



## **Cisco Unified Workforce Optimization**

Workforce Management Installation Guide 8.3(4)  
Revised August 2011

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*Workforce Management Installation Guide*

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# Contents

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<b>1</b>	<b>Overview</b>	<b>7</b>
	■ Introduction	7
	What's New in This Version	8
	WFM Documentation	9
	■ Workforce Management Feature Levels	10
	■ Workforce Management Services	11
	Workforce Management Adherence Conformity Calculator Service	11
	Workforce Management Capture Service	11
	Workforce Management Compile Service	11
	Workforce Management OOC Service	11
	Workforce Management Request Service	11
	Workforce Management Adherence RTE Service	12
	Workforce Management Sync Service	12
	Tomcat Service	12
	■ Port Usage	13

---

<b>2</b>	<b>System Requirements</b>	<b>15</b>
	■ Overview	15
	■ System Requirements	16
	Cisco Unified Workforce Optimization Environment	16
	System Environment	16
	Operating Environment	16
	Server Requirements	16
	Desktop Requirements	17
	Third Party Software Requirements	17
	Desktop Requirements	19
	■ Server Configurations	20
	Single Server Configuration	20
	■ Configuration Data	22
	■ System Capacity	23

---

# Contents

---

- 3 Before You Install WFM 25**
  - Overview 25
  - Installing Microsoft SQL Server 2005 26
  - Creating a SQL Server Login for WFM 28
  - Configuring Firewall Port Exceptions 29
  - Configuring Regional Settings 31
  - Verifying Prerequisites 33
    - Active Directory Prerequisites 33
    - Unified CCX Prerequisites 33
    - WFM Prerequisites 33
  
- 4 Installing and Configuring WFM 35**
  - Overview 35
  - Installing WFM 36
    - Pre-Installation Considerations 36
      - Upgrades 36
      - Service Releases 37
    - Installing a Base Release 37
    - Installing an Upgrade 39
    - Installing a Service Release 39
  - Configuring WFM 41
    - WFM Configuration Setup Utility 41
      - ACD Connection Step 42
      - Active Directory Step 44
      - Administrator Password Step 45
      - QM Connection Step 46
      - WFM Database Step 47
      - WFM Server Step 48
    - Launching WFM Configuration Setup Manually 48
    - Configuring NT Authentication for Unified CCX 49
      - Step 1. Creating WFM Users for the Unified CCX Database 49
      - Step 2. Configuring the OOC Service to Run as the New User 51

---

## Contents

Step 3. Granting the New User Access to the Unified CCX Database 51

Step 4. Verifying the Database Connection to the Unified CCX Database  
52

---

### **5 Capturing Historical Call Data 53**

- Overview 53
- Capturing Skill Group Historical Call Data for Unified CCX 54
- Capturing Agent Historical Call Data for Unified CCX 56
- Verifying Historical Call Data Capture 57

---

### **6 Removing WFM 59**

- Overview 59
- Removing a WFM Service Release 60
- Removing WFM Services 61

---

**Index 63**

---

## Contents

---

# Overview

# 1

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## Introduction

The Workforce Management (WFM) InstallShield Wizard guides you through the WFM installation. The installation includes the components listed in [Table 1](#).

**Table 1. Workforce Management Installation Components**

Installation	Components
Capture Services	<ul style="list-style-type: none"><li>• WFM Capture service</li><li>• WFM OOC Service</li></ul>
Compile Services	<ul style="list-style-type: none"><li>• WFM Compile service</li></ul>
Process Services	<ul style="list-style-type: none"><li>• WFM Request service</li></ul>
Transaction Services	<ul style="list-style-type: none"><li>• WFM Adherence RTE service</li><li>• WFM Adherence Conformity Calculator service</li><li>• WFM Sync service</li><li>• Apache Tomcat webserver</li><li>• WFM web application</li><li>• BIRT (Business Intelligence Reporting Tools)</li><li>• Omnis</li></ul>

These components are installed on a single server. See "[Server Configurations](#)" [on page 20](#) for more information.

After you have successfully installed WFM into a properly-configured Cisco Unified Workforce Optimization (WFO) environment, the basic functionality of WFM is ready to be configured for your use. Users access WFM through a web browser.

For information about configuring WFM, see the *Workforce Management Administrator User Guide*.

## What's New in This Version

WFM 8.3(4) includes the following new feature.

- Support for Cisco Unified Contact Center Express 8.0

## WFM Documentation

The following documents contain additional information about WFM.

- *Workforce Management Administrator User Guide*
- *Workforce Management Agent User Guide*
- *Workforce Management Troubleshooting Guide*
- *Workforce Management Reports Reference*
- *Workforce Management Release Notes*

## **Workforce Management Feature Levels**

This version of Workforce Management has only the Basic feature level.

## **Workforce Management Services**

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### **Workforce Management Adherence Conformity Calculator Service**

The Workforce Management Adherence Conformity Calculator (ACC) service processes data from the daily schedule and agent status table and computes the adherence and conformity percentages used in historical productivity reports.

### **Workforce Management Capture Service**

The Workforce Management Capture service (Capture service) listens for historical call data reports created by the Workforce Management Odysoft ODBC Collector (OOC) service. When the Capture service detects a new report, it sends a compilation request to the Compile service.

### **Workforce Management Compile Service**

The Workforce Management Compile service (Compile service) listens for compilation requests from the Capture service. The Compile service can compile historical data for agents, services, or teams by day, week, month, or year for use in forecasting and scheduling.

### **Workforce Management OOC Service**

Every 30 minutes, the Workforce Management Odysoft ODBC Collector (OOC) service (OOC service) collects all of the call data for the preceding 30 minutes from the ACD database using the Open Database Connectivity (ODBC) interface. The OOC service then writes the call data into historical reports.

High availability (HA) configurations can use multiple data sources. The OOC service always connects to the primary ACD node, however, and fails over to the secondary node only if the first connection fails.

### **Workforce Management Request Service**

The Workforce Management Request service (Request service) listens for user requests to generate forecasts and schedules.

### **Workforce Management Adherence RTE Service**

- The Workforce Management RTE (Real Time Engine) service (RTE service) allows WFM to display agent state information in the Supervisor Adherence dashboard. To get real-time information on agent states, the RTE service uses Advanced Contact Management Interface (ACMI) protocol for Unified CCX

### **Workforce Management Sync Service**

The Workforce Management Sync service (Sync service) connects to the Unified CCX node using the ACMI-based synchronization process. The Sync service retrieves and processes configuration data, such as contact service queue (CSQ) configurations, team configurations, and agent configurations.

### **Tomcat Service**

The Tomcat Service enables desktop clients to access WFM.

## Port Usage

A WFM environment consists of one WFM server and two or more remote devices, including the Unified CCX server and one or more client PCs.

Table 2 lists the software running on each of these devices in a Unified CCX environment.

**Table 2.** Configuration in a Unified CCX environment

Server	Hosted Software
WFM servers	<ul style="list-style-type: none"> <li>• WFM services</li> <li>• WFM application</li> <li>• WFM instance of SQL Server</li> <li>• Apache Tomcat</li> </ul>
Unified CCX server	<ul style="list-style-type: none"> <li>• Unified CCX</li> <li>• Unified CCX instance of SQL Server</li> <li>• CTI server (part of the RmCm subsystem)</li> </ul>
Client PC	<ul style="list-style-type: none"> <li>• Microsoft Internet Explorer 6, 7, or 8</li> </ul>

Table 3 lists the TCP and UDP ports used by WFM and its components on the WFM server.

**NOTE:** For more information about Apache Tomcat port usage, go to <http://tomcat.apache.org/tomcat-5.5-doc/index.html>.

**Table 3.** WFM Port Usage on WFM Server

Server application protocol	Destination port (listening)	Client application protocol
WFM instance of SQL Server	TCP 1433 TCP 1434	WFM Capture Service WFM Compile Service WFM RTE Service WFM Request Service WFM Sync Service Apache Tomcat
WFM RTE Service	TCP 30001 (configurable)	ACMI Service (GED-188)
WFM Sync Service	TCP 59011	<i>unused</i>
Apache Tomcat	TCP 8087 TCP 8017 TCP 8007	HTTP AJP 1.3 Shutdown port

Table 4 lists the TCP and UDP ports used by WFM and its components on remote devices in the WFM environment, including the Unified CCX server and one or more client PCs.

Table 4. WFM Port Usage on Remote Devices

Server application protocol	Destination port (listening)	Client application protocol
CTI server*	TCP 12028 (configurable)	ACMI Service
Unified CCX instance of SQL Server	TCP 1433 TCP 1434	WFM Sync Service
WFM RTE Service	TCP 42027 (configurable)	Unified CCX instance of SQL Server
Apache Tomcat	TCP 8087 TCP 8017 TCP 8007	HTTP AJP 1.3 Shutdown port

\*You can set this port number in the System Parameters window of the Unified CCX Administration web page. The parameter name for the port number is RmCm TCP Port. For more information, see *Managing System Parameters, Cisco Customer Response Solutions Administration Guide*.

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# System Requirements

# 2

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## Overview

This chapter describes the following requirements for WFM:

- [System Requirements \(page 16\)](#)
- [Server Configurations \(page 20\)](#)
- [Configuration Data \(page 22\)](#)
- [System Capacity \(page 24\)](#)

## System Requirements

The following tables list the minimum system requirements for the WFM server and clients.

### Cisco Unified Workforce Optimization Environment

Workforce Management is compatible with Quality Management (QM) and Monitoring and Recording (MR) as outlined in [Table 5](#).

Table 5. WFM/QM version compatibility

WFM Version	QM Version				MR Version
	2.4	2.5	2.6	2.7	8.0
8.0	No	Yes	No	No	No
8.1	No	Yes	No	No	No
8.2	No	Yes	No	No	No
8.3(1)	No	Yes	No	No	No
8.3(2)	No	Yes	No	No	No
8.3(3)	Yes	Yes	Yes	Yes	No
8.3(4)	Yes	Yes	Yes	Yes	Yes

### System Environment

WFM has been verified in the following configurations:

- Cisco Unified Contact Center Express 5.0(2), 7.0(1), and 8.0

### Operating Environment

#### Server Requirements

[Table 6 on page 17](#) displays the minimum operating system and hardware requirements for WFM servers.

**NOTE:** Running WFM on a platform other than a Cisco MCS or exact equivalent server is not supported

**Table 6. WFM server minimum requirements**

Operating System	Hardware
Windows Server 2003 R2	3.4 GHz Dual Pentium 4 2 GB RAM 150 GB hard disk space Cisco Media Convergence Server (MCS) or equivalent*
VMware ESX Server†	3.4 GHz Dual Pentium 4 3 GB RAM 200 GB hard disk space Cisco Media Convergence Server (MCS) or equivalent

\* For the latest information on supported MCS equivalent platforms (including IBM and HP), go to [http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod\\_brochure\\_list.html](http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html).

† WFM systems hosted on VMware have been tested for functionality only, not for scalability. Due to the many possible virtual server configurations, and the possible impact of additional hosted virtual servers on WFM, the actual server performance in the user's VMware environment is the responsibility of the customer. Cisco support for performance and scalability issues is limited to server-based deployments. If a problem occurs in a VMware deployment, the customer might be required to shut down other sessions or reproduce the problem in a non-VMware configuration to assist in isolating the issue.

### Desktop Requirements

WFM is operating system-independent. The only requirement is that the OS can run the supported web browsers (see "Third Party Software Requirements").

### Third Party Software Requirements

Table 7 on page 18 displays the minimum third party software requirements for WFM servers and where they are installed.

**NOTE:** If you are using Unified CCX, WFM requires the Cisco Media Convergence Server (MCS) platform to be a dedicated standalone

server. Running other applications on the WFM server can adversely affect performance.

**Table 7. Minimum third party software requirements for the WFM server**

Application	Where Installed/Description
Microsoft SQL Server 2005	<p>Cisco MCS platform</p> <p>System configuration data is maintained using Microsoft SQL Server 2005. The customer must purchase and install SQL Server 2005. SQL Server 2005 is not installed as part of the product and must be installed prior to deploying WFM.</p> <p>See "<a href="#">Server Configurations</a>" on page 20 for more information.</p>
Microsoft SQL Server 2005 Tools	<p>Cisco MCS platform</p> <p>In a configuration where an offboard SQL Server is used, SQL Native Client, which is part of SQL Server 2005 Tools, must be installed on the WFM server to maintain the system configuration data. SQL Server 2005 Tools is not installed as part of the product and must be installed prior to deploying WFM. See "<a href="#">Server Configurations</a>" on page 20 for more information.</p>
Sybase System 12	<p>Cisco MCS platform</p> <p><b>NOTE:</b> This application is only required if you are using Nortel Contact Center.</p>
<p>Internet Explorer 6, 7</p> <p>Internet Explorer 8 (32- or 64-bit)</p>	<p>Cisco MCS platform: Internet Explorer is required to access the WFM web application.</p>
Java 2 Runtime Environment (JRE) Standard Edition Version 5.0 (v1.5.0_12)	<p>Cisco MCS platform: Java 2 Runtime Environment is required to run the Java Server Pages (JSP) used by the WFM application. The version of JRE shipped with WFM meets the minimum requirements and is installed automatically on the Cisco MCS platform.</p>
BIRT v2.2.1	<p>Cisco MCS platform: BIRT is an open source Eclipse-based reporting system. The version of BIRT shipped with WFM meets the minimum requirements and is installed automatically. For more information about BIRT, see <a href="http://www.eclipse.org/birt/phoenix">http://www.eclipse.org/birt/phoenix</a>.</p>

Table 7. Minimum third party software requirements for the WFM server (cont'd)

Application	Where Installed/Description
JFreeChart v1.0.1	Cisco MCS platform: JFreeChart is an open source Java chart library. The version of JFreeChart shipped with WFM meets the minimum requirements and is installed automatically. For more information about JFreeChart, see <a href="http://www.jfree.org/jfreechart/">http://www.jfree.org/jfreechart/</a> .
Omnis v7.1	Cisco MCS platform: Omnis is a rapid application development (RAD) tool. The version of Omnis shipped with WFM meets the minimum requirements and is installed automatically. For more information about Omnis, see <a href="http://www.omnis.net">http://www.omnis.net</a> .
Apache Tomcat v5.5.9	Cisco MCS platform: Apache Tomcat is a web container, or application server that provides an environment for Java code to run in cooperation with a web server. The version of Apache Tomcat shipped with WFM meets the minimum requirements and is installed automatically. For more information about Apache Tomcat, see <a href="http://tomcat.apache.org">http://tomcat.apache.org</a> .

## Desktop Requirements

Table 8 displays the minimum desktop software requirements for WFM and where they are installed.

Table 8. WFM desktop minimum third party software requirements

Application	Where Installed/Description
Internet Explorer 6, 7, or 8	WFM client desktops: Internet Explorer is required to access the WFM web application.

## Server Configurations

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The number of agents and associated voice traffic WFM can support is scalable. WFM supports a single server configuration.

### Single Server Configuration

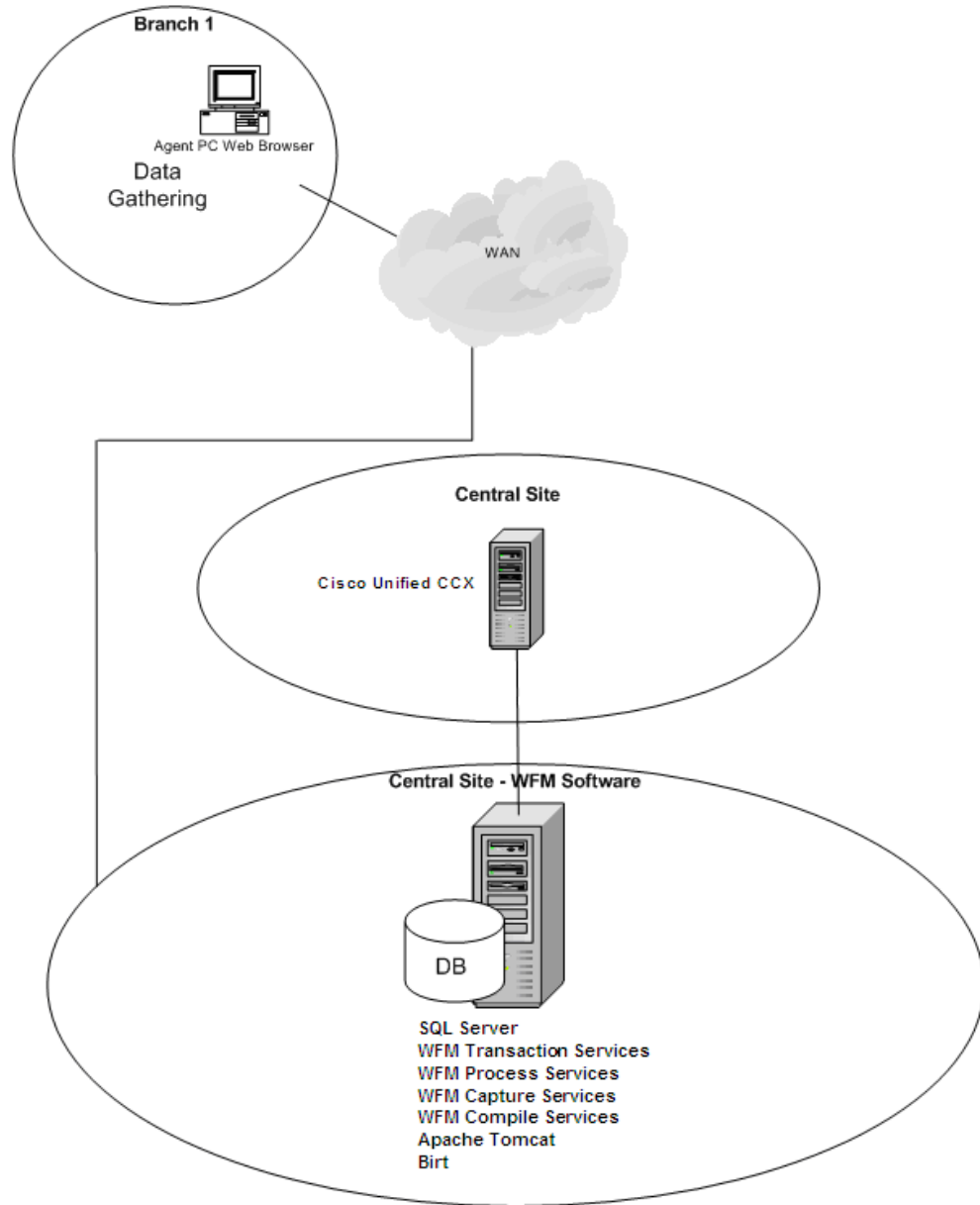
A single server configuration has one automatic call distributor (ACD) cluster with all Workforce Management services located on a single server ([Figure 1 on page 21](#)). The single server configuration supports 150 concurrent users and 450 configured users.

The following components must be installed on the single server:

- WFM Transaction Services (including Apache Tomcat, ACC service, BIRT, Omnis, RTE service, and sync service)
- WFM Process Services (including the Request Service)
- WFM Capture Services (including the OOC Service and Capture Service)
- WFM Compile Services (including the Compile Service)

**NOTE:** The Microsoft SQL Server 2005 must be installed on the single server before you install the components.

Figure 1. Single server configuration



## Configuration Data

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The following data needs to be stored persistently and must be backed up on a regular basis:

- WFM database (named CWFM)
- Customer-specific configuration files, such as the files in C:\Program Files\Cisco\WFO\_WFM\config

WFM database backups are independent of Unified CCX backup and restore or BARS tools. Use standard SQL Server 2005 tools to manually back up and restore the WFM database.

**NOTE:** If you are running Cisco Security Agent (CSA) on your WFM server, shut CSA down before you back up the WFM database. If CSA is running while you run SQL Server utilities to back up the WFM database, the backup may fail.

## System Capacity

The system capacity for the WFM server can be defined by specific hardware and software configurations. It is also defined by the number of users. User capacity is defined as follows.

- Configured users—Any scheduled or recorded agent plus all other users with active login rights to Workforce Optimization (WFO) applications (for example, supervisors, managers, quality evaluators, or schedulers). The maximum capacity for configured users is the total number of users that can be configured in WFM.
- Concurrent users—The users who are logged into WFM at any given time. The maximum capacity for concurrent users is the total number of users that can be logged into WFM at any given time.

Table 9 shows Workforce Management server capacities.

**Table 9. Workforce Management server capacities**

	Server Configuration	
Processor	Intel 5140 2.33 GHz dual core	2 Intel 5140 2.33 GHz dual core
Memory (RAM)	2 GB DDR 2/DDR 3	4 GB DDR 2/DDR 3
System Storage	40 GB HDD	40 GB HDD
Cisco MCS or Equivalent	7835	7845
Max Number Configured Users	450	900
Max No. Concurrent Users	150	300



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## Before You Install WFM

# 3

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### Overview

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This chapter describes how to configure the WFM server before you install WFM. This process consists of the following tasks.

- [Installing Microsoft SQL Server 2005 \(page 26\)](#)
- [Creating a SQL Server Login for WFM \(page 28\)](#)
- [Configuring Firewall Port Exceptions \(page 29\)](#)
- [Configuring Regional Settings \(page 31\)](#)
- [Verifying Prerequisites \(page 33\)](#)

## Installing Microsoft SQL Server 2005

You must install Microsoft SQL Server 2005 on the WFM server.

An abbreviated installation procedure is provided below. For detailed information about how to install Microsoft SQL Server 2005, see the Microsoft SQL Server 2005 installation documentation.

Complete the Microsoft SQL Server 2005 Setup utility windows as shown in [Table 10](#):

**Table 10.** Microsoft SQL Server 2005 Setup utility entries

Window	Complete as follows:
Registration Information	Enter your name, company, and product key.
Components to Install	Select check boxes for: <ul style="list-style-type: none"> <li>• SQL Server Database Services</li> <li>• Workstation Components</li> <li>• Any other desired components</li> </ul>
Instance Name	Select one of the following options: <ul style="list-style-type: none"> <li>• Default Instance. If you are upgrading from WFM 8.0, you must select the Default instance. WFM 8.0 required a default instance, and you cannot upgrade from WFM 8.0 to a SQL environment using a named instance.</li> <li>• Named Instance. If you select this option, specify the named instance.</li> </ul>
Service Account	Select Use the Built-In System Account, then select Local System from the drop-down list.  Under Start Services at the End of Setup, highlight SQL Server, SQL Server Agent, and SQL Browser.
Authentication Mode	Select Mixed Mode.  Enter a password for the SQL Server System Administrator (sa) logon.

Table 10. Microsoft SQL Server 2005 Setup utility entries (cont'd)

Window	Complete as follows:
Collation Settings	<p data-bbox="703 369 1378 436">Under Collation Designator and Sort Order, select Latin1_General from the drop-down list.</p> <p data-bbox="703 453 1378 520">Select the Accent-sensitive check box. Do not select any of the other check boxes.</p> <p data-bbox="703 537 1378 697"><b>NOTE:</b> The SQL collation name is SQL_Latin1_General_CP1_CI_AS. See <a href="http://msdn2.microsoft.com/en-us/library/ms180175.aspx">http://msdn2.microsoft.com/en-us/library/ms180175.aspx</a> for more information about SQL Server collation settings.</p>

## Creating a SQL Server Login for WFM

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**NOTE:** If you are using an historical database (HDS) and an administrative workstation (AW) database instead of a single database, make sure the SQL Server login has access to both databases.

**NOTE:** Store the WFM SQL Server login name and password in a safe place. You will need this information for the WFM Configuration Setup utility, which runs automatically after you install WFM.

### *To create a SQL Server login for WFM:*

1. On the SQL Server computer, start Microsoft SQL Server Management Studio and log in.
2. In the Object Explorer pane, expand the SQL Server instance. Choose Security > Logins.
3. Right-click Logins and choose New Login.
4. The Login–New window appears.
5. On the General page, enter the login you want WFM services to use to connect to SQL Server. Select SQL Server Authentication, enter a password, and clear the Enforce password policy check box so that the WFM user account does not expire.
6. On the Server Roles page, select dbcreator and sysadmin from the list of server roles.

**NOTE:** The WFM SQL Server login must be able to create databases and run the WFM administrative scripts.

7. Click OK. The new login is added to the list of logins in the right pane.

**IMPORTANT:** If this database user is modified (for example, name or password are changed) after WFM is installed and configured to use it, WFM must be reinstalled.

## Configuring Firewall Port Exceptions

If Microsoft Windows Firewall is enabled when WFM is installed, the installation process opens the firewall ports listed in [Table 11](#).

If another firewall is used, or if you turn on the Windows Firewall after WFM is installed, these ports must be opened manually. See your firewall documentation for instructions.

**Table 11.** Microsoft Windows Firewall port exceptions

Server Application Protocol	Listening Port	Client Application Protocol
WFM RTE Service *	TCP 30001 (configurable)	ACMI Service (GED-188)
	TCP 42027 (configurable)	Unified CCX instance of SQL Server
	TCP 42027 (configurable)	Unified CCE instance of SQL Server
	RTA port configured when the BCSI WFM REAL TIME IMPLEMENTATION package was installed	Avaya CMS
	TCP 5000, 3000, or 10000 Default = 5000	Nortel Contact Center
Apache Tomcat	TCP 8087 TCP 8017 TCP 8007	HTTP AJP 1.3 Shutdown port

\* Open the ports listed here on the server where the WFM RTE service is installed.

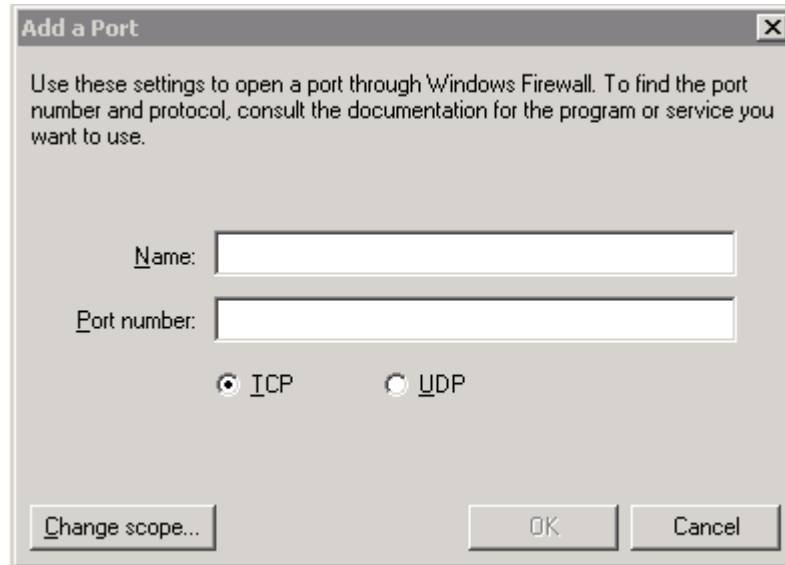
**NOTE:** For a complete list of ports used in a WFM environment, see [Port Usage \(page 13\)](#).

**To add a port to the Microsoft Windows Firewall exceptions list:**

1. On the WFM server where the applicable WFM service is installed, choose Start > Settings > Control Panel > Windows Firewall.

2. On the Exceptions tab, click Add Port. The Add a Port window appears (Figure 2).

Figure 2. Add a Port window



3. Enter a name that describes the port, and then enter the port number. Select the appropriate connection type (TCP or UDP), and then click OK.
4. Repeat steps 2 and 3 to add another port to the exceptions list.
5. When you are finished adding ports, click OK to close Microsoft Windows Firewall.

## Configuring Regional Settings

The OOC Service must use US English regional settings. If you are installing the Capture Service on a server running a Windows operating system where US English is not the default setting, you must change the default regional settings to US English in the Windows registry.

**To change the regional settings in the Windows registry:**

1. Open the Windows registry on the Capture service server.
2. Navigate to the following registry key:  
 HKEY\_USERS\DEFAULT\Control Panel\International\
3. Ensure that the registry settings under the International key are as listed in [Table 12](#).

**Table 12. Regional settings**

Value	Type	Data
iCalendarType	string	1
iCountry	string	1
iCurrDigits	string	2
iCurrency	string	0
iDate	string	0
iDigits	string	2
iFirstDayOfWeek	string	6
iFirstWeekOfYear	string	0
iLZero	string	1
iMeasure	string	1
iNegCurr	string	0
iNegNumber	string	1
iTime	string	0
iTimePrefix	string	0
iTLZero	string	0
Locale	string	00000409
NumShape	string	1

Table 12. Regional settings (cont'd)

Value	Type	Data
s1159	string	AM
s2359	string	PM
sCountry	string	United States
sCurrency	string	\$
sDate	string	/
sDecimal	string	.
sGrouping	string	3;0
sLanguage	string	ENU
sList	string	,
sLongDate	string	dddd, MMMM dd, yyyy
sMonDecimalSep	string	.
sMonGrouping	string	3;0
sMonThousandSep	string	,
sNativeDigits	string	0123456789
sNegativeSign	string	-
sPositiveSign	string	
sShortDate	string	mm-dd-yyyy
sThousand	string	,
sTime	string	;
sTimeFormat	string	h:mm:ss tt

## Verifying Prerequisites

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### Active Directory Prerequisites

If you are using Active Directory, the WFM server must be part of the Active Directory domain.

You also need the following information:

- Active Directory distinguished names and ports (if you are not using the default port)
- Active Directory paths to the users
- Common names (CN) from the Active Directory account and password

### Unified CCX Prerequisites

If you plan to use Unified CCX, you must install and configure the following systems before you install WFM.

- Cisco Unified Contact Center Express (Unified CCX)
- Cisco Unified Communications Manager (Unified CM) or Unified Communications Manager Express (Unified CME)
- Cisco Unity server (if you use Cisco Unity)
- Unified CM IP address and port number
- CTI server IP address and port number (see ["Port Usage" on page 13](#))
- Quality Management (QM) server IP address (if you use QM)
- Unified CCX server IP address:
  - Single node environment: use the primary server IP address
  - High Availability (two node) environment: use the secondary server IP address
- High Availability (two node) environment: use the secondary server IP address

### WFM Prerequisites

To install WFM, you need the following information.

- WFM server IP address
- WFM SQL Server database username and password you used in ["Creating a SQL Server Login for WFM" on page 28](#)

- SQL Server instance name you used in ["Installing Microsoft SQL Server 2005"](#) on page 26 (if you did not use the default instance)

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# Installing and Configuring WFM

# 4

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## Overview

This chapter describes how to install and configure WFM. This process consists of the following tasks.

- [Installing WFM \(page 36\)](#)
- [Configuring WFM \(page 41\)](#)

## Installing WFM

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### Pre-Installation Considerations

There are several things you should do before you install WFM, upgrade from one version of WFM to another, or install a service release.

- It is strongly advised that you disable any security software before you install or upgrade WFM. Security software can have an adverse affect on the installation process.
- If Cisco Security Agent (CSA) is running on your WFM server, shut CSA down before you begin the installation process. If CSA is running while you install WFM, the installation might fail.

Upgrades and service releases have further pre-installation considerations, as described below.

### Upgrades

Before you install a WFM upgrade, do the following:

- Schedule a maintenance period for installation. Because installing a WFM upgrade requires bringing down a WFM system, schedule installation for a maintenance period when your WFM system is out of production.
- Run the old WFM version of WFM Configuration Setup and note the settings. Not all WFM settings are maintained during the upgrade process. You must enter them again after you install the upgrade.
- Back up the old SQL Server WFM database using SQL Server backup tools.

**NOTE:** Do not remove the old SQL Server WFM database. The old SQL Server WFM database is required during the upgrade process. Backing up your database is recommended in case a problem occurs during the upgrade.

- Uninstall any service releases (SRs) applied to the old version of WFM. For instructions, see ["Removing a WFM Service Release" on page 60](#). Removing an SR takes approximately 10 minutes, followed by a server reboot.
- Uninstall the old version of WFM. For instructions, see ["Removing WFM Services" on page 61](#). Removing a WFM base release takes approximately 10 minutes. The system does not reboot.

**NOTE:** When you uninstall WFM, the WFM SQL Server database instance remains.

## Service Releases

Before you install a WFM service release, do the following:

- Schedule a maintenance period for installation. Because installing a WFM service release requires bringing down a WFM system, schedule installation for a maintenance period when your WFM system is out of production.
- Run WFM Configuration Setup and note the settings used. Not all WFM settings are maintained when a service release is installed, and you might need to enter them again.
- Back up the SQL Server WFM database using SQL Server backup tools.

## Installing a Base Release

Install the WFM services according to the supported system configuration as described in ["Server Configurations" on page 20](#).

### *To install WFM:*

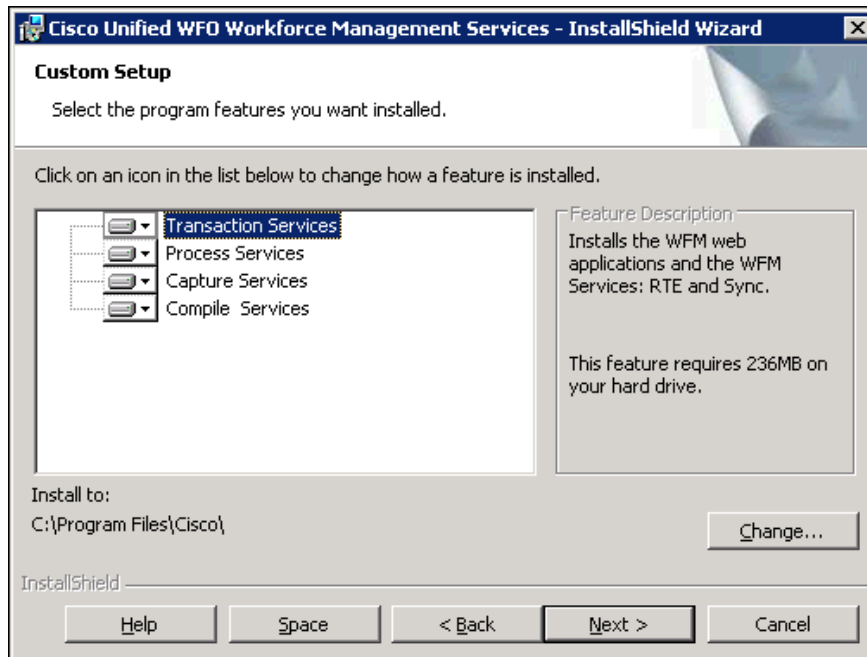
1. On the WFM server, log in as the local machine administrator.

**NOTE:** You can log into the WFM server remotely using Virtual Network Computing (VNC) software. See the documentation that came with your VNC software for instructions on establishing a remote connection to another machine.

2. Double-click setup\_WFM\_<Version>.exe, where <Version> is the version number associated with this release (for example, setup\_WFM\_834.exe), to start the installation wizard. The Cisco Unified WFO Workforce Management Services—InstallShield Wizard Welcome window appears.

3. Click Next to continue. The Custom Setup window appears (Figure 3).

Figure 3. Custom Setup window



4. The default installation folder is C:\Program Files\Cisco. If you want to change the default folder, click Change and follow the prompts.

**NOTE:** If you are upgrading from WFM 8.0, use the folder path specified when WFM 8.0 was installed. WFM needs this folder path when upgrading the SQL Server WFM 8.0 database.

5. Click Next to continue. The Ready to Install the Program window appears.
6. Click Install to continue. When the installation completes, the InstallShield Wizard Completed window appears.
7. Click Finish to close the InstallShield window. WFM Configuration Setup is launched automatically. See "[Configuring WFM](#)" on page 41 for more information on WFM Configuration Setup.

**NOTE:** If a dialog appears asking you to restart your server, Click No to dismiss the dialog box. Complete the WFM Configuration Setup utility and then restart the server.

8. If present on the server, restart Cisco Security Agent.

## Installing an Upgrade

**NOTE:** Review ["Pre-Installation Considerations" on page 36](#) before installing upgrades.

You can upgrade WFM 8.0(x) and 8.2(x) to WFM 8.3(4).

**NOTE:** Installing the upgrade, including running WFM Configuration Setup, takes approximately 30–40 minutes.

### *To upgrade to WFM 8.3(4):*

1. On the WFM server, log in as the local machine administrator.

**NOTE:** You can log into the WFM server remotely using Virtual Network Computing (VNC) software. See the documentation that came with your VNC software for instructions on establishing a remote connection to another machine.

2. Double-click setup\_WFM\_<Version>.exe, where <Version> is the version number associated with this release (for example, setup\_WFM\_834.exe), to start the installation wizard.
3. Follow the instructions in the InstallShield wizard.
4. Configure WFM 8.3(4). For instructions, see ["Configuring WFM" on page 41](#).
5. If present on the server, restart Cisco Security Agent.
6. After installation and configuration, log into WFM as an administrator and test your WFM system to ensure that it is working properly.
  - a. From the WFM interface, choose Agents > Agents. If the right pane displays a list of agents, the synchronization was successful.
  - b. Log into the WFM server as the local machine administrator and navigate to C:\Program Files\Cisco\WFO\_WFM\log. Open the OOC Service log file (<yyyymmdd>-ooCollector.log, where <yyyymmdd> is the date). Verify that the log file does not contain any error messages.

## Installing a Service Release

**NOTE:** Review ["Pre-Installation Considerations" on page 36](#) before installing a service release.

**To install a service release:**

1. On the WFM server, log in as the local administrator.

**NOTE:** You can log into the WFM server remotely using Virtual Network Computing (VNC) software. See the documentation that came with your VNC software for instructions on establishing a remote connection to another machine.

2. Run `setup_WFM_xxx_SRyyy.exe`, where `xxx` is the WFM base version number and `yyy` is the service release number.
3. Follow the instructions in the InstallShield wizard.
4. After the service release is successfully installed, WFM Configuration Setup starts.
5. Click through the windows in WFM Configuration Setup and verify that the information entered in each window is correct. The information should have carried forward from what was entered for the base software release.
6. Once you have reviewed all windows, close WFM Configuration Setup.
7. If present on the server, restart Cisco Security Agent.

---

## Configuring WFM

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### WFM Configuration Setup Utility

After you have installed the WFM services on the WFM server, the WFM Configuration Setup utility is used to configure the WFM environment. WFM Configuration Setup has two modes:

- Initial mode—WFM Configuration Setup is launched automatically in initial mode after the WFM installation finishes. After you configure all of the required parameters and exit WFM Configuration Setup, the WFM services are started automatically and the system is ready for use.
- Update mode—WFM Configuration Setup can be launched manually when you want to change configuration settings in an existing system (see "[Launching WFM Configuration Setup Manually](#)" on page 48). In update mode you cannot modify the WFM database hostname/IP address or instance name, or enable/disable Active Directory. To change those settings, you must reinstall WFM.

The following is a list of all possible steps that can appear when you run WFM Configuration Setup in either initial or update mode.

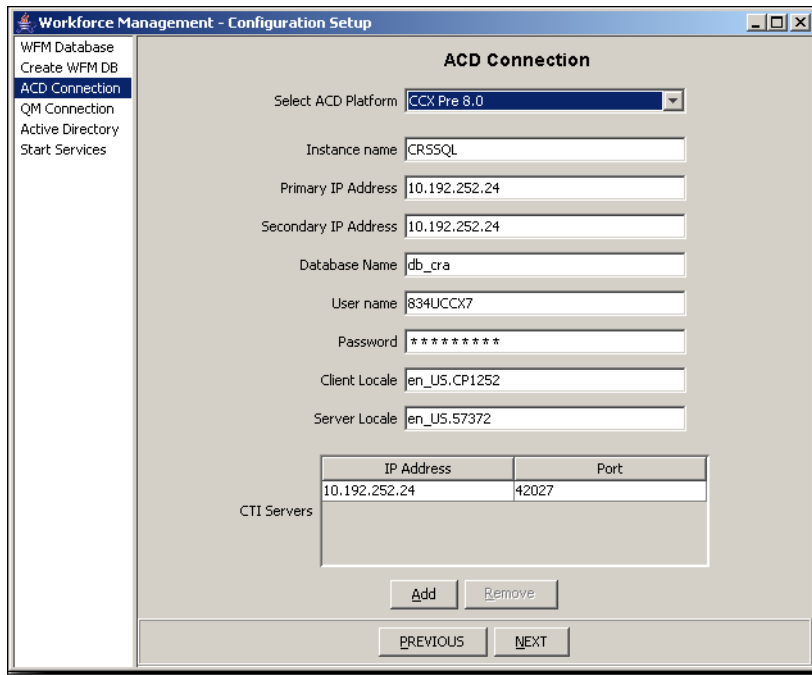
**NOTE:** Some steps trigger actions and do not display windows that contain fields to be completed.

- [WFM Database Step \(page 47\)](#)
- Create WFM DB—action only. This step creates the WFM database.
- [WFM Server Step \(page 48\)](#)
- [ACD Connection Step \(page 42\)](#)
- [QM Connection Step \(page 46\)](#)
- [Administrator Password Step \(page 45\)](#)
- [Active Directory Step \(page 44\)](#)
- Start Services—action only. This step starts all the WFM service.
- Finish Configuration—action only. This step configures the WFM Windows registry settings

### ACD Connection Step

The ACD Connection step (Figure 4) configures which ACD is used with your WFM system.

Figure 4. ACD Connection step



Complete the fields listed in Table 13.

Table 13. ACD Connection step (Nortel ACD) fields

Field	Description
Select ACD	Select the version of Unified CCX used at your site.  <b>NOTE:</b> If you select CCX 8.0+, the user defaults to a SQL user. If you select CCX Pre 8.0, the user defaults to an NT user.

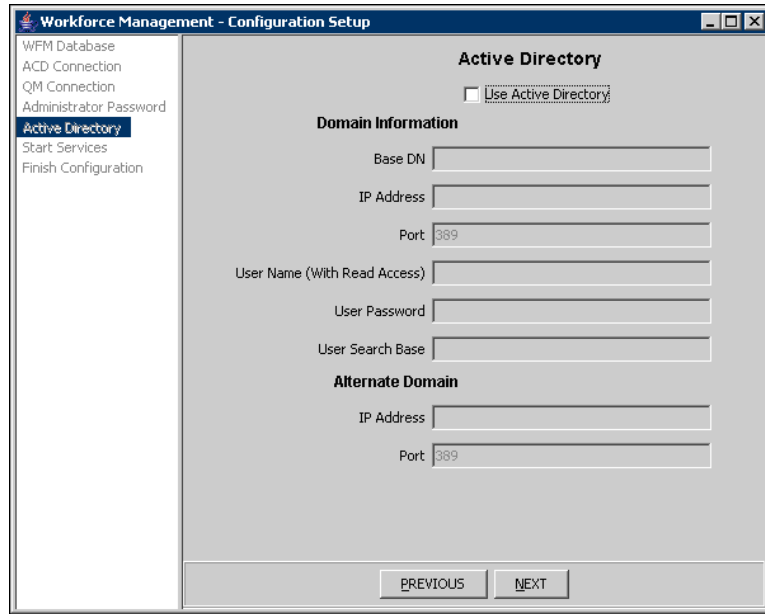
Table 13. ACD Connection step (Nortel ACD) fields (cont'd)

Field	Description
Instance Name	<p>Enter the instance name of the Unified CCX database.</p> <p>If you are using an Informix database, the name of the database instance must be entered according to these guidelines:</p> <ul style="list-style-type: none"> <li>• Convert all uppercase characters to lowercase characters</li> <li>• Replace hyphens with underscores</li> <li>• If the instance name begins with a number, prefix the number with the letter i.</li> <li>• Append <code>_uccx</code> to the instance name</li> </ul> <p>Example: If your Informix database instance is named 55-Abc, you must enter that name as <code>i55abc_uccx</code>.</p>
Primary IP Address	Enter the primary Informix server's IP address.
Secondary IP Address	Enter the secondary IP address of the ACD, if this is a redundant system.
Database Name	Enter the name of the Unified CCX database.
User Name	Enter the login name of the NT user.
Password	Enter the password of the NT user.
Client Locale	The client locale that is configured in Unified CCX. The locale for US English appears by default in this field. If the client locale is changed in Unified CCX, then it must also be manually changed in Configuration Setup.
Server Locale	The server locale that is configured in Unified CCX. The locale for US English appears by default in this field. If the server locale is changed in Unified CCX, then it must also be manually changed in Configuration Setup.
CTI Server	The CTI server(s) and port(s) associated with your system. to add a CTI server to the list, click Add and enter the CTI server IP address and port, then click OK.

### Active Directory Step

The Active Directory step (Figure 5) configures access to your Windows Active Directory.

Figure 5. Active Directory step



Complete the fields listed in Table 14.

Table 14. Active Directory step fields

Field	Description
Use Active Directory	Select the check box to use Active Directory.  <b>Note:</b> If you are upgrading from a previous version of WFM, you cannot change using or not using Active Directory. You must configure the upgrade to the same settings as defined in the previous version of WFM.
<b>Domain Information</b>	
Base DN	The location in the directory server tree under which all active directory users are located.
IP Address	The IP address of the Active Directory server.
Port	The port number of the Active Directory server.
User Name (with Read Access)	The display name as configured in Active Directory of a user with read access to the Active Directory database.

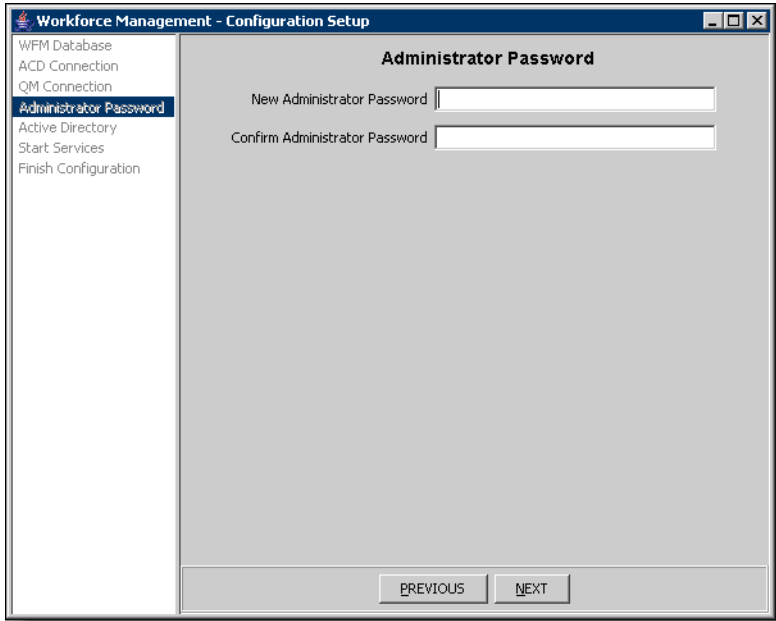
Table 14. Active Directory step fields (cont'd)

Field	Description
User Password	The user's password.
User Search Base	The path to organizational units (OU) for user records. The path must be specified from the most specific to the least specific (from left to right in the path statement). For example:  ou=Users,ou=Minneapolis,ou=Minnesota,ou=US
<b>Alternate Domain</b>	
IP Address	The redundant Active Directory server's IP address, if there is one.
Port	The redundant Active Directory server's port.

**Administrator Password Step**

The Administrator Password step (Figure 6) creates the password used by the WFM administrator to access the application. This step appears only in Initial Mode.

Figure 6. Administrator Password step



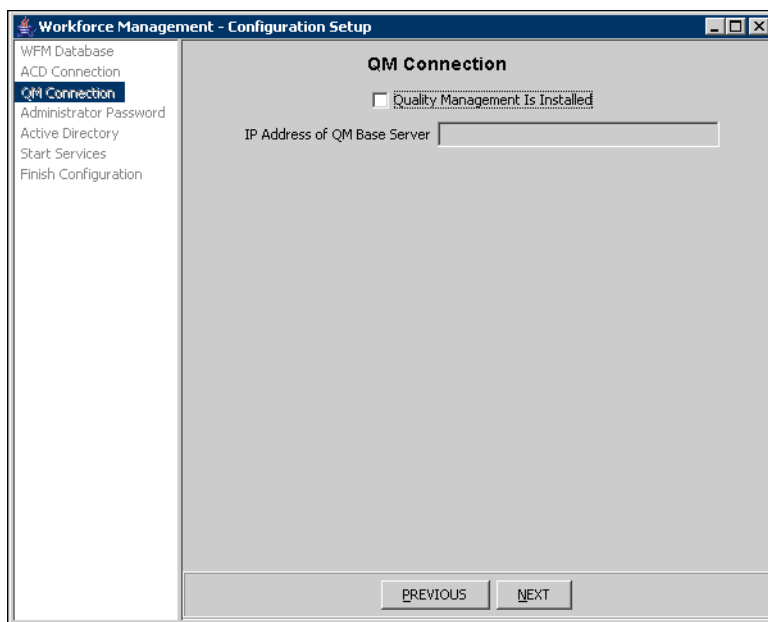
Enter the WFM administrator password in the New Administrator Password and Confirm New Administrator Password fields.

**NOTE:** Store this password in a safe place. You will need it to log into WFM as an administrator. The password can be changed using WFM Administrator.

### QM Connection Step

The QM Connection step (Figure 7) is used if you are using the Cisco Quality Management part of the Cisco Workforce Optimization suite.

Figure 7. QM Connection step

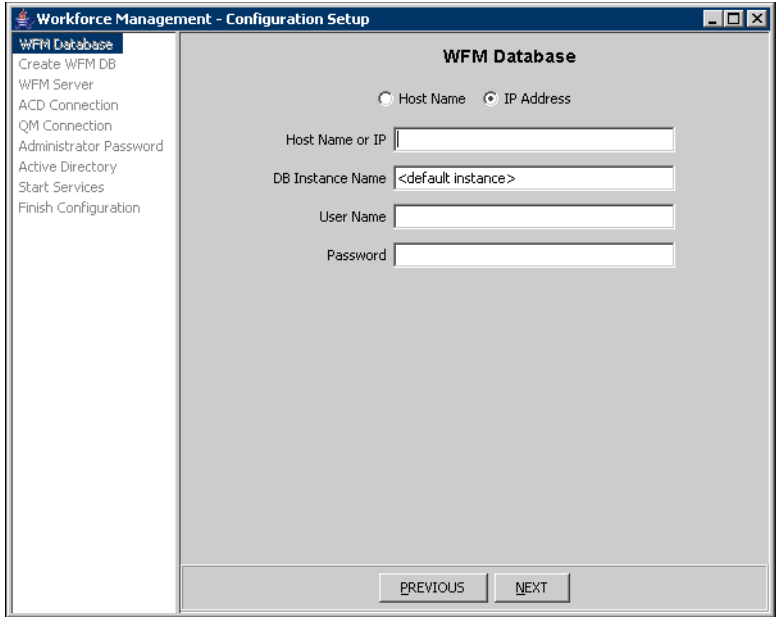


Select the Quality Management is Installed check box if you are using QM, and then enter the IP address of the QM Base server.

### WFM Database Step

The WFM Database step (Figure 8) configures access to the WFM database.

Figure 8. WFM Database step



Complete the following fields listed in Table 15:.

Table 15. WFM Database step fields

Field	Description
Host Name or IP Address	Select if you are entering a host name or IP address of the machine that hosts the WFM database.
Host Name or IP	The host name or IP address of the machine that hosts the WFM database.
DB Instance Name	The WFM database instance name.  If this is a new installation of WFM, this field is prepopulated with the text "<default instance>". Use the default value, the named instance, or leave the field blank. Leaving the field blank is the same as using the default instance.  <b>NOTE:</b> If you are upgrading from a previous version of WFM, do not enter a named instance in this field. Use the prepopulated text "<default instance>."

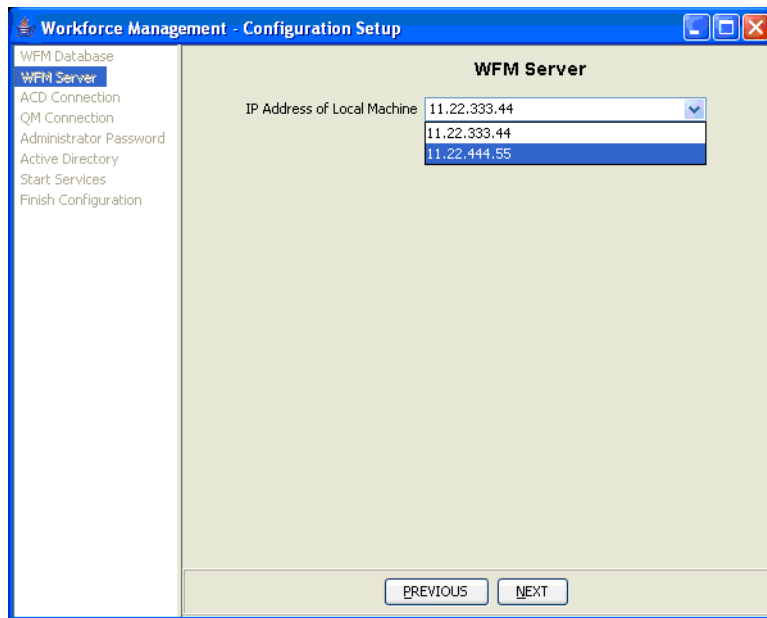
Table 15. WFM Database step fields (cont'd)

Field	Description
User Name	User name with access to SQL Server. The user is the one created when installing Microsoft SQL Server 2005. See <a href="#">"Creating a SQL Server Login for WFM" on page 28.</a>
Password	User's password.

### WFM Server Step

The WFM Server step (Figure 9) configures the IP address of the server where WFM is installed. It appears only if Configuration Setup detects that there is more than one network interface card (NIC) on the server. Select the appropriate IP address from the drop-down list.

Figure 9. WFM Server step



### Launching WFM Configuration Setup Manually

To launch WFM Configuration Setup manually:

1. Navigate to C:\Program Files\Cisco\WFO\_WFM\bin. This is the default location. Your system might use a different location.
2. Run the executable file, postinstall.exe.

## Configuring NT Authentication for Unified CCX

You must complete the following steps after you install WFM and before you start using WFM to administer users.

- [Step 1. Creating WFM Users for the Unified CCX Database \(page 49\)](#)
- [Step 2. Configuring the OOC Service to Run as the New User \(page 51\)](#)
- [Step 3. Granting the New User Access to the Unified CCX Database \(page 51\)](#)
- [Step 4. Verifying the Database Connection to the Unified CCX Database \(page 52\)](#)

### Step 1. Creating WFM Users for the Unified CCX Database

On both the WFM server and the Unified CCX server, create Windows logins that WFM can use to connect to the Unified CCX database.

**NOTE:** The WFM user must also have write access to the folder C:\Program Files\Calabrio\WFO\_WFM\log on the WFM server so the WFM services can write to log files in the directory.

#### *To create WFM users for the Unified CCX database:*

1. On the WFM server, create a new user by completing the following steps.
  - a. From the Start Menu, choose Programs > Administrative Tools > Computer Management.
  - b. Expand Local Users and Groups. Right-click Users and choose New User.
  - c. Enter a user name and password.
  - d. Clear the User Must Change Password at Next Logon check box and select the Password Never Expires check box.
  - e. Click Create, then Close. The new user is added to the list of users.
2. On the WFM server, add the new user to the Administrator group by completing the following steps.
  - a. Right-click the name of the user you just created and choose Properties. The user properties dialog box appears.
  - b. Go to the Member Of tab and click Add. The Select Groups dialog box appears.
  - c. Click Advanced. Another Select Groups dialog box appears.
  - d. Click Find Now. A list of groups appears.
  - e. Highlight the Administrators group and click OK twice to close both Select Groups dialog boxes.
  - f. Click OK again to close the user properties dialog box, then click the close window icon to close the Computer Management window.

3. On the WFM server, grant the new user permission to log on as a service by completing the following steps.
  - a. Choose Start > Programs > Administrative Tools > Local Security Policy. The Local Security Settings window appears.
  - b. In the left pane, choose Local Policies > User Rights Assignment.
  - c. In the right pane, double-click Log on as a service. The Log on as a service Properties dialog box appears.
  - d. Click Add User or Group. The Select Users, Computers, or Groups dialog box appears.
  - e. Click Advanced. The Select Users or Groups dialog box appears.
  - f. Click Find Now. A list of users and groups appears.
  - g. Select the name of the new user from the list, click OK twice to close the Select Users or Groups dialog boxes, then click OK to close the Log on as a service Properties dialog box.
  - h. Choose File > Exit to close the Local Security Settings window.
4. On the Unified CCX server, create a new user by completing the following steps.
  - a. From the Start Menu, choose Programs > Administrative Tools > Computer Management.
  - b. Expand Local Users and Groups. Right-click Users and choose New User.
  - c. Enter a user name and password.

**NOTE:** Use the same name and password for the new user that you used on the WFM server in step 1.

- d. Clear the User Must Change Password at Next Logon check box and select the Password Never Expires check box.
  - e. Click Create, then Close. The new user is added to the list of users.
5. On the Unified CCX server, add the new user to the Administrators group and the Users group by completing the following steps.
  - a. Right-click the name of the user you just created and choose Properties. The user properties dialog box appears.
  - b. Go to the Member Of tab and click Add. The Select Groups dialog box appears.
  - c. Click Advanced. Another Select Groups dialog box appears.
  - d. Click Find Now. A list of groups appears.
  - e. Highlight the Administrators group and the Users group and click OK twice to close both Select Groups dialog boxes.

- f. Click OK again to close the user properties dialog box, then click the close window icon to close the Computer Management window.

## **Step 2. Configuring the OOC Service to Run as the New User**

Use this procedure to configure the OOC service to run as a new user.

### ***To configure the OOC service to run as the new user:***

1. On the WFM server on which the OOC service is installed, choose Start > Programs > Administrative Tools > Services.
2. Right-click the name of the OOC Service and choose Properties. The properties dialog box appears.
3. Click Stop and wait for the service to stop.
4. On the Log On tab and select This Account. Enter the name and password of the Windows user you created in Step 1, and then click OK.
5. On the General tab, click Start to restart the service. The service must be restarted for your changes to take effect.
6. After the service starts, click OK to dismiss the properties dialog box for the service.
7. Choose File > Exit to close the Services Management Console.

## **Step 3. Granting the New User Access to the Unified CCX Database**

### ***To grant the new user access to the Unified CCX database:***

1. On the Unified CCX server, start Microsoft SQL Server Enterprise Manager.
2. Under the Unified CCX instance, choose Security > Logins. A list of Windows and SQL Server users who have permission to access the databases in this instance appears.
3. Right-click Logins and choose New Login. The SQL Server Login Properties - New Login dialog box appears.
4. Click the button to the right of the name field to browse for the new user you created in Step 1 ([page 49](#)). A second SQL Server Login Properties - New Login dialog box appears.
5. Select the machine name from the List Names From list. A list of users and groups defined on the machine appears.
6. Select the new user, then click Add. The user name appears in the Add Name field.
7. Click OK to dismiss the second SQL Server Login Properties - New Login dialog box.

8. On the Database Access tab, select the Permit check box for the side A database, then select the Permit in Database Role check box for db\_datareader.
9. If there is a side B database, select the Permit check box for the side B database, then select the Permit in Database Role check box for db\_datareader.
10. Click OK to dismiss the SQL Server Login Properties - New Login dialog box.
11. Choose Console > Exit to close SQL Server Enterprise Manager.

#### **Step 4. Verifying the Database Connection to the Unified CCX Database**

*To verify the database connection from WFM to the Unified CCX database:*

1. Enter the following URL in your web browser, where <wfm> is either the name or the IP address of the server where WFM is installed.

`http://<wfm>:8087/c3/`

**NOTE:** The website address is case sensitive.

The Workforce Management login window appears.

2. Enter administrator in the username field and the password that you specified in WFM Configuration Setup (see "[Administrator Password Step](#)" on [page 45](#)), then click GO or press the Enter key. The Workforce Management window appears.
3. Choose Agents > Agents. If the right pane displays a list of agents, the synchronization was successful.
4. Navigate to C:\Program Files\Cisco\WFO\_WFM\log. Open the OOC Service log file, which is named <yyyymmdd>-ooCollector.log, where <yyyymmdd> is the date. Verify that the log file does not contain any error messages. If there are error messages, correct the errors before proceeding.

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# Capturing Historical Call Data

# 5

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## Overview

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The WFM forecasting feature uses your contact center's historical contact data to estimate future call volume and scheduling requirements. The OOC Service retrieves data automatically every 30 minutes, starting from the time you installed WFM.

If you want to use historical contact data from the time before you installed WFM, you must complete the procedures in this chapter to capture the data manually.

For more information about the forecasting feature, see *Workforce Management Administrator User Guide for Cisco Unified Workforce Optimization*.

**NOTE:** You must complete the procedures described in this chapter immediately after you install WFM.

## Capturing Skill Group Historical Call Data for Unified CCX

To capture skill group historical call data for Unified CCX:

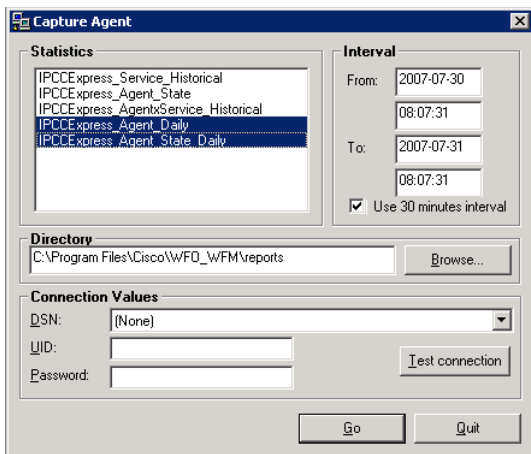
1. From the WFM server, choose Start > Programs > Cisco> WFO > WFM > OOC. The Odyssoft ODBC Collector window appears (Figure 10).

Figure 10. Odyssoft ODBC Collector



2. Choose Collector > Capture. The Capture Agent window appears (Figure 11).

Figure 11. Capture Agent - Historical CSQ data



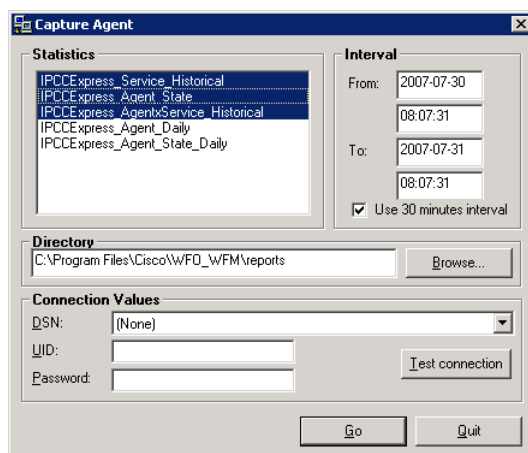
3. In the From fields in the Interval pane on the right, enter the beginning date and time for the historical call reference period. The date must be in the YYYY-MM-DD format, and the time in the 24-hour HH:MM:SS format.
4. In the To fields, enter the ending date and time for the historical call reference period.
5. Highlight the last two statistics queries in the Statistics pane as shown in [Figure 11](#).
6. Select the Use 30 minutes interval check box.
7. Enter the following directory path in the Directory field:  
`C:\Program Files\Cisco\WFO_WFM\reports`
8. Select the desired database instance name from the DSN field.
9. In the UID and Password fields, enter the user ID and password of a user with read/write access to the selected database.
10. Click Test connection to verify the connection is working.
11. Click Go to capture the historical call data. The reports are created and saved to the folder C:\Program Files\Cisco\WFO\_WFM\reports.
12. When the hourglass disappears, click Quit to exit the Capture Agent window.
13. Choose Collector > Quit to exit Odysoft ODBC Collector.

## Capturing Agent Historical Call Data for Unified CCX

### To capture agent historical call data:

1. From the Odysoft ODBC Collector window, choose Collector > Capture. The Capture Agent window appears (Figure 12).

Figure 12. Capture Agent - Historical Agent data



2. In the From fields in the Interval pane on the right, enter the beginning date and time for the historical call reference period.
3. In the To fields, enter the ending date and time for the historical call reference period.
4. Highlight the first three statistics queries in the Statistics pane as shown in Figure 12.
5. Select the Use 30 Minutes Interval check box.
6. Enter the following directory path in the Directory field:  
C:\Program Files\Cisco\WFO\_WFM\reports
7. Select the Unified CCX DSN from the DSN field.
8. Enter the Unified CCX user ID and password.
9. Click Test Connection to verify the connection is working.
10. Click Go to capture the historical call data. The reports are created and saved to the folder C:\Program Files\Cisco\WFO\_WFM\reports.
11. When the hourglass disappears, click Quit to exit the Capture Agent dialog.
12. Choose Collector > Quit to exit Odysoft ODBC Collector.

## **Verifying Historical Call Data Capture**

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When you finish capturing the historical call data for Unified CCX, the capture module processes the reports in the folder C:\Program Files\Cisco\WFO\_WFM\reports and moves them to the folder C:\Program Files\Cisco\WFO\_WFM\archives.

The historical contact data capture is complete when there are no more reports in the folder C:\Program Files\Cisco\WFO\_WFM\reports.



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# Removing WFM

# 6

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## Overview

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To remove WFM, you must proceed in the following order:

1. Remove all service releases (see ["Removing a WFM Service Release" on page 60](#)).
2. Remove WFM (see ["Removing WFM Services" on page 61](#))

## Removing a WFM Service Release

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Follow these steps to remove a WFM service release from a WFM server.

**NOTE:** If you cancel the removal process while it is running, the service release might continue to be listed in the Add or Remove Programs window, and you will not be able to remove or repair the service release, or reinstall it. Contact Cisco TAC for assistance. See the monthly *What's New in Cisco Product Documentation* for contact information:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

**To remove a WFM service release:**

1. Log into the WFM server as the local machine administrator.

**NOTE:** You can log into the WFM server remotely using Virtual Network Computing (VNC) software. See the documentation that came with your VNC software for instructions on establishing a remote connection to another machine.

2. Choose Start > Settings > Control Panel > Add or Remove Programs.
3. Select Cisco Unified WFO Workforce Management Service Release, click Remove, and follow the prompts.

During the removal process, a DOS window named srRollbackRepair.exe appears. Do not close this window. The srRollbackRepair.exe DOS window closes automatically.

4. Your computer automatically reboots. After the computer restarts, the system will be back to its base level software state.

## Removing WFM Services

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**NOTE:** When you remove the Workforce Management services, the WFM database is not removed.

**NOTE:** If there is a service release installed on the Workforce Management server and you want to install WFM, you must remove the service release before you can remove WFM. See ["Removing a WFM Service Release" on page 60](#) for more information.

**NOTE:** Security software can have an adverse affect on the removal process. It is strongly advised that you disable any security software before you remove WFM.

***To remove the Workforce Management services:***

1. Log into the WFM server as the local machine administrator.

**NOTE:** You can log into the WFM server remotely using Virtual Network Computing (VNC) software. See the documentation that came with your VNC software for instructions on establishing a remote connection to another machine.

2. From the Start menu, choose Settings > Control Panel.
3. Double-click Add or Remove Programs.
4. Select Cisco Unified WFO Workforce Management Services, click Remove, and follow the prompts.

**NOTE:** JRE and Tomcat are automatically removed when you remove Cisco Unified WFO Workforce Management Services.



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# Index

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A	R
ACC Service described 11	removing WFM application 59
Active Directory prerequisites 33	Request Service described 11
	requirements system 16
	RTE Service described 12
	S
	Sync Service described 12
	system environment 16
	requirements 16
	T
	Tomcat Service described 12
	U
	Unified CCX capturing agent historical call data 56
	capturing CSQ historical call data 54
	prerequisites 33
	verifying historical call data 57
	uninstalling WFM 61
	W
	WFM

- installing 36
- prerequisites 33
- removing this version 59
- uninstalling 61
- WFM Capture Services
  - single server configuration 20
- WFM Compile Services
  - single server configuration 20
- WFM Configuration Setup tool 41
- WFM Process Services
  - single server configuration 20
- WFM Transaction Services
  - single server configuration 20