the new location. The Unified CCMP components need to be installed in the same directory location on each of the servers.

10. Click **Install** to install the database components. During this process, the J2SE prerequisite will be automatically installed if it is not already present. If this happens, follow the screen prompts to complete the J2SE installation. If you see a Security Alert dialog box during the installation, saying ‘Revocation Information for the security certificate for this site is not available’, click **Yes** to continue.

11. To install or upgrade your database immediately after installing the database components, select the **Launch Database Management Utility** check box at the end of the installation before clicking Finish.
12. Click Finish.

Upgrade the Portal Database

**Note**
This step only required if you opted to restore the Side B portal database from a backup of the old Side B database (option 1). It is not required if you restored the Side B portal database from a backup of the existing Side A database (option 2). See section "About a Split Sided Upgrade" for information about the backup and restore options for the Side B portal database.

On the Side B Database Server:

1. If you selected the Launch Database Management Utility check box when you installed the database components, the Database Installer starts automatically after the installation. Otherwise, launch Unified CCMP **Database Installer**. The Database Installer is a wizard which guides you through the steps to upgrade the database.

2. Click Next to begin the upgrade process.

3. In the Database Setup Window choose **Upgrade an Existing Database**. Click Next to continue.

4. In the SQL Server Connection Details window, take the following actions:
   - **Server Name**. Select the Microsoft SQL Server where the Unified CCMP database is located. In this case this is the machine running the application, and so it must be left as the default (local).
   - **Database Name**. Enter or select the name of the database catalog that was originally used for the Unified CCMP database.
   - **Connect Using**. Select the login credentials you want to use:
     - The **Windows account information you use to log in to your computer**. This is the recommended option.
     - The **Microsoft SQL Server login information assigned by the system administrator**. Only select this option if you are using a database catalog on a different domain. For this option you must enter your Login Name and Password in the fields provided.
   - **Test Connection**. Click to make sure the connection to the Microsoft SQL Server is established. If you see the message ‘Connection succeeded but database does not exist’ then you must rectify this problem before continuing. Check that the database catalog name and security credentials are correct.
   - When the database connection details have been tested and the connection is successful, click Next.

5. Click Next to perform the upgrade. The upgrade may take several minutes.
6. When the Portal database upgrade is complete, click **Close** to close the Database Installer.

**Install the App/Web Server**

On the Side B App/Web Server:

1. Insert the Unified CCMP DVD and start the Unified CCMP Installer (for more information about the Unified CCMP Installer, see section "About the Unified CCMP Installer").

2. Select **App/Web Server**, and wait until the prerequisite checks have completed. If any checks fail, fix the issues as necessary.

3. When all checks have passed, click **Install** to begin the App/Web Server installation. The **Management Portal: Application Server Components** window displays.

4. Click **Next** to go through each window in turn.

5. If the **Management Portal: Application Server Components** dialog is displayed, click **Install** to install the additional required components.

6. If the Microsoft .NET 4.5 Framework prerequisite is missing, it will be installed at this point. Click **Install** to install the component and follow the on screen instructions. When the .NET 4.6 Framework is complete, restart the server to continue the installation of the App/Web Server.

7. In the **License Agreement** window:
   - **I accept the terms in the license agreement.** You must select this option before you can continue. In doing so you agree to be bound by the terms in the license agreement, and so you should read it thoroughly before accepting.

8. In the **Cryptography Configuration** window:
   - **Passphrase.** Enter the cryptographic passphrase you used for the installation of the Database Server component.
   - **Confirm Passphrase.** You will not be able to continue until the contents of this field are identical to the passphrase entered above.
   - Click **Next** to continue.

**Warning!**

You must use the same cryptographic passphrase as was originally used when Unified CCMP was first installed. If you continue the installation with a new passphrase you will be unable to access your existing data.

9. In the **Destination Folder** window, you can click **Change** to change the location where the App/Web Server components are installed. Click **Next** to continue.

10. In the **Configure Database** window:
- **SQL Server Name.** Enter the host name or IP Address of the server hosting the Unified CCMP database. The default name of **localhost** is only valid if you are installing this component on the Database Server. Otherwise, specify the name of the Database Server. For a dual-sided deployment enter the name of the Side A Database server when installing the Side A components and enter the name of the Side B Database Server when installing the Side B components.

- **Catalog Name.** Enter or select the database catalog name you specified when installing the Database Server component. If you used the default value, this will be **Portal**.

- **Connect Using.** Select the login credentials you want to use:
  - **Windows authentication.** This is the recommended option.
  - **SQL Server authentication.** This option should only be selected if you are using a database catalog on a different domain. For this option you must enter a SQL Server Login Name and Password in the fields provided.

  - Click **Next** to continue.

11. Click **Install**.
12. When the installation has completed, click **Finish.** When installation is complete, the machine will restart.

### Reconfigure the Unified CCMP Servers

**Note**

This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.

If the Unified CCMP server names have changed, the Unified CCMP cluster configuration must be updated to reference the new server names.

These steps are required the Side B database server, although these values will be overwritten later from the values on Side A when replication is reinstated. To update the cluster configuration, on the Side B Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name.** Enter the name of the primary database server.
   - **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication.** Select Windows Authentication.
2. Click **OK**. The ICE Cluster Configuration tool starts by default.

   **Note**
   If the Unified CCMP server names have changed, several errors may be reported when ICE starts for the first time after an upgrade. The steps in this section will fix the errors.

3. Select the **Setup** tab and click **Setup UCCMP Servers** to start the wizard. Click **Next** to go through each window in turn.

4. On the various **Configure Servers** pages, change the existing server name for each of the Unified CCMP servers to the new server name. The number of pages and servers to specify will depend on your deployment type. On each page, enter the following, then click **Next**:
   - **Primary Server**
     - **Server Name.** This is the non-domain qualified machine name.
     - **Server Address.** This defaults to Server Name. This can be changed to an IP Address or a domain qualified name of the server.
   - **Secondary Server:**
     - If you chose a dual-sided setup, provide the corresponding details for the Side B server.

5. Click **Next** and enter the relevant server information for each Unified CCMP server until you reach one of the following pages: **Primary Database Administrator Login**, **Secondary Database Administrator Login** or **Configure Relational Database Connection**.

6. Click **Next** to go through the remaining windows in turn, without changing anything.

7. When you see the confirmation message indicating that the wizard has completed successfully, click **Exit** to close the wizard.

8. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

9. In **ICE**, select the **Servers** tab. The list of servers will show both the old servers and the new servers. Right-click each of the old servers and select **Remove Server**.

10. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu. Exit **ICE**.

### Reconfigure the Unified CCE Servers

**Note**
This step is only required if you have upgraded Unified CCE at the same time as upgrading Unified CCMP. This step is not required if you have not upgraded Unified CCE.
If you have upgraded Unified CCE at the same time upgrading Unified CCMP, the Unified CCMP cluster must be updated to ensure that Unified CCMP can communicate with Unified CCE. It may also be necessary to configure the Unified CCE Config Web Service, which wasn't present in some earlier versions of Unified CCE.

These steps are required the Side B database server, although these values will be overwritten later from the values on Side A when replication is reinstated. To reconfigure the Unified CCE servers after Unified CCE has been upgraded, on the Side B Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name**. Enter the name of the primary database server.
   - **Database Name**. Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. Select the **Setup** tab and click **Configure Cisco Unified CCE Servers** to start the wizard.

4. On the **Select Task** page, select **Modify an existing instance**. Select the Unified CCE instance that has been updated, and click **Next** to go through each page in turn.

5. If you see the **Configure Primary Unified Config Web Service** page, enter or confirm the following details:
   - **URL**. This is the auto-generated URL of the primary Unified Config Web Service on the Unified CCE.
   - **User Name**. This is a user name with appropriate access to the Unified CCE that the web service is running on. This user must be in the domain security group `<Server>_<UCCE-Instance>_Config`, where `<Server>` is the name of the server running Unified CCE and `<UCCE-Instance>` is the name of the Unified CCE Instance on this server.
   - **Password**. This is the password for the user.

6. If you see the **Configure Primary ConAPI RMI Ports** page, enter or confirm the following ConAPI details:
   - **Local Registry Port**. This is the port on the Unified CCE for the Unified CCMP Provisioning service to connect to. This will usually be 2099.
   - **Remote Registry Port**. This is the port on the Unified CCMP Database Server for the Unified CCE to connect to. This will usually be 2099.
   - **Local Port**. This is selected as the designated port for live provisioning traffic between the Unified CCE and Unified CCMP servers. It must be uniquely assigned for each Unified CCE and any firewalls between the CICM and Unified CCMP server must be configured to allow both-way traffic on this port.
7. If you see the **Configure ConAPI Application Instance** page enter the following details:
   - **Application Name.** The name of the application to be used for provisioning Unified CCE from Unified CCMP. Specify the name of the application you configured in section "Set Up ConAPI".
   - **Application Key.** Use the password for the application you specified above.

8. On the **Multi Media Support** page, if you are using a Cisco Unified Web and E-Mail Interaction Manager application instance to provide support for non-voice interactions, select **Yes.** The default is No.

9. On the **Purge On Delete** page, if you want to purge items from Unified CCE automatically when they are deleted from Unified CCMP, select **Yes.** The default is Yes.

10. On the **Supervisor Active Directory Integration** page, if you want to enable support for associating existing Active Directory user accounts for Unified CCE Supervisors, select **Yes.** The default is No. If you select Yes, you will be prompted to provide Active Directory information so that Windows user accounts can be listed.

11. The Summary dialog box summarizes the details of the Unified CCE being configured and the settings you have chosen. Check the details, and if you are satisfied, click **Next.**

12. A confirmation message is displayed to indicate that the wizard has completed successfully. Click **Exit** to close the wizard.

13. For each remaining Unified CCE Server that has been upgraded, click **Configure Cisco Unified CCE Servers**, and repeat the steps above.

14. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

### Reconfigure Unified CCE to Use the New Servers

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>This step is only required if you have reinstalled Unified CCMP on new servers with different names. This step is not required if you have upgraded your existing servers, or have replaced your existing servers with new servers with the same names.</td>
</tr>
</tbody>
</table>

If you have reinstalled Unified CCMP on new servers with different names, Unified CCE must be updated to reference the new Unified CCMP servers.

To do this, on each Unified CCE instance in your Side B deployment:

1. **Launch CMS Control.** This opens the CMS control console.

2. **On the Application tab,** select the Unified CCMP database server and click **Edit.**

3. **In the Application connection details tab,** change the existing server name to the new server name. There are three places where this needs to be done:
- **Administration & Data Server Link.** The name of the new Unified CCMP Database Server, in capital letters, with **Server** appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBServer**.

- **Application link.** The name of the new Unified CCMP Database Server, in capital letters, with **Client** appended. For example, if your Database Server is **PRODUCTDB**, enter **PRODUCTDBClient**.

- **Application host name.** The name of the new Unified CCMP Database Server, in capital letters, for example, **PRODUCTDB**.

4. Click **OK**, then **OK** again to save the changes and exit CMS Control.

---

**Restore Replication**

**Stop Forcing Failover Connections to the Active Side**

To stop forcing the failover connections to the active side:

1. Remove the entries to the **hosts** files you made in section "Prepare to Upgrade (Side A)".

**Configure Replication**

Replication between the databases is set up and monitored using the Replication Manager application which is available in the Unified CCMP Integrated Configuration Environment (ICE) tool.

**Note**

The user running Replication Manager must have administrator permissions in both Windows and SQL Server, for both the publisher and the subscriber Database Servers.

Usually, the publisher will be the Side A Database Server, but occasionally, it may be necessary to configure the Side B Database Server as the publisher.

To configure replication, on the publisher Database Server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCMP). In the **Database Connection** dialog box, set:
   - **Server Name.** Enter the name of the primary database server.
   - **Database Name.** Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
   - **Authentication.** Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.
3. From the Tool drop-down list, select Replication Manager. The Replication Manager opens in the Setup tab. The Setup tab has the following sections:

- **Unified CCMP Database Server Properties** contains the publisher and subscriber Unified CCMP database details.
- **Distributor Properties** contains the SQL Server Replication distributor properties.

The default values shown in the Setup tab are derived from the values initially configured in the Cluster Configuration tool and will be suitable in most cases.

4. If required, modify the Unified CCMP Database Server Properties.

   - **Server Name** (publisher and subscriber). This is the value specified in ICE Cluster Configuration and cannot be changed in Replication Manager.

   - **Catalog Name** (publisher and subscriber). This is the value specified in ICE Cluster Configuration. It may be changed, but if so, a valid database with the new name must already exist on the corresponding server.

5. The Identity Server should be replicated by default. To replicate the Identity Server Database, click the **Identity Database Replication Enabled** checkbox.

6. If required, modify the distributor properties.

   - **Server Name**. The name of the subscriber server hosting the Unified CCMP database. This is the value specified in ICE Cluster Configuration and cannot be changed in Replication Manager.

   - **Catalog Name**. The name to be assigned to the distribution database. The recommended value is **distribution_portal**.

   - **Data Folder**. The folder path on the distributor server where the data file for the distribution database will be created.

   **Note**

   If you are setting up replication after performing an upgrade, be particularly careful with the Data Folder path, as it may be different from the value used in previous versions of Unified CCMP. Make sure you use the path that was specified when the database was set up.

   - **Log Folder**. The folder path on the distributor server where the transaction log file for the distribution database will be created.

   - **Distribution Share**. The distribution share folder where replication snapshot files will be generated.

   - **Override Distributor Admin Password**. Select to override the auto-generated replication password which will be used to establish connectivity. The auto-generated password is 14 characters long, and will contain alpha-numeric characters (both upper
and lower case) and a special character. If this does not meet the complexity requirements of the server then select this option and specify a password of your choice.

7. When you have set the required replication properties, click **Configure** to configure replication.

8. You may be prompted to save pending changes to the database before continuing. If so, click **Yes** to save pending changes and continue.

9. It may take several minutes to configure replication. Once replication has been configured, the Replication Manager automatically switches to the Monitor tab, which enables you to monitor the progress of the replication snapshot.

### Monitor the Replication Snapshot

**Note**
The subscriber Database Server is not available for use until the replication snapshot has completed and all the data has been copied from the publisher to the subscriber.

The time taken for the replication snapshot to complete depends on the volume of data in the publisher database and the bandwidth between the servers. For a large database, this may take several hours.

To monitor the progress of the replication snapshot:

1. In the ICE Replication Manager, select the **Monitor** tab. The Monitor tab has the following panes:
   - **Publications** (top left) lists the publisher servers and the publications on each publisher that need to be shared with the subscribers.
   - **Subscriptions and Agents** (top right) shows the subscriptions to a publication and the replication agents associated with a publication. This pane has two tabs, Subscriptions and Agents.
   - **Subscriptions** shows the subscriptions to the selected publication. You can right-click on a subscription to start or stop the subscription.
   - **Agents** shows the replication agents associated with the selected publication. You can right-click on a replication agent to start or stop the agent.
   - **Sessions** (bottom left) shows all sessions for the selected publication and replication agent in the last 24 hours.
   - **Actions** (bottom right) shows the activity for the selected session.

2. In the top left hand pane, select the first Unified CCMP database publication from the list of publications. If you have used the default database name, this will start with **[Portal]**.

3. Wait for the replication snapshot for this publication to complete.
To check the replication status for a Unified CCMP database publication, in the bottom right hand pane of the Monitor tab, inspect the messages in the Action Message list. Once the replication snapshot is complete and replication is operational for a publication, you will see the following two messages:

“Delivered snapshot from . . .”

“No replicated transactions are available”.

After this, the second message is replaced with messages showing new replicated transactions as they are sent through the system, for example:

“4 transaction(s) with 14 command(s) were delivered”.

4. Repeat the two steps above for each of the remaining Unified CCMP database publications.

5. When replication is complete for all portal database publications, close the ICE tool.

The subscriber database can now be used to service requests. For more information about the Replication Manager see the Integrated Configuration Environment (ICE) for Cisco Unified Contact Center Management Portal.

---

**Post-Upgrade Actions**

After you have upgraded Unified CCMP, complete the following post-installation steps:

- configure HTTPS as described in section "Configure SSL"
- bind server ports to IPv6 addresses as described in section "Bind Server Ports to IPv6 Addresses"
- configure anti-virus operations as described in section "Configure Antivirus Options"
- implement the performance tuning steps described in section "Performance Tuning Checklists"
- complete the final post-installation actions described in section "Final Post-Installation Actions"

**Note**

If your installation uses single sign-on, the configuration is restored when the database is restored, so you do not need to reconfigure single sign-on as described in section "Configure Windows Login"
Restart and Validate (Side B)

Restart the Unified CCMP Services

Following an upgrade it is good practice to restart all Unified CCMP services.

Repeat the following steps on each upgraded Unified CCMP Database Server and each and upgraded Unified CCMP App/Web Server:

1. In the **Run** command dialog box, enter **Services.msc** and click **OK**.

2. For each Unified CCMP service listed:
   - if the selected service is in the Started state, right-click the service name and click **Restart**
   - if the selected service is not started, right-click the service name and click **Start**.

**Note**

After starting the System Monitoring Service and Application Service on the App/Web Server, you will need to wait a few minutes before logging in to allow the services to load completely.

Validate the Upgrade

Check that the system is functional following the upgrade using the validation tests in section "Validating an Upgrade".
Uninstalling Unified CCMP

About Uninstalling Unified CCMP

This chapter describes how to remove the Unified CCMP components from the platform.

To uninstall Unified CCMP, firstly you must remove the database components. This removes the ability to import and provision data between remote data sources (such as Unified CCE or Unified Communications Manager) and the Unified CCMP Database.

Uninstallation involves the following steps:

- removing database replication (dual-sided systems only)
- uninstalling the database components
- removing the database catalog (only if Unified CCMP is being removed permanently)
- uninstalling the other Unified CCMP components.

Remove Database Replication

**Note**
This step is only required if you have a dual-sided system.

If you have a dual-sided installation then you must remove database replication before removing the database components.

Before removing database replication:

1. Ensure that the database is in a consistent state.
2. Stop all Unified CCMP Services on all servers.

To remove database replication:

1. Ensure you are logged in to the Side A Database Server as a domain level user with administrative rights over both Database Servers.
2. Launch *Integrated Configuration Environment* (installed as part of Unified CCMP). In the *Database Connection* dialog box, set:
   - **Server Name**: Enter the name of the primary database server.
   - **Database Name**: Enter the name of the Unified CCMP database that was installed when setting up the Database Component. If you accepted the default value, this will be *Portal*. 
• **Authentication.** Select Windows Authentication.

3. Click **OK**. The ICE Cluster Configuration tool starts by default.

4. From the Tool drop-down list select **Replication Manager**.

5. Click the **Setup** tab to see the replication setup details.

6. Click **Disable** to remove replication from the Unified CCMP database. When prompted, click **Yes** to proceed with replication removal.

7. Replication removal may take several minutes. Wait for the ‘Replication Removed’ message to display in the Output Window and then exit ICE.

---

**Uninstall Application Components**

To uninstall the application Unified CCMP components:

1. On the Side A App/Web Server, launch **Control Panel** and select **Programs and Features**.

2. Select **Management Portal: Application Server Components**.

3. Click **Uninstall**.

4. For a dual-sided deployment, repeat step 1. to step 3. on the Side B App/Web Server.

**Note**

After the uninstallation is complete, delete the installation folder that contains the log files and folders from the following location: C:\Program Files\Management Portal. Before deleting this folder, make sure there are no other components installed on the system.

---

**Uninstall the Database Components**

To uninstall the database components, on the Database Server:

1. Launch **Control Panel** and select **Uninstall a program**.

2. Select **Management Portal: Database Components**.

3. Click **Uninstall**.

4. For a dual-sided deployment, repeat these steps on the Side B Database Server.

**Note**

After the uninstallation is complete, delete the installation folder that contains the log files and folders from the following location: C:\Program Files\Management Portal. Before deleting this folder, make sure there are no other components installed on the system.
Uninstalling the database components does not remove the Unified CCMP database catalog.

---

## Remove the Database Catalog

**Warning!**

Do not remove the database catalog from your system unless you intend to permanently remove Unified CCMP, or you have been instructed to do so by your vendor support.

To remove the Unified CCMP database catalog, you will need to use SQL Server Management Studio, as follows:

1. Launch **SQL Server 2014 Management Studio** and connect to the local Database Server.
2. In the Object Explorer pane, expand the **Databases** node, navigate to the Unified CCMP database (the default name is Portal), right-click it and select **Delete**.
3. The Delete Database window displays.
4. Select the **Close existing connections** check box.
5. Click **OK**.

This permanently removes the database catalog.
Troubleshooting

About Installer Logs

Unified CCMP installers are launched with logging enabled. Install logs are located in 
\texttt{C:\InstallLogs} for both the Database and App/Web Server installers.

Changing the SQL Server Installation Language to US English

If the step to install the portal database fails with an error

\textit{Exception in installation: [SQL Server language must be US English]}

you must change the SQL Server language to US English before the installation can continue. To do this, on the database server, run the following T-SQL scripts in the order below.

**Script 1**
```
USE master;
GO
DECLARE @LANGUAGE AS NVARCHAR(MAX);
SELECT @LANGUAGE = 'EXEC sp_configure '+CHAR(39)+'default language'+CHAR(39)+'
    '+CAST([langid] AS VARCHAR(2))+'';
FROM sys.syslanguages
WHERE name = 'us_english';
EXECUTE sp_executesql @LANGUAGE;
GO
```

**Script 2**
```
RECONFIGURE WITH OVERRIDE;
GO
```

**Script 3**
```
USE [master];
ALTER LOGIN ['\texttt{<username>}' WITH DEFAULT_LANGUAGE='\texttt{us_english}';
GO
```

where \texttt{<username>} is the Windows domain user or SQL Server user you will specify for the \texttt{Connect Using} option during the installation of the Portal Database (\texttt{SQL Server Connection Details} window). For example:
• if you will connect using the option **The Windows account information I use to logon to my computer**, and have a user name **user1** on **Unified CCMPDOM**, you would enter **Unified CCMPDOM\user1** for `<username>`.

• if you will connect using the option **The SQL Server login information assigned by the system administrator**, and will use the **sa** user, you would enter **sa** for `<username>`.