Web Services and Applications Deployment Guide

Web Services and Applications 8.5.1

1/29/2022

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Workspace Web Edition & Web Services Deployment Guide

RESTRICTED

> **Important**
> This is **restricted release** documentation, and therefore is subject to change and is not complete. Some features that are described in this documentation might not be fully implemented in the application.

Welcome to the *Workspace Web Edition & Web Services Deployment Guide*. This document provides information about deploying and configuring Workspace Web Edition & Web Services.

Release Notes

Find Release Notes for Workspace Web Edition & Web Services.

Workspace Web Edition & Web Services 8.5.x Release Note

About Workspace Web Edition & Web Services

Find out about the core features of Workspace Web Edition & Web Services.

Product Overview

Architecture

Deployment

Find procedures to set up Workspace Web Edition & Web Services.

Configuration

Find configuration information for Workspace Web Edition & Web Services.

Deployment Overview

Prerequisites

Install Workspace Web Edition & Web Services

Configuring Workspace Web Edition & Web Services

Web Services Configuration Options

Overview

Workspace Web Edition & Web Services is a web-based Agent Desktop and REST APIs that provide a web client interface to access Genesys services.

Workspace Web Edition is an HTML 5 thin-client application that provides agents and knowledge workers with non-intrusive access to the information, processes, and applications that they need to perform their jobs more efficiently and to ensure increased customer satisfaction. Web Services are the REST APIs that can be used by developers to create custom applications that integrate with Genesys.

With Workspace Web Edition & Web Services, Genesys provides both the web-based application and the APIs in one installation package.

To work with either the application or the APIs, you must first follow the steps in this Deployment Guide to install and configure the server component of Workspace Web Edition & Web Services. After the deployment is complete, you can:

- Configure Workspace Web Edition — See the Workspace Web Edition Configuration Guide for details.
- Work with Web Services — See the Web Services API Reference for details.

Security

Workspace Web Edition & Web Services adheres to the standards described in the Open Web Application Security Project (OWASP) Top 10. See the OWASP website for details about the Top 10.

Workspace Web Edition & Web Services has adopted several methods of ensuring security, for example:

- Errors are logged locally to prevent information leakage through API requests.
- User sessions have a timeout option.

Client-side Browser Support

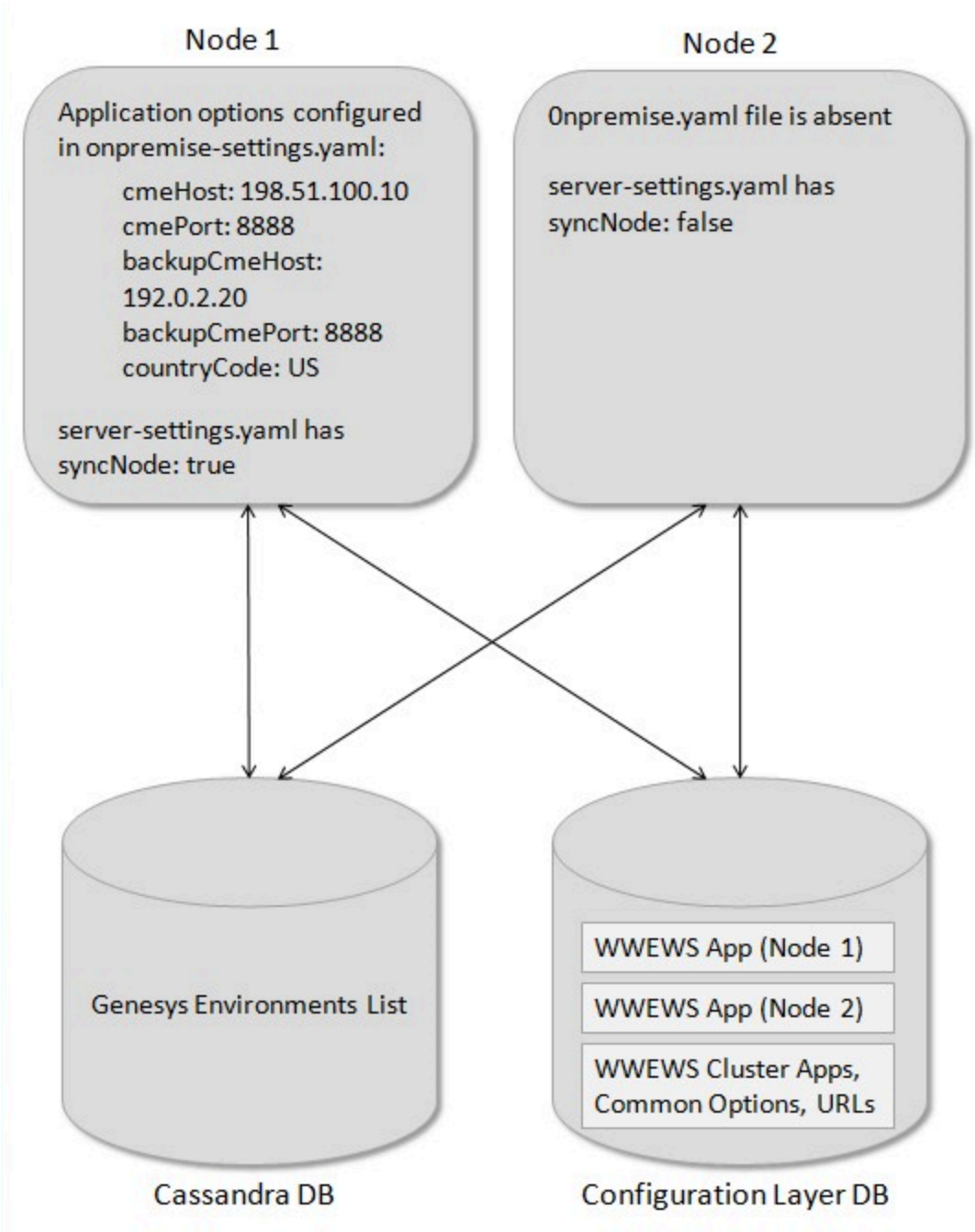
The Workspace Web Edition agent interface supports the following browsers:

- Microsoft Internet Explorer 10
- Google Chrome
- Firefox 15+ (support is limited to voice)

Architecture

On-Premise Architecture

This configuration assumes that you have one contact center for each Workspace Web Edition & Web Services cluster. The following example depicts a two-node configuration, one node for the Synchronization Node (SyncNode) and one Client node. You can have any number of Client nodes. Each node must have a connection to the Cassandra database and the Configuration Layer database.



Workspace Web Edition & Web Services On-Premise Architecture

Load Balancing

Workspace Web Edition & Web Services supports any third-party load balancer that supports sticky sessions. Session affinity (sticky sessions) should be configured based on `JSESSIONID`.

Web Sockets

Your load balancer must support web sockets if they are used as the transport for unsolicited notifications in CometD. For details about CometD, see http://cometd.org/.

If you use Workspace Web Edition and your load balancer supports web sockets, make sure to enable this feature in Workspace Web Edition by setting the system.notif.enabled-websocket option to true.

Deployment Overview

Deploying Workspace Web Edition & Web Services

Start of Procedure

1. Review the Prerequisites, including installation of Cassandra.
2. Install Workspace Web Edition & Web Services.
3. Configure Workspace Web Edition & Web Services.
4. Start Workspace Web Edition & Web Services and test the configuration.
5. Choose the next step based on your role:
   - Developers — Consult the Web Services API Reference to begin working with the Web Services APIs.
   - Administrators — Consult the Workspace Web Edition Configuration Guide to configure the Workspace Web Edition (agent desktop) interface.
6. Test the User Interface with Workspace Web Edition & Web Services.

End of Procedure

Prerequisites

The following prerequisites must be met before you can install and configure Workspace Web Edition & Web Services:

- The Genesys Platform has been installed, configured, and tested.
- Review the Deployment Scenarios.
- Jetty has been installed and configured.
- Cassandra has been installed and configured.

Genesys Platform Support

Required Components

- Management Framework 8.1

Optional Components

The following Genesys components are required to support the specified features:

Feature	Component
Voice API	• SIP Server 8.1, TServer for Avaya Communications Manager 8.1, or TServer Avaya TSAPI 8.1 • MCP 8.1.603.62+ is recommended if using in conjunction with SIP Server
Multimedia API	• eServices 8.1.3
Reporting	• StatServer 8.1

Deployment Scenarios

There are generally three common Cassandra topologies used for Workspace Web Edition & Web Services:

- Development — 1 Cassandra node (appropriate for a development or lab environment)

- Single Datacenter — 1 datacenter with a minimum of three Cassandra nodes
- Two Datacenters — 2 datacenters with a minimum of three Cassandra nodes in each datacenter

The number of Workspace Web Edition & Web Services nodes in your deployment scenario depends on a variety of factors. Please consult with Genesys for help to determine the correct number of nodes for your solution.

For Development scenarios, you can install Cassandra and Workspace Web Edition & Web Services on the same host. For Single Datacenter and Two Datacenter scenarios, you must install Cassandra and Workspace Web Edition & Web Services on separate hosts.

Installing and Configuring Jetty

Jetty version 8 is a mandatory component that must be installed and configured on each Workspace Web Edition & Web Services node prior to starting the installation and configuration of Workspace Web Edition & Web Services.

> ### Important
> For more information about Jetty, refer to the Jetty documentation.

Prerequisites

- You have installed the latest Java 1.7 JDK 64bit for Linux. For more information, refer to the Java documentation.

Start of Procedure

1. Download Jetty version 8 from Eclipse.
2. Copy the Jetty archive to the installation directory. For example, `/opt/jetty`
3. Use a tar utility to extract the files. For example, `tar -zxvf jetty-distribution-8.1.14.v20131031.tar.gz`
4. Start Jetty to confirm it has been installed correctly:

   ```
   [java_path]/java -jar [jetty_path]/start.jar
   ```

   - [java_path] — The path to your Java installation. For example, `/user/bin`.
   - [jetty_path] — The path to your Jetty installation. For example, `/opt/jetty`.

- Test Jetty by entering the following URL in a web browser: `http://[host]:8080`
  - [host] — The host name (fully qualified domain name) or IP address where you installed Jetty.

  You should see a Jetty Test application page similar to the following:

Welcome to Jetty 8 - REMOTE ACCESS!!

This is the Test webapp for the Jetty 8 HTTP Server and Servlet Container. For more information about Jetty, please visit website or documentation. Commercial support for Jetty is available via webtide.

This test context serves several demo filters and servlets that are not safe for deployment on the internet, since (by design) contain cross domain scripting vulnerabilities and reveal private information. This page is displayed because you have acces this context from a non local IP address.

You can disable the remote address checking by editing contexts/test.d/override-web.xml, uncommenting the definition of TestFilter, and changing the "remote" init parameter to "true".

This webapp is deployed in $JETTY_HOME/webapp/test and configured by $JETTY_HOME/contexts/test.xml and $JETTY_HOME/contexts/test.d/override-web.xml

Jetty test application page

- Stop Jetty by pressing `Ctrl+c`.

End of Procedure

Installing and Configuring Cassandra

Cassandra 1.1 is mandatory for Workspace Web Edition & Web Services and must be installed and configured prior to starting the installation and configuration of Workspace Web Edition & Web Services.

> **Important**
> For more details about Cassandra, refer to the Cassandra documentation for version 1.1.

The following steps are intended to serve as a quick guide to installing and configuring Cassandra.

Installing Cassandra

Complete this procedure for each Cassandra node.

Prerequisites

- You have installed the latest Java 1.7 JDK 64bit for Linux. For more information, refer to the Java documentation.

Start of Procedure

1. Download the latest 1.1.x version of Cassandra.
2. Copy the Cassandra archive to the installation directory. For example, `/usr/local`
3. Use a tar utility to extract the files. For example, `tar -zxvf apache-cassandra-1.1.11-bin.tar.gz`
4. Add directories for data, commitlog, and saved_caches. You can create these directories anywhere or in the default locations configured in the `cassandra.yaml`. For example:
   - /var/lib/cassandra/data
   - /var/lib/cassandra/commitlog
   - /var/lib/cassandra/saved_caches
5. Add a directory for logging. You can create this directory anywhere, such as `/var/log/cassandra/`.

End of Procedure

Next Steps

- Configure Cassandra

Configuring Cassandra

This procedure shows you how to configure a three-node Cassandra cluster in a single datacenter.

> **Important**
> The files modified in this procedure are typically found in the `[Cassandra install dir]/conf` directory.

Start of Procedure
Complete the following steps for each Cassandra node:

1. Modify the `cassandra.yaml` file:
   a. Set the `cluster_name`. It must be the same name on all nodes.
   b. Set the `initial_token` according to the node's place in ring. It must be one of the following:

```
Node #1:                                                0
Node #2:   56713727820156410577229101238628035242
Node #3:  113427455640312821154458202477256070484
```

> **Important**
> The tokens shown here can be used for a three-node Cassandra cluster in a single datacenter. If you are using a different topology or cluster size, consult the Cassandra documentation.

   c. Set `seeds` to the list of host names of all nodes. For example: `-seeds: “node1, node2, node3”`
   d. Set `listen_address` and `rpc_address` to the host name.

e. Set `data_file_directories`, `commitlog_directory`, and `saved_caches_directory` to the directories you created in Step 4 of the Installing Cassandra procedure.

f. Change `endpoint_snitch` to `PropertyFileSnitch`.

g. Save your changes and close the file.

8. Open the `log4j-server.properties` file and set the `log4j.appender.R.File` property to the directory you created in Step 5 of the Installing Cassandra procedure.
9. Save your changes and close the file.
10. Open the `cassandra-topology.properties` file and update for you cluster topology. For each node in your cluster, add the following line:

```
[node]=[datacenter]:[rack]
```

- `[node]` — The IP address of the node
- `[datacenter]` — The name of the datacenter for this node.
- `[rack]` — The name of the rack for this node.

The following is a sample `cassandra-topology.properties` file for a Single Datacenter scenario:

```
192.0.2.10=datacenter1:rack1
192.0.2.11=datacenter1:rack1
192.0.2.12=datacenter1:rack1
```

- Save your changes and close the file.

End of Procedure

Next Steps

- Verifying the Cassandra installation

Verifying the Cassandra Installation

Start of Procedure

1. Start all Cassandra nodes using the following command:

```
[cassandra install dir]/bin/cassandra
```

2. Use the nodetool utility to verify that all nodes have connected by entering the following command:

```
[cassandra install dir]/bin/nodetool -h [cassandra host] ring
```

The following is sample output for a Single Datacenter scenario:

```
/genesys/apache-cassandra-1.1.6/bin$ ./nodetool ring
Address     DC           Rack   Status  State   Load      Owns     Token
192.0.2.10  datacenter1  rack1  Up      Normal  14.97 MB  100.00%  0
192.0.2.11  datacenter1  rack1  Up      Normal  14.97 MB  100.00%
56713727820156410577229101238628035242
192.0.2.12  datacenter1  rack1  Up      Normal  14.97 MB  100.00%
113427455640312821154458202477256070484
```

End of Procedure

Next Steps

- Install Workspace Web Edition & Web Services

Install Workspace Web Edition & Web Services

Workspace Web Edition & Web Services uses two application objects in the Genesys configuration environment:

- An application of type `Genesys Generic Server` that is called the WWEWS Cluster Application.
- An application of type `Genesys Generic Client` that is called the WWEWS Node Application.

Together, these two applications provide Workspace Web Edition & Web Services with access to the configuration required for operation.

Perform the following procedures to configure and install the Workspace Web Edition & Web Services application.

Select a tab below to configure the application in *either* Configuration Manager or Genesys Administrator.

Configuring the Application in Configuration Manager

Configuring the Application in Configuration Manager

Creating & Importing the Application Templates

The Workspace Web Edition & Web Services installation CD includes a template for `Genesys Generic Server`, but you must create a new template for `Genesys Generic Client`.

Start

1. To create the `Genesys Generic Client` template, navigate to the `Application Templates` folder in Configuration Manager. Right-click and select `New > Application Template`.
2. Configure the General tab of the template as shown below:
   - Name: WWEWS
   - Type: Genesys Generic Client
   - Version: 8.5
   - State Enabled: Yes
3. Click 0K.
4. To import the `Genesys Generic Server` template, navigate to the `Application Templates` folder in

Configuration Manager. Right-click and select `Import Application Template`.

5. Navigate to the `templates` folder on the installation CD.
6. Select the `Workspace_Web_Edition_Web_Services_852` template file.
7. Click OK.

End

Creating the WWEWS Cluster Application

Start

1. Navigate to the `Applications` folder in Configuration Manager. Right-click and select `New > Application`.
2. Select the `Workspace_Web_Edition_Web_Services_852` template and click OK.
3. Configure the General tab as shown below:
   - Name: WWEWS_Cluster
   - Template: Workspace_Web_Edition_Web_Services_852
   - Component Type: [Unknown]
   - State Enabled: Yes
4. On the Tenants tab, do the following:
   1. Click `Add`.
   2. Chose the `Environment` tenant (or use any other tenant for which we have a connection to the **Configuration Server**).
   3. Click OK.
5. On the Server Info tab, choose the appropriate Host object. This automatically adds a corresponding port entry. The port value is ignored by the server and does not need to be modified.
6. On the Start Info tab, add a "." to the `Working Directory`, `Command Line`, and `Command Line Arguments` fields. These values are mandatory for all applications and must be entered to save the application object. Workspace Web Edition & Web Services does not use these values, so the “.” is used as a placeholder.
7. On the Connections tab, add the following connections:
   - Configuration Server
   - T-Server (if supporting voice)
8. To support Reporting in your deployment, add the following connection:
   - Stat Server

> **Important**
> KPIs and Statistics are reported only for the voice channel. Workspace Web Edition

> & Web Services does not support real-time statistics for mixed media (voice/ eServices) environments. If a mixed media environment is used, voice statistics are not accurate.

9. To support Multimedia in your deployment, add the following connections:
   - Interaction Server
   - Universal Contact Server
10. Click OK to save the `WWEWS_Cluster` application.

End

Creating the WWEWS Node Application

Start

1. Navigate to the `Applications` folder in Configuration Manager. Right-click and select `New > Application`.
2. Select the "WWEWS" template and click OK.
3. Configure the General tab as shown below:
   - Name: WWEWS_Node
   - Template: WWEWS
   - State Enabled: Yes
4. On the Connections tab, add the following connections:
   - Cluster application that was configured in the previous procedure.
5. Click OK to save the `WWEWS_Node` application.

Configuring the Application in Genesys Administrator

Configuring the Application in Genesys Administrator

Creating & Importing the Application Templates

The Workspace Web Edition & Web Services installation CD includes a template for `Genesys Generic Server`, but you must create a new template for `Genesys Generic Client`.

Start

1. To create the Genesys Generic Server template, open Genesys Administrator and navigate to PROVISIONING > Environment> Application Templates.
2. Select New... and configure the properties of the template as shown below:
   - Name: WWEWS
   - Type: Genesys Generic Client
   - Version: 8.5
   - State: Enabled
3. Click Save & Close.
4. To import the Genesys Generic Server template, click Upload Template in the Tasks panel. The Click 'Add' and choose application template (APD) file to import dialog opens.
5. Click Add and navigate to the templates folder on the installation CD.
6. Select the Workspace_Web_Edition_Web_Services_852 template file and click Open.
7. Click Save & Close.

End

Creating the WWEWS Cluster Application

Start

1. In Genesys Administrator, navigate to PROVISIONING > Environment > Application and click New....
2. In the General section, configure the properties of the application as shown below:
   - Name: WWEWS_Cluster
   - Template: Workspace_Web_Edition_Web_Services_852
   - State: Enabled
3. Add the following connections:
   - Configuration Server
   - T-Server (if supporting voice)
4. To support Reporting in your deployment, add the following connection:
   - Stat Server

   > **Important**
   > KPIs and Statistics are reported only for the voice channel. Workspace Web Edition & Web Services does not support real-time statistics for mixed media (voice/ eServices) environments. If a mixed media environment is used, voice statistics are not accurate.

5. To support Multimedia in your deployment, add the following connections:

- Interaction Server
- Universal Contact Server

6. In the Server Info section, select a Tenant:
   1. Click Add.
   2. Chose the Environment tenant (or use any other tenant for which we have a connection to the **Configuration Server**).
   3. Click OK.
7. Choose the appropriate Host object.
8. Add a default Listening Port:
   1. Click Add.
   2. Enter the application's Port. For instance 7000.
   3. Click OK.
9. Add a "." to the Working Directory, Command Line, and Command Line Arguments fields. These values are mandatory for all applications and must be entered to save the application object. Workspace Web Edition & Web Services does not use these values, so the "." is used as a placeholder.

End

Creating the WWEWS Node Application

Start

1. In Genesys Administrator, navigate to PROVISIONING > Environment > Application and click New....
2. In the General section, configure the properties of the application as shown below:
   - Name: WWEWS_Node
   - Template: WWEWS
   - State: Enabled
3. Add the following connections:
   - Cluster application that was configured in the previous procedure.
4. Click Save & Close.

End of Procedure

Next Steps

- Initializing Cassandra

Initializing Cassandra

Creating the Cassandra Keyspace

The procedures below describe how to create the Cassandra keyspace for the following scenarios:

- Development — 1 Cassandra node (appropriate for a development or lab environment)
- Single Datacenter — 1 datacenter with a minimum of three Cassandra nodes
- Two Datacenters — 2 datacenters with a minimum of three Cassandra nodes in each datacenter

Select a tab below for the procedure that matches your deployment scenario.

> **Important**
> For more complex Cassandra deployments, please consult with Genesys.

Development

Creating the Cassandra Keyspace (1 Cassandra node)

Start of Procedure

1. Copy the `ks-schema-local.txt` file from `[installation_CD]/data` to the Cassandra node host.
2. By default, the replication factor is set to 1. Since this is a single node deployment, you do not need to modify this value. Refer to the Cassandra documentation for more information about replication factors.

   ```
   and strategy_options = {replication_factor : 1}
   ```

3. Run the following command to create the Cassandra schema:

   ```
   [cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file ks-schema-local.txt
   ```

- `[cassandra host]` is the host name (fully qualified domain name) or IP address of the Cassandra node

End of Procedure

Next Steps

- Creating the Column Families

Creating the Column Families

Start of Procedure

1. Copy the `cf-schema.txt` file from `[installation_CD]/data` to the Cassandra node host.
2. Run the following command to create the Cassandra schema:

   ```
   [cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file cf-schema.txt
   ```

- `[cassandra host]` is the host name (fully qualified domain name) or IP address of the Cassandra node

End of Procedure

Next Steps

- Deploy the Web Application

Single Datacenter

Creating the Cassandra Keyspace (1 datacenter)

Complete the following procedure on one node in your Cassandra cluster.

Start of Procedure

1. Copy the `ks-schema-prod.txt` file from `[installation_CD]/data` to the Cassandra node host.
2. By default, the replication factor is set to 2. Refer to the Cassandra documentation for more information about replication factors. To modify this value, change the following line:

   ```
   and strategy_options = {replication_factor : 2}
   ```

3. Run the following command to create the Cassandra schema:

   ```
   [cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file ks-schema-prod.txt
   ```

- `[cassandra host]` is the host name (fully qualified domain name) or IP address of the Cassandra node

End of Procedure

Next Steps

- Creating the Column Families

Creating the Column Families

Complete the following procedure on one node in your Cassandra cluster.

Start of Procedure

1. Copy the `cf-schema.txt` file from `[installation_CD]/data` to the Cassandra node host.
2. Run the following command to create the Cassandra schema:

```
[cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file cf-schema.txt
```

- `[cassandra host]` is the host name (fully qualified domain name) or IP address of the Cassandra node

End of Procedure

Next Steps

- Deploy the Web Application

Two Datacenters

Creating the Cassandra Keyspace (2 datacenters)

Complete the following procedure on one node in your Cassandra cluster.

Start of Procedure

1. Copy the `ks-schema-prod_HA.txt` file from `[installation_CD]/data` to the Cassandra node host.
2. Modify the following line:

```
with strategy_options ={ AZ1 : 3, AZ2 : 3 }
```

   a. Add the datacenter name. You can use nodetool to find the name of the datacenter by examining the output of "nodetool ring" (the tool is located in the `bin` directory of Cassandra). The following is sample output from the nodetool:

```
/genesys/apache-cassandra-1.1.6/bin$ ./nodetool ring
Address         DC           Rack   Status  State   Load      Owns     Token
192.0.2.10      datacenter1  rack1  Up      Normal  14.97 MB  100.00%  0
198.51.100.10   datacenter2  rack1  Up      Normal  14.97 MB  100.00%  100
192.0.2.11      datacenter1  rack1  Up      Normal  14.97 MB  100.00%
56713727820156410577229101238628035242
198.51.100.11   datacenter2  rack1  Up      Normal  14.97 MB  100.00%
56713727820156410577229101238628035242
192.0.2.12      datacenter1  rack1  Up      Normal  14.97 MB  100.00%
113427455640312821154458202477256070484
198.51.100.12   datacenter2  rack1  Up      Normal  14.97 MB  100.00%
113427455640312821154458202477256070484
```

   b. Add the replication factor. Refer to the Cassandra documentation for more information about replication factors.

   Based on the nodetool output above, your line might be:

```
with strategy_options ={ datacenter1 : 3, datacenter2 : 3 }
```

3. Run the following command to create the Cassandra schema:

```
[cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file ks-schema-
prod_HA.txt
```

- `[cassandra host]` is the host name (fully qualified domain name) or IP address of the Cassandra node

End of Procedure

Next Steps

- Creating the Column Families

Creating the Column Families

Complete the following procedure on one node in your Cassandra cluster.

Start of Procedure

1. Copy the `cf-schema.txt` file from `[installation_CD]/data` to the Cassandra node host.
2. Run the following command to create the Cassandra schema:

```
[cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file cf-schema.txt
```

- `[cassandra host]` is the host name (fully qualified domain name) or IP address of the Cassandra node

End of Procedure

Next Steps

- Deploy the Web Application

Deploying the Web Application

> **Warning**
> The Workspace Web Edition & Web Services web application uses the Jetty root context. If other web applications served by the same instance of Jetty also use the root context, this can prevent the Workspace Web Edition & Web Services web application from getting routed requests. If you are working with a fresh install of Jetty, you should remove the default Jetty files from the `$JETTY_HOME/webapps` and `$JETTY_HOME/contexts` folders.

Complete the following steps for each Workspace Web Edition & Web Services node.

Start of Procedure

1. Stop Jetty.
2. Copy the `jetty.xml` file from `[installation_CD]/jetty` to `$JETTY_HOME/etc`.
3. Copy the `cloud-web.xml` file from `[installation_CD]/jetty` to `$JETTY_HOME/contexts`.
4. Copy the `logback.xml` file from `[installation_CD]/jetty` to `$JETTY_HOME/resources`.
5. Copy the `cloud-web.war` file from `[installation_CD]/webapp` to `$JETTY_HOME/webapps`.
6. Copy the configuration files from `[installation_CD]/conf` to a local folder of your choosing. For example, `$JETTY_HOME/genconfig`.

End of Procedure

Next Steps

- Configuring Workspace Web Edition & Web Services

Migration to 8.5.1

From 8.5.0

Start of Procedure

1. Stop Jetty on all the Workspace Web Edition & Web Services nodes.
2. Update Cassandra with all `cf-schema-<version>.txt` files in the `[install CD]]/data` directory.
   a. Copy the `[install CD]]/data` directory to the Cassandra node host.

> **Important**
> You must run these scripts in order, beginning with `cf-schema-8.5.100.01.txt`.

   b. For each `cf-schema-<version>.txt` file, run the following command to update the Cassandra schema:

```
[cassandra install dir]/bin/cassandra-cli  -h [cassandra host] --file cf-schema-
<version>.txt
```

- `[cassandra host]` is the host name (FQDN) or IP of the Cassandra node

- For each Workspace Web Edition & Web Services node, complete the following steps:

  a. Complete the Deploying the Web Application procedure.

> **Tip**
> Make a backup of your configuration folder (`$JETTY_HOME/genconfig`) to use as a reference for setting configuration options.

  b. Review Configuring Workspace Web Edition & Web Services and its sub-topics and set the options required for your deployment.
  The following configuration options have been modified in the `$JETTY_HOME/genconfig/server-settings.yaml` file in 8.5.1:

Option	Type of Change
activationTimeout	The default value changed from 1000 to 12000.
connectionTimeout	The default value changed from 400 to 4000.
cmeAuthenticationEnabled	Removed

- Complete the Starting and Testing Workspace Web Edition & Web Services procedure.

End of Procedure

Configuring Workspace Web Edition & Web Services

Configuration for the Workspace Web Edition & Web Services node is handled in three files:

- `server-settings.yaml`
- `onpremise-settings.yaml`
- `cassandra-cluster.yaml`

You can find these files in the main Workspace Web Edition & Web Services config folder you created in Step 6 of the Deploying the Web Application procedure.

Modifying the Server Settings

Start of Procedure

1. Open the `server-settings.yaml` and review the options. This file contains a number of core parameters that are used by the server.

   The following is an unmodified file:

```
externalApiUrl: [ToBeChanged: "PUBLIC_SCHEMA_BASE_URL"]/api/v1
 internalApiUrl: [ToBeChanged: "INTERNAL_SCHEMA_BASE_URL"]/api/v1
 externalApiUrlV2: [ToBeChanged: "PUBLIC_SCHEMA_BASE_URL"]/api/v2
 internalApiUrlV2: [ToBeChanged: "INTERNAL_SCHEMA_BASE_URL"]/api/v2
 reconnectAttempts: [ToBeChanged: "RECONNECT_ATTEMPTS"]
 reconnectTimeout: [ToBeChanged: "RECONNECT_TIMEOUT"]
 activationTimeout: 12000
 connectionTimeout: 4000
 configServerActivationTimeout: 35000
 configServerConnectionTimeout: 15000
 contactCenterSynchronizationTimeout: 60000
 opsUserName: [ToBeChanged: "OPS_USER_NAME"]
 opsUserPassword: [ToBeChanged: "OPS_USER_PASSWORD"]
 applicationName: [ToBeChanged: "APPLICATION_NAME"]
 applicationType: [ToBeChanged: "APPLICATION_TYPE"]
 cmeUserName: [ToBeChanged: "CME_USER_NAME"]
 cmePassword: [ToBeChanged: "CME_PASSWORD"]
 syncNode: [ToBeChanged: true|false]
 inactiveUserTimeout: 60
```

2. Review the General Configuration and Connectivity options to learn more about the default options included in the `server-settings.yaml` file, as well as the other options you can add to adjust Workspace Web Edition & Web Services for your solution. Make sure to update all the options marked `[ToBeChanged]`.

> **Important**
>
> In each Workspace Web Edition & Web Services cluster, one node must be configured as the synchronization node: `syncNode = true`. All other nodes in the cluster must have `syncNode = false`.

3. Save your changes and close the file.
4. Open the `onpremise-settings.yaml` file and review the options. This file contains parameters that are used to connect to Configuration Server.

   The following is an unmodified file:

```
cmeHost: localhost
 cmePort: 8888
 countryCode: US
```

   The following options are valid in this file:

- `cmeHost` – The Configuration Server host name (FQDN) or IP
- `cmePort` – The Configuration Server port
- `backupCmeHost` – The backup Configuration Server host name (FQDN) or IP
- `backupCmePort` – The backup Configuration Server port
- `countryCode` – The premise contact center's country code

> **Important**
>
> Configure the `backupCmeHost` and `backupCmePort` options if there is a backup Configuration Server in the Genesys environment and you want high-availability support.

- Save your changes and close the file.
- Open the `cassandra-cluster.yaml` file and review the options.

  The following is an unmodified file:

```
thrift_port: 9160
jmx_port: 7199
keyspace: sipfs
nodes: [ToBeChanged: "CASSANDRA_PRIMARY_DC_NODES"]
backup_nodes: [ToBeChanged: "CASSANDRA_BACKUP_DC_NODES"]
replication_factor: [ToBeChanged: "REPLICATION_FACTOR"]
write_consistency_level: [ToBeChanged: "CL_LOCAL_QUORUM" for multi-datacenters env,
"CL_QUORUM" for single-DC env.]
read_consistency_level: [ToBeChanged: "CL_LOCAL_QUORUM" for multi-datacenters env,
"CL_QUORUM" for single-DC env.]
max_conns_per_host: 16
max_cons: 16
max_pending_conns_per_host: 80
max_blocked_threads_per_host: 160
```

- Modify the settings as needed, making sure to update all the options marked `[ToBeChanged]`:
  - `nodes` — A comma-separated list of Cassandra node IPs or host names.
  - `backup_nodes` — A comma-separated list of backup Cassandra node IPs or host names.
  - `replication_factor` — A replication factor appropriate for your Cassandra topology. This value should be the same as the replication factor you set in Step 2 of the Creating the Cassandra Keyspace procedure.
  - `write_consistency_level` — Set this value according to your Cassandra topology:

Development (1 Cassandra node)	Single Datacenter (1 datacenter with a minimum of three Cassandra nodes)	Two Datacenters (datacenters with a minimum of three Cassandra nodes in each datacenter)
CL_ONE	CL_QUORUM	CL_LOCAL_QUORUM

  - `read_consistency_level` — Set this value according to your Cassandra topology:

Development (1 Cassandra node)	Single Datacenter (1 datacenter with a minimum of three Cassandra nodes)	Two Datacenters (datacenters with a minimum of three Cassandra nodes in each datacenter)
CL_ONE	CL_QUORUM	CL_LOCAL_QUORUM

The following options tune the Cassandra database access. The default values were used by Genesys during internal load tests.

  - `max_conns_per_host` — Maximum number of connections to allocate for a single host's pool.
  - `max_cons` — Maximum number of connections in the pool.
  - `max_pending_conns_per_host` — Maximum number of pending connect attempts per host.
  - `max_blocked_threads_per_host` — Maximum number of blocked clients for a host.
- Save your changes and close the file.

End of Procedure

Tuning the Workspace Web Edition & Web Services Host Performance

Complete the steps below on each Workspace Web Edition & Web Services node to tune the performance of the host environment.

Start of Procedure

1. Run the following commands:

```
sudo sysctl -w net.core.rmem_max=16777216
sudo sysctl -w net.core.wmem_max=16777216
sudo sysctl -w net.ipv4.tcp_rmem="4096 87380 16777216"
sudo sysctl -w net.ipv4.tcp_wmem="4096 16384 16777216"
```

```
sudo sysctl -w net.core.somaxconn=4096
sudo sysctl -w net.core.netdev_max_backlog=16384
sudo sysctl -w net.ipv4.tcp_max_syn_backlog=8192
sudo sysctl -w net.ipv4.tcp_syncookies=1
sudo sysctl -w net.ipv4.tcp_congestion_control=cubic
```

2. Increase the file descriptors by adding the following to the `/etc/security/limits.conf` file:

```
<user_name>                hard nofile        100000
 <user_name>                soft nofile        100000
```

- `<user_name>` — The name of the user or group that is starting Jetty.

End of Procedure

Reporting

The following procedures outline the steps that are required to enable Workspace Web Edition & Web Services to use, store, and expose statistical data for agents, skills and queues. This statistical data is used to provide reporting capabilities in Workspace Web Edition, and can also be accessed through the API.To enable reporting in Workspace Web Edition & Web Services, you must modify the `server-settings.yaml` file. To monitor specific skills, you can configure Virtual Agent Groups and Virtual Queues in Configuration Server.

> **Important**
>
> Statistics are available only for the voice channel. Workspace Web Edition & Web Services does not support real-time statistics for mixed media (voice/eServices) environments. If a mixed media environment is used, voice statistics are not accurate.

Enabling Reporting

Start of Procedure

1. Open the `$JETTY_HOME/genconfig/server-settings.yaml` file.
2. Configure the Workspace Web Edition & Web Services node by setting the nodeId option to a unique identifier, such as the host name or IP address of the node.
3. Review the Reporting configuration options for details about setting the connection to Stat Server and the length of time statistics are stored in the Cassandra database. Adjust the default settings for these options as required for your deployment.
4. Save your changes and close the file.
5. Confirm that the `statistics.yaml` file is present in the main Workspace Web Edition & Web Services `config` folder. This file defines which statistics Workspace Web Edition & Web Services requests from Stat Server. Modifications to this file are not typically necessary.
   Any Stat Server application in a Genesys environment to which the Workspace Web Edition & Web Services node or cluster connects must include a set of statistic definitions that match those that are specified in the `statistics.yaml` file.

End of Procedure

Next Step

- Configuring Virtual Queues & Virtual Agent Groups

Configuring Virtual Queues & Virtual Agent Groups

Complete the procedures below to create Virtual Queues and Virtual Agent Groups for each skill you would like to monitor. **Note:** The skill must be added to a Person object in Configuration Server. If the Virtual Queue and Virtual Agent Group are not created for a skill, that skill will not be monitored by Workspace Web Edition & Web Services.

Select a tab below for instructions in either Configuration Manager or Genesys Administrator.

Configuration Manager

Creating a Virtual Queue

Complete this procedure for each Skill you would like to monitor.

Start of Procedure

1. In Configuration Manager, navigate to `Switches > <your switch> > DNs`. Right-click and select `New > DN`.
2. In the General tab, configure the following:
   - Number: `<name of skill>`
   - Type: `Virtual Queue`
3. In the Advanced tab, configure the following:
   - Alias: `<name of skill>`
4. Click `OK`.

End of Procedure

Next Step

- Creating a Virtual Agent Group

Creating a Virtual Agent Group

Complete this procedure for each Skill you would like to monitor.

Start of Procedure

1. In Configuration Manager, navigate to Agent Groups. Right-click and select `New > Agent Group`.
2. In the General tab, configure the following:

- Name: <name of skill>

3. In the Advanced tab, add an Origination DN:
   - Click Add
   - Select the Virtual Queue you created previously.
   - Click OK.
4. In the Script tab, add the following:
   - Script: Skill("<name of skill>")>=0
5. Click OK.

End of Procedure

Next Step

- If the Workspace Web Edition & Web Services node is running, you must restart it for the new configuration to take effect.

Genesys Administrator

Creating a Virtual Queue

Complete this procedure for each Skill you would like to monitor.

Start of Procedure

1. In Genesys Administrator, navigate to PROVISIONING > Switching > Switches > <your switch> and click DNs.
2. Click New...
3. In the Configuration tab, configure the following:
   - Number: <name of skill>
   - Type: Virtual Queue
4. Expand the Advanced section and configure the following:
   - Alias: <name of skill>
5. Click Save & Close.

End of Procedure

Next Step

- Creating a Virtual Agent Group

Creating a Virtual Agent Group

Complete this procedure for each Skill you would like to monitor.

Start of Procedure

1. In Genesys Administrator, navigate to PROVISIONING > Accounts > Agent Groups and click New...
2. In the Configuration tab, configure the following:
   - Name: <name of skill>
3. Expand the Advanced section and add an Origination DN:
   - Click Add
   - Select the Virtual Queue you created previously.
   - Click OK.
4. In the Options tab, click New.
5. Configure the following:
   - Section: virtual
   - Name: script
   - Value: Skill("<name of skill>")>=0
6. Click OK.
7. Click Save & Close.

End of Procedure

Next Step

- If the Workspace Web Edition & Web Services node is running, you must restart it for the new configuration to take effect.

Preview Interaction Configuration

There are several steps required to allow Genesys Web Services receive and interact with previews.

1. Configure the Universal Routing Server (URS). The following applications must be enabled on voice machine:
   - URS
   - URS_B
2. Under the URS application object, on the `Server Info` tab, the following ports should be specified:
   - default (for example: 2070)
   - http (for example: 2082)
   - web (for example: 1111)
3. Re-start URS.

> **Important**
>
> Ensure there are no http/web sections under the "Options" tab. If this section is defined, ensure there is no port information provided for this option or a conflict situation will arise and the URS will not know which port to use.

4. On the `CloudCluster` application object, on the `Connections` tab, add a connection to the URS.
5. Interaction Route Designer (IRD) should be added to the `Applications` folder and a vacant routing point should be created inside `SIP_Switch`.
6. A strategy should be uploaded and assigned to the routing point.
   - The strategy should contain following blocks:
     - Web module which invokes Genesys Web Services
     - A function to listen for external events

   A simple strategy example can be found here:

   - Preview Interaction Example Strategy

PreviewInteractionExampleStrategy

```
<strategy typeStrategy="Custom" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ird-strategy-schema.xsd">
        <version name="Main">
                <info type="list">
                        <description><string value=""/></description>
                        <created><string value="03/17/2014 08:14:35 PM"/></created>
                        <createdBy><string value="default"/></createdBy>
                        <updated><string value="04/16/2014 09:39:24 PM"/></updated>
                        <updatedBy><string value=""/></updatedBy>
                </info>
                <variables type="list">
                        <row type="complexRow">
                                <varName><string value="targets"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="userData"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="connId"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="mediaType"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="integer"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="web_event"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="web_event_name"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="web_event_p1"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="web_event_p2"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
                                <varName><string value="payload"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                        <row type="complexRow">
```

```
        <varName><string value="callUUId"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="dn"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="switch"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="target"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="ss_flag"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="target_val"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="loop"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="integer"/></type>
</row>
<row type="complexRow">
        <varName><string value="agent"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="TargetsToExclude"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="outAgents"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="agentstate"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="one_agent"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
</row>
<row type="complexRow">
        <varName><string value="group_content"/></varName>
        <scope><string value="local"/></scope>
        <type><string value="string"/></type>
```

```
                        </row>
                        <row type="complexRow">
                                <varName><string value="server_url"/></varName>
                                <scope><string value="local"/></scope>
                                <type><string value="string"/></type>
                        </row>
                </variables>
                <objects>
                        <miscMultiFunction objID="298868640" next="213850524"
defaultNext="213850524">
                                <list type="list">
                                        <row type="complexRow">
                                                <name><variable value="dn"/></name>
                                                <expression><string
value="KVListGetStringValue[agentstate,'dn.#1.number']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="switch"/></name>
                                                <expression><string
value="KVListGetStringValue[agentstate,'dn.#1.switch']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="outAgents"/></name>
                                                <expression><string value="Cat[outAgents,
StrFormat['{"phoneNumber":"~s", "switchName":"~s"}', dn, switch]]"/></expression>
                                        </row>
                                </list>
                        </miscMultiFunction>
                        <miscFunction objID="434048800" next="692240928"
defaultNext="213850524">
                                <name><variable value="agentstate"/></name>
                                <expression><string
value="TargetState[one_agent]"/></expression>
                        </miscFunction>
                        <miscIf objID="98649770" next="434048800" defaultNext="356138992">
                                <expression><string value="one_agent != ''"/></expression>
                        </miscIf>
                        <miscMultiAssign objID="559582724" next="97452840">
                                <list type="list">
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="Cat['{"callUUId":"%callUUId%", "connId": "%connId%", "contactCenterId":"qwerty-12345",
"operationName":"%operationName%", "targets":%targets%}','']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="userData"/></name>
                                                <expression><string
value="UData['']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="connId"/></name>
                                                <expression><string
value="ConnID[]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="mediaType"/></name>
                                                <expression><string
value="GetMediaType[]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="callUUId"/></name>
                                                <expression><string
```

```
value="CallUUID[]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%connId%',connId]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%callUUId%',callUUId]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%operationName%','SendPreview']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%targets%', outAgents]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="server_url"/></name>
                                                <expression><constant
value="http://172.21.16.102:8080/api/v2/system/preview"/></expression>
                                        </row>
                                </list>
                        </miscMultiAssign>
                        <segmentationGeneric objID="772656760" defaultNext="133451802">
                                <segm type="segment" next="154855694">
                                        <expression><string value="StrLen[outAgents] !=
0"/></expression>
                                </segm>
                        </segmentationGeneric>
                        <miscMultiFunction objID="100117536" next="54623660"
defaultNext="154855694">
                                <list type="list">
                                        <row type="complexRow">
                                                <name><variable
value="web_event_name"/></name>
                                                <expression><string
value="GetStringKey['name',web_event]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="web_event_p1"/></name>
                                                <expression><string
value="GetStringKey['param.phoneNumber',web_event]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="web_event_p2"/></name>
                                                <expression><string
value="GetStringKey['param.switchName',web_event]"/></expression>
                                        </row>
                                </list>
                        </miscMultiFunction>
                        <miscMultiFunction objID="45017088" next="399371884"
defaultNext="356138992">
                                <list type="list">
                                        <row type="complexRow">
                                                <name><variable value="group_content"/></name>
                                                <expression><string
value="ExpandGroup['AgentGroup1@SS.GA']"/></expression>
```

```
                                        </row>
                                </list>
                        </miscMultiFunction>
                        <miscIf objID="692240928" next="298868640" defaultNext="213850524">
                                <expression><string
value="KVListGetStringValue[agentstate,'voice'] = '1'"/></expression>
                        </miscIf>
                        <miscFunction objID="356138992" next="559582724">
                                <name><variable value="outAgents"/></name>
                                <expression><string value="Cat['[', StrReplace[outAgents,
'}{', '},{'], ']']"/></expression>
                        </miscFunction>
                        <dataAccessWeb objID="179886818" next="133451802">
                                <type><string value="HTTP"/></type>
                                <url><variable value="server_url"/></url>
                                <method><string value="POST"/></method>
                                <textMessages><variable value="payload"/></textMessages>
                                <httpauth type="list">
                                        <type><string value="basic"/></type>
                                        <name><string value="admin@pizza.com"/></name>
                                        <pswd><string value="admin@pizza.com"/></pswd>
                                </httpauth>
                                <tags type="list">
                                        <row type="complexRow">
                                                <key><string value="Content-Type"/></key>
                                                <value><string value="application/
json"/></value>
                                        </row>
                                </tags>
                        </dataAccessWeb>
                        <miscMultiAssign objID="54623660" next="772656760">
                                <list type="list">
                                        <row type="complexRow">
                                                <name><variable value="target_val"/></name>
                                                <expression><string
value="Cat['{"phoneNumber":"%phoneNumber%", "switchName":"%switchName%"}', '']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="target_val"/></name>
                                                <expression><string
value="StrReplace[target_val,'%phoneNumber%',web_event_p1]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="target_val"/></name>
                                                <expression><string
value="StrReplace[target_val,'%switchName%',web_event_p2]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="outAgents"/></name>
                                                <expression><string
value="StrReplace[outAgents, '},{', '}{']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="outAgents"/></name>
                                                <expression><string
value="StrReplace[outAgents, target_val, '']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="outAgents"/></name>
                                                <expression><string
value="StrReplace[outAgents, '}{', '},{']"/></expression>
                                        </row>
                                </list>
```

```
                        </miscMultiAssign>
                        <routingDefault objID="145951464">
                        </routingDefault>
                        <miscFunction objID="213850524" next="98649770">
                                <name><variable value="one_agent"/></name>
                                <expression><string
value="StrAsciiTok[group_content,',',0]"/></expression>
                        </miscFunction>
                        <miscMultiAssign objID="154855694" next="179886818">
                                <list type="list">
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="Cat['{"callUUId":"%callUUId%", "connId": "%connId%", "contactCenterId":"qwerty-12345",
"operationName":"%operationName%", "targets":%targets%}','']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%connId%',connId]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%callUUId%',callUUId]"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%operationName%','CancelPreview']"/></expression>
                                        </row>
                                        <row type="complexRow">
                                                <name><variable value="payload"/></name>
                                                <expression><string
value="StrReplace[payload,'%targets%', outAgents]"/></expression>
                                        </row>
                                </list>
                        </miscMultiAssign>
                        <miscFunction objID="399371884" next="98649770">
                                <name><variable value="one_agent"/></name>
                                <expression><string
value="StrAsciiTok[group_content,',',1]"/></expression>
                        </miscFunction>
                        <miscFunction objID="196725936" next="100117536">
                                <name><variable value="web_event"/></name>
                                <expression><string
value="GetExternalEvent[20]"/></expression>
                        </miscFunction>
                        <dataAccessWeb objID="97452840" next="196725936">
                                <type><string value="HTTP"/></type>
                                <url><variable value="server_url"/></url>
                                <method><string value="POST"/></method>
                                <textMessages><variable value="payload"/></textMessages>
                                <httpauth type="list">
                                        <type><string value="basic"/></type>
                                        <name><string value="admin@pizza.com"/></name>
                                        <pswd><string value="admin@pizza.com"/></pswd>
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Starting and Testing Workspace Web Edition & Web Services

When the installation is complete, you must start the Workspace Web Edition & Web Services nodes in the following order:

1. Start the synchronization node. This is the node you configured in Step 2 of the Modifying the Server Settings procedure. For details about the `syncNode` option, see the description in the General Configuration options.
2. Start the remaining nodes.

Complete the following steps for each Workspace Web Edition & Web Services node.

Start of Procedure

1. To start the Web Services node, enter the following command line:

```
[java dir]/java -Xmx4096m -Xms4096m -Djetty.port=[jetty port] -Djetty.logs=[jetty log dir]

-Dconfig.path=[config dir] -Djetty.home=[jetty dir] -Djava.io.tmpdir=/tmp

-Djava.net.preferIPv4Stack=true -jar [jetty dir]/start.jar

--pre=etc/jetty-logging.xml --daemon
```

   - [java dir] — The home directory for Java. For example, `/usr/bin/java`.
   - [jetty port] — The Jetty port. For example, `80`.
   - [jetty log dir] — The log directory for Jetty. For example, `/var/log/jetty`.
   - [config dir] — The path to the Workspace Web Edition & Web Services config directory you created in Step 6 of the Deploying the Web Application procedure. For example, `/opt/jetty/genconfig`. Workspace Web Edition & Web Services reads a series of configuration files from the location that is defined by the `config.path` system property. To start the server, or a the server startup, the `config.path` is needed; otherwise, the server will not start.
   - [jetty dir] — The home directory for Jetty. For example, `/opt/jetty`.

> **Important**
>
> The memory allocation `-Xmx4096m, -Xms4096m` is mandatory for the web services node.

   For example, your command line might look like the following:

```
/usr/bin/java -Xmx4096m -Xms4096m -Djetty.port=80 -Djetty.logs=/var/log/jetty

-Dconfig.path=/opt/jetty/genconfig -Djetty.home=/opt/jetty -Djava.io.tmpdir=/tmp
```

```
-Djava.net.preferIPv4Stack=true -jar /opt/jetty/start.jar --pre=etc/jetty-logging.xml --
daemon
```

2. To verify that Workspace Web Edition & Web Services Server is up and running, type the following URL into a web browser:
`http://[wwews_host]:[wwews_port]/api/v2/diagnostics/version`
   - `[wwews_host]` — The host name or IP address for the Workspace Web Edition & Web Services node.
   - `[wwews_port]` — The port for the Workspace Web Edition & Web Services node.

   For example, the URL might be `http://192.0.2.20:8080/api/v2/diagnostics/version`

   If the request is successful, the version will be printed as shown below:

```
{
    statusCode: 0
    version: "gws-x.x.xxx.xx"
}
```

End of Procedure

Testing the User Interfaces with Workspace Web Edition

Workspace Web Edition is the agent interface of Workspace Web Edition & Web Services. It is deployed as part of the Workspace Web Edition & Web Services deployment. You configure it by using the Workspace Web Edition Configuration Guide.

Workspace Web Edition Agent Desktop

1. Once the configuration is complete, launch Workspace Web Edition by navigating to `http://[wwews_host]:[wwews_port]/ui/ad/v1/index.html`.

   - `[wwews_host]` — The host name or IP address for the Workspace Web Edition & Web Services node.
   - `[wwews_port]` — The port for the Workspace Web Edition & Web Services node.

   For example, the URL might be `http://192.0.2.20:8080/ui/ad/v1/index.html`

- Enter the credentials for any of the previously created agents. Note that the user must be of the agent type.
- After clicking Log In, the Workspace Web Edition agent desktop view is displayed and the agent is ready to work.

Web Services Configuration Options

The configuration options below can be set in the `server-settings.yaml` file.

General Configuration

externalApiUrl

Default Value: None
Valid Values: A public schema-based URL ending with `/api/v1`.
Mandatory: Yes

Specifies the prefix used for resources in the public API. In a development environment, the host and port should be set to the host name or IP address of the Workspace Web Edition & Web Services node. In a production environment, the host and port should be set to the host name or IP address of the load balancer in a production environment. For example, `https://192.0.2.20/api/v1`.

internalApiUrl

Default Value: None
Valid Values: A public schema-based URL ending with `/internal-api`.
Mandatory: Yes

Specifies the prefix used for internal resources. In a development environment, the host and port should be set to the host name or IP address of the Workspace Web Edition & Web Services node. In a production environment, the host and port should be set to the host name or IP address of the load balancer in a production environment. For example, `http://192.0.2.20/internal-api`.

externalApiUrlV2

Default Value: None
Valid Values: A public schema-based URL ending with `/api/v2`.
Mandatory: Yes

Specifies the prefix used for resources in the public API. In a development environment, the host and port should be set to the host name or IP address of the Workspace Web Edition & Web Services node. In a production environment, the host and port should be set to the host name or IP address of the load balancer in a production environment. For example, `https://192.0.2.20/api/v2`.

internalApiUrlV2

Default Value: None
Valid Values: A public schema-based URL ending with `/internal-api`.
Mandatory: Yes

Specifies the prefix used for internal resources. In a development environment, the host and port should be set to the host name or IP address of the Workspace Web Edition & Web Services node. In a

production environment, the host and port should be set to the host name or IP address of the load balancer in a production environment. For example, `http://192.0.2.20/internal-api`.

applicationName

Default Value: None
Valid Values: A valid application name
Mandatory: Yes

The name of the Workspace Web Edition & Web Services node application object in Configuration Server. For example, `WWEWS_node`.

applicationType

Default Value: None
Valid Values: A valid application type
Mandatory: Yes

The type of the Workspace Web Edition & Web Services node application object in Configuration Server. This value should be `CFGGenericClient`.

cmeUserName

Default Value: None
Valid Values: A valid Configuration Server user
Mandatory: Yes The username that the Workspace Web Edition & Web Services server uses to connect to Configuration Server.

> **Important**
>
> Genesys recommends that you use the provided "default" account in Configuration Server. It is possible to use a different account, but you must take care in configuring the user's account permissions. Outside of a lab setting, this is best done in consultation with Genesys.

cmePassword

Default Value: None
Valid Values: A valid password
Mandatory: Yes

The password for the Configuration Server user Workspace Web Edition & Web Services uses to connect to Configuration Server.

syncNode

Default Value: None
Valid Values: `true, false`
Mandatory: No

Specifies whether the node is the synchronization node. This node is responsible for importing objects from Configuration Server into Cassandra, subscribing to changes notifications with Configuration Server, and processing updates.

> **Important**
>
> In each Workspace Web Edition & Web Services cluster, one node must be configured as the synchronization node: `syncNode = true`. All other nodes in the cluster must have `syncNode = false`.

opsUserName

Default Value: None
Valid Values: Any alphanumeric value that can include special characters
Mandatory: Yes

Specifies the name of the Workspace Web Edition & Web Services super user. Workspace Web Edition & Web Services creates this user at startup.

opsUserPassword

Default Value: None
Valid Values: Any alphanumeric value, including special characters
Mandatory: Yes

Specifies the password for the Workspace Web Edition & Web Services super user. Workspace Web Edition & Web Services creates this user at startup.

inactiveUserTimeout

Default Value: `60`
Valid Values: An integer greater than 0
Mandatory: No

Specifies the interval, in seconds, at which the inactive user cleanup process is run by the server. This process is run to invalidate HTTP sessions for users who have been deleted or whose user roles have changed.

dispositionAttachedDataKey

Default Value: `disposition`
Valid Values: Any string value
Mandatory: No

Specifies the key used to represent call disposition in the attached data. This value is typically `disposition`. If you use a different key in your Genesys solution, set the value of this option to your key.

caCertificate

Default Value: None
Valid Values: Path to a signed certificate
Mandatory: No

Specifies the path to a certificate signed by a Certificate Authority. The file must be in the `.pem` format. The certificate can be used if the WWEWS Cluster application uses Transport Layer Security (TLS) to connect to Genesys servers. For more information about TLS connections, see "Chapter 17 - Introduction to Genesys Transport Layer Security" in the Genesys Security Deployment Guide.

Connectivity

reconnectAttempts

Default Value: None
Valid Values: An integer greater than 0
Mandatory: Yes

Specifies the number of attempts Workspace Web Edition & Web Services makes to connect to any Genesys server before attempting to connect to the backup.

reconnectTimeout

Default Value: None
Valid Values: An integer greater than 0
Mandatory: Yes

Specifies the timeout, in milliseconds, between the reconnect attempts.

activationTimeout

Default Value: `12000`
Valid Values: An integer greater than 0
Mandatory: No

Specifies the timeout, in milliseconds, for connecting to any Genesys server (except Configuration Server). This may include several individual attempts if the initial attempt to connect is unsuccessful.

> **Important**
>
> The activation timeout for Configuration Server is specified with the `configServerActivationTimeout` option.

connectionTimeout

Default Value: 4000
Valid Values: An integer greater than 0
Mandatory: No

Specifies the timeout, in milliseconds, for an individual connection attempt to any Genesys server (except Configuration Server).

> **Important**
> The connection timeout for Configuration Server is specified with the `configServerConnectionTimeout` option.

configServerActivationTimeout

Default Value: `35000`
Valid Values: An integer greater than 0
Mandadory: No

Specifies the timeout, in milliseconds, for connecting to Configuration Server. This may include several individual attempts if the initial attempt to connect is unsuccessful.

configServerConnectionTimeout

Default Value: `15000`
Valid Values: An integer greater than 0
Mandadory: No

Specifies the timeout, in milliseconds, for an individual connection attempt to Configuration Server.

Reporting

nodeId

Default Value: None
Valid Values: Any unique identifier, such as the node host name or IP
Mandatory: No

Specifies the unique identifier for the Workspace Web Edition & Web Services node. Each node in a cluster must have a unique `nodeId`.

statisticsTTL

Default Value: `86400` (24 hours)
Valid Values: An integer greater than 0

Mandatory: No

Specifies, in seconds, the time-to-live for statistics stored in Cassandra.

> **Warning**
> Setting a longer time-to-live increases the amount of storage Workspace Web Edition & Web Services uses for statistics.

statConnectionTimeout

Default Value: `5000`
Valid Values: A positive integer greater than 0
Mandatory: No

Specifies the connection timeout, in milliseconds, for connecting to Stat Server.

statReconnectAttempts

Default Value: 1
Valid Values: A positive integer
Mandatory: No

Specifies the number of reconnect attempts before switching to the backup Stat Server, if the connection to the primary Stat Server is lost.

statReconnectTimeout

Default Value: `10000`
Valid Values: An integer greater than 0
Mandatory: No

Specifies the timeout, in milliseconds, before reconnecting to Stat Server.

statOpenTimeout

Default Value: `60000`
Valid Values: An integer greater than 0
Mandadory: No

Specifies the timeout, in milliseconds, between when a request is sent to Stat Server to open a statistic and when Workspace Web Edition & Web Services server determines the statistic has not been opened. If the timeout expires, the Workspace Web Edition & Web Services server discards the request and sends a new one.

Troubleshooting

This page provides solutions to common problems in Workspace Web Edition & Web Services.

The following log for Workspace Web Edition & Web Services is saved to the `/var/log/jetty` directory on the Workspace Web Edition & Web Services node:

- `cloud.log` — Stores WARN level messages about Workspace Web Edition & Web Services.

To modify the log message levels, you can edit the `$JETTY_HOME/resources/logback.xml` file and change the level to DEBUG or TRACE (instead of WARN):

```
<logger name="com.genesyslab" level="DEBUG" />
```

404 Error

Problem

You receive a 404 Error on a diagnostic API request. For example, `http://192.0.2.20/api/v2/diagnostics/version`.

Resolution

The Workspace Web Edition & Web Services web application uses the Jetty root context. If other web applications served by the same instance of Jetty also use the root context, this can prevent the Workspace Web Edition & Web Services web application from getting routed requests. If you are working with a fresh install of Jetty, you should remove the default Jetty files from the `$JETTY_HOME/webapps` and `$JETTY_HOME/contexts` folders.