SIP Cluster Solution Guide

Configuring Switch and DN Objects for SIP Cluster

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Configuring Switch and DN Objects for SIP Cluster

> **Important**
> SIP Cluster solution is under restricted availability. Contact Product Management for more information.

Complete these steps to create configuration objects required for the SIP Cluster environment.

1. Configure the SIP Cluster Switch
2. Configure the SIP Cluster Node DN
3. Configure the SIP Outbound Proxy DN
4. Configure MSML DNs
5. Configure Softswitch DNs
6. Configure Trunk DNs
7. Configure Routing Point DNs
8. Configure Extension DNs
9. Configure the Switch and DNs for Virtual Queues

Keep in mind the following:

- Agent Logins should not be configured in the SIP Cluster environment.
- All SIP Server applications representing SIP Cluster nodes must use the same switch.
- ACD Queue DNs are not supported in the SIP Cluster.

Configuring the SIP Cluster Switch

Create a **Switch** object of type **SIP Switch** dedicated to the SIP Cluster. with the name, for example, **SIP_Cluster**.

Configuring the SIP Cluster Node DN

The SIP Cluster Switch must contain a SIP Cluster Node DN. All SIP Server and SIP Proxy applications in the Cluster use the parameters configured in this DN.

1. Under **Switches** > **SIP_Cluster** > **DNs**, create a DN of type **Voice over IP Service** named, for example, **SIP_Cluster_DN**.
2. In the **Annex** > **[TServer]** section, configure the following mandatory options:

Name	Value	Notes	Example
addp-trace	full	The trace level for ADDP messages.	
addp-remote-timeout	11	T-Controller ADDP protocol setting.	
addp-timeout	7	T-Controller ADDP protocol setting.	
agent-state-auto-restore	false	Enables restoration of agent states when the DN ownership changes between SIP Cluster nodes. When set to `false`, agents are logged out on the DN ownership change and must log in manually. When set to `true`, agent states are restored on the new primary SIP Cluster node and agents are logged in automatically. **Limitation:** When an agent manually sets to NotReady state with ACW mode, SIP Server generates the ManualSetACWPeriod reason code automatically and does not restore the agent state on the new agent state owner (the SIP Cluster node).	
applications	<A comma-separated list of *primary* SIP Server application names in the cluster>	All SIP Server instances, except dummy SIP Server applications used by ICON, for all data centers.	**applications**=SIPS_sfo_1,SI
dn-owner-applications	<A comma-separated list of application names that can take DN ownership for a node>	The application name is sent to SIP Server as AttributeApplicationName in TRegisterClient. This name is used to identify a desktop and maintain DN ownership for remote agents. Usually, it is set to the name used by Genesys Web Services to register with SIP Server.	**dn-owner-applications**=Cluster
replace-agent-phone	false	When set to `true`, enables modification of dial digits that are required to reach an agent	

Name	Value	Notes	Example
		DN. This feature supports remote agents to use external numbers that are not provisioned in the Configuration Database. This option setting affects all cluster internal DNs. **Feature limitations:** • Dial plan rules are applied to the original DN object. The agent-phone digits are not processed by the dial plan and are not modified. • A 1pcc call coming from an external DN while it is engaged in a Login Session with agent-phone functionality is considered to be inbound. There is no event message regarding this party and the DN state is unknown. • SIP Server does not use a non-provisioned phone number to engage a supervisor in a monitored call because the dial plan is not applied when the supervisor is engaged in a monitored call.	
service-type	sip-cluster-nodes		
sip-enable-strict-auth	false	When set to `true`, enables SIP Server in SIP Cluster mode to mandate authorization of internal devices on REGISTER and INVITE requests. To register or establish communication, devices must not use empty passwords or passwords equal to the DN name. When this option is set to `false`, an internal device can register or establish communication with SIP Cluster without any authorization. You can define the **sip-enable-strict-auth** option at the following levels listed in order of priority: 1. DN of type Extension that is not behind a softswitch	

Name	Value	Notes	Example
		2. SIP Server Application 3. This SIP Cluster Node VOIP Service DN	
sipp-oos-recheck	false	When set to `true`, enables the Active Out-of-Service (OOS) check procedure for a VOIP service or Trunk DN to ensure that this DN is placed out of service only when SIP Proxy processes the SIP traffic. If set to `true`, SIP Server places the DN out of service only after rechecking that SIP Proxy is available, and does not place any other DN out of service if the SIP Proxy DN is already out of service. If set to `false` (the default), SIP Server behavior is not changed. As soon as the SIP Proxy DN is placed out of service, SIP Server initiates a switchover if the **switchover-on-sipp-oos** option is set to `true`. This enables establishing a connection to SIP Proxy from another HA-peer application.	
sipproxy-applications	<A comma-separated list of all SIP Proxy application names in the SIP Cluster>	All SIP Proxy instances for all data centers.	**sipproxy-applications**=SIPProxy_sfo_
smart-proxy-enabled	false	Set to `true` only when the Smart Proxy module is enabled and all Stat Server applications are connected to the SmartProxy port. Setting to `true` optimizes event distribution between T-Controllers and improves SIP Cluster performance. If the option is set to `false`, T-Controllers work in normal mode and Smart Proxy modules, if enabled, work in compatibility mode.	
switchover-on-sipp-oos	false	If set to `true`, SIP Server attempts to initiate a switchover immediately after the SIP Proxy VOIP DN is placed out of service. The switchover is initiated by the SERVICE_UNAVAILABLE message sent to LCA/SCS. When SIP Server is switched to backup mode by SCS, SIP Server issues	

Name	Value	Notes	Example
		the SERVICE_AVAILABLE message to SCS. The **sipp-oos-recheck** option must be set to `true`.	
tc-reconnect-timeout	0-60	Specify the timeout, in seconds, during which T-Controller tries to reconnect to another SIP Cluster node when the connection between SIP Cluster nodes is lost. When the timeout expires and the connection is not restored, DNs owned by the disconnected T-Controller are declared out of service. The default value of 0 (zero) disables this functionality.	
tc-latency-poll-interval	10	See Troubleshooting T-Controllers communication issues for details.	

Configuring the SIP Outbound Proxy DN

The SIP Cluster Switch must contain one SIP Outbound Proxy DN. All SIP Server and SIP Proxy applications in the cluster use the parameters configured in this DN.

1. Under **Switches** > **SIP_Cluster** > **DNs**, create a DN of type Voice over IP Service named, for example, **SIPProxy_DN**.
2. In the **Annex** > **[TServer]** section, configure the following mandatory options:

Name	Value	Notes	Example
contact	<The SIP access point of SIP Cluster (geo-aware SRV FQDN resolved to data center's SIP Proxy instances) with reliable transport>	Set this option to the Fully Qualified Domain Name (FQDN) that resolves to the SRV list of the SIP Proxy addresses. SIP Server uses this list to load-balance the traffic across all SIP Proxy instances available in a data center that is defined by **geo-location**. If there are multiple data centers within the cluster, this FQDN must be resolved to SIP Proxy instances located in the same data center with SIP Server, which is resolving the SRV FQDN. In other words, SIP Server must be aware only of those SIP Proxy instances installed in the same data center where SIP Server resides. It is	**contact**=`spx-srv.example.com;transport=`

Name	Value	Notes	Example
		the responsibility of the DNS to make this differentiation. This contact must be configured with the TCP transport to allow passing call attached data in SIP messages to GVP.	
external-contact	<SIP access point of SIP Cluster (geo-aware SRV FQDN resolved to data center's SIP Proxy instances)>	SIP Proxy sends the value of external-contact to its clients (e.g. GVP RM, SBC, SIP phones). SIP Cluster clients should be able to support the SRV FQDN.	**external-contact**=spx-srv.example.com
oos-check	10	These two options enable active out-of-service detection. In this specific example, SIP Server is checking for SIP Proxies (by using the value of the **contact** option) every 10 seconds and sets them in the out-of-service state 2 seconds after the last check for which a response was not received.	
oos-force	2		
service-type	sip-outbound-proxy		

Configuring MSML DNs

1. Under **Switches** > **SIP_Cluster** > **DNs**, create a DN of type **Voice over IP Service** for each data center containing contacts of all Resource Managers in the environment.
2. In the **Annex** > **[TServer]** section, configure the following configuration options:

Name	Value	Notes	Example
service-type	msml		
contact	<RM-SRV-FQDN>;transport=tcp	The SRV FQDN resolved to a pair of A-record FQDNs or IP addresses pointing to two Resource Managers configured as an active-active HA pair which are deployed to serve a particular data center.	**contact**=sfosrv-rm.example.com;transport=t
geo-location	<String>	A string identifying the data center to which this DN belongs.	**geo-location**=sfo
cpd-capability	mediaserver		
make-call-rfc3725-flow	1		
oos-check	10		
oos-error-check	true		

Name	Value	Notes	Example
oos-force	2		
prefix	msml=		
refer-enabled	false		
ring-tone-on-make-call	false		
sip-uri-params	gvp-tenant-id=<IVR_Profile_for_DC>	SIP Server sends the name of the IVR profile to be used to Resource Manager as a parameter of the INVITE's Request-URI header. The IVR profile will be used both for media services and recording. One IVR Profile must be created for each data center.	**sip-uri-params**=gvp-tenant id=sfo-15
subscription-id	Environment		
userdata-map-filter	*		
userdata-map-format	sip-headers-encoded		

Configuring Softswitch DNs

Softswitch DNs are mandatory for remote agents.

1. Under **Switches** > **SIP_Cluster** > **DNs**, create a DN of type **Voice over IP Service** for each data center in the SIP Cluster environment.
2. In the **Annex** > **[TServer]** section, configure the following mandatory options:

Name	Value	Example
contact	<SBC-FQDN or IP-address>:<Agent-SIP-port> Note: The contact pointing to the SBC realm used to access PSTN agents.	**contact**=sbc-example.com:5060
dual-dialog-enabled	false	
geo-location	<A string identifying the data center to which this DN belongs>	**geo-location**=sfo
make-call-rfc3725-flow	1	
oos-check	10	
oos-force	2	
oos-options-max-forwads	true	

Name	Value	Example
record	true	
refer-enabled	false	
service-type	softswitch	
sip-error-conversion	408=486	
sip-proxy-headers-enabled	false	
sip-ring-tone-mode	1	

Configuring Trunk DNs

1. Under **Switches** > **SIP_Cluster** > **DNs**, create a DN of type **Trunk** for each data center configured for a particular tenant.
2. In the **Annex** > **[TServer]** section, configure the following configuration options:

Name	Value	Notes	Example
contact	<SBC-FQDN or IP-address>:<SIP-port>	The contact pointing to the SBC realm.	**contact**=`sbc-example.com:5060`
geo-location	<String>	A string identifying the data center to which this DN belongs.	**geo-location**=`sfo`
dual-dialog-enabled	false		
oos-check	10		
oos-error-check	true		
oos-force	2		
oos-options-max-forwards	5		
prefix		This option can be used the same way as in a standard SIP Server deployment.	+
priority		This option can be used the same way as in a standard SIP Server deployment.	1
refer-enabled	false		
sip-proxy-headers-enabled	false		
sip-ring-tone-mode	1		

Configuring Routing Point DNs

Under **Switches** > **SIP_Cluster** > **DNs**, configure a DN of type **Routing Point** to be used for default routing in the SIP Cluster. Configure other Routing Point DNs as required for your environment.

Configuring Extension DNs

1. Under **Switches** > **SIP_Cluster** > **DNs** >, create DNs of type **Extension** for all agent phones for a particular tenant.
2. For agents using PSTN phones, configure extension DNs by specifying their phone numbers.
3. For agents using SIP phones, in the **Annex** > **[TServer]** section, configure the following configuration options:

Name	Value
contact	*
dual-dialog-enabled	true
make-call-rfc3725-flow	1
refer-enabled	false
use-register-for-service-state	true
use-contact-as-dn	true
sip-ring-tone-mode	1
sip-cti-control	talk,hold (or talk,hold,dtmf)

Configuring a Switch and DNs for Virtual Queues

Large contact center deployments may generate significant traffic on the Virtual Queue (VQ) DNs to satisfy complex reporting and monitoring requirements. In the SIP Cluster architecture, this traffic is isolated on a dedicated VQ switch served by several HA pairs of SIP Servers running in a non-cluster mode with one pair deployed in each data center. SIP Server instances serving the VQ Switch are also used for agent reservation.

Create a **Switch** object of type **SIP Switch** dedicated to Virtual Queue DNs with the name, for example, **VQ-switch**. Under the VQ-switch, configure DNs of type **Virtual Queue**. Only DNs of this type must be configured under this VQ-switch.

You will assign this VQ Switch to a SIP Server pair dedicated to VQ DNs.