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# Framework Deployment Guide

## Redundant (HA) Configuration Servers

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# Redundant (HA) Configuration Servers

This section describes how to deploy redundant Configuration Servers.

## Redundancy

Redundant Configuration Servers support only the Warm Standby redundancy type.

Both the primary and backup Configuration Servers operate with the same Configuration Database. The backup Configuration Server does not accept client connections or make changes to the data until its role is switched to primary. When the backup Configuration Server starts, it establishes a connection to the primary Configuration Server. During the operation, the primary Configuration Server sends notifications about all changes made in the Configuration Database to the backup Configuration Server.

If there are any Configuration Server Proxies connected to the primary Configuration Server when it fails, those Proxy servers connect to the backup Configuration Server when it assumes the primary role.

## Deploying Redundant Configuration Servers

This section describes how to install and set up redundant Configuration Servers.

### Installation Recommendations

- To ensure proper redundancy, Genesys recommends running the primary and backup Configuration Servers on separate computers.

#### Warning

- When both the primary and backup Configuration Servers are running, do not remove the backup Configuration Server Application object from the configuration.
- You are responsible for ensuring that the configuration options of the primary and backup Configuration Servers are the same, with some exceptions: the log options in the primary Configuration Server can differ from those in the backup Configuration Server configuration.

### Prerequisites

- Configuration Layer components are installed and running as described in [Deploying Configuration Layer](#).
- You are logged into Genesys Administrator.

#### Important

Once installed, both Configuration Servers must be started from the default account.

### Installation and Configuration

1. Configure an Application object for the backup Configuration Server.
  - a. Go to **Provisioning > Environment > Applications**, and click **New**.
  - b. In the **General** section of the **Configuration** tab:
    1. Enter a descriptive name (not confserv) in the **Name** text box.
    2. Select the appropriate template, as follows:
      - a. Click the search icon in the **Application Template** field to open a **Browse** dialog box that lists the available application templates. If a Configuration Server template file is not listed, close the dialog box and import the **Configuration\_Server\_current-version.apd** file from the Management Framework 8.5 product CD.
      - b. In the **Browse** dialog box, select the Configuration Server template file.
      - c. Click **OK**.
  - c. In the **Server Info** section:
    1. Select the Host object on which this Configuration Server runs.
    2. Specify the **Listening Ports** that Configuration Server clients must use to connect to this Configuration Server.
    3. In the **Working Directory**, **Command Line**, and **Command Line Arguments** text boxes, do one of the following:
      - Enter the appropriate information in each of the text boxes. For information about command-line parameters, see [Starting a Backup Configuration Server](#).
      - Type a period (.) in the **Working Directory** and **Command Line** text boxes, and leave the **Command Line Arguments** text box blank. The information will be filled in automatically when you install the backup Configuration Server, but only if the Installation Package can connect to the primary Configuration Server.
    4. Enter appropriate values for the other mandatory fields (those indicated by red asterisks).
  - d. Click **Save & Close** to save the configuration.
2. Install the backup Configuration Server.

### Prerequisite

- The backup Configuration Server Application object exists.

### Installing on UNIX

- a. On the Management Framework 8.1 product CD, go to **configuration\_layer/configserver/operating\_system/**.
- b. Type **install** at the command prompt, and press **Enter**.
- c. For the installation type, type 2 to select **Configuration Server Master Backup**, and press **Enter**.
- d. For the external authentication option, type the number corresponding to the type of External Authentication that will be used (LDAP, Radius, both, or neither), and press **Enter**.

#### Important

If you select LDAP, be prepared with the URL to access the LDAP Server. For more information about LDAP configuration, see the [Framework External Authentication Reference Manual](#)

- e. For the host name of this backup Configuration Server, do one of the following:
  - Specify the host name, and press **Enter**.
  - Press **Enter** to select the host on which this backup Configuration Server is being installed.
- f. Specify the primary Configuration Server, as follows:
  1. Specify the primary **Configuration Server Hostname**, and press **Enter**.
  2. Specify a value for the **port** for the primary Configuration Server, and press **Enter**.
  3. Specify the **User name** of the primary Configuration Server, and press **Enter**.
  4. Specify the **Password** for the primary Configuration Server, and press **Enter**.
- g. Type the number corresponding to the Application object for the backup Configuration Server that you created, and press **Enter**.
- h. Specify the full path of the destination directory, and press **Enter**.
- i. If the target installation directory has files in it, do one of the following:
  - Type 1 to back up all the files in the directory, and press **Enter**. Then specify the path to where you want the files backed up, and press **Enter**.
  - Type 2 to overwrite only the files in this installation package, and press **Enter**. Then, type y to confirm your selection, and press **Enter**. Use this option only if the application already installed operates properly.
  - Type 3 to erase all files in this directory before continuing with the installation, and press **Enter**. Then, type y to confirm your selection, and press **Enter**.

The list of file names will appear on the screen as they are extracted and written to the destination

directory.

j. For the product version to install, do one of the following:

- Type 32 to select the 32-bit version, and press **Enter**.
- Type 64 to select the 64-bit version, and press **Enter**.

k. Do one of the following:

- Type y to configure the backup Configuration Server during installation (now), and press **Enter**. Continue to the next step to specify values for the configuration file. For information about Configuration Server configuration options and their values, refer to the *Framework Configuration Options Reference Manual*.
- Type n to not configure backup Configuration Server during installation. In this case, you have finished installing Configuration Server; do not continue to the next step in this procedure. Before you can start Configuration Server, however, you must create a configuration file and set the configuration options in it, as described in *Configuration Server Configuration File*.

l. For the **confserv** section:

1. Specify a value for the backup Configuration Server port, and press **Enter**.
2. Specify a value for the backup Configuration Server management port, and press **Enter**.

m. For the **dbserver** section:

1. Type the number corresponding to the database engine that this Configuration Server uses (**dbengine**), and press **Enter**.
2. Specify the name or alias of the DBMS that handles the Configuration Database (**dbserver**), and press **Enter**.
3. To specify the name of the Configuration Database (**dbname**), do one of the following:
  - If you are using an Oracle database engine (that is, you typed 3 in **Step i**), press **Enter**. This value is not required for Oracle.
  - If you are using any other database engine, specify the name of the Configuration Database, and press **Enter**.
4. Specify the Configuration Database **username**, and press **Enter**.
5. To specify the Configuration Database **password**, do one of the following:
  - Specify the password, and press **Enter**.
  - Press **Enter** if there is no password; that is, the password field is empty, with no spaces.

When the installation process is finished, a message indicates that installation was successful. The process places the backup Configuration Server in the directory specified during the installation process. The installation script also writes a sample configuration file, `confserv.sample`, in the directory in which the backup Configuration Server is installed.

### Important

- If you chose to configure the backup Configuration Server during installation, the sample configuration file, **confserv.sample**, is renamed **confserv.conf**, and the parameters specified in **Steps l and m** are written to this file.

- If you chose to configure the backup Configuration Server after installation, you must manually rename the sample file as **confserv.conf** and modify the configuration options before you start the backup Configuration Server. See [Configuration Server Configuration File](#).

## Installing on Windows

### Warning

Genesys does not recommend installation of its components via a Microsoft Remote Desktop connection. The installation should be performed locally.

- On the Management Framework 8.5 product CD, go to **configuration\_layer/configserver/windows**.
- Double-click **setup.exe** to start the Genesys Installation Wizard.
- Click **About** on the wizard's **Welcome** page to review the **read\_me** file. The file also contains a link to the server's Release Notes file.
- Click **Next** on the **Welcome** page to proceed with the installation.
- On the **Maintenance Setup Type** page, select **Install new instance of the application** and click **Next**.
- On the **Configuration Server Run Mode** page, select **Configuration Server Master Backup** and click **Next**.
- On the **Configuration Server Parameters** page, specify the **Server Port** and **Management Port** for Configuration Server, and click **Next**.
- On the **Database Engine Option** page, select the database engine used by Configuration Server, and click **Next**.
- On the **Database Parameters** page:
  - Specify the **Database Server Name** and **Database Name**.
  - Specify the **Database User Name** and **Password**.
  - Click **Next**.
- On the **Configuration Server External Authentication** page, select the type of external authentication Configuration Server uses, or select **None** if Configuration Server is not using external authentication. Click **Next**.
- On the **Connection Parameters to the Genesys Configuration Server** page:
  - Specify the **Host name** and **Port** of the primary Configuration Server.
  - Specify the **User name** and **Password** for the primary Configuration Server.

### 3. Click **Next**.

- l. In the upper pane of the **Select Application** page, select the backup Configuration Server Application object that you just configured, and click **Next**.
- m. On the **Choose Destination Location** page, the wizard displays the destination directory (if specified during installation) in the **Working Directory** property of the server's Application object. If you entered a period (.) in this property, or if the specified path is invalid, the wizard generates a path to the destination directory in the **c:\ProgramFiles\GCTI\Product Name** format. If necessary, click:
  - Browse to select another destination folder. In this case, the wizard will update the Application object's **Working Directory** in the Configuration Database.
  - Default to reinstate the path specified in the **Working Directory** property.

Click **Next** to proceed.

- n. On the **Ready to Install** information page, click:
  - **Back** to update any installation information.
  - **Install** to proceed with the installation.
- o. On the **Installation Complete** page, click **Finish**.

As a result of the installation, the wizard adds Application icons to the:

- Windows **Add or Remove Programs** window, as a Genesys server.
- Windows **Services** list, as a Genesys service, with Automatic startup type.

For more information about the Configuration Server configuration file, see [Configuration Server Configuration File](#). For information about Configuration Server configuration options and their values, refer to the relevant chapters in the [Framework Configuration Options Reference Manual](#).

3. Modify the primary Configuration Server Application object to work with the backup Configuration Server.

### Prerequisite

- The primary and backup Configuration Server Application objects exist.

### Procedure

- a. Go to **Provisioning > Environment > Applications**, and click the primary Configuration Server Application object (named **confserv**) to open its properties.
  - b. On the **Configuration** tab, open the **Server Info** section.
  - c. Use the **Browse** button next to the **Backup Server** property to locate the backup Configuration Server Application object you want to use as the backup server.
  - d. Select **Warm Standby** as the **Redundancy Type**.
  - e. Select **Auto-Restart**.
  - f. Click **Save & Close** to save the changes.
4. If you installed the backup Configuration Server on UNIX and chose to configure it after installation, create and modify the configuration file for the backup Configuration Server. The configuration file for the backup Configuration Server must be the same as that for the primary Configuration Server with the following exceptions:



- The name of the section in the backup Configuration Server configuration file must match the name of the backup Configuration Server Application object.
- The values for the **port** and **management-port** options in the backup Configuration Server configuration file must be those values specified as **Communication Port** and **Management Port** values, respectively, during installation of the backup Configuration Server.
- The log options can be different.

The name of the Configuration Server section must be exactly the same as the name of the Application object for the backup Configuration Server. For both the primary and backup Configuration Servers, specify the same database and user account for accessing this database. The No Default Access for New Users feature must be configured the same in both the primary and backup Configuration Servers. In other words, both Configuration Servers must have the feature either configured or not. Sample configuration files are shown side-by-side in the figure below. The arrows show the differences described in this section.

Primary Configuration Server		Backup Configuration Server
[confserv]	←	[log]
port =2120	←	verbose = standard
management-port =2121	←	all = stderr
server = dbserver		[hca]
encryption = false		schema = none
encoding = utf-8		[soap]
[log]		port = 5001
verbose = standard		[dbserver]
all = stderr		host =hostA
[hca]		port =4140
schema = none		dbengine =mssql
[soap]		dbserver =hostB
port = 5001		dbname =gcti75
[dbserver]		username =sa
host =hostA		password =sa
port =4140		server =
dbengine =mssql		reconnect-timeout = 10
dbserver =HostB		response-timeout = 600
dbname =gcti75	→	[Backup CS]
username =sa	→	port=2130
password =sa	→	management-port=2131
server =		server=dbserver
reconnect-timeout = 10		encryption=false
response-timeout = 600		encoding=utf-8

Sample Configuration Files for Primary and Backup Configuration Servers.

If you installed the backup Configuration Server on UNIX, modify the **run.sh** file to enable the backup server to be started.

- a. In a text editor, open the **run.sh** file.
- b. Add the following at the end of the command line in the file:

```
-s <section name> -c <configuration file name>
```

3. Manually synchronize options and ports between the redundant Configuration Servers.

4. Manually synchronize high-availability (HA) ports between the redundant Configuration Servers. When Configuration Servers operate in a high-availability (HA) environment, the backup Configuration Server must be ready to take on the primary role when required. This requires that both Configuration Servers are running and that they must have the same information. When you configure redundant Configuration Servers to operate with the Warm Standby redundancy type, the primary Configuration Server uses the connection to the backup to deliver synchronization updates. Genesys recommends that you enable **Advanced Disconnect Detection Protocol (ADDP)** for this connection.

### Important

You can configure multiple ports for any Application of type Server. When multiple ports are configured for a server in a Warm Standby redundancy pair, the number of ports, their **Port IDs**, and the **Listening Mode** settings of the primary and backup servers must match, respectively.

Solution Control Server is required for HA Configuration Servers to switch over. Modify and start the SCS responsible for that pair to work with the Configuration Server running in Primary mode.

The SCS configuration file has a filename extension of **.cfg** (for Windows), and **.conf** (for UNIX). Here is a sample of the contents:

```
[backup_configserver]
host=<backup CS host name>
port=<backup CS port>
name=<SCS application name>
server=primary_configserver
[primary_configserver]
host=<primary CS host name>
port=<primary CS port>
name=<SCS application name>
server=backup_configserver
```

When using HA Configuration Servers, you must restart Solution Control Server to enable it to connect it to the Configuration Server running in Primary mode. If a Master Configuration Server is part of an HA pair, the SCS responsible for that pair of servers must be provisioned with a startup option as follows:

```
scs.exe -f SCS configuration file
```

## Starting the Backup Configuration Server

When starting a backup Configuration Server, specify the following values in the startup command line:

<b>-s</b>	The name of the Configuration Server section within the configuration file for the backup Configuration Server.
<b>-c</b>	The name of the configuration file that contains configuration information for the backup Configuration Server.

For a description of the command-line parameters specific to Configuration Server, refer to [Configuration Server](#).

## Starting on UNIX

### Important

Make sure you have modified the **run.sh** file as directed in step 5, above.

- To start from Genesys Administrator, refer to [Starting and Stopping with the Management Layer](#).
- To start manually, go to the directory in which the backup Configuration Server is installed, and do one of the following:
  - To use only the required command-line parameters, type the following command line:  
`sh run.sh`
  - To specify the command line yourself, or to use additional command-line parameters, type the following command line:  
`confserv -s <section name> -c <configuration file name> [<additional parameters as required>]`

## Starting on Windows

- To start as a Windows Service, refer to [Starting and Stopping with Windows Services Manager](#).
- To start from Genesys Administrator, refer to [Starting and Stopping with the Management Layer](#).
- To start manually, do one of the following:
  - Use the **Start > Programs** menu.
  - To use only the required command-line parameters, go to the directory in which the backup Configuration Server is installed, and double-click the file **startServer.bat**.
  - To specify the command line yourself, or to use additional command-line parameters, open the MS-DOS window, go to the directory in which the backup Configuration Server is installed, and type the following command line:  
`confserv.exe -s <section name> -c <configuration file name> [<additional parameters as required>]`

## Operating Configuration Server in HA mode

Configuration Server won't support a manual switchover request and is stopped instead to promote another instance to become primary. If Configuration Server receives a request to switch over from the management layer, then it should be recycled at a later time before it can become primary again.

The **backupmode-restart** option, along with the **AutoRestart** option, ensures this happens automatically.

## Configuring ADDP between Redundant Configuration Servers

Advanced Disconnect Detection Protocol (ADDP) is supported between primary and backup Configuration Servers. Use the new configuration options **protocol**, **addp-timeout**, **addp-remote-timeout**, and **addp-trace**, setting them in the configuration server section of the configuration files for both Configuration Servers. For the primary Configuration Server, this section is called **[confserv]**. For the backup Configuration Server, this section has the same name as the backup Configuration Server Application object. For detailed descriptions of these options, refer to the *Framework Configuration Options Reference Manual*.

For example, in a primary Configuration Server configuration file, the ADDP options would appear as follows:

```
[confserv]
...
protocol=addp
addp-timeout=16
addp-remote-timeout=32
addp-trace=both
...
```

For more information about ADDP, see [Advanced Disconnect Detection Protocol](#).