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SIP Server Deployment Guide

Trunk Capacity Control

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Contents

- **1 Trunk Capacity Control**
 - 1.1 Capacity Control of Outgoing Calls
 - 1.2 Capacity Control on a Group of Trunks
 - 1.3 Capacity Control of Incoming and Outgoing Calls
 - 1.4 Feature Configuration
 - 1.5 Configuration Options

SIP Server enables control of the number of outgoing and incoming calls to be handled by a specific trunk or a group of trunks in single-site deployments. SIP Server rejects the calls when trunk capacity is reached. Only traffic to and from a single SIP Server HA pair is controlled. In Business Continuity deployments, capacity control must be configured at each site.

Capacity Control of Outgoing Calls

When capacity control is enabled on a trunk, SIP Server keeps a count of every incoming and outgoing call, including every SIP or T-Library request, that it receives. When this count equals the value specified by the capacity configuration option, SIP Server starts rejecting only outgoing calls, generating accompanying messages depending on the call control type, as follows:

- 1pcc calls are rejected with a SIP error code specified in the `capacity-sip-error-code` configuration option.
- 3pcc calls are rejected with an EventError containing ErrorCode specified in the `capacity-tlib-error-code` configuration option.

Example

```
[TServer]
capacity=100
```

With this setting:

- If there are 50 incoming and 50 outgoing calls established through the trunk, SIP Server rejects an attempt to make an outgoing call through this trunk, but accepts incoming calls arriving to this trunk.
- If total calls are less than 100, both incoming and outgoing calls are allowed.

Capacity Control on a Group of Trunks

Trunks can be defined as one capacity group by using the `capacity-group` configuration option. When capacity control is enabled on a group of trunks, SIP Server keeps a count of every incoming and outgoing call, including every SIP or T-Library request, that it receives. When this count equals the value specified by the capacity configuration option, SIP Server starts rejecting only outgoing calls, generating accompanying messages depending on the call control type, as follows:

- 1pcc calls are rejected with a SIP error code specified in the `capacity-sip-error-code` configuration option.
- 3pcc calls are rejected with an EventError containing ErrorCode specified in the `capacity-tlib-error-code` configuration option.

Example

- DN of type Trunk with the name Trunk1 and the following options:

```
[TServer]
capacity=200
capacity-group=TrunkGroup1
prefix=8340
```

- DN of type Trunk with the name Trunk2 and the following options:
[TServer]
capacity-group=TrunkGroup1
prefix=8341

With these settings, the number of calls to the Trunk1 and Trunk2 will be limited to 200. When the limit is reached, SIP Server rejects attempts to make an outgoing call through these trunks, but accepts incoming calls arriving to these trunks.

Capacity Control of Incoming and Outgoing Calls

To control both incoming and outgoing calls, configure the `capacity-limit-inbound` configuration option on the same Trunk DN where the `capacity` option is defined. This capacity control mode is applicable only to DN's of type Trunk.

Example 1

```
[TServer]
capacity=100
capacity-limit-inbound=true
```

With these settings:

- If total calls are less than 100, incoming and outgoing calls are allowed.
- When the limit is reached (for example, 60 incoming and 40 outgoing calls), incoming and outgoing calls are rejected.

Example 2

- DN of type Trunk with the name Trunk1 and the following options:
[TServer]
capacity=200
capacity-limit-inbound=true
capacity-group=TrunkGroup1
prefix=8340
- DN of type Trunk with the name Trunk2 and the following options:
[TServer]
capacity-group=TrunkGroup1
prefix=8341

With these settings, the number of calls to Trunk1 and Trunk2 will be limited to 200. When the limit is reached, incoming and outgoing calls are rejected.

Feature Configuration

Select how you want to configure Trunk Capacity Control in SIP Server.

Configure capacity control of outgoing calls on a trunk.

DN Level

On a DN (type Trunk, or type Voice over IP Service with `service-type=softswitch`), specify the following configuration option in the TServer section:

- `capacity`

Application Level

Specify these options in the TServer section, as required:

- (Optional) `capacity-sip-error-code`
- (Optional) `capacity-tlib-error-code`

Configure capacity control of incoming and outgoing calls on a trunk.

DN Level

On a DN of type Trunk, specify the following configuration options in the TServer section:

- `capacity`
- `capacity-limit-inbound`

Application Level

Specify these options in the TServer section, as required:

- (Optional) `capacity-sip-error-code`
- (Optional) `capacity-tlib-error-code`

Configure capacity control of outgoing calls on a group of trunks.

DN Level

1. On a DN (type Trunk, or type Voice over IP Service with service-type=softswitch) that defines capacity and a trunk group to which capacity is applied, specify the following configuration options in the TServer section:
 - capacity
 - capacity-group
2. For all other trunks included in the same group to which capacity is applied, specify the following configuration option in the TServer section:
 - capacity-group

Application Level

Specify these options in the TServer section, as required:

- (Optional) capacity-sip-error-code
- (Optional) capacity-tlib-error-code

Configure capacity control of incoming and outgoing calls on a group of trunks.

DN Level

1. On a DN of type Trunk, specify the following configuration options in the TServer section:
 - capacity
 - capacity-limit-inbound
 - capacity-group
2. For all other trunks included in the same group to which capacity is applied, specify the following configuration option in the TServer section:
 - capacity-group

Application Level

Specify these options in the TServer section, as required:

- (Optional) capacity-sip-error-code

- (Optional) `capacity-tlib-error-code`

Configuration Options

DN Level

`capacity`

Default Value: 0

Valid Values: Any positive integer

Changes Take Effect: Immediately

Specifies how many calls can be handled by a specific Voice over IP device represented in the SIP Server configuration as either a Trunk DN, or a Voice over IP Service DN with `service-type` set to `softswitch`.

`capacity-group`

Default Value: <DN name>

Valid Values: Any non-empty string

Changes Take Effect: Immediately

Specifies the name of a group of DN objects, type Trunk or type Voice over IP Service (with `service-type=softswitch`) with shared capacity. All DNs configured with the same `capacity-group` value share the device capacity defined in the `capacity` option.

Note: The value of the `capacity` option must be defined in only one Trunk or Voice over IP Service DN in any particular `capacity-group`.

`capacity-limit-inbound`

Default Value: `false`

Valid Values: `true`, `false`

Changes Take Effect: Immediately

When set to `true`, enables rejection of incoming calls if a limit on the total number of calls for a trunk (or trunks) specified by the `capacity` option is reached. This option must be specified on the same Trunk DN where the `capacity` option is defined.

Application Level

`capacity-sip-error-code`

Default Value: 603

Valid Values: 400–699

Changes Take Effect: Immediately

Specifies the SIP error code that SIP Server distributes in response to a rejected SIP request (incoming

or outgoing) when trunk capacity is reached.

capacity-tlib-error-code

Default Value: No default value

Valid Values: Any positive integer

Changes Take Effect: Immediately

Specifies the error code that SIP Server distributes in the `AttributeErrorCode` of the T-Library `EventError` message in response to a rejected T-Library request when trunk capacity is reached. Recommended value is 282, which corresponds to the error message `No Voice Channel Available`. If the value of this option is not specified, SIP Server uses different error codes for different T-Library requests to indicate a capacity problem.