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# Predictive Routing Deployment and Operations Guide

Deploy Agent State Connector

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# Deploy Agent State Connector

Agent State Connector (ASC) connects to Configuration Server and (in release 9.0.015.04 and higher, optionally) to Stat Server. It retrieves changes to Person and Agent Group configuration objects and updates to agent login data. It sends that information to the AI Core Services (AICS), which uses it to update agent profiles, agent availability, and (optionally) agent statistics.

Deploying ASC has three main phases:

- **Create and configure the ASC Application object** in your Genesys configuration application.
- **Install Agent State Connector.**
- **Configure HTTP/HTTPS Connections** and **(Optional) Configure ASC to Use Shift-JIS Encoding.**

## Environment Assumptions

The instructions in this section assume that you are creating new Application objects under the Environment folder, in either a single-tenant or multi-tenant configuration environment. To create Application objects under a particular Tenant folder in a multi-tenant configuration environment, replace the word *Environment* with the name of your Tenant folder in the configuration instructions.

### Important

In a multi-tenant environment, configure one ASC instance for each Tenant.

## Configure the ASC Application

### Create and Configure the ASC Application Object

1. **Import the Application Template**
2. **Create an ASC Application Object**
3. **Configure the General tab**
4. **Configure the Server Info tab**
5. **Configure the Start Info tab**
6. **Configure the Options tab** - The configuration options control many aspects of ASC behavior, including the ability to monitor Stat Server statistics, to control threading and timeouts, and to specify whether to create an Agent Profile schema automatically.
7. **Configure the Tenants tab**
8. **Configure the Connections tab**

## Import the Application Template

Before you can configure an Application object for ASC, you must import its Application template. The Application template provides a majority of the configuration options, as well as the default values for them. You can use this Application template to create as many Application objects of the same type as you need.

### Important

For an explanation of how to use Genesys Administrator Extension to import the Application template and to create a new Application object, see [the Genesys Administrator Extension Help file](#), which is directly available from Genesys Administrator Extension user interface, as well as from the link given here.

1. On the Configuration Manager window in Genesys Administrator Extension, select the **Environment > Application Templates** folder.
2. From the **File** menu, select **Import Application Template**.
3. In the **Look In** box, click the down arrow.
4. Browse to the IP for Agent State Connector and open the **TEMPLATES** folder.
5. Select the template file for Agent State Connector; it is called '*AgentStateConnector\_900.apd*'.
6. Click **Open** to open the **Properties** dialog box for the template.
7. Make any changes that you require.
8. Click **OK** to save the template and close the **Properties** dialog box.

The next step is to configure an ASC Application object.

## Create an ASC Application Object

After you import the application template, you can create and configure an Application object for ASC by using the Configuration Manager tab in Genesys Administrator.

1. On the Configuration Manager window, select the **Environment > Applications** folder.
2. From the **File** menu, select **New > Application**.
3. From the available application templates in the **Browse** dialog box, select the template that you imported for ASC.
4. On each of the Application tabs, enter the settings appropriate for your environment, as explained in detail in the section that follow.
5. Click **OK** to save your changes, then close the **Properties** dialog box.

## Configure the General tab

In the **Properties** dialog box, click the **General** tab, and then enter a name for this application.

## Configure the Server Info tab

Click the **Server Info** tab, and then specify the following properties:

- Host—Select or enter the name or IP address of the computer on which you want to install and/or run this server.
- Port—Enter the value 0 (zero) for the port number.

### Important

In IPv6 deployments, you cannot set the IP address of the host—only IPv4 addresses can be set for the host. Therefore, enter the *name* of the host instead.

## Configure the Start Info tab

### Tip

The properties you define here are updated automatically during the installation procedure.

Click the **Start Info** tab, and then specify the following properties:

- Working Directory—Enter the full path to the directory from which the application starts.
- Command Line—<Path\_to\_JDK\_installation\_folder>\bin\java.exe
- Command Line Arguments—Add the following startup arguments that will be used in **AgentStateConnector.bat** (Windows) or **AgentStateConnector.sh** (unix) environments:

```
Dcom.genesyslab.platform.commons.log.loggerFactory=log4j -jar agent_state_connector-  
<AGENT_STATE_CONNECTOR_VERSION>-jar-with-dependencies.jar -host <cfg server host>  
-port <cfg server port> -app <ASC Application object>
```

- For additional information about command-line parameters, see [Starting and Stopping the ASC Application](#).

### Configure the Options tab

Click the **Options** tab, and then specify or change the values of the configuration options, as suitable for your deployment.

#### Important

- If you are deploying ASC 9.0.015.04 or higher and plan not to connect to Stat Server, see [Configure ASC Without Stat Server](#) for the required configuration options settings.

- For information about the entire set of ASC configuration options, see [ASC Configuration Options](#).
- For recommendations and tips on what values to use for certain of the ASC configuration options, see [Guidelines for Configuration Options Values](#) in the *Operations: Agent State Connector* topic.

### (Optional) Configure ASC to Monitor Statistics

1. Make sure the statistics you want to monitor are configured in Stat Server. StatAgentOccupancy is not a default statistic and requires you to set it up manually. For instructions, see [Create a Custom Stat Server Statistic](#), below.
2. On the ASC Application object **Options** tab, create a new section, named **statistics**. (All other ASC options are configured in the **default** section.)
3. In the **[statistics]** section, create a new option with the same name as the statistic you want to monitor. For example, StatAgentOccupancy.  
In the 9.0.012.00 release, the only supported statistic is StatAgentOccupancy.
4. Set the option value to the correct TimeProfileName for the specified statistic, as specified in the Stat Server Application object. For StatAgentOccupancy, set the value to SinceLogin.
5. Save the new option.
6. Check that the value for the **timebased-statistic-interval** is appropriate for your environment. The default value is 60 seconds.
7. Restart ASC to have the changes take effect.

The new statistic is also saved as part of the Agent Profile schema.

### Create a Custom Stat Server Statistic

To create custom statistics, including the StatAgentOccupancy statistic, use the following procedure:

1. In the Stat Server Application object, create a new configuration section with the name of the desired statistic. For example, **StatAgentOccupancy**.
2. Create the following options within the new **[StatAgentOccupancy]** section, and set them to the specified values:

- Category=RelativeTimePercentage
  - MainMask=CallDialing, CallRinging, AfterCallWork, CallInbound, CallOutbound, CallInternal, CallConsult, CallUnknown
  - RelMask= Monitored, LoggedIn, OnHook, WaitForNextCall, OffHook, CallDialing, CallRinging, NotReadyForNextCall, AfterCallWork, OfflineWorkType2, BreakType1, BreakType2, CallOnHold, NotUsed, NotUsed, ASM\_Engaged, ASM\_Outbound, CallInbound, CallOutbound, CallInternal, CallConsult, CallUnknown
  - Objects=Agent, GroupAgents
  - Subject=AgentStatus
3. Save your changes in the Stat Server Application object.  
For additional information on statistics configuration in Stat Server, see [Statistic Configuration Options](#) in the *Stat Server User's Guide*.
  4. Check whether the necessary TimeProfile value is configured in the **[TimeProfiles]** section on the Stat Server Application object. For StatAgentOccupancy, you must configure the **SinceLogin** time profile type. If it does not exist:
    1. Open the **[TimeProfiles]** section.
    2. Create a new option with name SinceLogin,SinceLogin. All options in the **[TimeProfiles]** section have the name format `<TimeProfileName>,<Type>`.
    3. Leave the option value empty.
    4. Save changes in Stat Server Application object.  
For additional information on time profiles in Stat Server, see [TimeProfiles Section](#) in the *Stat Server User's Guide*.
  5. Restart Stat Server.

### Log Options

- Configure both ASC-specific log options and common log options in the log-related configuration sections. For option descriptions, see [Log Options](#) and the [Framework Configuration Options Reference Manual](#).

## Configure the Tenants tab

### Tip

The Tenants tab is displayed only in a multi-tenant environment.

- Click the **Tenants** tab, and then click **Add** to add all tenants that this ASC application will serve. ASC only monitors Person objects that are associated with the tenants you specify.
- If this ASC instance is required to monitor the objects that are configured under the **Environment** folder, assign the **Environment** tenant among the other tenants.

### Configure the Connections tab

Click the **Connections** tab, and then add the following connections:

- Configuration Server
- Stat Server (optional in release 9.0.015.04 and higher; if you do not add a Stat Server to the **Connections** tab, agent availability data is taken from Universal Routing Server)
- Message Server

### Configure ASC Without Stat Server

In ASC release 9.0.015.04 and higher, configure the following settings to operate without Stat Server:

1. Do not add Stat Server from the **Connections** tab. If Stat Server was added previously, remove it.
2. Specify the following configuration option values on the Predictive\_Route\_DataCfg Transaction List object:
  - **use-action-filters** = false
  - **login-status-expression** = `&((loginStatus>0&loginStatus<23)|loginStatus>23)`
  - **use-login-status** = true

### High Availability

In high availability (HA) environments using primary and backup pairs of servers, the servers listed on the **Connections** tab are handled as *primary*. To specify the backup servers for any primary servers, open the Application object for the primary server and add the backup server on the primary server's **Server Info** tab.

## Install Agent State Connector

You can install ASC on either a **Windows** system or a **Linux** 64-bit system.

### Prerequisites

- You have created and configured an ASC Application object in the interface you use for configuration, as described above.
- Configuration Server is installed and running in your environment.
- You have identified the following parameters, which you need to configure the connection to Configuration Server:
  - ASC Host name: By default, this is the host name of the machine on which you install ASC.
  - Configuration Server Host name.
  - Network port: Configuration Server network port.



- User name: Configuration Server user name.
- Password: Configuration Server password.
- Installation path: Full path to the ASC installation directory.

### Installing on Windows

To install, perform the following steps:

1. Do one of the following:
  - Insert the ASC CD into the CD-ROM drive of the machine on which you want to install ASC.
  - Download the ASC IP to the desired location on the target machine.
2. Navigate to, and open, the **.../windows** directory.
3. Double-click the **setup.exe** file, and then follow the directions in the installation wizard.

### Installing on RedHat Linux 7 64-Bit

Linux-specific prerequisite:

- Install tar and gunzip.

To install, perform the following steps:

1. Install the C runtime libraries using the following command:  
`yum install glibc.i686`
  - **Troubleshooting Notes:**
    - If the C runtime libraries are not available, the following error message appears: `./Perl: /lib/ld-linux.so.2: bad ELF interpreter: No such file or directory.`
    - If you see the following error during installation, copy the 32-bit versions of **libgcc\_s.so.1** and **libstdc++.so.6** to the **.../lib/** directory: `./cfgutility: error while loading shared libraries: libstdc++.so.6: cannot open shared object file: No such file or directory.`
2. Insert the ASC CD into the CD-ROM drive of the machine on which you want to install ASC; or, download the ASC IP to the desired location on the target machine.
3. Unzip the installation file using the following command:  
`tar -xvzf ip_<version_number>.tar.gz`
4. Update the **install.sh** script to work on 64-bit systems by making the following changes:
  - Replace `./gunzip` with `gunzip`.
  - Replace `tar_name=./tar` with `tar_name=tar`.
5. Run **install.sh** and follow the instructions to set up ASC, using the configuration parameters you gathered.

## Configure HTTP/HTTPS Connections

You should already have **configured HTTPS for AI Core Services** before starting the following procedure.

1. Import the tango.crt file from the **<GPR\_IP\_version>/conf** folder to the java keystore. For example, you might enter a command similar to the following:

```
keytool -import -alias gpr-ssl -keystore /usr/java/jdk1.8.0_171-amd64/jre/lib/security/cacerts -file tango.crt -storepass  
"changeit"
```

2. Depending on your version of ASC and your platform, perform the following steps.

- For ASC release 9.0.015.00 and higher, HTTP/S configuration is done using only the **jop-base-url** configuration option:  
In both Linux and Windows environments:
  - Change the value of the URL entered in the **jop-base-url** configuration option so that it specifies https or http, as desired.  
For example, to configure ASC to use HTTPS, your new option value might look similar to the following:  
  
`https://fce-u0009.us.int.genesyslab.com/api/v2.0.`
- For Agent State Connector 9.0.014.01 and lower, HTTP/S configuration is done using only the **USE\_HTTP** environment variable:  
In Linux environments:
  - To use HTTPS, set the USE\_HTTP environment variable to " " (an empty string).
  - To use HTTP, set the USE\_HTTP environment variable to true.  
In Windows environments:
  - To use HTTPS, remove the USE\_HTTP environment variable entirely.
  - To use HTTP, set the USE\_HTTP environment variable to true.

3. Restart ASC.

## (Optional) Configure ASC to Use Shift-JIS Encoding

By default, ASC uses UTF-8 encoding. To configure ASC to use Shift\_JIS encoding, perform the manual configuration steps specified for your environment:

### Linux

1. Navigate to the directory where you installed ASC.
2. Open the **AgentStateConnector.sh** file.
3. Locate the following line:  
`JVMPARAMS="-server -Xmx2g -Xms2g -Xss512k"`
4. At the end of the line, add the following:  
`-Dfile.encoding=Shift_JIS`  
The line should now read:  
  
`JVMPARAMS="-server -Xmx2g -Xms2g -Xss512k -Dfile.encoding=Shift_JIS"`
5. Save the **AgentStateConnector.sh** file.
6. Restart ASC.

### Windows

1. Navigate to the directory where you installed ASC.
2. Open the **AgentStateConnector.bat** file.
3. Locate the following line:  
`SET JVMPARAMS="-server -Xmx2g -Xms2g -Xss512k"`
4. At the end of the line, add the following:  
`-Dfile.encoding=Shift_JIS`

The line should now read:

```
SET JVMPARAMS="-server -Xmx2g -Xms2g -Xss512k -Dfile.encoding=Shift_JIS"
```

5. Save the **AgentStateConnector.bat** file.
6. Restart ASC.