

# Rapid Spanning Tree Protocol (RSTP) Configuration on the 300 Series Managed Switches

## Objective

Loops in a network occur when alternate routes exist between hosts. Loops in an extended network can cause Layer 2 switches to forward traffic indefinitely, which results in increased traffic and reduced network efficiency. Spanning Tree Protocol (STP) provides a single path between any two end stations in order to prevent loops. Rapid Spanning Tree Protocol (RSTP) detects network topologies to provide faster convergence and create a network without loops. This is most effective when the network topology is naturally tree structured.

This article explains how to configure RSTP per port on the 300 Series Managed Switches.

## Applicable Devices

- SG300-10PP
- SG300-10MPP
- SG300-28PP-R
- SG300-28SFP-R
- SF302-08MPP
- SF302-08PP
- SF300-24PP-R
- SF300-48PP-R

## Software Version

- 1.4.0.00p3 [SG300-28SFP-R]
- 6.2.10.18 [All other Applicable Devices]

## Spanning Tree Global Setup

First, you need to make sure the parameters for RSTP are enabled in the switch.

Step 1. Log in to the web configuration utility and choose **Spanning Tree > STP Status & Global Settings**. The *STP Status & Global Settings* page opens:

### STP Status & Global Settings

**Global Settings**

Spanning Tree State:  Enable

STP Operation Mode:  Classic STP  
 Rapid STP  
 Multiple STP

BPDU Handling:  Filtering  
 Flooding

Path Cost Default Values:  Short  
 Long

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**Bridge Settings**

✦ Priority:  (Range: 0 - 61440, Default: 32768)

✦ Hello Time:  sec. (Range: 1 - 10, Default: 2)

✦ Max Age:  sec. (Range: 6 - 40, Default: 20)

✦ Forward Delay:  sec. (Range: 4 - 30, Default: 15)

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**Designated Root**

Bridge ID: 32768-f4:ac:c1:3b:a6:18

Root Bridge ID: 32768-f4:ac:c1:3b:a6:18

Root Port: 0

Root Path Cost: 0

Topology Changes Counts: 0

Last Topology Change: 0D/2H/57M/51S

**Global Settings**

Spanning Tree State:  Enable

Step 2. Check the **Enable** check box in the Spanning Tree field to enable STP.

STP Operation Mode:  Classic STP  
 Rapid STP  
 Multiple STP

Step 3. Click the **Rapid STP** radio button in the STP Operation Mode field to use RSTP as the operation mode of STP.

BPDU Handling:  Filtering  
 Flooding

Step 4. Click on of the available options in the BPDU Handling field to handle Bridge Protocol Data Unit (BPDU) packets when STP is disabled:

- Filtering — This is based on source MAC address. With this option the switch determines that the destination of the MAC is on the same network or subnet so it does not forward the packet and drops it. This option determines whether to drop or send the packet for desired destination.
- Flooding — The packet is flooded out of all forwarding ports in its VLAN (except the port it was received on). Extra attack of packets overruns the table and causes a fail-over situation because switch has a limited amount of memory to store MAC addresses. Data is bridged exclusively to the network segment containing the computer that the data is specifically destined for.



Step 5. Click on one of the available options in the Path Cost Default Values field to assign default path costs:

- Short — This option uses a range from 1 to 65,535 for port path costs.
- Long — This option uses a range from 1 to 200,000,000 for port path costs.

Step 6. Click **Apply** to save your settings.

## Enable Rapid Spanning Tree on a Port

Step 1. Log in to the web configuration utility and choose **Spanning Tree > RSTP Interface Settings**. The *RSTP Interface Settings* page opens:

## RSTP Interface Settings

RSTP Interface Setting Table

Showing 1-20 of 20  per page

Filter: *Interface Type* equals to

	Entry No.	Interface	Point-to-Point Operational Status	Port Role	Mode	Fast Link Operational Status	Port Status
<input type="radio"/>	1	GE1	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	2	GE2	Enabled	Designated	RSTP	Enabled	Forwarding
<input checked="" type="radio"/>	3	GE3	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	4	GE4	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	5	GE5	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	6	GE6	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	7	GE7	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	8	GE8	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	9	GE9	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	10	GE10	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	11	GE11	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	12	GE12	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	13	GE13	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	14	GE14	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	15	GE15	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	16	GE16	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	17	GE17	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	18	GE18	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	19	GE19	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	20	GE20	Enabled	Disabled	RSTP	Disabled	Disabled

### RSTP Interface Settings

RSTP Interface Setting Table Showing 1-20 of 20  per page

Filter: *Interface Type* equals to

	Entry No.	Interface	Point-to-Point Operational Status	Port Role	Mode	Fast Link Operational Status	Port Status
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<input type="radio"/>	5	GE5	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	6	GE6	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	7	GE7	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	8	GE8	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	9	GE9	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	10	GE10	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	11	GE11	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	12	GE12	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	13	GE13	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	14	GE14	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	15	GE15	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	16	GE16	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	17	GE17	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	18	GE18	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	19	GE19	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	20	GE20	Enabled	Disabled	RSTP	Disabled	Disabled

Step 2. If a connected device is discovered via STP, choose the interface that is connected to the device and click **Activate Protocol Migration**. This performs a test on the connected device to see the type of STP. The switch then communicates with the connected device through the use of the respective STP type of the connected device

RSTP Interface Setting Table

Filter: *Interface Type* equals to

Step 3. In the Filter drop-down list, choose whether to configure a port or a LAG (Link Aggregation Group).

Step 4. Click the radio button of the port /LAG you want to enable RSTP.

### RSTP Interface Settings

RSTP Interface Setting Table Showing 1-20 of 20  per page

Filter: *Interface Type* equals to

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<input type="radio"/>	2	GE2	Enabled	Designated	RSTP	Enabled	Forwarding
<input checked="" type="radio"/>	3	GE3	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	4	GE4	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	5	GE5	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	6	GE6	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	7	GE7	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	8	GE8	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	9	GE9	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	10	GE10	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	11	GE11	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	12	GE12	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	13	GE13	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	14	GE14	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	15	GE15	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	16	GE16	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	17	GE17	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	18	GE18	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	19	GE19	Enabled	Disabled	RSTP	Disabled	Disabled
<input type="radio"/>	20	GE20	Enabled	Disabled	RSTP	Disabled	Disabled

Step 5. Click **Edit**. The *Edit RSTP Interface Settings* window appears.

Interface:  Port   LAG

Point to Point Administrative Status:  Enable  
 Disable  
 Auto

Point to Point Operational Status: Enabled

Role: Disabled

Mode: RSTP

Fast Link Operational Status: Disabled

Port Status: Disabled

Step 6. In the Point to Point Administrative Status field, click one of the available options:

**Note:** Ports defined as Full Duplex are considered Point-to-Point port links.

- Enable — Enable feature helps to make this port as a RSTP edge port and brings it to

forwarding mode quicker than normal STP.

- **Disable** — Disable feature helps the port not be considered as point-to-point for RSTP purposes, STP will work on regular speed.
- **Auto** — Determines switch status it self with the help of RSTP BPDUs.

The following information about the port/LAG is displayed:

- **Point to Point Operational Status** — Displays enabled if point-to-point administrative distance is set to auto.
- **Role** — The role of the port as assigned by STP to provide STP path.
- **Mode** — The current spanning tree mode.
- **Fast Link Operational Status** — The status of the fast link.
- **Port Status** — RSTP status on the port.

Step 7. Click **Apply** to save your changes.