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CIC Integration to Workforce Management Historical and Real-Time Adherence

Technical Reference

Abstract

This technical reference shows how to install, configure, and use Genesys Workforce Management Integration software, including its Historical and Real-Time Adherence modules.

For the latest version of this document, see the PureConnect Documentation Library at: http://help.genesys.com/pureconnect.

Table of Contents

Introduction to Workforce Management Integration

WFM Integration is a software package that (in separate modules) collects historical statistics and reports real-time user status updates from your CIC servers. WFM Integration makes these historical statistics and real-time user status updates available to third-party workforce management products.

Companies that have PureConnect's Interaction Optimizer software do not need WFM because Interaction Optimizer provides complete workforce management features and is integrated with CIC server software. WFM is for companies that do not have Optimizer and instead use third-party workforce management software. The WFM Historical and Real-Time Adherence (RTA) modules both extract user status information from your CIC servers and make it available to third-party workforce management software. The difference is that:

- WFM Historical extracts historical information. Use such information to plan workloads and staffing levels. WFM Historical collects historical statistics about the workgroups you select, such as calls handled, average talk time, and abandons. It collects the statistics at intervals. Each third-party software vendor has different requirements for historical reports, so we pull data from different historical tables.
- WFM Real-Time Adherence extracts up-to-the-minute information about status changes of employees in call centers and other organizational units that you choose to monitor. RTA listens for real-time changes in user status and reports them to the vendor in real time. RTA does not query for historical data and only cares about statuses.

At a high level, the two modules mainly differ in this way. WFM Historical provides historical information so you can analyze and plan for the future. WFM RTA provides real-time information so you can manage your staff and resources in the present.

The same setup program installs both modules of WFM. You configure and run both modules from the same interface. However, each module needs its own license to run.

For more information about WFM, see the Product Information site at https://my.inin.com/support/products/integrations/Pages/Workforce-Management.aspx.

Supported third-party software

WFM is a versatile product that can work with multiple third-party vendors of workforce management software:

- Blue Pumpkin/Witness/Verint
- IEX TotalView/NICE
- GMT
- Aspect eWFM
- Invision/Injixo (cloud version of Invision)
- Pipkins (applies only to RTA)

Requirements

Component	Requirement
IC Server	Customer Interaction Center 2016 R2
Application server	Windows Server 2012 R2 (64-bit), 2016 (64 bit), 2019 (64-bit) **Note:** Do not install the WFM Integration on an IC server. Typically, the WFM Integration is installed on the SQL Server running the I3 DB repository (if applicable) or the WFM vendor's server (if it is a Windows operating system). Both Historical and Real-Time Adherence (RTA) are lightweight applications and can easily be run on the same server with other applications.
Microsoft .NET Framework	.NET 4.0 is required. Without it, Interactive Update does not function correctly.
Database server	SQL Server or Oracle (tables added to existing I3 database repository)
Third-party WFM software supported	**Note**: We do not test our WFM Historical or Real-Time integrations for each version of the WFM products we integrate with. We do not expect issues because the communication standards used are not such that should be effected by a new version. If there are new standards available in that version of the WFM product then of course we will not comply at this time. Please contact the WFM vendor for specific information about the differences in their version. They are all aware of the specifics on how we integrate with their products. • Blue Pumpkin/Witness/Verint • IEX TotalView/NICE • Aspect eWFM • GMT • Invision/Injixo (cloud version of Invision) • Pipkins (applies only to RTA)
Other requirements	• Connectivity to joint file share or FTP location on WFM server (Blue Pumpkin, IEX, GMT, Invision, or Aspect eWFM) • Access to PureConnect database instance on SQL Server or Oracle • For GMT and IEX, set up status-reporting workgroup in Interaction Administrator before configuring Real-Time Adherence.

WFM licensing

WFM Integration is sold in two modules, Historical and Real-Time Adherence. Each module is licensed separately per CIC server. If a customer has three CIC servers (with switchover/backup servers), the customer would need three licenses for WFM Historical and RTA. You can run Historical without an RTA license; you can run RTA without a Historical license.

The license strings are feature based. Each CIC server license must have the necessary features in order for the application modules to function.
• WFM Historical License Name: I3_FEATURE_WFM_HISTORICAL
• WFM RTA License Name: I3_FEATURE_WFM_REALTIME

Even without the required licenses, the user can still configure both WFM modules, but the integration services do not start unless there is at least one licensed server. If there is at least one server, integration services start, but the unlicensed servers are not functional from the integration perspective.

Installing Workforce Management Integration

There are two main steps in installing Workforce Management (WFM) Historical and Real-Time Adherence (RTA).

1. Create custom database tables for the application in the CIC reporting database as described in <u>Creating custom tables on the database server</u>.
2. Install WFM Historical and RTA software on your workforce management servers or on another designated server as described in <u>Installing WFM on an application server</u>.

WFM with GMT or IEX workforce management software

If you are using WFM with the GMT or IEX workforce management software, do the following:

1. Start Interaction Administrator.
2. Create a logical workgroup that "Has No Queue" to hold all users whose status information WFM will collect and send.

Before installing WFM

If you are using WFM with the GMT or IEX workforce management software:

1. Start Interaction Administrator.
2. Create a logical workgroup that "Has No Queue" to hold all users whose status information will be collected and sent by WFM

Creating custom tables on the database server

Before installing WFM, create custom database tables for the application in the CIC reporting database. WFM supports all database platforms. Download WFM from <u>https://my.inin.com/support/products/integrations/Pages/Workforce-Management.aspx</u>.

The SQL folder in your installation download contains installation scripts to help you create these tables.

1. Complete and verify a full backup of your CIC database.
2. Locate the correct script file in the installation download. The script files are in the `\Installs\Integrations\WorkforceManagement` directory in the installation download and have the following names:

Platform	File name
MS SQL Server	WFMTABLES.MSS
Oracle	WFMTABLES.ORA

3. Open the script in the utility or development tool appropriate for your database platform.
4. Edit the `GRANT` statements at the bottom of the script. Based the grant statements on the release of CIC that you are running.
5. Connect to the CIC Reporting database, using the same User ID and password that was originally used during the CIC installation to create the original database (`eic_admin` in most cases).
6. Execute the script and verify that the creation of the objects is completed.

   Create the tables using the same table-space or schema, and owner as the original reporting tables.

GMT and IEX users only: create a master workgroup

Unlike Blue Pumpkin and Aspect, GMT and IEX do not require the workgroup membership information that WFM typically sends together with CIC user status data.

The most effective way to tell WFM which CIC user data to send is to:

- Create a new logical workgroup that "Has No Queue".

  > **Note:**
  > Create the workgroup in Interaction Administrator *before* you install and configure WFM.

- Include all monitored users in that workgroup.

Installing WFM on an application server

The same setup program installs both modules. Run both modules from the same interface. You can license only one of the modules (Historical or Real-Time Adherence) or both of the modules. If you license only one of the modules, you can still install and configure both modules, but you will only be able to run the module you have licensed.

To install WFM Historical and Real-Time Adherence

1. Using an account with administrator rights, log on to your wfm server or designated application server.
2. Start the "setup" program:
    a. Locate and double-click the installation file `WFMRTAIntegration_2016_R2.msi`.
    b. If a dialog box asks, "Do you want to run this file?", click **Run**.
    c. In the **Welcome** window, click **Next** . The wizard displays its **Custom Setup** window.
3. In the customer setup window, change the following options as necessary:
    - To change installation type from full installation (the default) to on-demand installation (*not recommended*), click the disk drive icon.
    - If you changed options and want to reset them to their default values, click **Reset**.
    - To verify that you have enough disk space to install, click **Disk Usage**.
    - To select a different folder in which to install the software, click **Browse**.
4. When finished, click **Next**. The wizard displays its **Ready to Install** window.
5. Click **Install**. When the wizard displays its **Completed** window, click **Finish**.

    The installation program sets up two Windows Services, one for WFM Historical and one for WFM RTA (see the following figure). After you have configured WFM Historical and WFM RTA, WFM provides a menu choice to start their Windows Services if they are licensed. You can configure both modules without a license. However, starting the Windows Service requires a license for the particular module you want to run.

    The following image shows the Windows Services window with WFM services highlighted.
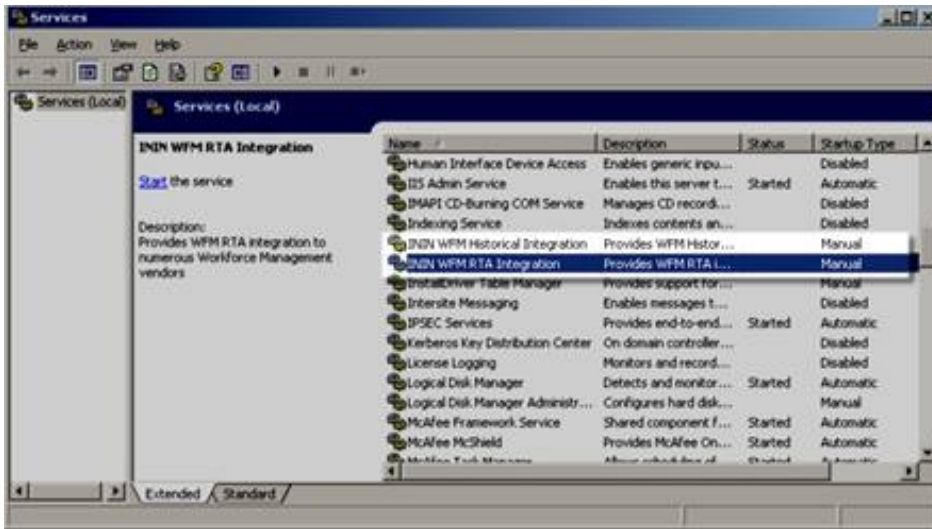
Configuring and using WFM Historical

For information about configuring and using WFM Historical, see the following:

- Starting WFM
- Switching between Historical and Real-Time Adherence
- Create and Configure WFM Historical Feeds
- Using the Historical Import Utility
- Using the Configuration Import Utility
- Starting, stopping, and restarting the Historical Service

Starting WFM

Configure and run both the WFM Historical and WFM Real-Time Adherence modules from the same control interface.

> **Note:**
> Run WFM Integration Configurator as an administrator.

To start WFM, click the windows **Start** option, point to **PureConnect**, and then click **WFM Integration Configurator**.
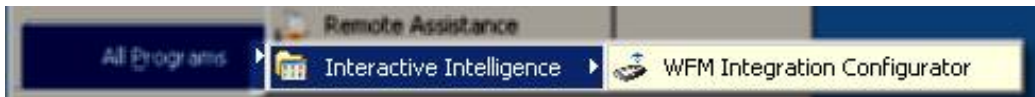
When WFM starts, it displays the main window for the Historical module.
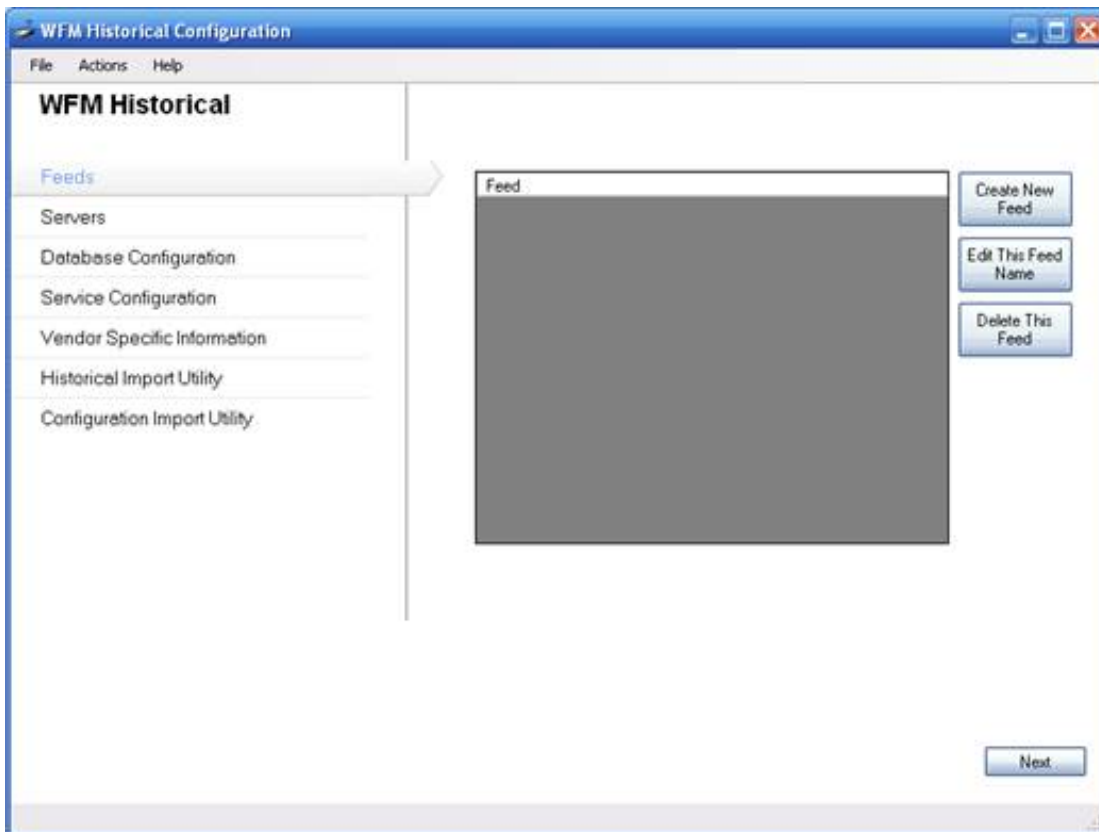
Switching between Historical and Real-Time Adherence

To switch between WFM Historical and WFM RTA, on the **Actions** menu, point to **Switch Configuration** and then click a module.

Create and Configure WFM Historical Feeds

A feed is:

- Where you are going to get historical data: from which CIC servers and databases
- What information you are going to collect: about which workgroups
- Where and how you are going to send the information: which third-party software receives it, how to format the information, what folders and templates to use, and so forth

Depending on your situation, you can set up feeds in various ways.

A common choice is to set up one feed per CIC server. Each feed can connect to only one database, so if you have multiple CIC servers and each CIC server reports to a different database, you need multiple feeds to get data from all the CIC servers. However, multiple CIC servers can report their data to the same database server. In that situation, you can create a feed that captures data from all the CIC servers reporting to the same database.

On the output side, each feed defines one set of output data to your third-party software vendor. If you want to send a separate set of data for each of your CIC servers, then set up separate feeds, one for each CIC server.

To configure the Historical module, create one or more feeds. After you create a feed, configure it.

To create and configure each feed, do the following:

- Step 1: Creating a feed
- Step 2: Configuring WFM to work with a CIC server and its workgroups
- Step 3: Configuring WFM to work with a database
- Step 4: Configuring the WFM service
- Step 5: Configuring WFM for the third-party software
- Step 6: Configuring sign-in/sign-out mappings
- Step 7: Saving your feed configuration

Step 1: Creating a feed

To create a feed:
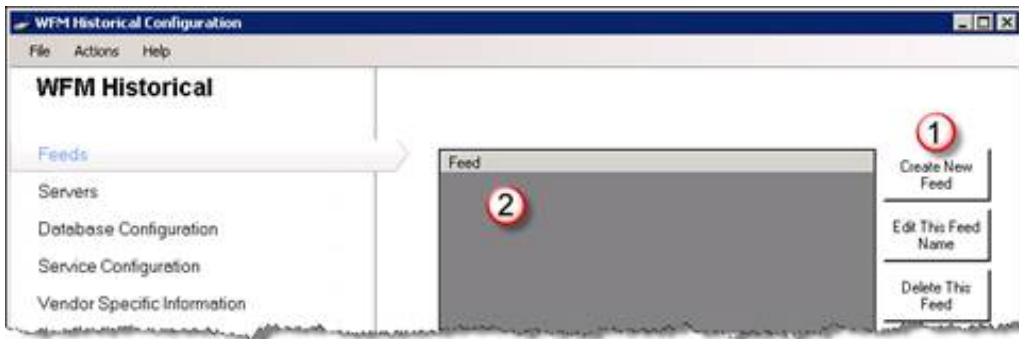
1. On the feeds page of WFM Hhistorical, click **Create New Feed** button (1).
   WFM displays the **Add Feed** dialog box.
2. In the **What do you want to call this feed?** text box, type name for feed.
3. Click **OK**.
   WFM adds your new feed name to the **Feed** list (2). If you later decide to change the feed name, select it in the **Feed** list and click the **Edit This Feed Name** button.

Step 2: Configuring WFM to work with a CIC server and its workgroups

Next, configure WFM to work with one or more CIC servers. In this step, provide the information for WFM to log on to each CIC server.

To configure WFM to work with a CIC server:

1. On the **Feeds** page, click the **Next** button to display the **IC Server Configuration** page.
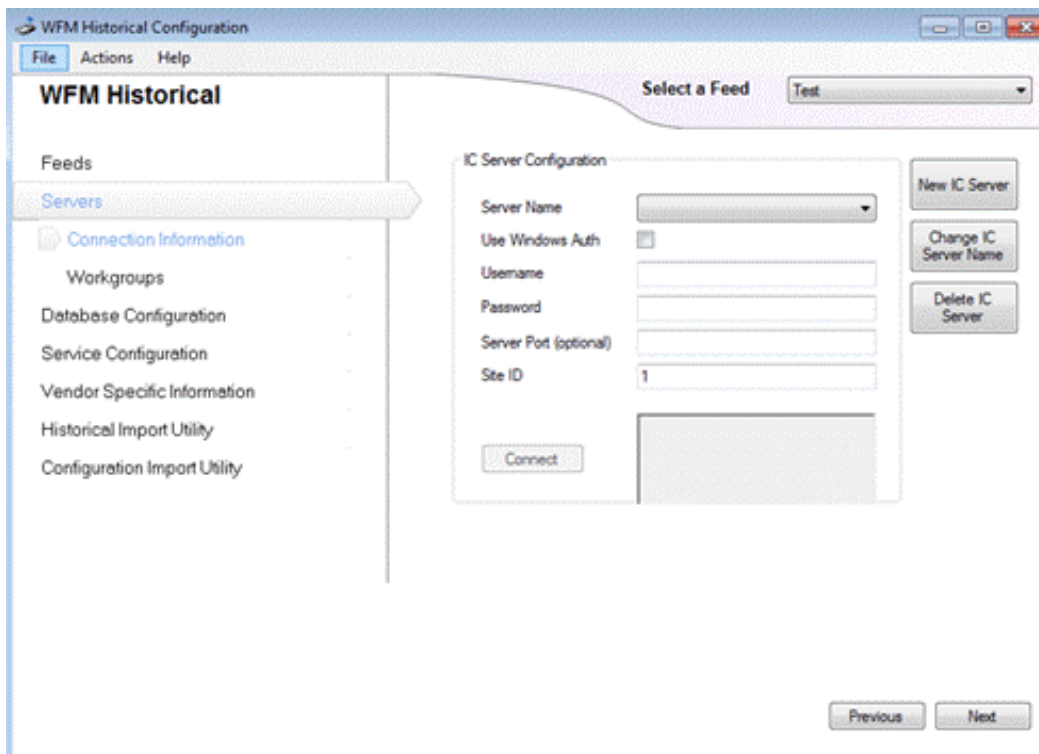
2. Add a new CIC server name.
   a. Click the **New IC Server** button.
   b. In the dialog box, type the name of the CIC server, and then click **OK**.
3. Add logon information for the server.
   a. Input your user name and password.

      i. In the **Username** text box, type a logon ID for the server.

     ii. In the **Password** text box, type the corresponding password.

> **Note:**
> Alternatively, select **Use Windows Auth**. WFM then uses your Windows credentials to log on.

  b. In the **Server Port** text box, type the number 0. The Server Port overrides the port for connection to the Session Manager process. Using 0 (or leaving the text box blank) uses the default connection port to connect to Session Manager.

> **Note:**
> Configure the account you use to connect to the CIC server in Interaction Administrator as a master administrator account. The WFM service accesses data in your CIC server that is unavailable to other account types.

4. Click the **Connect** button to test the connection with your CIC server.

   WFM displays a progress bar while it makes the connection. When it connects, WFM displays a success message in the gray text box to the right of the **Connect** button.

5. To configure more CIC servers, repeat steps 2 through 4.

> **Tip:**
> If you are running CIC in a switchover environment, do not create a separate server for the backup. Ensure though that the server entered during the initial setup is the current primary server and is running. Otherwise, you cannot configure many of the other items during installation.

6. Click the **Next** button.

   WFM displays the **Workgroups** page.

The **Select a Feed** list box (1) shows the feed for which you are selecting workgroups. If you have defined multiple feeds, use this list box to select a different feed.

The **Select a Server** list box (2) shows the CIC server from which you are selecting workgroups. If you defined multiple servers for the selected feed, use this list box to select a different CIC server and choose workgroups from it.

7. In the **Available Workgroups** list (3), click each workgroup to monitor, and then click the **Add** button.

   WFM displays the selected workgroups in the Monitored Workgroups list (4).

Step 3: Configuring WFM to work with a database

Next, configure WFM to work with a database on one of your CIC servers. In this step, you provide the information that WFM needs to log on to each database and obtain status information from it.

To configure a server:

1. On the workgroups page, click the **Next** button.

   WFM displays the **Database Configuration** page.
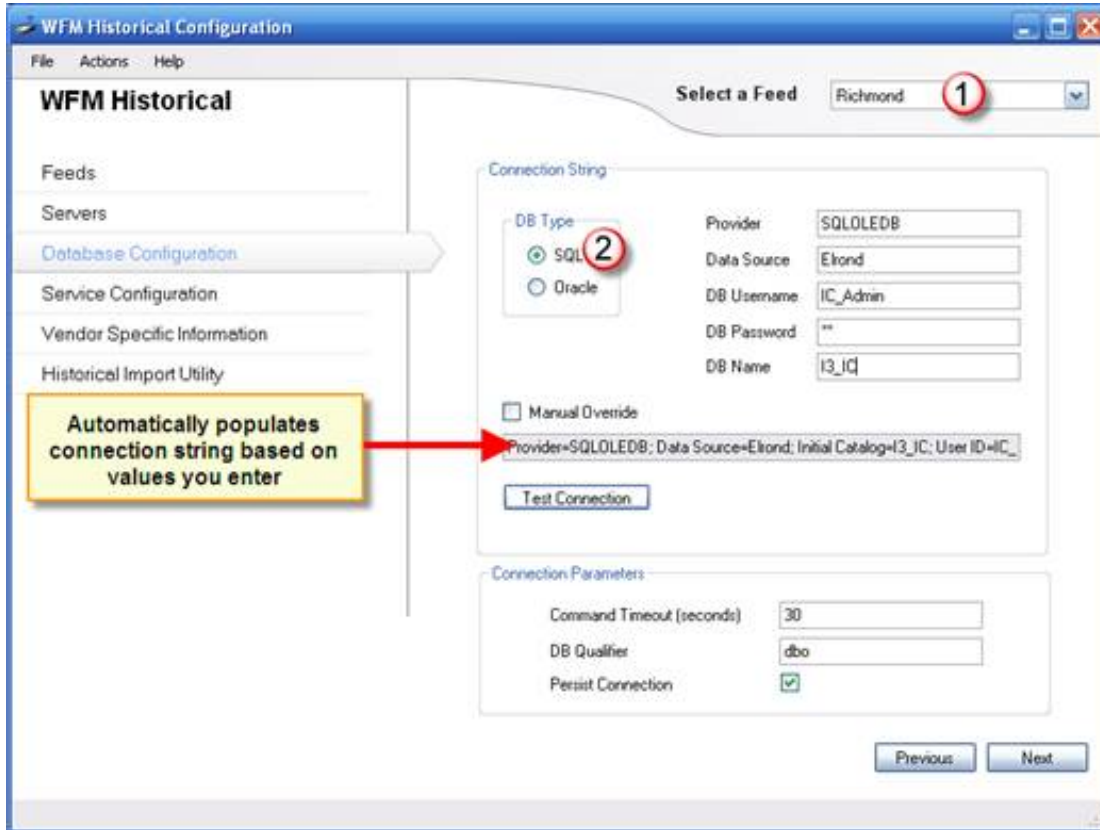
   The **Select a Feed** list box (1) displays the feed for which you are setting up database access. You can change to a different feed.

2. In the **DB Type** section (2), click the radio button for the type of database WFM connects to.

   WFM automatically fills in the appropriate value for the **Provider** text box.

3. In the connection string section, add database logon information.
   a. In the **Data Source** text box, type the name of the data source.
   b. In the **DB Username** text box, type the user ID WFM uses.
   c. In the **DB Password** text box, type the corresponding password.
   d. In the **DB Name** text box, type the name of the database to use.

   WFM automatically fills in the connection string text box based on the values you enter.

4. Click the **Test Connection** button.

   This button tests WFM's connection to the database.

   WFM tries to connect to the database with the logon information you provided. If it succeeds, it displays a success message.

   WFM automatically fills in the text boxes in the **Connection Parameters** section:
   - **Command Timeout**: the number of seconds that a command can execute before timing out. Typically the default of 30 seconds is sufficient, except for large customers.
   - **DB Qualifier**: the qualifier that is used for database transactions. This value changes when the **DB Type** parameter changes. The default values are correct for most cases, but verify that they are correct for your situation.
   - **Persist Connection**: a setting that determines if the database connection is maintained (kept alive) as long as the service is running.

Step 4: Configuring the WFM service

Next, specify various things about how WFM provides status information to the third-party software.

To configure the WFM service:
1. On the **Database Configuration** page, click the **Next** button.
   WFM displays the **Service Configuration** page.
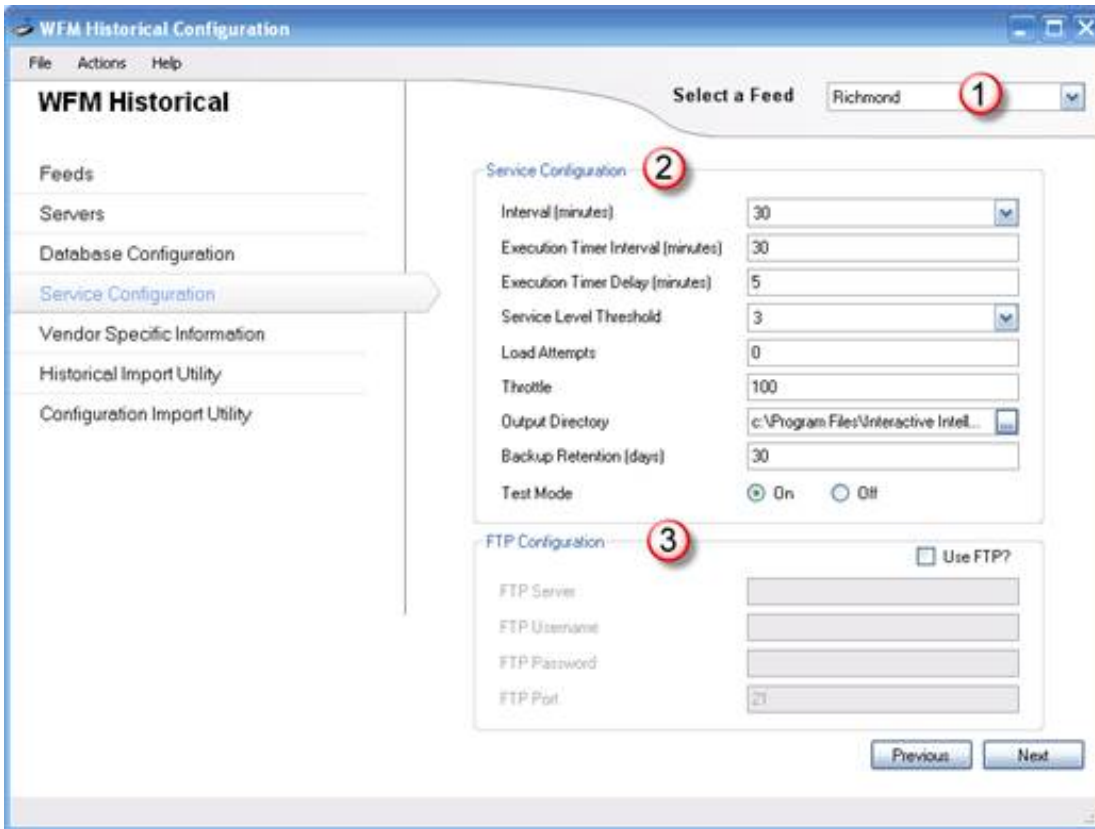
The **Select a Feed** list box (1) shows the feed for which you are configuring the service and lets you switch to a different feed.
2. In the **Service Configuration** section (2), expand the **Interval** list box and select the time interval for grouping status data. The default value is 30 minutes. Match the Interval to the Reporting Interval defined in Interaction Administrator.
3. Specify Execution Timer values:
   a. In the **Execution Timer Interval** list box, select the number of minutes between interval executions. The default value is 30 minutes. Set a higher value for organizations with large amounts of historical data or for organizations that are not concerned about historical data being delivered quickly. Set the **Execution Timer Interval** to the same value as the Interval configured in the previous step.
   b. In the **Execution Timer Delay** list box, select the number of minutes after the interval execution time that WFM waits before querying your CIC data.
      If WFM queries your CIC server database at the same time that the CIC server is writing its data to the database, performance will suffer and data could be missed. This parameter tells WFM how long to wait after that time before it queries your CIC server data.

   > **Note:**
   > If you set up WFM to query multiple CIC servers, the data is retrieved in the order of the configured servers.

4. Specify service level, load attempts, and throttle:
   a. In the **Service Level Threshold** list box, select how many service *buckets* to include as acceptable wait times.
      Each bucket indicates how long a customer has to wait before a call center agent picks up the call. Interaction Center ships with six default buckets, each of which is 10 seconds longer than the previous one. With the WFM default service level threshold of 3, WFM sends the percentage of calls answered within the first 3 buckets (1 to 10 seconds, 11 to 20 seconds, and 21 to 30 seconds).
   b. In the **Load Attempts** text box, enter how many times WFM tries to load an interval before giving up.
      The default value is 0, meaning that WFM keeps trying until it succeeds in loading a particular interval.
   c. In the **Throttle** text box, enter the number of intervals WFM processes simultaneously if it needs to catch up.
      If you have turned the service off for several days or there is a network outage, WFM might need to process many intervals to catch up.

5. Click the **Browse** [...] button next to the **Output Directory** text box. Browse to the folder where WFM places its output files for the third-party software.

> **Note:**
> If you are configuring for FTP, the **Output Directory** text box disappears and a Relative FTP Directory text box appears in the **FTP Configuration** section.

   Each third-party software package has a preferred location for these files; consult your vendor documentation. For software that receives data via FTP, this location is the folder on the FTP server where WFM puts its output files.

6. In the **Backup Retention** text box, type the number of days you want to keep backups of your output files after you create them.

7. Click one of the **Test Mode** radio buttons to turn test mode on or off.

   By default, test mode is turned on. After you install WFM, keep test mode turned on until you have verified that the system is configured and working the way you want. Test Mode saves the XML data sets that get run through the vendor's XSL. Use this data for debugging the flat file outputs that the WFM Historical Module generates.

8. If you want WFM to send its output files via FTP:
   a. Select the **Use FTP** check box.
   b. Fill in the boxes for FTP server, relative FTP directory, user ID, password, and port.

Step 5: Configuring WFM for the third-party software

Next, set values to help WFM provide status data to the third-party software.

To configure WFM for the third-party software:

1. On the **Service Configuration** page, click the **Next** button to display the **WFM Type Configuration** page.
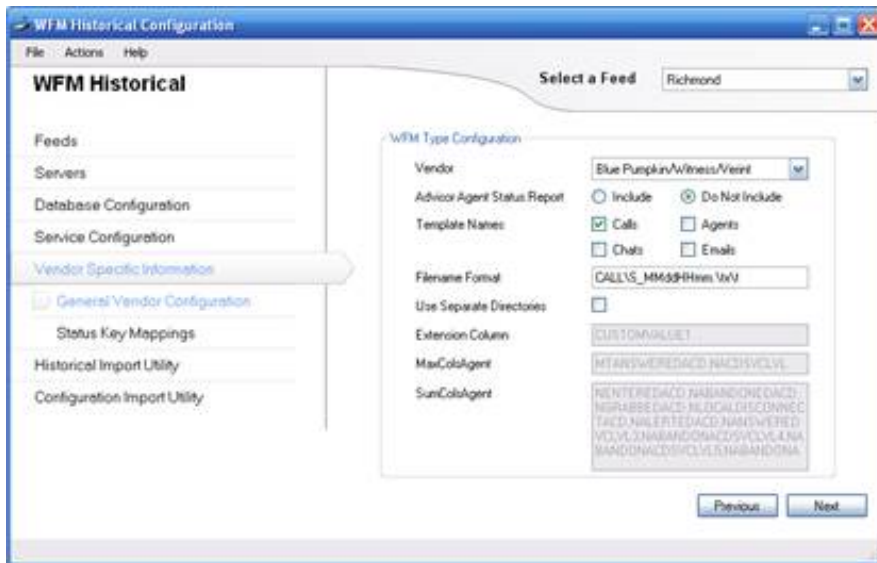
2. Expand the **Vendor** list box and click the vendor name for your third-party software.
   WFM automatically displays the correct controls and labels for your vendor.

3. To include a report that groups historical data by agent and by workgroup, select the **Include** radio button labeled:
   - **Advisor Agent Status Report** for Blue Pumpkin
   - **Agent Profile Report** for IEX or GMT
   - **Agent Activity Report** for Aspect eWFM
   - **Agent Historical Adherence** for Invision

4. **Template Names** check boxes instruct WFM to create separate files for different categories of data. The check boxes are available or unavailable depending on your software vendor.
   - Select **Calls** to create a separate file with call data.
   - Select **Agents** to create a separate file with agent data.
   - Select **Chats** to create a separate file with chat data.
   - Select **Emails** to create a separate file with e-mail data.

   As you select templates, WFM adds their file names to the **Filename Format** text box. WFM inserts commas between the file names to separate them.

> **Warning:**
> Do not modify the contents of the **Filename Format** text box unless the change is needed and you understand what you are doing.

5. To put each file in its own directory, select the **Use Separate Directories** check box.

   This feature is only available for Blue Pumpkin and Aspect.

6. To show outbound calls by workgroup, select the **Show Outbound Calls via Workgroup** check box.

   This feature is only available for IEX. It shows a per-workgroup breakdown of the outbound calls made on behalf of the workgroups each interval from an agent and workgroup perspective.

7. Write the name of the CIC custom tables column in which WFM stores the extension data, if:

   - You included an agent-based report in Step 3.
   - Your software identifies agents by their telephone extension.

   Suggested values are:

   - Blue Pumpkin: Leave blank
   - IEX: CUSTOMVALUE1
   - GMT: CUSTOMVALUE1
   - Aspect: CUSTOMVALUE1
   - Invision: CUSTOMVALUE1

   If you are already using the CUSTOMVALUE1 column for something else, you can use CUSTOMVALUE2, CUSTOMVALUE3, or some other available column.

8. If you use Aspect and included an agent-based report in Step 3, you can change the values in the **SumColsAgent** and **MaxColsAgent** boxes (only used by Aspect). However, do not change the values unless you are sure about what you are doing and why. The boxes are as follows:

   - **SumColsAgent**: Lists the columns to be summed when creating the Agent Profile report. The Agent Profile report pulls numerous intervals from the IAgentQueueStats table. Those rows must be summarized within the SignIn/SignOut combinations. This list of columns is added for each row.
   - **MaxColsAgent**: Similar to SumColsAgent, but this column takes the maximum value across all rows in the SignIn/SignOut combination.

Step 6: Configuring sign-in/sign-out mappings

This page is blank for every third-party package except Aspect eWFM, which displays status mapping if you set **Include Agent Profile** to a value of **Yes**. Use this page to configure sign-in/sign-out status mappings. WFM Historical uses these mappings to generate a historical report for Aspect that shows agents' summary results for each day. The status mappings determine how WFM Historical flags statuses as signed in or signed out and how to group the results during the day.

For example, a user logs on at 8:00am, goes to lunch at 11:30am, returns at 12:15pm, and goes home at 4:30pm. WFM Historical breaks that day into 2 sets of sign-in/sign-outs: 8:00-11:30am and 12:15-4:30pm.

To configure sign-in/sign-out mappings:

1. On the **WFM Type Configuration** page, click the **Next** button.

    WFM displays the **Status Key Mappings** page. The default mappings match those mappings required by the third-party software package you specified. If you specified a third-party package that does not use status keys, then the page displays a message that your package does not use status key mappings.
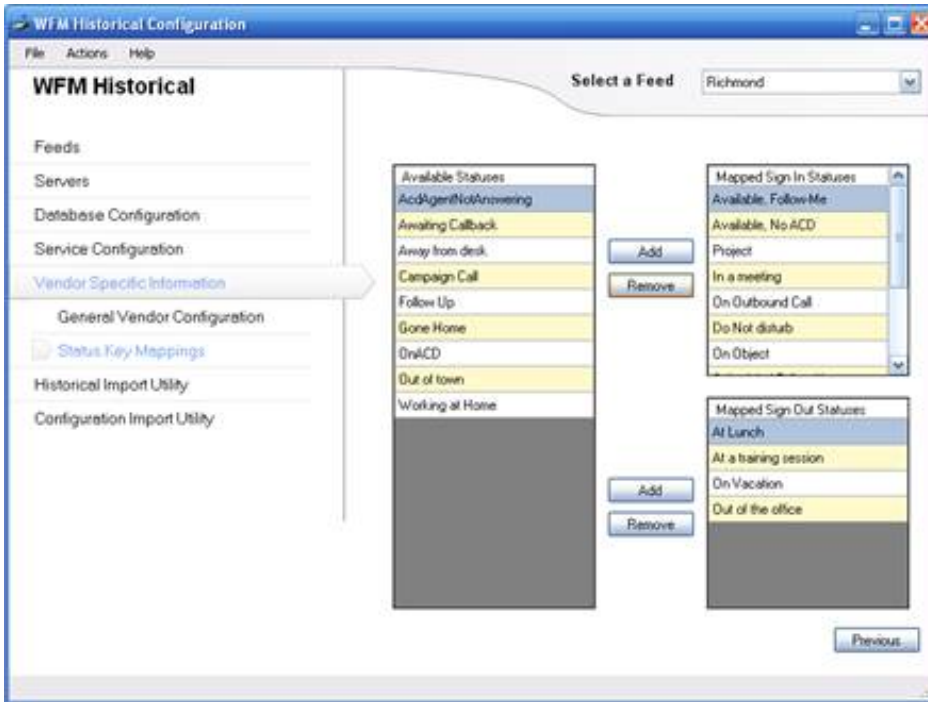
2. If needed, add or remove statuses from the **Mapped Sign In Statuses** list.

    Your WFM Historical feed is now configured.

Step 7: Saving your feed configuration

To save your feed configuration:

1. Open the **File** menu and click **Save**.

Using the Historical Import Utility

Use the Historical Import Utility to reprocess old intervals. For example, if you just installed WFM Historical and you want to see the previous two months of data, use the Historical Import utility to do it. Such reprocessing can give you a *historical baseline* for your future scheduling.

Because the Historical Import Utility is not part of the process to configure a feed, you cannot reach its page by clicking the **Next** button from the **Status Key Mappings** page.

To use the Historical Import Utility

1. In the navigation menu at the left side of WFM Historical, click **Historical Import Utility**. The **Historical Import Utility** page appears.
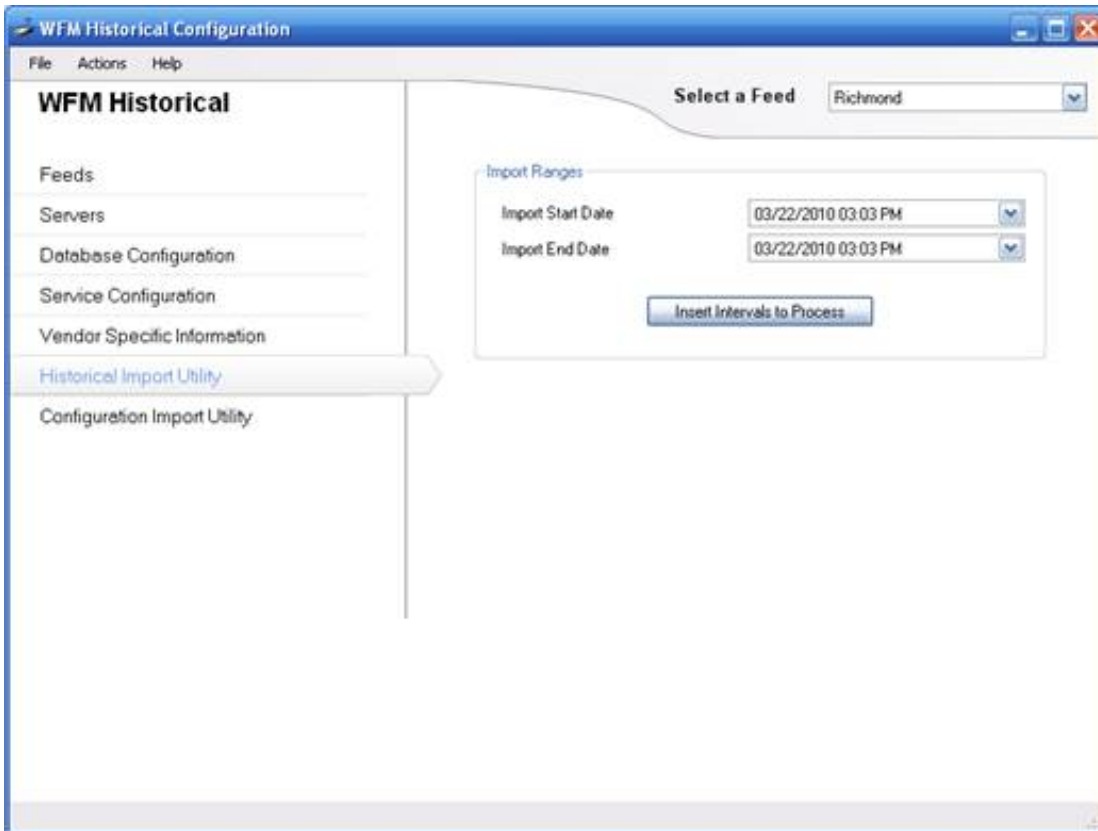
2. Expand the **Import Start Date** list box and click the starting date from the pop-out calendar.

> **Note:** You cannot enter a date in the future. If you select a future start date or end date for the import, a message box is displayed to indicate that the date needs to be checked.

3. Expand the **Import End Date** list box and click the ending date from the pop-out calendar.
4. Click **Insert Intervals to Process**. WFM imports the CIC server status data for the period you specified.

Using the Configuration Import Utility

Use the Configuration Import Utility to import a configuration file for WFM Historical. Because the Configuration Import Utility is not part of the process to configure a feed, you cannot reach its page by clicking the **Next** button on the **Status Key Mappings** page.

To use the Configuration Import Utility

1. In the navigation pane, click **Configuration Import Utility**. The **Configuration Import Utility** page appears.
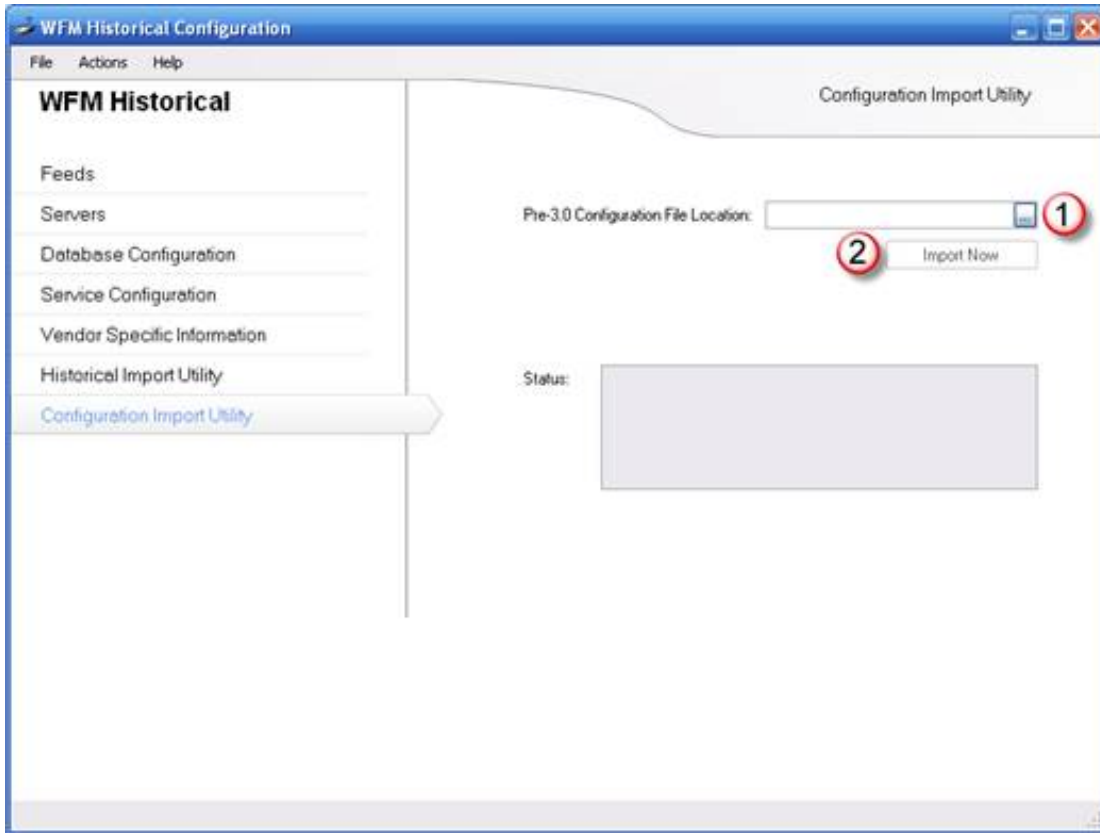
2. Click **Pre-3.0 Configuration File Location** (1) and browse to the location of the configuration file to import. Select the file.
3. Click **Import Now** (2). WFM imports the selected configuration file.

Starting, stopping, and restarting the Historical Service

If you make configuration changes in WFM Historical, you might need to restart its Windows Service. WFM usually prompts you to stop or restart the service. The WFM Actions menu lets you start, stop, and restart the Windows WFM Historical Service from within your WFM software. Previously, you did this through Windows Service.

To start, stop, or restart the Windows Service for WFM Historical

1. On the **Actions** menu, point to **Services**, then point to the module you want to start, stop, or restart.
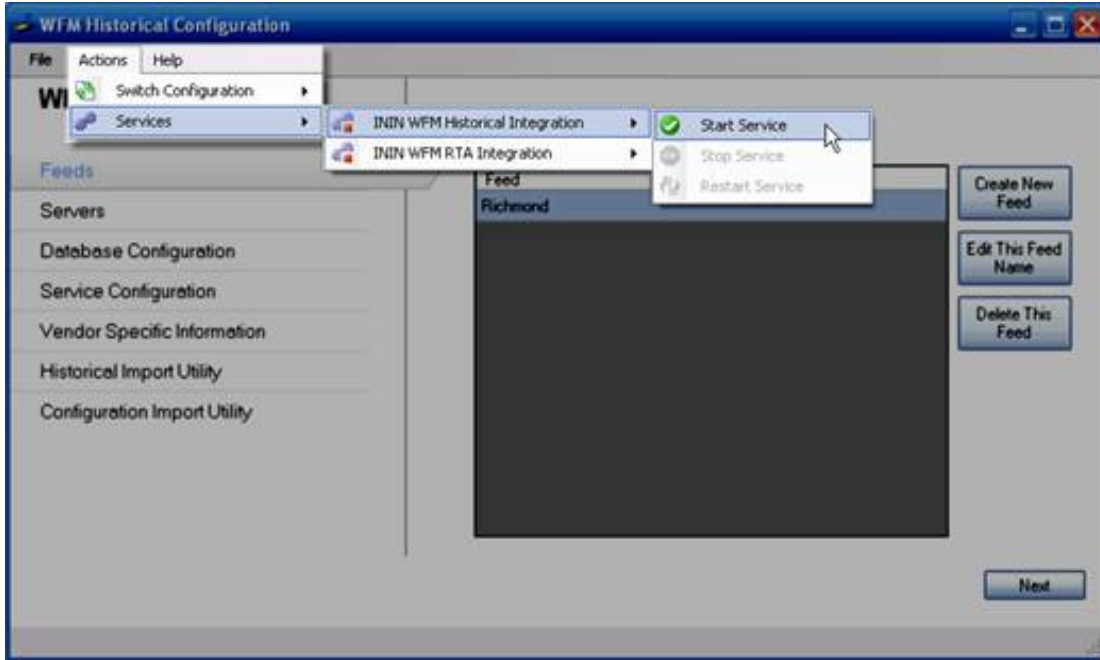
2. On the submenu, click **Start Service**, **Stop Service**, or **Restart Service**. WFM starts, stops, or restarts the Windows Service as directed. WFM displays a message that confirms the result of your action.

Configuring and using WFM Real-Time Adherence

For information about configuring and using WFM Real-Time adherence, see the following:

- Switching from Historical to Real-Time Adherence
- Step 1: Creating a plug-in
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Switching from Historical to Real-Time Adherence

The WFM landing page shows options for the **Historical** module. To switch to Real-Time Adherence, on the **Actions** menu, point to **Switch Configuration**, then click **WFM Real Time Adherence**.

Step 1: Creating a plug-in

A plug-in is:

- Where you get status information: from which CIC servers
- What information you collect: about which workgroups
- Where and how you send the information: which third-party software receives it

To configure the RTA module, first create one or more plug-ins. Each plug-in defines how RTA sends status information to a particular third-party workforce management package. The simplest approach is to create one plug-in for each third-party software package to which RTA sends status data. Most organizations only need to create one plug-in, but you can create multiple plug-ins if needed and switch between them.

> **Tip:**
> If you are having trouble connecting to the WFM provider and you are running Windows Server 2012, disable IPv6.

To create a plug-in:

1. Display the RTA Main Configuration page.
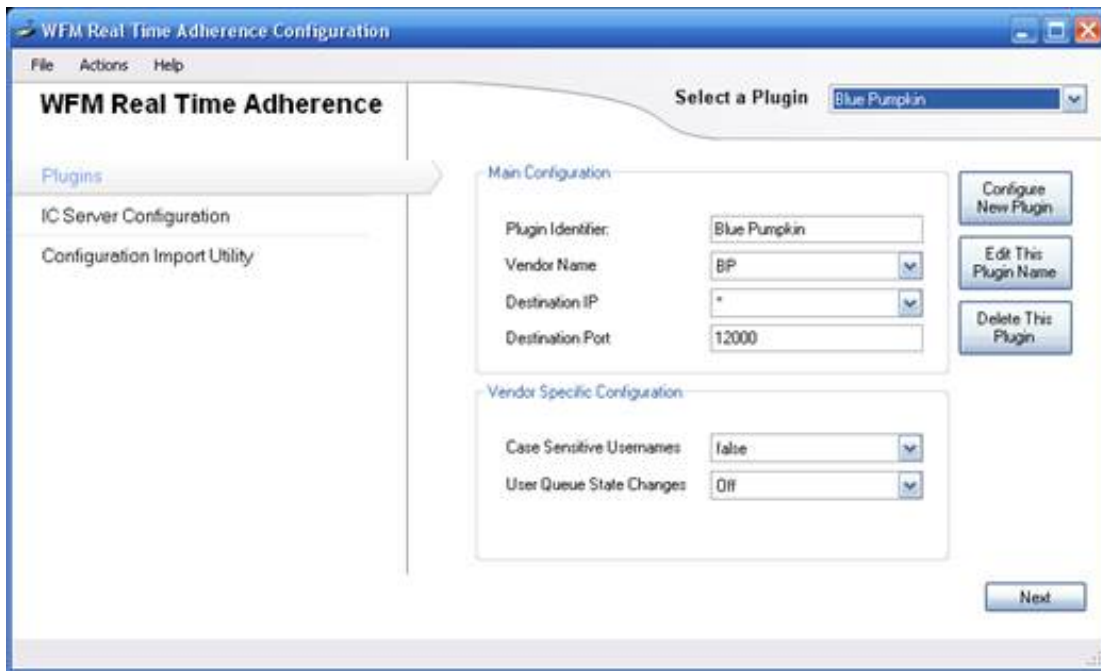
2. Click the **Configure New Plug-in** button.

3. In the add plug-in dialog box,type a name for and click **OK**. Give the plug-in the same name as the third-party software to which it sends information. If you later decide to change the name, select the plug-in and click the **Edit This Plug-in Name** button.

4. Expand the **Vendor Name** list box and click the name of your third-party software vendor.

Based on the vendor you selected, RTA fills in appropriate values for the Destination IP and Destination Port. Different fields appear in the Vendor Specific Configuration section. RTA fills in those fields with appropriate values for the vendor you selected.

Vendor-specific fields

Vendor	Field	Explanation
All vendors	User Queue State Changes	Enables RTA to watch agent queue states and report on them. Available states are Off, Minimal, and Verbose. GMT and Invision support only Off and Minimal.
Aspect	Update Frequency	Indicates the number of seconds between updates. The default value is 10, indicating that changes are sent in ten-second increments. The updates include all changes since the last change update. To send the status updates in real-time, set the value to the number 0.
Blue Pumpkin	Case Sensitive Usernames	If set to "false", WFM Real-Time module sends the user name in all lowercase. If set to "true", WFM Real-Time module sends the user name in its original casing.
GMT	N/A	There are no vendor-specific fields for GMT.
IEX	Password	By default, the password that RTA uses for IEX
	Heartbeat Rate	The interval in seconds between times when RTA pings IEX to see if the connection is alive. The default value is 60. Set to 0 for no heartbeats.
	Status Length	Sets a maximum of either 20 or 50 characters for the length of the status field.
	Status Format	Selects Standard (default) or State and Status. Standard is either the state or status of the user, depending on what was set for User Queue State Changes. State and Status concatenates both the state and the status of the user, and uses the resulting combination as the user's status.
	Send "AgentID" as Extension	If set to "true", sends the extension of the agent as the identifier to IEX. If set to "false", sends the AgentID to IEX. Agent must have an extension assigned.
Invision	Heartbeat Rate	The interval in seconds between times when RTA pings Invision to see if the connection is alive. The default value is 10.
Pipkins	N/A	There are no vendor-specific fields for Pipkins.

Step 2: Configuring the plug-in to work with a CIC server

Configure the plug-in to work with one or more CIC servers. In this step, you provide the information for the plug-in to log on to each CIC server.

To configure the plug-in to work with a CIC server

1. On the **RTA Main Configuration** page, click **Next**. The **IC Server Configuration** page appears.
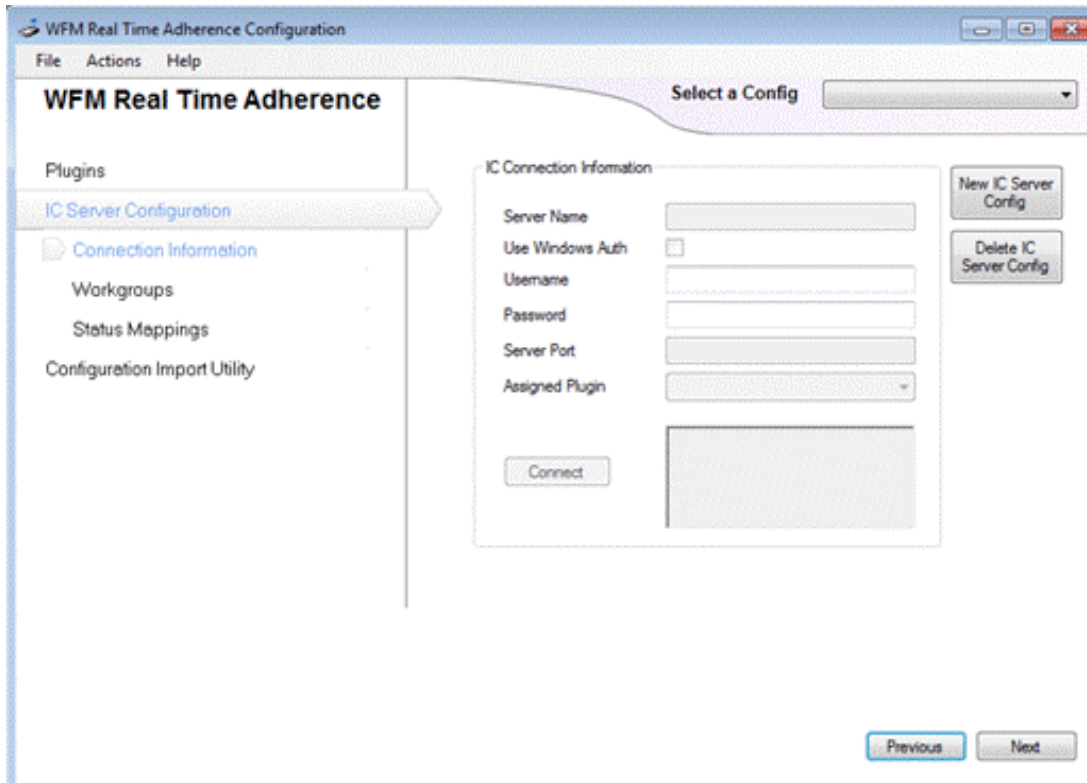
2. Do the following to add a new CIC server name:
   a. Click **New IC Server**.
   b. In the dialog box, type the name of the CIC server, and then click **OK**.
3. Do the following to add logon information for the server:
   a. In the **Username** text box, type a logon ID for the server.
      Note:
      The user account must have sufficient rights to see all user statuses on the CIC server. This requires Access Controls rights to all **Directory Status Columns**.
   b. In the **Password** text box, type the corresponding password.

      Note:
      Alternatively, check **Use Windows Auth**. WFM then uses your Windows credentials to log on.

   c. In the **Server Port** text box, WFM automatically fills in the default value of the number 0. The 0 value tells WFM to use the default connection port to connect to Session Manager. If you change the value in this text box, you override the default port to connect to the Session Manager process.
   d. Select the **Assigned Plug-in** that receives the status changes for this CIC server.

      Note:
      Multiple servers can send information to one plug-in, but a single-server configuration can only send information to one plug-in.

4. Click **Connect** to test the connection with your CIC server. RTA displays a progress bar while it makes the connection. If you have a license for RTA, when it connects, RTA displays a success message in the gray text box to the right of the **Connect** button.
5. Create more CIC server configurations as necessary and then click **Next**. The **Select Workgroups** page appears
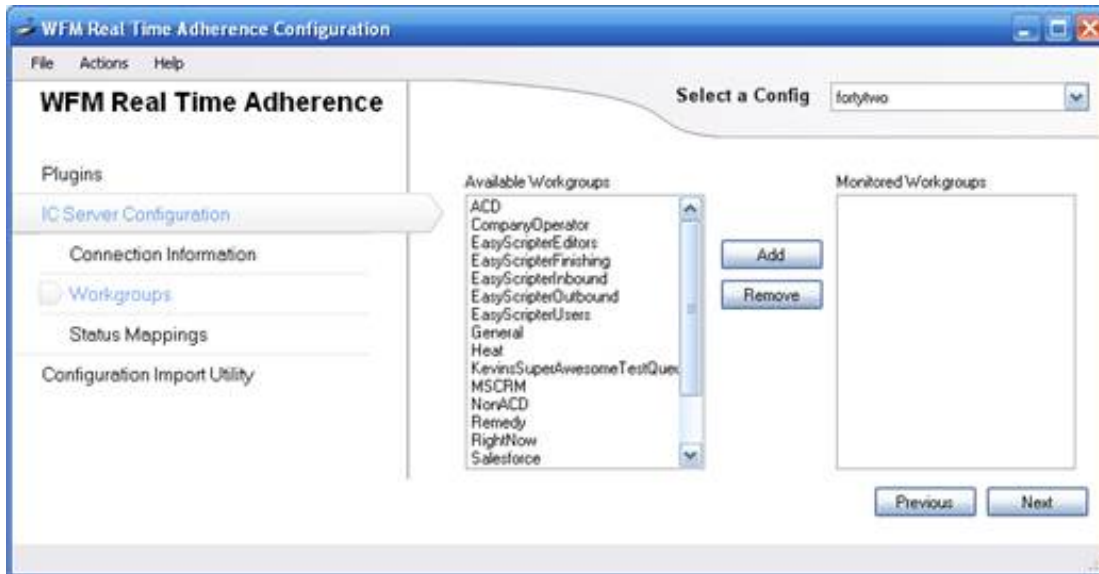
6. In the **Available Workgroups** list, click each workgroup whose real-time user status to monitor, and then click **Add** . Another way is to double-click a group name. The selected workgroups appear in the **Monitored Workgroups** list.

Background information for the third-party WFM software vendors

- For Blue Pumpkin and Aspect: The RTA integration sends multiple status updates to the third-party software, one update for each workgroup to which the user belongs. For example, User A, who belongs to workgroups A, B, and C, changes status. RTA sends Blue Pumpkin and Aspect three status updates one for each of the workgroups User A belongs to.

- For GMT, IEX, and Invision: The RTA integration does not send workgroup membership information. Because of this, RTA needs to send only one status update per change per user to GMT, IEX, and Invision. For these three vendors, it is much easier to create a master workgroup to contain all users whose status will be monitored by RTA. For example, create a workgroup called IEX RTA that is a collection of users. When you create the workgroup in Interaction Administrator, do not select the "Has Queue" option for that workgroup. By using this workgroup, RTA can send the status changes for all users whose status need to be monitored and only for these users. This also makes it easy to maintain the users to be synchronized by adding and removing users from this workgroup. For more information, see Creating custom tables on the database server.

Before installing WFM, create custom database tables for the application in the CIC reporting database. WFM supports all database platforms.

The SQL folder in your installation download contains installation scripts to help you create these tables, as outlined below.

1. Complete and verify a full backup of your CIC database.
2. Locate the correct script file in the installation folders. The script files are located in the `\Installs\Integrations\WorkforceManagement` directory and are named as follows:

Platform	File name
MS SQL Server	WFMTABLES.MSS
Oracle	WFMTABLES.ORA

3. Open the script in the utility or development tool appropriate for your database platform.
4. Edit the `GRANT` statements at the bottom of the script. Base the grant statements on the release of CIC that you are running.
5. Connect to the CIC Reporting database, using the same User ID and password that was originally used during the CIC installation to create the original database (`eic_admin` in most cases).
6. Execute the script and verify that the creation of the objects is completed.

The tables must be created using the same table-space or schema, and owner as the original reporting tables.

GMT and IEXUsers Only: Create a Master Workgroup. See in Installing Workforce Management Integration.

Step 3: Verifying or changing status key mappings

Verify or change the default status key mappings. When you select the third-party vendor for your plug-in, RTA automatically sets status key values for that vendor, if appropriate. You can change those values if needed. Blue Pumpkin, Aspect, and GMT use this status key conversion feature. Only IEX and Pipkins do not use it.

To verify or change status key mappings

1. On the **Select Workgroups** page, click **Next**. The **Status Mappings** page appears.

Blue Pumpkin and GMT have two columns in their Status Mappings tables. As shown in the figure, Aspect eWFM adds a third column. The columns are:

- **Status Key**: This is the text string for the status name on your CIC servers.
- **Value**: This is the numeric value that Blue Pumpkin, GMT, and Aspect receive indicating that particular status.
- **Reason Code** (Aspect only): This is the reason that Aspect attaches to the particular status.

> **Aspect only:** If PureConnect cannot determine the Aspect status code corresponding to a user's PureConnect status, it sends one the following:
> - Nothing-if the user is not logged in.
> - InboundLine1 (13)-if the agent is on an inbound call.
> - OutboundLine1 (15)-if the agent is on an outbound call.
> - WorkingOffline(22)-if none of the above apply. The agent is logged in, but no on the phone.

2. To change a status key value, click its row in the **Value** column and then type the new value.
3. If you change values and want to revert to RTA's default values, click **Restore Default Values**.

> **Note:** Aspect requires specific settings. For more information, see Settings for Aspect.

Settings for Aspect

Aspect requires specific settings. If you have any "On Call" statuses, set them to status code 13.

Setting	Value	Controlled by RTA service	Use RTA config tool to define	Not used
UserStatusCodeConversion	True			
Sign In	1	X		
Sign Out	2	X		
Available	11		X	
Unavailable	12		X	
Inbound Line 1 (Inbound ACD Call)	13	X		
Inbound Line 2 (Inbound Non-ACD Call)	14	X		
Outbound Line 1 (Outbound ACD Call)	15	X		
Outbound Line 2 (Outbound Non-ACD Call)	16	X		
Hold	17			X
Internal Call	18			X
After Call Work	19		X	
Conference	20		X	
Supervisor	21			X
Working Off-Line	22		X	
User-defined 1	23		X	
User-defined 2	24		X	
User-defined 3	25		X	
User-defined 4	26		X	
User-defined 5	27		X	
User-defined 6	28		X	

Step 4: Save your plug-in configuration

To save your plug-in configuration, open the **File** menu and then click **Save**.

Using the Configuration Import Utility

Use the Configuration Import Utility to import a configuration file for WFM Real-Time Adherence. Because the Configuration Import Utility is not part of the process to configure RTA, you cannot reach its page by clicking **Next** on the **Status Mappings** page.

To use the Configuration Import Utility

1. In the navigation menu at the left side of the page, click **Configuration Import Utility**. The **Configuration Import Utility** page appears.
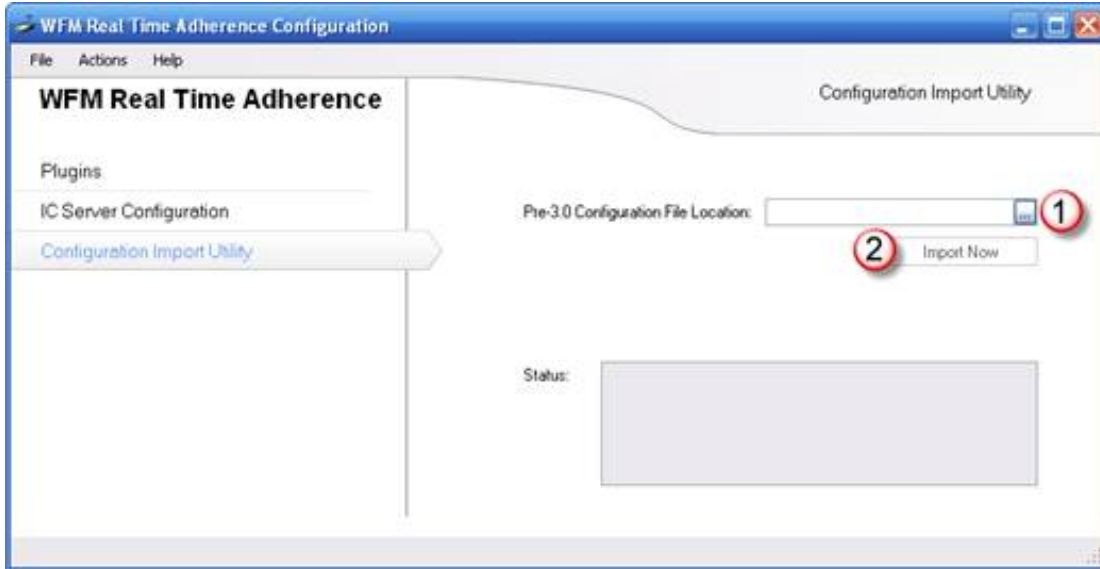
2. Click **Pre-3.0 Configuration File Location** (1) and browse to the location of the configuration file to import. Select the file.
3. Click **Import Now** (2). WFM imports the selected configuration file.

Starting, stopping, and restarting the RTA service

If you make configuration changes in RTA, such changes might require you to restart the Windows RTA service. WFM usually prompts you to stop or restart the service. The WFM Actions menu lets you start, stop, and restart the Windows RTA service from within your RTA software. Previously, you did this through Windows itself.

To start, stop, or restart the Windows Service for WFM RTA

1. On the **Actions** menu, point to **Services**, then point to the module you want to start, stop, or restart.
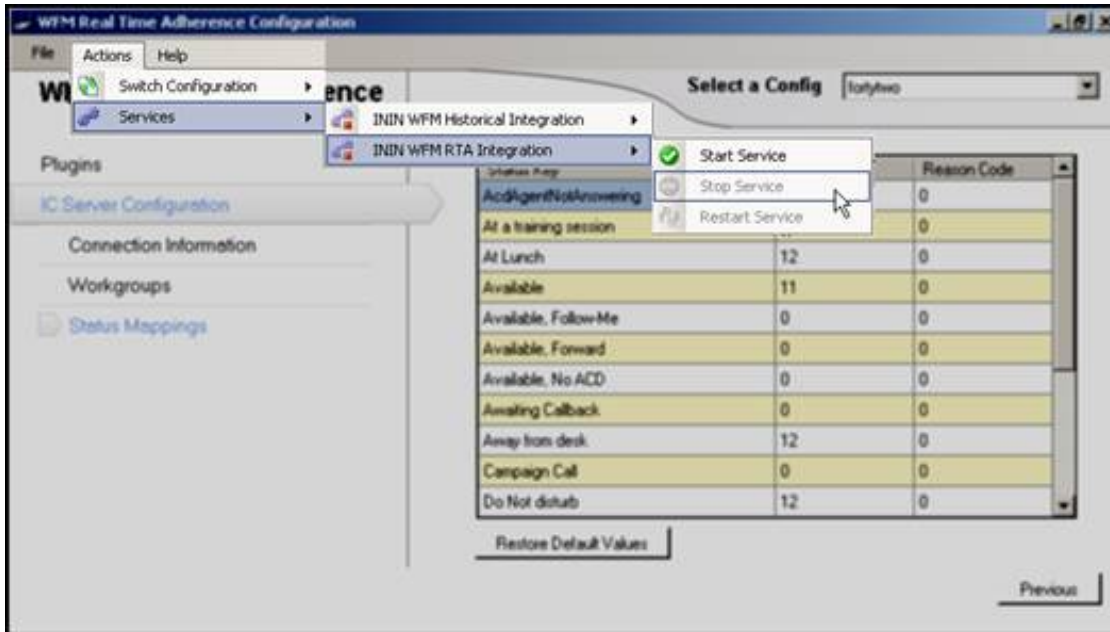
2. On the submenu, click **Start Service**, **Stop Service**, or **Restart Service**. WFM starts, stops, or restarts the Windows service as directed. WFM displays a message that confirms the result of your action.

Appendix A: Settings for Blue Pumpkin Enterprise

XSLT templates control the formatting and layout of the reports. These templates are contained in a single style sheet called `BluePumpkinEnterprise_Output.xsl`. To alter the headings, data elements, field delimiter, or even product custom calculations, modify these templates.

The integration sends status update information to Blue Pumpkin via a TCP/IP socket:

- Event Type (26=Logged On, 27=Logged Off, 28=Status Change)
- Agent's CIC User ID
- Agent's Extension
- Status Change Timestamp
- Status Code (converted to a numeric status code per the configuration in the WFM Configuration utility)
- Workgroup Name (only populated if handling a call of a specific workgroup)

Editing the templates requires knowledge of XML/XSLT transformations and the XSL language. Many resources are available on the Internet and in your local bookstore on these subjects.

For examples of data formatted using the default template, see the following:

- Style sheet parameters
- Style sheet global variables
- DCS (Direct Contact Statistics)
- Sample DCS output
- Additional templates
- Multimedia reporting
- Advisor Agent Stats Interface Report
- Sample Advisor Agent Stats output

Check with your workforce management application vendor regarding the specific requirements for their system.

Style sheet parameters

The I3WFMService passes configuration information to the style sheet at the time it is applied to the data for transformation. These parameters control the output of the individual templates and which templates are used to produce the output. For more information, see Appendix A: Settings for Blue Pumpkin Enterprise.

> **Warning:**
> Do not modify or delete the top-level parameters.

Style sheet global variables

To facilitate easier modifications to the template outputs, the style sheet uses global variables for some of the common characters or properties. The individual templates reference these variables repeatedly. To apply changes, only modify the declaration of the variable contents. For more information, see Appendix A: Settings for Blue Pumpkin Enterprise.

DCS (Direct Contact Statistics)

The DCS report provides information regarding call interactions for the configured workgroups. For a sample report, see Sample DCS output. For more information, Appendix A: Settings for Blue Pumpkin Enterprise.

Group

> This field is the name of the workgroup queue identifying this row of data.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: cName (cReportGroup if using skills)

Date

> This field is the formatted date indicating the start of the reported interval.

Time

> This field is the formatted time indicating the start of the reported interval.

Int

> This field is the duration, in minutes, of the reported interval.

CV

> This field is the total number of call interactions that entered the workgroup queue during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nEnteredAcd

SL

> This field is the percentage of calls that agents handled within a specified threshold. Configure the threshold in the plug-in parameters described in the previous section.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: Calculated Field

AB

> This field is the number of calls that abandoned during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nAbandonedAcd

ASA

> This field is the average speed of answer, or delay time, of calls in this workgroup queue during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: Calculated Field

AHT

> This field is the average handle time, or talk time, of calls in this workgroup queue during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: Calculated Field

Staff

> This field is the total amount of number of minutes that all agents are logged on during this interval, divided by the interval duration. When using the skills reporting option rather than workgroups, this field cannot be calculated and is always 0.
>
> Table: WFM_iWrkGrpQueueStats (not included when using skills)
>
> Column: Calculated Field

Occ

> This field is not currently used.

BL

> This field is not currently used.

Sample DCS output

For more information, see DCS (Direct Contact Statistics).

```
Group;Date;Time;Int;CV;AHT;AB;SL;ASA;Staff;Occ;BL
Marketing;2003/04/07;20:30;30;78;63;5;8;60;0
Support;2003/04/07;20:30;30;72;34;0;22;37;0
```

Additional templates

The XSL style sheet contains other templates that are used for formatting specific elements included in one or more reports. If the default template does not meet the needs of your workforce management application, modify these templates. For more information, see .

DateTimeFormat template

> This field returns the date and/or time of the report interval and is formatted according to the parameters passed by the calling template. Potential customizations to this template include changing the delimiters used for each value, such as /, –, and :.

Multimedia reporting

Most workforce management application vendors provide a multimedia option with their products that allows customers to categorize the statistics by interaction type. When using the multimedia option, the output for certain reports is slightly different. Also, configuration changes to the CIC server are required.

By default, the CIC server does not store media or interaction type data in reporting tables. To enable media-type logging, an administrator must configure the StatServer subsystem to log this information.

> **Note:**
> Because the process for enabling this feature is subject to change in future versions of CIC, this document does not include the instructions for enabling media type logging. Use the knowledgebase on the PureConnect Customer Care website for instructions.

To generate the output from the I3WFMService, use the same XSLT templates and style sheet that were covered previously in this document for standard historical reporting. To accommodate the requirements of your specific workforce management application, modify the templates and style sheet. The Marquee Packager application passes a style-sheet parameter that instructs the style-sheet templates to report data using the multimedia option.

For information about the differences in the output for these templates when the multimedia option is enabled, see the following:

- Chat application reporting
- Sample chat report output
- Email application reporting
- Sample email report output

Chat application reporting

The chat application report includes information for chat interactions. For a sample report, see Sample chat report output. For more information, see Multimedia reporting.

ReportDate

> This field is the formatted date indicating the start of this interval.

TimeInterval

> This field is the formatted time indicating the start of this interval.

Queue

> This field is the name of the workgroup queue identifying this row of data.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: cName (cReportGroup if using skills)

Chats

> This field is the number of chat interactions that entered the queue during this interval
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nEnteredAcd

Replied

> This field is the number of chat interactions that agents answered during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nAnsweredAcd

SL

> This field cannot be calculated and is always 0 in this report.

ASA

> This field cannot be calculated and is always 0 in this report.

AHT

> This field cannot be calculated and is always 0 in this report.

Staff

> This field is the total number of agents that handled chat interactions for this workgroup during this interval. When using the skills reporting option, this field cannot be calculated and is always 0.
>
> Table: WFM_iAgentQueueStats (not included if using skills)
>
> Column: Calculated Field

Abd

> This field is the total number of chat interactions that abandoned during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nAbandonedAcd

Sample chat report output

For more information, see Chat application reporting.

```
ReportDate;TimeInterval;Queue;Chats;Replied;SL;ASA;AHT;Staff;Abd
2003/04/07;20:30;Marketing;78;73;0;0;0;0;5
2003/04/07;20:30;Support;72;72;0;0;0;0;0
```

Email application reporting

The email application report contains information regarding email interactions. For a sample report, see Sample email report output. For more information, Multimedia reporting.

ReportDate

This field is the formatted date indicating the start of this interval.

TimeInterval

This field is the formatted time indicating the start of this interval.

Queue

This field is the name of the workgroup queue identifying this row of data.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: cName (cReportGroup is using Skills)

Emails

This field is the number of email interactions that entered the queue during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nEnteredAcd

Replied

This field is the number of email interactions that agents answered during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nAnsweredAcd

SL

This field cannot be calculated and is always 0 in this report.

ASA

This field cannot be calculated and is always 0 in this report.

AHT

This field cannot be calculated and is always 0 in this report.

Staff

This field is the total number of agents that handled email interactions for this workgroup during this interval. When using the skills reporting option, this field cannot be calculated and is always 0.

Table: WFM_iAgentQueueStats (not included if using skills)

Column: Calculated Field

Backlog

This field is the number of email interactions that are still waiting to be answered when this interval expired.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nEndWaitAlertAcdCalls

Sample email report output

For more information, see Email application reporting.

```
ReportDate;TimeInterval;Queue;Emails;Replied;SL;ASA;AHT;Staff;Backlog
2003/04/07;20:30;Marketing;78;73;0;0;0;0;0
2003/04/07;20:30;Support;72;72;0;0;0;0;1
```

Advisor Agent Stats Interface Report

Blue Pumpkin also supports an agent-level report that shows each individual agent's queue-based data. This report is optional. Enable it using the **TemplateNames** field in the WFM Service Configuration Tool. Add the "Agents" to the template names parameter and specify the file name format in the corresponding field. The WFM Service then generates a separate report for Blue Pumpkin with the required data. For a sample report, see Sample Advisor Agent Stats output. For more information, see Appendix A: Settings for Blue Pumpkin Enterprise.

Following are the columns of the report and the corresponding table and column names from which we pull the data.

AGENT_ID

This field is the name of the workgroup queue identifying this row of data.

Table: WFM_iAgentQueueStats

Column: cName

DATE

This field is the formatted date indicating the start of the reported interval.

STAFF_TIME

This field is the duration, in seconds, of the reported interval.

ENTEREDACD

This field is the total number of ACD interactions that entered the agent's queue (but the agent did not necessarily answer) during this interval.

Table: WFM_iAgentQueueStats

Column: nEnteredAcd

ANSWEREDACD

This field is the total number of ACD interactions that an agent answered during this interval.

Table: WFM_iAgentQueueStats

Column: nAnsweredAcd

ABANDONS

This field is the number of calls that abandoned while alerting this agent during this interval.

Table: WFM_iAgentQueueStats

Column: nAbandonedAcd

LOGIN_TIME

This field is the sum of time (in seconds) that the agent was logged on to the Interaction Client (in the system).

Table: WFM_iAgentQueueStats

Column: tAgentAcdLoggedIn

TALK_TIME

This field is the total handle time (in seconds), or talk time, of calls in this agent's queue during this interval. This field does not include hold time or ACW time in the value.

Table: WFM_iAgentQueueStats

Column: tTalkAcd

ACW_TIME

This field is the sum of time (in seconds) that the agent spent in an *After Contact Work* status.

Table: WFM_iAgentQueueStats

Column: tAcw

HOLD_TIME

This field is the sum of time (in seconds) that all ACD interaction spent on hold while in this agent's queue.

Table: WFM_iAgentQueueStats

Column: tHoldAcd

AVAIL_TIME

This field is the sum of time (in seconds) that the agent was in an Available status. This field relates specifically to the agent and not the interaction type. This time includes ringing.

Table: WFM_iAgentQueueStats

Column: tAgentAvailable

UNAVAIL_TIME

This field is the sum of time (in seconds) that the agent was not available to take ACD interactions, but was logged on to the system.

Table: WFM_iAgentQueueStats

Column: tAgentNotAvailable

AUX_TIME

This field is the sum of time (in seconds) that the agent was working on non-ACD interactions (personal calls).

Table: WFM_iAgentQueueStats

Column: tAgentOnNonAcdCall

AUX_IN_TIME

The WFM Service always sends 0 because we are unable to get this piece of data.

AUX_OUT_TIME

Sample Advisor Agent Stats output

For more information, see Advisor Agent Stats Interface Report.

```
AGENT_ID;DATE;STAFF_TIME;ENTEREDACD;ANSWEREDACD;ABANDONS;LOGIN_TIME;TALK_TIME;ACW_TIME;HOLD_TIME;AVAIL_TIME;UNAVAIL_TIME;AUX_TIME;AUX_IN_TIME;AUX_OUT_TIME

andrew.rogosin;07/01/2005;55800;0;0;0;55388;0;0;0;1;47296;2137;0;0
david.clark;07/01/2005;86400;10;8;0;86389;3128;1411;89;19113;3079;295;0;0
david.recktenwald;07/01/2005;34200;3;3;0;31516;5733;0;0;0;20452;0;0;0
jason.carter;07/01/2005;37800;1;0;0;31731;0;0;0;8827;4639;1164;0;0
jasonm;07/01/2005;86400;10;8;0;86400;6211;2343;0;9398;0;3144;0;0
jim.fillmore;07/01/2005;64800;0;0;0;63679;0;0;0;0;0;0;0;0
kevin.glinski;07/01/2005;86400;11;9;0;86297;3992;2199;194;19190;1132;0;0;0
mark.liggett;07/01/2005;86400;5;3;0;86400;961;900;71;12285;356;4121;0;0
peter.nees;07/01/2005;86400;9;9;0;86400;9660;2700;649;12163;0;1567;0;0
philip.weust;07/01/2005;86400;3;1;0;86400;147;300;0;5144;10583;4778;0;0
rich.schram;07/01/2005;86400;9;9;0;86400;10129;1500;0;11778;0;2086;0;0
richard.jones;07/01/2005;36000;8;8;0;34429;13864;1755;0;13055;0;756;0;0
roberto.rovelo;07/01/2005;86400;4;4;0;86400;18851;1200;0;4703;2153;22225;0;0
stephen.rusnak;07/01/2005;86400;1;1;0;86400;2495;0;0;0;24311;112;0;0
```

Appendix B: Settings for Aspect

XSLT templates control the formatting and layout of the reports. These templates are contained in a single style sheet called `Aspect_Output.xsl`. The installation files include example templates for common workforce management applications. To alter the headings, data elements, field delimiter, or even product custom calculations, modify these templates.

The integration sends eWFM status update messages to Aspect:

- Timestamp delivered in header
- Agent's Extension (maximum of six characters)
- Status Code (converted to a numeric status code per the configuration in the WFM Configuration utility)
- Workgroup Name (only populated if handling a call of a specific workgroup)
- Time in state in seconds (if batch mode is used since the status change would have happened between the batch intervals)
- Agent's ID (can be delivered as either the Agent's Extension or their CIC User ID. This field is controlled via configuration within the WFM Configuration utility. The field is limited to 10 characters.)
- Reason Code (further sub identification of Status Code. Configured within the WFM Configuration utility.)

Editing the templates requires knowledge of XML/XSLT transformations and the XSL language. Many resources are available on the Internet and in your local bookstore on these subjects.

For examples of data formatted using the default template. see the following:

- Style sheet global variables
- Style sheet parameters
- Agent Productivity Report
- ACD Forecasting/Scheduling Report
- Sample Aspect output file*

Check with your workforce management application vendor regarding the specific requirements for their system.

Style sheet global variables

To facilitate easier modifications to the template outputs, the style sheet uses global variables for some of the common characters or properties. The individual templates reference these variables repeatedly. To apply changes, modify only the declaration of the variable contents.

For more information, see Appendix B: Settings for Aspect.

Style sheet parameters

The I3WFMService passes select configuration information to the style sheet at the time it is applied to the data for transformation. These parameters control the output of the individual templates and which templates are used to produce the output. For more information, see Appendix B: Settings for Aspect.

> **Warning!**
> Do not modify or delete the top-level parameters.

Agent Productivity Report

The Agent Profile template generates output often referred to as the Agent Profile Report. This report is often an optional report that is generated at the end of each day. The report includes information regarding agent status information in the CIC system. For a sample report, see Sample Aspect output file*. For more information, see Appendix B: Settings for Aspect.

Following are the fields used in this report.

Title

      This field is a string that uniquely identifies the beginning of this report. Typically, the title is the report name.

Date

      This field is the formatted date and time indicating the beginning this statistics interval.

AGENT ID

This field is the Agent's Extension of the CIC user. CIC Agent IDs are strings, typically containing the Windows User ID. Because some workforce management applications cannot handle string identifiers, WFM uses the extension.

Table: WFM_AgentActivityDetailLog

Column: EXT

ACD Group

This field is the name of the ACD group that the agent is handling calls for. Aspect restricts the length on this field to 15 characters. If the workgroup is more than 15 characters long, Aspect removes any extra characters.

Table: WFM_AgentActivityDetailLog

Column: EXT

SIT

This field is the time that the agent logged on. To find a sign-in, use the SignInStatusKey parameter. If the status is listed, then the status is considered a sign-in request.

Table: WFM_AgentActivityDetailLog

Column: SignInDateTime

SOUT

This field is the time that the agent logged out. To find a sign-out, use the SignOutStatusKey parameter. If the status is listed, then the status is considered a sign-in request.

Table: WFM_ AgentActivityDetailLog

Column: SignOutDateTime

NCH

This field is the number of incoming ACD calls handled for the sign-in period.

Table: WFM_ AgentActivityDetailLog

Column: NANSWEREDACD

ATT

This field is the average talk time for incoming ACD calls handled during the signed-in period. Talk time includes all the talking time spent on incoming calls, including time when a client is on hold.

Table: WFM_ AgentActivityDetailLog

Column: Calculated Field

AWT

This field is the average after-call work time for both incoming and outbound calls. We cannot separate the incoming from the outbound calls on the after call work.

Table: WFM_ AgentActivityDetailLog

Column: Calculated Field

NOC

This field is the number of outbound ACD calls handled for the sign-in period

Table: WFM_ AgentActivityDetailLog

Column: NINTERNTOEXTERNACDCALLS

AOTT

This field is the average talk time for outbound ACD calls handled during the signed-in period. Talk time includes all the talking time spent on incoming calls, including time when a client is on hold.

Table: WFM_ AgentActivityDetailLog

Column: Calculated Field

AOWT

This field is the average after-call work time for both incoming and outbound calls. We cannot separate the incoming from the outbound calls on the after call work.

Table: WFM_ AgentActivityDetailLog

Column: Calculated Field

Footer

This field is a string that uniquely identifies the end of this report.

This data is based on a subset of the information in the WFM_AgentActivityDetailLog and is limited to the previously listed fields.

ACD Forecasting/Scheduling Report

For a sample report, see Sample Aspect output file*. For more information, see Appendix B: Settings for Aspect.

Header

There is no header for the report. Everything is shown in record format.

DateTime

This field is the formatted data and time indicating the beginning of this statistics interval.

Identifying String

This field is **TCSDATA**. This field is used to denote the type of report.

ACD Group ID

This field is the group by which the statistics are organized. Some workforce management applications are not capable of grouping by media type as a subset of the queue. By default, this column contains the name of the workgroup queue followed by an underscore (_) and the media type. This field creates a unique row of data for the output. When using skill reporting, the skill name is used rather than the workgroup name.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills

Column: cName + _ + cReportGroup

Call Offered

This field is the number of ACD interactions (answered and abandoned calls) that entered the queue during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nEnteredAcd

Calls Handled

This field is the number of ACD interactions that agents handled during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nAnsweredAcd

Average Talk Time

This field is the average talk time in seconds for the ACD Group.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated field

Average After Call Work Time

This field is the average after-call work time in seconds for the ACD Group.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated field

Average Delay

This field is the average speed that ACD calls are answered. Also known as ASA.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated field

Percent Service Level

This field is the sum of ACD interactions that agents answered during this interval on or before the configured threshold.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated Field

Average Positions Staffed

This field is the total seconds agents are available to take calls and are taking calls divided by number of seconds in the period.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated Field

Footer

There is no footer for this report.

Sample Aspect output file*

For more information, see [Agent Productivity Report](#) and [ACD Forecasting/Scheduling Report](#).

```
03/03/2005 11:00 TCSDATA Marketing 3 3 474 0 2 100.00 18
03/03/2005 11:00 TCSDATA Support.Centra 2 1 53 112 6 50.00 9
03/03/2005 11:00 TCSDATA Support.East 0 0 0 0 0 0 6
03/03/2005 11:00 TCSDATA Support.NoCent 0 0 0 0 0 0 6
03/03/2005 11:00 TCSDATA Support.West 0 0 0 0 0 0 4
Agent Productivity Report
Date:03/03/2005
ID ACD SIT SOT NCH ATT AWT PIP NOC AOTT AOWT
197 Support.East 07:22:08 08:55:19 0 0 0 0 0 0 0
197 Support.East 09:01:05 09:54:07 0 0 0 0 0 0 0
197 Support.East 11:57:11 12:03:10 0 0 0 0 0 0 0
197 Support.East 12:12:58 12:45:00 0 0 0 0 0 0 0
197 Support.East 13:09:41 14:04:22 0 0 0 0 0 0 0
197 Support.East 14:45:03 15:50:05 0 0 0 0 0 0 0
197 Support.East 15:59:00 16:26:29 0 0 0 0 0 0 0
197 Support.East 16:33:25 23:59:59 0 0 0 0 0 0 0
8213 Support.Centra 07:28:10 10:15:28 0 0 0 0 0 0 0
8213 Support.Centra 10:40:25 12:39:06 3 480.33 200.00 0 0 0 0
8213 Support.Centra 12:50:51 13:02:12 1 1187.00 51.00 0 0 0 0
8213 Support.Centra 14:17:09 15:44:03 0 0 0 0 0 0 0
8212 Support.NoCent 09:42:10 09:44:39 0 0 0 0 0 0 0
8212 Support.NoCent 09:57:25 10:52:55 1 481.00 300.00 0 0 0 0
```

*Line wrapping does not appear in production output.

Appendix C: Settings for GMT

XSLT templates control the formatting and layout of the reports. These templates are contained in a single style sheet called `GMT_Output.xsl`. To alter the headings, data elements, field delimiter, or even product custom calculations, modify these templates.

The integration sends the following information in a GMT Status Update Message:

- Agent's CIC User ID
- Agent's Extension
- Status Code (converted to a numeric status code per the configuration in the WFM Configuration utility)
- Sub State (INACD=Inbound ACD Call, IN=Inbound non-ACD Call, OUTACD=Outbound ACD Call, OUT=Outbound non-ACD Call)
- Timestamp
- Workgroup Extension (only populated if handling a call of a specific workgroup)

Editing the templates requires knowledge of XML/XSLT transformations and the XSL language. Many resources are available on the Internet and in your local bookstore on these subjects.

For examples of data formatted using the default template, see the following:

- Style sheet parameters
- Style sheet global variables
- Call Group Report
- Sample GMT report output
- Additional templates
- Agent Detail Report
- Sample GMT report output
- Additional templates

Check with your workforce management application vendor regarding the specific requirements for their system.

Style sheet parameters

The I3WFMService passes select configuration information to the style sheet at the time it is applied to the data for transformation. These parameters control the output of the individual templates and which templates are used to produce the output. For more information, see Appendix C: Settings for GMT.

> **Warning:**
> Do not modify or delete the top-level parameters.

Style sheet global variables

To facilitate easier modifications to the template outputs, the style sheet uses global variables for some of the common characters or properties. The individual templates reference these variables. To apply changes, modify only the declaration of the variable contents.

For more information, see Appendix C: Settings for GMT.

Call Group Report

The Call Group Report outputs information regarding the selected workgroup queue interactions. Some vendors refer to this output as "Call Group Report" or "Contact Report". For a sample report, see Sample GMT report output. For more information, see Appendix C: Settings for GMT.

Following are the fields included in this report, typically.

Header

This field is a string that uniquely identifies the beginning of this report. Typically, this field is the report name.

Interval

This field is the formatted date and time indicating the beginning this statistics interval.

CALLGRP

> This field is the group by which the statistics are organized. By default, this field typically is the name of the workgroup. When using skill reporting rather than workgroup queue reporting, this field is name of the skill.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: cName

ANSW

> This field is the number of ACD interactions that agents answered during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nAnsweredAcd

ABAN

> This field is the number of ACD interactions that were abandoned during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nAbandonedAcd

ANSGOS

> This field is the sum of ACD interactions that agents answered during this interval on or before the configured threshold.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: Calculated Field

ABANGOS

> This field is the sum of ACD interactions that abandoned during this interval on or before the configured threshold.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: Calculated Field

TOTTALK

> This field is the total number of seconds that agents spent handling ACD interactions during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: tTalkAcd

DELAYCALLS

> This field is the total number of ACD interactions that were queued before being delivered to an agent.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nAnsweredAcd

DELAYTIME

> This field is the total number of seconds that ACD interactions waited in queue before being delivered to an agent.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: tAnsweredAcd

NENTERED

> This field is the total number of ACD interactions that entered the workgroup queue during this interval.
>
> Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)
>
> Column: nEnteredAcd

WRKTIME

> This field is the total number of seconds that agents spent in an ACW (After Call Work) status. Configure statuses of these types in Interaction Administrator. After completing an ACD interaction, the agent is automatically placed into this status for a specified period.

Table: WFM_iWrkGrpQueueStats

Column: tAcw

Footer

This field is a string that uniquely identifies the end of this report.

The fields in this report are based on the WFM_iWrkGrpQueueStats table, or if using skills, WFM_ iStatsGroup. If the previously listed fields do not meet the needs of your workforce management application, use any field in that table in the report.

When using skills reporting, you might need to change your existing IVR handlers.

Sample GMT report output

For more information, see Call Group Report.

```
CALL GROUP REPORT
04/07/03 20:30
CALLGRP ANSW ABAN ANSGOS ABANGOS TOTTALK DELAYCALLS DELAYTIME NENTERED

Marketing 0000000073 0000000005 0000000063 0000000000 0000004398 0000000073
 0000000600 0000000078
Support 0000000072 0000000000 0000000034 0000000000 0000002636 0000000072
 0000001583 0000000072
END CALL GROUP REPORT
```

Additional templates

The XSL style-sheet also contains other templates that are used for formatting specific elements included in one or more reports. If the default template does not meet the needs of your workforce management application, modify these templates.

For more information, see Appendix C: Settings for GMT.

Agent Detail Report

The Agent Detail Report output differs from the standard historical output in that it provides agent by workgroup queue information. If your workforce management application requires additional information, modify this template. For a sample report, see Sample GMT report output. For more information, see Appendix C: Settings for GMT.

Header

This field is a string that uniquely identifies the beginning of this report. Typically, this field is the report name.

Interval

This field is the formatted date and time indicating the beginning of this statistics interval.

CALLGRP

This field is the group by which the statistics are organized. When using skill reporting, the skill name is used rather than the workgroup name.

Table: WFM_iAgentQueueStats

Column: cReportGroup (cHKey3 if using skills)

AGTNM

This field is the agent's user name for the CIC user.

Table: WFM_iAgentQueueStats

Column: CNAME

AGTID

This field is the Agent's Extension of the CIC user. This value is stored in a column specified in the plug-in adapter parameters. By default, CustomValue1 is used.

Table: WFM_iAgentQueueStats

Column: CUSTOMVALUE1 (or other configured custom column)

ANSWCALL

This field is the total number of ACD interactions that the agent handled during this interval.

Table: WFM_iAgentQueueStats

Column: nAnsweredAcd

TALKTIME

This field is the total number of seconds that the agent spent handling ACD interactions during this interval.

Table: WFM_iAgentQueueStats

Column: tTalkAcd

INTNCALL

This field is the number of internal interactions (station to station or Intercom) that the agent handled.

Table: WFM_iAgentQueueStats

Column: nInternToInternCalls

INTNTALK

This field is the total number of seconds that the agent spent handling internal interactions (station to station or Intercom).

Table: WFM_iAgentQueueStats

Column: tInternToInternCalls

RDYTIME

This field is the total number of seconds that the agent spent in an Available status. In this status, the agent is available and ready to receive ACD interactions.

Table: WFM_iAgentQueueStats

Column: tAgentAvailable

WRKTIME

This field is the total number of seconds that the agent spent in an ACW (After Call Work) status. Configure statuses of these types in Interaction Administrator. After completing an ACD interaction, the agent is automatically placed into this status for a specified period.

Table: WFM_iAgentQueueStats

Column: tAgentInAcw

IDLETIME

This field is the total number of seconds that the agent was in an Unavailable status. In this status, the agent is not available and cannot receive interactions.

Table: WFM_iAgentQueueStats

Column: tAgentDnd

OUTCALL

This field is the number of outbound interactions that the agent placed.

Table: WFM_iAgentQueueStats

Column: nInternToExternCalls

OUTTIME

This field is the total talk time of outbound interactions that the agent placed.

Table: WFM_iAgentQueueStats

Column: tInternToExternCalls

LOGTIME

This field is the total number of seconds that the agent was logged on to the system. If the agent does not log off from Interaction Client, this field includes all time.

Table: WFM_iAgentQueueStats

Column: tAgentLoggedIn

Sample GMT report output

For more information, see Agent Detail Report.

```
AGENT DETAIL REPORT
09/27/05 14:00
CALLGRP AGTID ANSWCALL TALKTIME INTNCALL INTNTALK RDYTIME WRKTIME IDLETIME
 OUTCALL OUTTIME LOGTIME
Support.Central 8562 0000000001 0000001422 0000000000 0000000000 0000000378
 0000000000 0000000000 0000000000 0000000000 0000001800
Support.West 8550 0000000001 0000000281 0000000000 0000000000 0000000201
 0000000000 0000000637 0000000000 0000000000 0000001800
END AGENT DETAIL REPORT
```

Additional templates

The XSL style sheet also contains other templates that are used for formatting specific elements included in one or more reports. If the default template does not meet the needs of your workforce management application, modify these templates. For more information, see Appendix C: Settings for GMT.

OUTBOUNDTIME

This field is the total number of seconds that the agent spent handling outbound interactions.

Table: WFM_iAgentQueueStats

Column: tInternToExternCalls

TOTALLOGINTIME

This field is the total number of seconds that the agent was logged on to the CIC system.

Table: WFM_iAgentQueueStats

Column: tAgentLoggedIn

Footer

This field is a string that uniquely identifies the end of this report.

DateTimeFormat template

This template returns the date and/or time of the report interval formatting according to the parameters passed by the calling template. Potential customizations to this template include changing the delimiters used for each value, such as /, -, and :.

SumSvcLevel template

This template returns the sum of interactions that either abandoned or the agents answered during or before the configured service level threshold. For example, configure the service level parameter for the adapter as 3. The template then returns the sum of the 1st, 2nd, and 3rd service level categories or *buckets*.

Appendix D: Settings for IEX

XSLT templates control the formatting and layout of the reports. These templates are contained in a single style sheet called `IEX_Output.xsl`. The installation files include example templates for common workforce management applications. To alter the headings, data elements, field delimiter, or even product custom calculations, modify these templates.

The integration sends the following information in an IEX Status Update Message:

- Agent's Extension
- Status (limited to 20 characters, commas and pipes removed)
- Status Change timestamp
- Status Change date

Editing the templates requires knowledge of XML/XSLT transformations and the XSL language. Many resources are available on the Internet and in your local bookstore on these subjects.

For examples of data formatted using the default template, see the following:

- Style sheet parameters
- Style sheet global variables
- Agent Profile Report
- Call Group Report
- Agent Detail Report
- Agent System Report
- Sample IEX output file*

Check with your workforce management application vendor regarding the specific requirements for their system.

Style sheet parameters

The I3WFMService passes select configuration information to the style sheet at the time it is applied to the data for transformation. These parameters control the output of the individual templates and which templates are used to produce the output. For more information, see Appendix D: Settings for IEX.

> **Warning:**
> Do not modify or delete the top-level parameters.

Style sheet global variables

To facilitate easier modifications to the template outputs, the style sheet uses global variables for some of the common characters or properties. The individual templates reference these variables repeatedly. To apply changes, modify only the declaration of the variable contents. For more information, see Appendix D: Settings for IEX.

Agent Profile Report

The Agent Profile template generates output often referred to as the Agent Profile Report. This report is often an optional report that is generated at the end of each day. The report includes information regarding agent status information in the CIC system. For a sample report, see Sample IEX output file*. For more information, see Appendix D: Settings for IEX.

Following are the fields used in this report.

Header

This field is a string that uniquely identifies the beginning of this report. Typically, this field is the report name.

Interval

This field is the formatted date and time indicating the beginning this statistics interval.

AGENTID

This field is the Agent's Extension of the CIC user. CIC Agent IDs are strings, typically containing the Windows User ID. Because some workforce management applications cannot handle string identifiers, WFM uses the extension.

Table: WFM_AgentActivityLog

Column: Ext

SIGN-IN

This field is the time this status was entered. In CIC, a status change does not always indicate a logon or logoff action.

Table: WFM_AgentActivityLog

Column: StatusDateTime

SIGN-OUT

This field is the time this status was exited or changed. In CIC, a status change does not always indicate a logon or logoff action.

Table: WFM_AgentActivityLog

Column: EndDateTime

REASON

This field is the Status Key, as configured in Interaction Administrator, for this record. The Status Key, not the Status Text, is used for reporting. (There could be slight variations between Status Key and Status Text.) IEX has a 20-character maximum on this field. If the Status Key is greater than 20 characters, the remaining characters past the 20th character are removed.

Table: WFM_AgentActivityLog

Column: StatusKey

Footer

This field is a string that uniquely identifies the end of this report.

This data is based on a subset of the information in the WFM_AgentActivityLog and is limited to the previously listed fields.

Call Group Report

The Call Group Report output for multimedia reporting is often similar to the standard historical output, but the method used to identify the call group changes significantly. For a sample report, see Sample IEX output file*. For more information, see Appendix D: Settings for IEX.

When the multimedia option is enabled, this template outputs the following fields.

Header

This field is the string that uniquely identifies the beginning of this report. Typically, this field is the report name. This name does not change when the multimedia option is enabled.

Interval

This field is the formatted data and time indicating the beginning of this statistics interval.

CALLGROUP

This field is the group by which the statistics are organized. Some workforce management applications are not capable of grouping by media type as a subset of the queue. By default, this column contains the name of the workgroup queue followed by an underscore (_) and the media type. This field creates a unique row of data for the output. When using skill reporting, the skill name is used rather than the workgroup name.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: cName + _ + cReportGroup

RECEIVEDACD

This field is the number of ACD interactions that entered the queue during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nEnteredAcd

ANSWEREDACD

This field is the number of ACD interactions that agents handled during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nAnsweredAcd

ABANDONED

This field is the total number of ACD interactions that abandoned during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nAbandonedAcd

ANSWEREDSVCLVL

This field is the sum of ACD interactions that agents answered during this interval on or before the configured threshold.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated Field

ABANDONEDSVCLVL

This field is the sum of ACD interactions that abandoned during this interval on or before the configured threshold.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated Field

TOTALTALK

This field is the total number of seconds that agents spent handling ACD interactions during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: tTalkAcd

AFTERCALLWORKTIME

This field is the total number of seconds that the agent spent in an ACW (After Call Work) status. Configure statuses of these types in Interaction Administrator. After completing an ACD interaction, the agent is automatically placed into this status for a specified period.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: tAgentInAcw

ANSWEREDACD

This field is the total number of ACD interactions that agents answered during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nAnsweredAcd

DELAYEDTIME

This field is the total number of seconds that ACD interactions waited in queue before being delivered to an agent.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: tAnsweredAcd

SERVICELEVEL

Some workforce management applications require an overall service level field based on a custom calculation provided by the vendor. This requirement could apply not only to multimedia reporting but also to other historical reports. The XSLT style sheet provides a customization point in the CustomServiceLevel template that can be used to calculate this field based on the vendor's specifications.

BACKLOGEXPIRED

This field is the total number of interactions that have not been handled yet when the current interval expired.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: nEndWaitAlertAcdCalls

BACKLOGNOTEXPIRED

This field cannot be calculated and is always 0 in this report.

Footer

This field is a string that uniquely identifies the end of this report.

Agent Detail Report

The Agent Detail Report output for multimedia reporting differs from the standard historical output in that it provides less information. The Agent System template provides the information that is not included in this report. If your workforce management application requires additional information, modify this template. For a sample report, see <u>Sample IEX output file*</u>. For more information, see <u>Appendix D: Settings for IEX</u>.

Header

> This field is a string that uniquely identifies the beginning of this report. Typically, this field is the report name. This field does not change when using the multimedia option.

Interval

> This field is the formatted date and time indicating the beginning of the statistics interval.

CALLGROUP

> This field is the group by which the statistics are organized. When using skill reporting, then the skill name is used rather than the workgroup name.
>
> Table: WFM_iAgentQueueStats
>
> Column: cReportGroup (cHKey3 if using skills)

AGENTID

> This field is the Agent's Extension. This value is stored in a column specified in the plug-in adapter parameters. By default, CustomValue1 is used.
>
> Table: WFM_iAgentQueueStats
>
> Column: CustomValue1 (or other configured custom column)

ANSWEREDACD

> This field is the total number of ACD interactions that the agent handled during this interval.
>
> Table: WFM_iAgentQueueStats
>
> Column: nAnsweredAcd

TALKTIME

> This field is the total number of seconds that the agent spent handling ACD interactions during this interval.
>
> Table: WFM_iAgentQueueStats
>
> Column: tTalkAcd

AFTERCALLWORKTIME

> This field is the total number of seconds that the agent spent in an ACW (After Call Work) status. Configure statuses of these types in Interaction Administrator. After completing an ACD interaction, the agent is automatically placed into this status for a specified period.
>
> Table: WFM_iAgentQueueStats
>
> Column: tAgentInAcw

Footer

> This field is a string that uniquely identifies the end of this report.

Agent System Report

The Agent System Report outputs information for agents that cannot be assigned to a specific workgroup queue, skill, or media type. The output is often referred to as the "Agent System Performance Report" or "Agent System Profile Report". Unlike the information in the Agent Detail Report, the output of this template does not contain a Call Group identifier (only the Agent Identifier). Also, there is only a single row for each agent. For a sample report, see Sample IEX output file*. For more information, see Appendix D: Settings for IEX.

Header

This field is a string that uniquely identifies the beginning of this report. Typically, this field is the report name.

Interval

This field is the formatted date and time indicating the beginning of this statistics interval.

AGENTID

This field is the Agent's Extension of the CIC user. This value is stored in a column specified in the plug-in adapter parameters. By default, CustomValue1 is used.

Table: WFM_iAgentQueueStats

Column: CustomValue1 (or other configured custom column)

INTERNALCALLS

This field is the number of internal interactions (station to station or Intercom) that the agent handled.

Table: WFM_iAgentQueueStats

Column: nInternToInternCalls

INTERNALTALK

This field is the total number of seconds that the agent spent handling internal interactions (station to station or Intercom).

Table: WFM_iAgentQueueStats

Column: tInternToInternCalls

READYTIME

This field is the total number of seconds that the agent spent in an Available status. In this status, the agent is available and ready to receive ACD interactions.

Table: WFM_iAgentQueueStats

Column: tAgentAvailable

IDLETIME

This field is the total number of seconds that the agent was in an Unavailable status. In this status, the agent is not available and cannot receive interactions.

Table: WFM_iAgentQueueStats

Column: tAgentDnd

OUTBOUNDCALLS

This field is the number of outbound interactions that the agent placed.

Table: WFM_iAgentQueueStats

Column: nInternToExternCalls

OUTBOUNDTIME

This field is the total number of seconds that the agent spent handling outbound interactions.

Table: WFM_iAgentQueueStats

Column: tInternToExternCalls

TOTALLOGINTIME

This field is the total number of seconds that the agent was logged on to the CIC system.

Table: WFM_iAgentQueueStats

Column: tAgentLoggedIn

Footer

This field is a string that uniquely identifies the end of this report.

Sample IEX output file*

For more information, see the following:

- Agent Profile Report
- Call Group Report
- Agent Detail Report
- Agent System Report

```
AGENT PROFILE REPORT
06/27/03
AGENTID|SIGN-IN|SIGN-OUT|REASON
800|00:00:00|12:10:27|Available, No ACD
800|15:19:21|15:19:53|Available, No ACD
800|15:19:53|15:36:15|Do Not disturb
800|15:36:15|15:36:24|Available
800|15:36:24|15:36:30|Follow Up
800|15:36:30|15:40:36|Available
808|15:20:06|15:22:13|Available
808|15:22:13|15:24:32|AcdAgentNotAnswering
809|00:00:00|12:10:51|Do Not Disturb
END AGENT PROFILE REPORT
CALL GROUP REPORT
06/27/03 00:00
CALLGROUP|RECEIVEDACD|ANSWEREDACD|ABANDONED|ANSWEREDSVCLVL|ABANDONEDSVCLVL|TOTALTALK|AFTERCALLWORKTIME|ANSWEREDACD|DELAYEDTIME|SERVICELEVEL|BACKLOGEXPIRED|BACKLOGNOTEXPIRED

Marketing|23|23|0|23|0|4236|0|23|0|100.00|0|0
Support|17|17|0|17|0|2749|0|17|17|100.00|0|0
END CALL GROUP REPORT
AGENT DETAIL REPORT
06/27/03 00:00
```

*Line wrapping does not appear in production output.

Appendix E: Settings for Invision

Our integration to Invision supplies the following historical reports:
- Call Group Report
- Historical Agent Adherence Report

Invision template description

XSLT templates control the formatting and layout of the reports. These templates are contained in a single style sheet called `Invision_Output.xsl`.

The integration sends the following information in an InVision Status Update Message:
- Agent's CIC User ID
- Agent's Extension
- Status Code (converted to a numeric status code per the configuration in the WFM Configuration utility)
- Logged in flag (1=Logged in, 0=Logged out)
- Timestamp
- Workgroup Name (only populated if handling a call of a specific workgroup)

Call Group Report

The Call Group Report outputs information regarding the selected workgroup queue interactions. Some vendors refer to this output as "Call Group Report" or "Contact Report". For more information, see Appendix E: Settings for Invision.

Following are the fields included in this report.

Header

The top rows include the names of all the data columns in the report.

DATETIME

This field is the formatted date/time indicating the start of the reported interval.

WORKGROUPNAME

This field is the name of the workgroup queue identifying this data.

MEDIATYPE

This field is the media type (calls, emails, chats).

> **Note:**
> By default, the CIC server does not store media or interaction type data in reporting tables. To enable media-type logging, an administrator must configure the StatServer subsystem to log the information.

RECEIVEDACD

This field is the number of ACD interactions that were received during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: NENTEREDACD

HANDLEDACD

This field is the number of ACD interactions that agents handled during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: NANSWEREDACD

ABANDONED

This field is the number of ACD interactions that were abandoned during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: NABANDONEDACD

ANSWEREDSVCLVL

This field is the number of ACD interactions that agents answered during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated Field (SumSvcLevel Template)

ABANDONEDSVCLVL

This field is the number of ACD interactions that agents answered during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: Calculated Field (SumSvcLevel Template)

TOTALTALK

This field is the total number of seconds that agents spent handling ACD interactions during this interval.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: TTALKACD

TOTALHOLD

This field is the total number of seconds that ACD interactions waited in queue before being delivered to an agent.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: THOLDACD

AFTERCALLWORKTIME

This field is the total after-call work time in seconds for the ACD Group.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: TACW

DELAYEDTIME

This field is the average speed that ACD calls are answered. Also known as ASA.

Table: WFM_iWrkGrpQueueStats (WFM_iStatsGroup if using skills)

Column: TANSWEREDACD

Historical Agent Adherence Report

The Historical Agent Adherence template generates an optional report at the end of each day. The report includes information about agent status information in the CIC system. For more information, see Appendix E: Settings for Invision.

Following are the fields used in this report.

Header

> The top rows include the names of all the data columns included in the report.

AGENTID

> This field is the Agent's Extension of the CIC user. CIC Agent IDs are strings, typically containing the Windows User ID. Because some workforce management applications cannot handle string identifiers, WFM uses the extension.
>
> Table: WFM_AgentActivityLog
>
> Column: Ext

ACTIVITYID

> This field is the Status Key.
>
> Table: WFM_AgentActivityLog
>
> Column: STATUSKEY

STARTDATETIME

> This field is the time that this status was entered. In CIC, a status change does not always indicate a logon or logoff action.
>
> Table: WFM_AgentActivityLog
>
> Column: STATUSDATETIME

ENDDATETIME

> This field is the time that this status was exited or changed. In CIC, a status change does not always indicate a logon or logoff action.
>
> Table: WFM_AgentActivityLog
>
> Column: ENDDATETIME

Appendix F: User queue status

In RTA, the User Queue Status Changes setting has three parameters:

- Off: The service works as it has previously worked. It forwards status change information to the vendors whenever it receives the information.
- Minimal: The service takes into account the user's phone state. RTA does not send status changes when a user is indicated as on-phone. However, RTA does send phone *state* changes, which differ from status changes.
- Verbose: The service sends status changes (while not indicated as on-phone), 63 other phone state changes, and 17 transition state changes.

To map all of these states, use the User Queue State Messages section of the Status Mappings area of the WFM RTA Configurator. To map a group of User Queue States, use the Quick State Configuration option in the Status Mappings section.

The following table shows the 63 queue states possible in Verbose mode. The table after it shows the 17 transition states possible in Verbose mode.

Queue state	Explanation
XIn	An inbound non-ACD call
XInInHld	An inbound non-ACD call AND a held inbound interaction
XInOutHld	An inbound non-ACD call AND a held outbound interaction
XACDInInHld	An inbound ACD call AND a held inbound interaction
XACDInOutHld	An inbound ACD call AND a held outbound interaction
XInHld	A held inbound non-ACD call
XInHldIn	A held inbound non-ACD call AND an inbound interaction
XInHldInHld	A held inbound non-ACD call AND a held inbound interaction
XInHldOut	A held inbound non-ACD call AND an outbound interaction
XInHldOutHld	A held inbound non-ACD call AND a held outbound interaction
XACDInHld	A held inbound ACD call
XACDInHldIn	A held inbound ACD call AND an inbound interaction
XACDInHldInHld	A held inbound ACD call AND a held inbound interaction
XACDInHldOut	A held inbound ACD call AND an outbound interaction
XACDInHldOutHld	A held inbound ACD call AND a held outbound interaction
XACDXfrIn	An inbound ACD call that has been transferred to a user that is not in a queue
XACDXfrInInHld	An inbound ACD call that has been transferred to a user that is not in a queue AND a held inbound interaction
XACDXfrInOutHld	An inbound ACD call that has been transferred to a user that is not in a queue AND a held outbound interaction
XACDXfrInHld	A held inbound ACD call that has been transferred to a user that is not in a queue
XACDXfrInHldIn	A held inbound ACD call that has been transferred to a user that is not in a queue AND an inbound interaction
XACDXfrInHldInHld	A held inbound ACD call that has been transferred to a user that is not in a queue AND a held inbound interaction
XACDXfrInHldOut	A held inbound ACD call that has been transferred to a user that is not in a queue AND an outbound interaction

XACDXfrInHldOutHld	A held inbound ACD call that has been transferred to a user that is not in a queue AND a held outbound interaction
XACDXfrOut	An outbound ACD call that has been transferred to a user that is not in a queue
XACDXfrOutInHld	An outbound ACD call that has been transferred to a user that is not in a queue AND a held inbound interaction
XACDXfrOutOutHld	An outbound ACD call that has been transferred to a user that is not in a queue AND a held outbound interaction
XACDXfrOutHld	A held outbound ACD call that has been transferred to a user that is not in a queue
XACDXfrOutHldIn	A held outbound ACD call that has been transferred to a user that is not in a queue AND an inbound interaction
XACDXfrOutHldInHld	A held outbound ACD call that has been transferred to a user that is not in a queue AND a held inbound interaction
XACDXfrOutHldOut	A held outbound ACD call that has been transferred to a user that is not in a queue AND an outbound interaction
XACDXfrOutHldOutHld	A held outbound ACD call that has been transferred to a user that is not in a queue AND a held outbound interaction
XOut	An outbound non-ACD call
XOutInHld	An outbound non-ACD call AND a held inbound interaction
XOutOutHld	An outbound non-ACD call AND a held outbound interaction
XACDOut	An outbound ACD call
XACDOutInHld	An outbound ACD call AND a held inbound interaction
XACDOutOutHld	An outbound ACD call AND a held outbound interaction
XOutHld	A held outbound non-ACD call
XOutHldIn	A held outbound non-ACD call AND an inbound interaction
XOutHldInHld	A held outbound non-ACD call AND a held inbound interaction
XOutHldOut	A held outbound non-ACD call AND an outbound interaction
XOutHldOutHld	A held outbound non-ACD call AND a held outbound interaction
XACDOutHld	A held outbound ACD call
XACDOutHldIn	A held outbound ACD call AND an inbound interaction
XACDOutHldInHld	A held outbound ACD call AND a held inbound interaction
XACDOutHldOut	A held outbound ACD call AND an outbound interaction
XACDOutHldOutHld	A held outbound ACD call AND a held outbound interaction
XCnf	A conference with no ACD members
XCnfInHld	A conference with no ACD members AND a held inbound interaction
XCnfOutHld	A conference with no ACD members AND a held outbound interaction
XACDCnf	A conference with at least one ACD member
XACDCnfInHld	A conference with at least one ACD member AND a held inbound interaction

XACDCnfOutHld	A conference with at least one ACD member AND a held outbound interaction
XCnfHld	A held conference with no ACD members
XCnfHldIn	A held conference with no ACD members AND an inbound interaction
XCnfHldInHld	A held conference with no ACD members AND a held inbound interaction
XCnfHldOut	A held conference with no ACD members AND an outbound interaction
XCnfHldOutHld	A held conference with no ACD members AND a held outbound interaction
XACDCnfHld	A held conference with at least one ACD member
XACDCnfHldIn	A held conference with at least one ACD member AND an inbound interaction
XACDCnfHldInHld	A held conference with at least one ACD member AND a held inbound interaction
XACDCnfHldOut	A held conference with at least one ACD member AND an outbound interaction
XACDCnfHldOutHld	A held conference with at least one ACD member AND a held outbound interaction

The following table shows the 17 transition states possible in Verbose mode.

Transition state	Explanation
XInIn	An inbound non-ACD call AND an inbound interaction
XInOut	An inbound non-ACD call AND an outbound interaction
XACDIn	An inbound ACD call
XACDInIn	An inbound ACD call AND an inbound interaction
XACDInOut	An inbound ACD call AND an outbound interaction
XACDXfrInIn	An inbound ACD call that has been transferred to a user that is not in a queue AND an inbound interaction
XACDXfrInOut	An inbound ACD call that has been transferred to a user that is not in a queue AND an outbound interaction
XACDXfrOutIn	An outbound ACD call that has been transferred to a user that is not in a queue AND an inbound interaction
XACDXfrOutOut	An outbound ACD call that has been transferred to a user that is not in a queue AND an outbound interaction
XOutIn	An outbound non-ACD call AND an inbound interaction
XOutOut	An outbound non-ACD call AND an outbound interaction
XACDOutIn	An outbound ACD call AND an inbound interaction
XACDOutOut	An outbound ACD call AND an outbound interaction
XCnfIn	A conference with no ACD members AND an inbound interaction
XCnfOut	A conference with no ACD members AND an outbound interaction
XACDCnfIn	A conference with at least one ACD member AND an inbound interaction
XACDCnfOut	A conference with at least one ACD member AND an outbound interaction

Appendix G: Multimedia reporting

Most workforce management application vendors provide a multimedia option with their products that allows customers to categorize the statistics by interaction type. The output for certain reports is slightly different when using the multimedia option. Also, configuration changes to the CIC server are required.

By default, the CIC server does not store media or interaction type data in reporting tables. To enable media-type logging, an administrator must configure the StatServer subsystem to log this information.

> **Note:**
> Because the process for enabling this feature is subject to change in future versions of CIC, this document does not include instructions for enabling media type logging. Use the knowledgebase on the PureConnect Customer Care website for instructions.

The same XSLT templates and style sheet that were covered previously in this document for standard historical reporting generate the output from the WFM Historical Module. To accommodate the requirements of your specific workforce management application, modify the templates and style sheet. The Marquee Packager application passes a style-sheet parameter that instructs the style-sheet templates to report data using the multimedia option.

Following are the differences in the output for these templates when the multimedia option is enabled.

Agent Profile Report

There are currently no differences in the output of the Agent Profile template for multimedia versus standard historical reporting.

Agent Detail Report

When the multimedia option is

enabled, the Agent Detail Report changes the method used to identify the call group field. Some workforce management applications are not capable of grouping by media type as a subset of the queue. By default, this column contains the name of the workgroup queue followed by an underscore (_) and the media type. This field creates a unique row of data for the output. When using skill reporting, the skill name is used rather than the workgroup name.

Table: WFM_iAgentQueueStats

Column: cReportGroup (cHKey3 if using skills)

Agent System Report

There are currently no differences in the output of the Agent System template for multimedia versus standard historical reporting.

Appendix H: Date-time formatting characters

The following table lists the standard format characters used when formatting the file names for output files. Any of these characters are replaced with the information specified below based on the current interval for which the file contains data. The format characters are case-sensitive; for example, `g` and `G` represent slightly different patterns.

The following table lists the patterns that can be combined to construct custom patterns. The patterns are case-sensitive; for example, `MM` is recognized, but `mm` is not. If the custom pattern contains white-space characters or characters enclosed in single quotation marks, the output string also contains those characters. Characters not defined as part of a format pattern or as format characters are reproduced literally.

Format pattern	Description
d	The day of the month. Single-digit days do not have a leading zero.
dd	The day of the month. Single-digit days have a leading zero.
ddd	The abbreviated name of the day of the week
dddd	The full name of the day of the week
M	The numeric month. Single-digit months do not have a leading zero.
MM	The numeric month. Single-digit months have a leading zero.
MMM	The abbreviated name of the month
MMMM	The full name of the month
y	The year without the century. If the year without the century is less than 10, the year is displayed without a leading zero.
yy	The year without the century. If the year without the century is less than 10, the year is displayed with a leading zero.
yyyy	The year in four digits, including the century
gg	The period or era. This pattern is ignored if the date to be formatted does not have an associated period or era string.
h	The hour in a 12-hour clock. Single-digit hours do not have a leading zero.
hh	The hour in a 12-hour clock. Single-digit hours have a leading zero.
H	The hour in a 24-hour clock. Single-digit hours do not have a leading zero.
HH	The hour in a 24-hour clock. Single-digit hours have a leading zero.
m	The minute. Single-digit minutes do not have a leading zero.
mm	The minute. Single-digit minutes have a leading zero.
s	The second. Single-digit seconds do not have a leading zero.
ss	The second. Single-digit seconds have a leading zero.
f	The fraction of a second in single-digit precision. The remaining digits are truncated.
ff	The fraction of a second in double-digit precision. The remaining digits are truncated.
fff	The fraction of a second in three-digit precision. The remaining digits are truncated.
ffff	The fraction of a second in four-digit precision. The remaining digits are truncated.
fffff	The fraction of a second in five-digit precision. The remaining digits are truncated.
ffffff	The fraction of a second in six-digit precision. The remaining digits are truncated.

`fffffff`	The fraction of a second in seven-digit precision. The remaining digits are truncated.
`t`	The first character in the AM/PM designator
`tt`	The AM/PM designator
`z`	The time zone offset (+ or – followed by the hour only). Single-digit hours do not have a leading zero. For example, Pacific Standard Time is `-8`.
`zz`	The time zone offset (+ or – followed by the hour only). Single-digit hours have a leading zero. For example, Pacific Standard Time is `-08`.
`zzz`	The full-time zone offset (+ or – followed by the hour and minutes). Single-digit hours and minutes have leading zeros. For example, Pacific Standard Time is `-08:00`.
`:`	The default time separator
`/`	The default date separator
`%c`	Where *c* is a format pattern if used alone. The `%` character can be omitted if the format pattern is combined with literal characters or other format patterns.
`\c`	Where *c* is any character. Displays the character literally. To display the backslash character, use `\\`. Example: If the current interval is 06/26/2003 4:30 PM and the file name format is: `Call_MMdd_HHmm.\tx\t`, the resulting file name is: `Call_0626_1630.txt`.

Appendix I: Miscellaneous tips

This appendix contains miscellaneous tips about situations that users of WFM Historical and Real-Time Adherence have encountered.

Setting up WFM Historical 2.0.23 to work with multiple CIC servers sharing a single database

When multiple CIC servers share a single database, SiteIDs are used to differentiate the data for each server. By default, WFM Historical 2.0.23 behaves as though there is only one CIC server per database and does not separate data by SiteID.

To correct this problem, configure WFM to be aware of multiple CIC servers (and therefore SiteIDs). Open the `WFMConfigurationFile.xml` for each WFM instance and add this line to the configuration:

```
    <WFMServiceCount key="wfmservicecount"

value="1" desc="Number of sites/services utilizing
the
same reporting database. Typically this should always be set to one,
but
if you have multiple sites it may be set to more than one."
type="integer"
/>
```

Make the number set in the `value=` setting match the number of CIC servers sharing the database.

After making this change, restart the WFM Historical service. At that point, the service uses SiteIDs to differentiate the CIC server data in the WFM tables of the database.

Appendix J: Workforce Management Integration FAQs

General Features

Can you connect with more than one vendor at a time?

Yes. Both the WFM Historical and Real-Time adherence modules were built to support multiple CIC and WFM vendors at one time. It is capable of segregating data by workgroups or sending the same information to two separate vendors in their format.

Can you segment the historical exports to include data for specific agent groups? Outsource model?

Unfortunately, no. The Historical data is aggregated within a workgroup such that we don't know if an internal or outsourced agent handled the interaction. The only way to meet this requirement is to split the business handled by workgroup such that the outsourcer handles all of the interactions for a given workgroup.

How can a new vendor be added? How much effort does it take to add new vendors?

Please post requests to add new vendors to https://pureconnect.ideas.aha.io/ideas.(Requires a login.) It largely depends on the vendor and the requirements.

Can Interaction Optimizer and WFM co-exist in the same install?

Yes

Versioning

What vendors do you support?

- Blue Pumpkin (Verint bought out Witness who bought Blue Pumpkin. Verint also bought GMT late 2011)
- IEX (acquired by NICE in 2006)
- Aspect eWFM
- GMT (Bought by Verint in late 2011)
- Pipkins
- Invision
- Injixo (cloud version of Invision)

Is this supported in Genesys Cloud?

Yes. Typically the integrations will be deployed in the cloud and the MPLS firewalls will be configured to deliver the historical files via FTP and the Real-Time via an agreed upon socket port.

Licensing/Certification

Are we certified with each of the WFM vendors?

There is no certification program for any of the vendors. We do have multiple installations using each of the vendors.

How is it licensed?

It is licensed by CIC server, not by user. The backup server (or switchover) is included in this license.

Supported Environments

Where is the integration installed?

The integration is installed server-side, but not on the CIC server. The WFM Historical and Real-Time are installed by default on the same machine.

Can this integration be co-located with other products?

Yes, but it depends mostly on sizing. If the contact center is more than 300-400 users, we suggest a separate WFM Integration server to serve for Historical and Real-Time feeds.

Change log

The following table lists the changes to the *CIC Integration to Workforce Management Historical and Real-Time Adherence Technical Reference* since its initial release.

Date	Changes
28-October-2009	Updated Prerequisites section to state that Interactive Update needs .NET 3.0.
10-November-2009	Removed incorrect reference to skills-based routing.
12-March-2010	Updated copyright information and other front matter.
25-March-2010	- Redid screen caps of main window to show the Config Import utility, which was added. - Added sections about the new utility to the "Historical" and "RTA" sections.
30-March-2010	- Step 1 Creating a feed, added instruction about how to rename a feed. - In Section 4, Step 1, added instruction about how to rename a plug-in.
02-December-2010	Added "Appendix E: User Queue Status"
04-November-2011	Added information for IEX sites about showing outbound calls by workgroup.
22-November-2011	Added information about Invision.
08-December-2011	Added more information about Invision.
23-August-2012	- Updated for IC 4.0 Service Update 2. - Updated title per naming guidelines.
29-August-2012	Minor corrections.
11-July-2013	- Removed obsolete references to handlers. - Updated copyright page and made other minor tweaks.
29-August-2013	- Added information to appendices about format and fields of information sent to third-party vendors. - Added information about Pipkins.
17-June-2014	In "pre-requisites" section, added information that Windows Server 2003 requires .NET 3.5.
01-September-2014	Updated documentation to reflect changes required in the transition from version 4.0 SU# to CIC 2015 R1, such as updates to product version numbers, system requirements, installation procedures, references to Interactive Intelligence Product Information site URLs, and copyright and trademark information.
22-January-2015	- Updated requirement of CIC 2015 R2. - Added note about running WFM Integration Configurator as an administrator. - Added tip about disabling IPv6.
23-January-2015	Added information about "Status Length" and "Status Format" in the Vendor-specific fields table.
06-March-2015	- Added Injixo to the list of supported third-party WFM software. - Added information about using Windows Authentication.
16-April-2015	Updated for 2015 R3.
24-June-2015	Updated for 2015 R4.
14-September-2015	Updated for 2016 R1.
21-December-2015	Updated for 2016 R2.
19-February-2016	Added "Send &'AgentID&' as Extension" to Vendor-specific fields table for IEX.

12-May-2016	Corrected location of table creation scripts to `\Installs\Integrations\WorkforceManagement` directory in the "Creating custom tables on the database server" and the "Background information for the third-party WFM software vendors" sections.
	
	In the "Step 2: Configuring the plug-in to work with an IC server" section, updated note:
	
	    Note: The user account must have sufficient rights to see all user statuses on the IC server.
	    This requires **Access Controls** rights to all **Directory Status Columns**.

31-March-2018	Updated "Using the Historical Import Utility" to note that entry of future dates is not supported. Additional checking was added to prevent users from entering future intervals in **Import Start Date** and **Import End Date** fields.
01-April-2018	Improved processing of Aspect status codes. Previously, if the system could not determine the corresponding Aspect status code for a user's PureConnect status, it assigned a default status that could be unusable by Aspect. Context is now analyzed to determine the status sent to Aspect. If PureConnect cannot determine the Aspect status code corresponding to a user's PureConnect status, it sends one the following: • Nothing-if the user is not logged in. • InboundLine1 (13)-if the agent is on an inbound call. • OutboundLine1 (15)-if the agent is on an outbound call. • WorkingOffline(22)-if none of the above apply. The agent is logged in, but no on the phone.
29-April-2019	Added support for Windows 2016 (64 bit).
19-June-2019	Reorganized the content only, which included combining some topics and deleting others that just had an introductory sentence such as, "In his section...".
17-April-2020	Updated to reflect support for Windows Server 2019.
28-April-2020	Added note about testing to Requirements in the introduction. Added Appendix J: Workforce Management Integration FAQs. Done as part of migrating content from Product Information site.
24-September-2020	Corrected AFTERCALLWORKTIME description to reflect that it is the total time rather than an average.