# system service-processor commands

## Command reference

NetApp
February 02, 2026

This PDF was generated from https://docs.netapp.com/us-en/ontap-cli/system-service-processor-reboot-sp.html on February 02, 2026. Always check docs.netapp.com for the latest.

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# system service-processor commands

## system service-processor reboot-sp

Reboot the Service Processor on a node

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `system service-processor reboot-sp` command reboots the Service Processor of the specified node.

### Parameters

**`-node {<nodename>|local}` - Node**

This parameter specifies the node whose Service Processor is to be rebooted.

**`[-image {primary|backup}]` - Image to Boot with After Reboot**

This parameter specifies the image that the Service Processor uses after the reboot. By default, the `primary` image is used. Avoid booting the SP from the backup image. Booting from the backup image is reserved for troubleshooting and recovery purposes only. It might require that the SP automatic firmware update be disabled, which is not a recommended setting. You should contact technical support before attempting to boot the SP from the backup image.

### Examples

The following command reboots the Service Processor of node "node1" into the `primary` image.

```
cluster1::> system service-processor reboot-sp -node node1 -image primary

NOTE : If your console connection is through the SP, it will be
disconnected.
       Do you want to reboot the SP ? {y|n}: y

cluster1::>
```

The following command reboots the Service Processors of all nodes. Since `-image` is not specified, the Service Processors will boot into the `primary` image.

```
cluster1::> system service-processor reboot-sp -node *

NOTE : If your console connection is through the SP, it will be
disconnected.
       Do you want to reboot the SP ? {y|n}: y
2 entries were acted on.

cluster1::>
```

# system service-processor show

Display the Service Processor information

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor show` command displays information about the Service Processor of each node in a cluster. You can limit output to specific types of information and specific nodes in the cluster, or filter output by specific field values.

In case a node is offline or its Service Processor management daemon is down, the command displays the last known IP address of its Service Processor. Only the IP address is displayed in such cases.

## Parameters

**{ [-fields <fieldname>,…]**

If you specify the `-fields <fieldname>, …` parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

Selects information for the Service Processor of the specified node.

**[-type {SP|NONE|BMC}] - Type of Device**

Selects information for the Service Processors of the specified type.

**[-status {online|offline|sp-daemon-offline|node-offline|degraded|rebooting|unknown|updating}] - Status**

Selects information for the Service Processors whose status matches the specified value.

**[-ip-configured {true|false}] - Is Network Configured**

Selects information for the Service Processors whose network is configured (`true` ) or not configured (`false` ).

**[-address <IP Address>,…] - Public IP Address**

Selects information for the Service Processors that use the specified IP address or addresses.

**[-mac <MAC Address>] - MAC Address**

Selects information for the Service Processors that use the specified MAC address.

**[-fw-version <text>] - Firmware Version**

Selects information for the Service Processors that are running the specified firmware version.

**[-part-num <text>] - Part Number**

Selects information for the Service Processors that have the specified part number.

**[-serial-num <text>] - Serial Number**

Selects information for the Service Processors that have the specified serial number.

**[-dev-rev <text>] - Device Revision**

Selects information for the Service Processors that have the specified device revision.

**[-autoupdate-enabled {true|false}] - Is Firmware Autoupdate Enabled**

Selects information for the Service Processors that have the specified status for firmware automatic update.

## Examples

The following example displays basic information for the Service Processors of all the nodes.

```
cluster1::> system service-processor show
                                IP           Firmware
Node          Type Status       Configured   Version    IP Address
------------- ---- ------------ ------------ ---------
--------------------------
node1         SP   online       true         2.2X5      192.168.1.201
node2         SP   online       true         2.2X5      192.168.1.202
2 entries were displayed.

cluster1::>
```

The following example displays all available information for the Service Processors of all the nodes.

```
cluster1::> system service-processor show -instance
Node: node1
                     Type of Device: SP
                             Status: online
               Is Network Configured: true
                   Public IP Address: 192.168.1.201
                         MAC Address: ab:cd:ef:fe:ed:01
                    Firmware Version: 2.2X5
                         Part Number: Not Applicable
                       Serial Number: Not Applicable
                     Device Revision: Not Applicable
     Is Firmware Autoupdate Enabled: true
Node: node2
                     Type of Device: SP
                             Status: online
               Is Network Configured: true
                   Public IP Address: 192.168.1.202
                         MAC Address: ab:cd:ef:fe:ed:02
                    Firmware Version: 2.2X5
                         Part Number: Not Applicable
                       Serial Number: Not Applicable
                     Device Revision: Not Applicable
     Is Firmware Autoupdate Enabled: true
2 entries were displayed.

cluster1::>
```

The following example displays only the type, status and firmware version for the Service Processors of all the nodes.

```
cluster1::> system service-processor show -fields type,status,fw-version
node          type status fw-version
------------- ---- ------ ----------
node1         SP   online 2.2X5
node2         SP   online 2.2X5
2 entries were displayed.

cluster1::>
```

# system service-processor api-service check

## Check API Service availability in SP/BMC

**Availability:** This command is available to *cluster* administrators at the *advanced* privilege level.

## Description

The `system service-processor api-service check` checks the availability of the SP API and web service on Service Processors (SP) or Baseboard Management Controllers (BMC) in the cluster.

## Parameters

**`-node {<nodename>|local}` - Node (privilege: advanced)**

This parameter specifies the node to initiate the check operation. By default, all nodes check availability.

**`[-port <integer>]` - SP/BMC API Service Port (privilege: advanced)**

This parameter specifies the port number on the SP or BMC used for the API service. By default, port 50000 is used.

**`[-target-node {<nodename>|local}]` - Target Node (privilege: advanced)**

This parameter specifies the target node whose SP or BMC API and web service is to be checked. By default, all node SPs or BMCs are checked.

## Examples

The following example checks the availability of the API and web service on all node SPs or BMCs.

```
cluster1::*> sp api-service check -node *

Date: Tue Oct 27 03:09:19 2020
Node: cluster1-01
Port: 50000
   Local Private IPv4: ok (192.0.2.82)
    Local Public IPv4: ok (10.233.4.22)
    Local Public IPv6: ok (2020::2023)
Target Node: cluster1-02
                IPv4: ok (10.233.4.24)
                IPv6: ok (2020::2022)

Port: 443
   Local Private IPv4: ok (192.0.2.82)
    Local Public IPv4: ok (10.233.4.22)
    Local Public IPv6: ok (2020::2023)
Target Node: cluster1-02
                IPv4: ok (10.233.4.24)
                IPv6: ok (2020::2022)

Date: Tue Oct 27 03:09:19 2020
Node: cluster1-02
Port: 50000
   Local Private IPv4: ok (192.0.2.81)
    Local Public IPv4: ok (10.233.4.24)
    Local Public IPv6: ok (2020::2022)
Target Node: cluster1-01
                IPv4: ok (10.233.4.22)
                IPv6: ok (2020::2023)

Port: 443
   Local Private IPv4: ok (192.0.2.81)
    Local Public IPv4: ok (10.233.4.24)
    Local Public IPv6: ok (2020::2022)
Target Node: cluster1-01
                IPv4: ok (10.233.4.22)
                IPv6: ok (2020::2023)
2 entries were acted on.

cluster1::*>
```

# system service-processor api-service disable-installed-certificates

Disable user-installed certificates for the service processor API service

**Availability:** This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

## Description

This command disables user-installed certificates for secure communication with the service processor API service. Default certificates are then auto-generated.

## Examples

The following example disables user-installed certificates for the service processor API service.

```
cluster1::> system service-processor api-service disable-installed-
certificates
```

# system service-processor api-service enable-installed-certificates

Enable user-installed certificates for the service processor API service

**Availability:** This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

## Description

This command enables user-installed certificates for secure communication with the service processor. Use the security certificate install command to install client, server and CA certificates.

## Parameters

**`-vserver <Vserver Name>` - Vserver**

Use this parameter to specify the Vserver on which certificates are installed.

**`-server-cert <text>` - Name of the Server Certificate**

Use this parameter to specify the unique name of the server certificate.

**`-client-cert <text>` - Name of the Client Certificate**

Use this parameter to specify the unique name of the client certificate.

**`-rootca-cert <text>` - Names of the Root CA Certificates**

Use this parameter to specify the unique names of server-ca or client-ca certificate.

## Examples

The following example installs server, client and rootca certificates and then enables those certificates for secure communication with the service processor.

```
cluster1::> security certificate install -vserver cluster1 -type server
cluster1::> security certificate install -vserver cluster1 -type client
cluster1::> security certificate install -vserver cluster1 -type server-ca
cluster1::> security certificate show-user-installed
Vserver    Serial Number   Certificate Name                       Type
---------- --------------- -------------------------------------
------------
cluster1  1533F133482E800F
                           xxx-ca                                 server-
ca
    Certificate Authority: xxx-ca
          Expiration Date: Sat Jun 01 05:11:41 2019

cluster1  1533F273AA311FDB
                           xxx-client                             client
    Certificate Authority: xxx-ca
          Expiration Date: Fri May 31 05:34:37 2019

cluster1  1533F1B321E55242
                           xxx-server                              server
    Certificate Authority: xxx-ca
          Expiration Date: Fri May 31 05:20:50 2019

cluster1::> system service-processor api-service enable-installed-
certificates -vserver cluster1  -server-cert xxx-server -client-cert xxx-
client  -rootca-cert xxx-ca
```

## Related Links

- security certificate install

# system service-processor api-service modify

Modify service processor API service configuration

**Availability:** This command is available to *cluster* administrators at the *advanced* privilege level.

## Description

The `system service-processor api-service modify` command modifies the Service Processor (SP) or Baseboard Management Controller (BMC) API service and web service configuration. The SP API and web is a secure network API that enables ONTAP to communicate with the SP or BMC over the network.

## Parameters

**{ [-sp-api-enabled {true|false}] - Is SP API Service Enabled (privilege: advanced)**

This parameter enables or disables the SP API service of the SP or BMC. When the SP API service is disabled, features like network-based firmware updates and network-based down node log collection will not be available, and the slower serial-interface will be used for firmware updates and down node log collection.

**[-sp-api-port <integer>] - SP API Service Port (privilege: advanced)**

This parameter specifies the port number on the SP or BMC used for the SP API service. By default, port 50000 is used.

**[-sp-api-limit-access {true|false}] - Only Cluster Members Can Access the API Service (privilege: advanced)**

This parameter restricts SP API service access to cluster members only. By default, it is enabled.

**| [-web-enabled {true|false}] - Is SP Web Service Enabled (privilege: advanced)**

This parameter enables or disables the web service of the SP or BMC running on TCP port 443. When the web service is disabled, features like network-based firmware updates and network-based down node log collection will not be available, and the slower serial-interface will be used for firmware updates and down node log collection.

**[-web-limit-access {true|false}] - Only Cluster Members Can Access the Web Service (privilege: advanced) }**

This parameter restricts web service access to cluster members only. By default, it is enabled.

## Examples

The following example modifies the port number used for the SP API service and then disables the SP API service.

```
cluster1::*>system service-processor api-service modify -sp-api-enabled
true -sp-api-port 50001 -sp-api-limit-access true

cluster1::*>system service-processor api-service show
 Service Processor API service configuration
     SP API Enabled: true
        SP API Port: 50001
SP API Limit Access: true
        Web Enabled: true
   Web Limit Access: true
 Server Certificate: -internal-
 Client Certificate: -internal-
     CA Certificate: -internal-
```

```
cluster1::*>system service-processor api-service modify -sp-api-enabled
false -sp-api-port 50001 -sp-api-limit-access true

cluster1::*>system service-processor api-service show
 Service Processor API service configuration
     SP API Enabled: false
        SP API Port: 50001
SP API Limit Access: true
        Web Enabled: true
   Web Limit Access: true
 Server Certificate: -internal-
 Client Certificate: -internal-
     CA Certificate: -internal-
```

The following example disables the SP Web service.

```
cluster1::*>system service-processor api-service modify -web-enabled false
-web-limit-access true

cluster1::*>system service-processor api-service show
 Service Processor API service configuration
     SP API Enabled: false
        SP API Port: 50001
SP API Limit Access: true
        Web Enabled: false
   Web Limit Access: true
 Server Certificate: -internal-
 Client Certificate: -internal-
     CA Certificate: -internal-
```

# system service-processor api-service regenerate-ssh-auth-key

Regenerate SSH Auth Private and Public Key

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor api-service regenerate-ssh-auth-service` command regenerates public and private keys for SSH public key authentication between ONTAP nodes and their service processor (SP) or baseboard management controller (BMC).

### Parameters

**`-key-type {ecdsa-256|ecdsa-384|rsa-2048|rsa-3076|rsa-4096}` - SSH Key Type**

This parameter specifies the SSH authentication key type and key size that must be used when regenerating the keys. Examples: ecdsa-256, rsa-2048.

### Examples

The following example regenerates keys based on key type ECDSA and key size 256.

```
cluster1::> system service-processor api-service regenerate-ssh-auth-key
-key_type ecdsa-256
```

# system service-processor api-service renew-internal-certificates

Renew SSL and SSH certificates used for secure communication with the service processor

**Availability:** This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

### Description

The `system service-processor api-service renew-internal-certificates ` command generates the certificates used for secure communication with the service processor API service. This command is not allowed if user-installed certificates are enabled.

### Examples

The following example generates new default host and root-ca certificates.

```
cluster1::*> system service-processor api-service renew-internal-
certificates
```

# system service-processor api-service show

Display service processor API service configuration

**Availability:** This command is available to *cluster* administrators at the *advanced* privilege level.

### Description

The `system service-processor api-service show` command displays the Service Processor (SP) or Baseboard Management Controller (BMC) API and web service configuration.

### Examples

The following example displays the SP or BMC API and web service configuration:

```
cluster1::*> system service-processor api-service show
Service Processor API service configuration
     SP API Enabled: true
        SP API Port: 50000
SP API Limit Access: true
        Web Enabled: true
   Web Limit Access: true
 Server Certificate: -internal-
 Client Certificate: -internal-
     CA Certificate: -internal-
```

# system service-processor image modify

Enable/Disable automatic firmware update

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `system service-processor image modify` command enables or disables automatic firmware update on the Service Processor of specified node or nodes.

### Parameters

**`-node {<nodename>|local}` - Node**

The parameter specifies the node on which automatic Service Processor firmware update is to be enabled or disabled.

**`[-autoupdate {true|false}]` - Firmware Autoupdate**

Setting this parameter to `true` enables automatic firmware update. Setting this parameter to `false` disables automatic firmware update. This is a mandatory parameter.

### Examples

The following command enables automatic firmware update for the Service Processor on the local node.

```
cluster1::> system service-processor image modify -node local -autoupdate
true
```

The following command enables automatic firmware update for the Service Processors on all the nodes.

```
cluster1::> system service-processor image modify -node * -autoupdate true
2 entries were modified.
```

# system service-processor image show

Display the details of currently installed Service Processor firmware image

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor image show` command displays information about the currently installed firmware images on the Service Processor of each node in a cluster. You can limit output to specific types of information and specific nodes in the cluster, or filter output by specific field values.

## Parameters

**{ [-fields <fieldname>,…]**

If you specify the `-fields <fieldname>, …` parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

Selects firmware image information for the Service Processor of the specified node.

**[-image {primary|backup}] - Image**

Selects firmware image information for the Service Processors that are running the primary or backup image as specified.

**[-type {SP|NONE|BMC}] - Type**

Selects firmware image information for the Service Processors of the specified type.

**[-status {installed|corrupt|updating|auto-updating|none}] - Image Status**

Selects firmware image information for the Service Processors whose image status matches the specified value.

**[-is-current {true|false}] - Is Image Current**

Selects firmware image information for the SP whose current image matches the specified status. This parameter indicates the partition (primary or backup) that the SP is currently booted from, not whether the installed firmware version is most current.

**[-version <text>] - Firmware Version**

Selects firmware image information for the Service Processors running the specified firmware version.

**[-autoupdate {true|false}] - Firmware Autoupdate**

Selects firmware image information for the Service Processors whose automatic update matches the specified configuration.

**[-last-update-status {failed|passed}] - Last Update Status**

Selects firmware image information for the Service Processors whose last update is of the specified status.

## Examples

The following command displays basic firmware information for the Service Processors of all the nodes.

```
cluster1::> system service-processor image show
                                          Is
Node              Type  Image   Status      Current Version
----------------- ----- ------- ----------- ------- --------
node1             SP
                        primary installed   true    2.2X8
                        backup  installed   false   2.2X5
node2             SP
                        primary installed   true    2.2X8
                        backup  installed   false   2.2X5
4 entries were displayed.

cluster1::>
```

The following command displays all available firmware information for the Service Processors of all the nodes.

```
cluster1::> system service-processor image show -instance
Node: node1
              Image: primary
               Type: SP
       Image Status: installed
   Is Image Current: true
   Firmware Version: 2.2X8
Firmware Autoupdate: true
 Last Update Status: passed
Node: node1
              Image: backup
               Type: SP
       Image Status: installed
   Is Image Current: false
   Firmware Version: 2.2X5
Firmware Autoupdate: true
 Last Update Status: passed
Node: node2
              Image: primary
               Type: SP
       Image Status: installed
   Is Image Current: true
   Firmware Version: 2.2X8
Firmware Autoupdate: true
 Last Update Status: passed
Node: node2
              Image: backup
               Type: SP
       Image Status: installed
   Is Image Current: false
   Firmware Version: 2.2X5
Firmware Autoupdate: true
 Last Update Status: passed
4 entries were displayed.

cluster1::>
```

# system service-processor image update

Update Service Processor firmware

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor image update` command installs a new firmware version on the Service Processor (SP) or Baseboard Management Controller (BMC) of specified node in a cluster. If this command fails, it will display and log an appropriate error message and abort. No automatic command retries will be performed. This command also specifies which firmware image is to be installed on the SP or BMC and how.

You can use the command system service-processor image update-progress show to check the progress of the update.

The following parameter combinations are not supported for this command:

- `-baseline` *`true`* with `-package` *`<text>`*

## Parameters

**`-node {<nodename>|local}` - Node**

This parameter specifies the node whose SP or BMC firmware is to be updated.

**`[-package <text>]` - Firmware Package**

This parameter specifies the package that will be installed. You can find the package file in the SP Update Repository field of the system node image package show command. If you do not specify this parameter, the SP or BMC is updated to the most recent version of the firmware that is available in the update repository. You must specify this parameter if `baseline` is false or omitted.

**`[-baseline {true|false}]` - Install Baseline**

If you set this parameter to true, the command installs the SP or BMC firmware version that is bundled with the currently running release of ONTAP. This is a safety mechanism that allows you to revert the SP or BMC firmware to the version that was qualified and bundled with the currently running version of ONTAP on your system. If not specified, this parameter defaults to false.

**`[-pre-check {true|false}]` - Perform Pre-checks (privilege: advanced)**

If you set this parameter to *`false`* , the command skips pre-requisite checks, such as target versions below baseline or compatibility tokens. The default value for this parameter is *`true`* .

## Examples

The following command reverts the firmware on the SP or BMC of the local node to the version that was packaged with the currently running release of ONTAP. The second command displays the status of the in-progress firmware install.

```
cluster1::> system service-processor image update -node local -baseline
true
```

```
cluster1::>

cluster1::> system service-processor image update-progress show
                  In                              Percent
Node              Progress Start Time             Done    End Time
----------------- -------- ---------------------- ------- --------------------
node1             yes      8/28/2012 20:00:34     99      -
node2             no       -                      0       -
2 entries were displayed.

cluster1::>
```

### Related Links

- system service-processor image update-progress show
- system node image package show

# system service-processor image update-progress show

Display status for the latest Service Processor firmware update

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor image update-progress show` command displays the progress information of firmware updates on the Service Processor (SP) or Baseboard Management Controller (BMC) of the specified nodes. The `"in-progress"` field displays "*no* " if no update is in progress. This command does not display the progress of an SP/BMC firmware update that is triggered from the SP CLI.

## Parameters

**{ [-fields <fieldname>,…]**

If you specify the `-fields <fieldname>, …` parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

This parameter displays the status of SP or BMC firmware update for the specified node.

**[-start-time <MM/DD/YYYY HH:MM:SS>] - Latest SP Firmware Update Start Timestamp**

This parameter displays the status of the SP or BMC whose firmware update start time matches the specified value.

**[-percent-done <integer>] - Latest SP Firmware Update Percentage Done**

This parameter displays the status of the SP or BMC whose update completion percentage matches the specified value.

**[-end-time <MM/DD/YYYY HH:MM:SS>] - Latest SP Firmware Update End Timestamp**

This parameter displays the status of the SP or BMC whose firmware update end time matches the specified value.

**[-in-progress {yes|no}] - Is Update in Progress**

This parameter displays the update status of the SP or BMC that matches the specified in-progress status.

## Examples

The following example starts a firmware update on the local node and then uses the command `system service-processor image update-progress show` to display progress of firmware updates on SPs or BMCs of all nodes in the system.

```
cluster1::> system service-processor image update -node local -baseline
true

cluster1::>

cluster1::> system node service-processor image update-progress show
                In                            Percent
Node            Progress Start Time          Done    End Time
--------------- -------- ------------------- ------- -------------------
node1           yes      8/28/2012 20:00:34  99      -
node2           no       -                   0       -
2 entries were displayed.

cluster1::>
```

# system service-processor log show-allocations

Display the Service Processor log allocation map

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor log show-allocations` command displays the allocation map of the Service Processor logs collected in the cluster. The Service Processor logs of a node are archived in the mroot directory of the collecting node. This command displays the sequence numbers for the Service Processor log files that reside in each collecting node.

## Parameters

**{ [-fields <fieldname>,…]**

If you specify the `-fields <fieldname>, …` parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

If you specify this parameter, the command displays the sequence numbers of Service Processor log files that the specified node has collected.

**[-remote-node <text>] - Remote Node**

If you specify this parameter, the command displays the sequence numbers of Service Processor log files that have been collected from the specified remote node.

**[-seqList <integer>,…] - Log File Sequence Numbers**

If you specify this parameter, the command displays information about Service Processor log files with the specified sequence number.

## Examples

The following example displays the allocation map of the Service Processor log files in the cluster.

```
cluster1::> system service-processor log show-allocation
Node                 From Which Node     Log File Sequence
-------------------- ------------------- ----------------------------------
cluster1-01
                     cluster1-01         10, 11, 12, 13, 15
                     cluster1-02         14, 15, 16, 17
cluster1-02
                     cluster1-01         14
                     cluster1-02         11, 12, 13
4 entries were displayed.

cluster1::>
```

# system service-processor network modify

Modify the network configuration

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor network modify` command modifies the network configuration of the

Service Processor of specified node or nodes in a cluster.

If the SP automatic network configuration has been enabled, the `system service-processor network modify` command allows you to only enable or disable the SP IPv4 or Ipv6 network interface.

## Parameters

**`-node {<nodename>|local}` - Node**

This parameter specifies the node whose Service Processor's network configuration is to be modified.

**`-address-family {IPv4|IPv6}` - Address Family**

This parameter specifies whether the IPv4 or the IPv6 configuration is to be modified.

**`[-enable {true|false}]` - Interface Enabled**

This parameter enables or disables the underlying network interface for the specified `address-family` . This is a mandatory parameter.

**`[-dhcp {v4|none|v6}]` - DHCP Status**

If this parameter is set to v4, the Service Processor uses network configuration from the DHCP server. Otherwise, the Service Processor uses the network address you specify. If this parameter is not set to v4 or is not specified, you must specify the IP address, netmask, prefix-length, and gateway in the command. DHCP is not supported for IPv6 configuration.

**`[-ip-address <IP Address>]` - IP Address**

This parameter specifies the public IP address for the Service Processor. You must specify this parameter when the `-dhcp` parameter is not set to v4.

**{ `[-netmask <IP Address>]` - Netmask**

This parameter specifies the netmask for a Service Processor that uses an IPv4 address. This parameter has no effect if the IP address family is set to IPv6. You must specify this parameter when DHCP is not v4 and the address family is IPv4.

**| `[-prefix-length <integer>]` - Prefix Length of Subnet Mask }**

This parameter specifies the network prefix-length of the Service Processor if the address family is set to IPv6. The parameter has no effect when the address family is set to IPv4. You must specify this parameter when DHCP is not set to v4 and when the address family is set to IPv6.

**`[-gateway <IP Address>]` - Gateway IP Address**

This parameter specifies network gateway of the Service Processor. You must specify this parameter when DHCP is not set to v4.

## Examples

The following example enables the network interface for IPv4 on the Service Processor of the local node. It first displays the current network configuration information of the local node to show the network interface is initially disabled, and then enables it with IP address 192.168.1.202, netmask as 255.255.255.0 and gateway as 192.168.1.1. It displays the interim state with SP Network Setup Status field showing "in-progress". It finally displays the network configuration again to confirm the specified values took effect.

```
cluster1::> system service-processor network show -instance -node local
Node: node2
                 Address Family: IPv4
            Interface Enabled: false
               Type of Device: SP
                       Status: online
                  Link Status: disabled
                  DHCP Status: -
                   IP Address: -
                  MAC Address: ab:cd:ef:fe:ed:02
                      Netmask: -
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: -
      Time Last Updated: Fri Jun 13 16:29:55 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: succeeded
SP Network Setup Failure Reason: -
Node: node2
                 Address Family: IPv6
            Interface Enabled: false
               Type of Device: SP
                       Status: online
                  Link Status: disabled
                  DHCP Status: none
                   IP Address: -
                  MAC Address: ab:cd:ef:fe:ed:02
                      Netmask: -
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: -
      Time Last Updated: Fri Jun 13 16:29:55 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: not-setup
SP Network Setup Failure Reason: -
2 entries were displayed.

cluster1::>
```

```
cluster1::> system service-processor network modify -node local -address
-family IPv4 -enable true -ip-address 192.168.1.202 -netmask 255.255.255.0
-gateway 192.168.1.1
```

```
cluster1::>
cluster1::> system service-processor network show -instance -node local
Node: node2
                 Address Family: IPv4
            Interface Enabled: false
               Type of Device: SP
                       Status: online
                  Link Status: disabled
                  DHCP Status: -
                   IP Address: -
                  MAC Address: ab:cd:ef:fe:ed:02
                      Netmask: -
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: -
            Time Last Updated: Fri Jun 13 16:29:55 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: in-progress
SP Network Setup Failure Reason: -
Node: node2
                 Address Family: IPv6
            Interface Enabled: false
               Type of Device: SP
                       Status: online
                  Link Status: disabled
                  DHCP Status: none
                   IP Address: -
                  MAC Address: ab:cd:ef:fe:ed:02
cluster1::> system service-processor network show -instance -node local
Node: node2
                 Address Family: IPv4
            Interface Enabled: true
               Type of Device: SP
                       Status: online
                  Link Status: up
                  DHCP Status: none
                   IP Address: 192.168.1.202
                  MAC Address: ab:cd:ef:fe:ed:02
```

```
                      Netmask: 255.255.255.0
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: 192.168.1.1
      Time Last Updated: Fri Jun 13 16:29:55 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: succeeded
SP Network Setup Failure Reason: -
Node: node2
                 Address Family: IPv6
            Interface Enabled: false
               Type of Device: SP
                       Status: online
                  Link Status: disabled
                  DHCP Status: none
                   IP Address: -
                  MAC Address: ab:cd:ef:fe:ed:02
                      Netmask: -
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: -
        Time Last Updated: Fri Jun 13 16:29:55 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: not-setup
SP Network Setup Failure Reason: -
2 entries were displayed.

cluster1::>
```

# system service-processor network show

## Display the network configuration

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `system service-processor network show` command displays the network configuration of the Service Processor of each node in a cluster. You can limit output to specific types of information and specific nodes in the cluster, or filter output by specific field values.

In case a node is offline or its Service Processor management daemon is down, the command displays the last known IP address of its Service Processor. Only the IP address is displayed in such cases.

## Parameters

**{ [-fields <fieldname>,…]**

If you specify the `-fields <fieldname>, …` parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

Selects network configuration information for the Service Processor of the specified node.

**[-address-family {IPv4|IPv6}] - Address Family**

Selects network configuration information for the Service Processors that have the specified IP address family.

**[-enable {true|false}] - Interface Enabled**

Selects network configuration information for the Service Processors whose network interface for the given `address-family` is enabled or disabled as specified.

**[-type {SP|NONE|BMC}] - Type of Device**

Selects network configuration information for the Service Processors of the specified type.

**[-status {online|offline|sp-daemon-offline|node-offline|degraded|rebooting|unknown|updating}] - Status**

Selects network configuration information for the Service Processors whose status matches the specified value.

**[-link-status {up|down|disabled|unknown}] - Link Status**

Selects network configuration information for the Service Processors whose link status matches the specified value.

**[-dhcp {v4|none|v6}] - DHCP Status**

Selects network configuration information for the Service Processors whose DHCP status matches the specified value.

**[-ip-address <IP Address>] - IP Address**

Selects network configuration information for the Service Processors that use the specified IP address.

**[-mac <MAC Address>] - MAC Address**

Selects network configuration information for the Service Processors that use the specified MAC address.

**[-netmask <IP Address>] - Netmask**

This parameter displays information only for the Service Processors that use the specified netmask.

**[-prefix-length <integer>] - Prefix Length of Subnet Mask**

Selects network configuration information for the Service Processors whose prefix length of subnet mask matches the specified value.

**[-router-ip <IP Address>] - Router Assigned IP Address**

Selects network configuration information for the Service Processors whose router-assigned IP address matches the specified value.

**[-link-local-ip <IP Address>] - Link Local IP Address**

Selects network configuration information for the Service Processors whose link local IP address matches the specified value.

**[-gateway <IP Address>] - Gateway IP Address**

Selects network configuration information for the Service Processors whose gateway IP address matches the specified value.

**[-time-last-updated <text>] - Time Last Updated**

Selects network information for the Service Processors that have the specified time stamp showing when configuration was last updated.

**[-subnet-name <text>] - Subnet Name**

Selects network information for the Service Processors that use the specified subnet-name for SP automatic configuration.

**[-is-ipv6-ra-enabled {true|false}] - Enable IPv6 Router Assigned Address**

Selects network information for the Service Processors that have the specified status for IPv6 router-assigned address.

**[-setup-status {not-setup|succeeded|in-progress|failed}] - SP Network Setup Status**

Selects network information for the Service Processors that have the specified status for network interface setup.

**[-setup-failure-reason {success|subnet-out-of-address|invalid-subnet|other-error}] - SP Network Setup Failure Reason**

Selects network information for the Service Processors that have the specified reason for network interface setup failure.

## Examples

The following example displays basic network configuration information for the Service Processors of all the nodes.

```
cluster1::> system service-processor network show
                            Address
Node          Status        Type      Link State  IP Address
------------- ------------- --------- -----------
------------------------
node1         online        IPv4      up          192.168.1.201
DHCP: v4
                          MAC Address: ab:cd:ef:fe:ed:01
                       Network Gateway: 192.168.1.1
             Network Mask (IPv4 only): 255.255.255.0
            Prefix Length (IPv6 only): -
          IPv6 RA Enabled: -
                          Subnet Name: -
              SP Network Setup Status: succeeded
node1         online        IPv6      disabled    -
DHCP: none
                          MAC Address: ab:cd:ef:fe:ed:01
                       Network Gateway: -
             Network Mask (IPv4 only): -
            Prefix Length (IPv6 only): -
          IPv6 RA Enabled: -
                          Subnet Name: -
              SP Network Setup Status: not-setup
node2         online        IPv4      up          192.168.1.202
DHCP: v4
                          MAC Address: ab:cd:ef:fe:ed:02
                       Network Gateway: 192.168.1.1
             Network Mask (IPv4 only): 255.255.255.0
            Prefix Length (IPv6 only): -
          IPv6 RA Enabled: -
                          Subnet Name: -
              SP Network Setup Status: succeeded
node2         online        IPv6      disabled    -
DHCP: none
                          MAC Address: ab:cd:ef:fe:ed:02
                       Network Gateway: -
             Network Mask (IPv4 only): -
            Prefix Length (IPv6 only): -
          IPv6 RA Enabled: -
                          Subnet Name: -
              SP Network Setup Status: not-setup
4 entries were displayed.

cluster1::>
```

The following example displays all available network configuration information for the Service Processors of all the nodes.

```
cluster1::> system service-processor network show -instance
Node: node1
                 Address Family: IPv4
            Interface Enabled: true
               Type of Device: SP
                       Status: online
                  Link Status: up
                  DHCP Status: v4
                   IP Address: 192.168.1.201
                  MAC Address: ab:cd:ef:fe:ed:01
                      Netmask: 255.255.255.0
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: 192.168.1.1
      Time Last Updated: Fri Jun 13 17:03:59 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: succeeded
SP Network Setup Failure Reason: -
Node: node1
                 Address Family: IPv6
            Interface Enabled: false
               Type of Device: SP
                       Status: online
                  Link Status: disabled
                  DHCP Status: none
                   IP Address: -
                  MAC Address: ab:cd:ef:fe:ed:01
                      Netmask: -
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: -
      Time Last Updated: Fri Jun 13 17:03:59 GMT 2014
                  Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: not-setup
SP Network Setup Failure Reason: -
Node: node2
                 Address Family: IPv4
            Interface Enabled: true
               Type of Device: SP
```

```
                      Status: online
                 Link Status: up
                 DHCP Status: v4
                  IP Address: 192.168.1.202
                 MAC Address: ab:cd:ef:fe:ed:02
                     Netmask: 255.255.255.0
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: 192.168.1.1
      Time Last Updated: Fri Jun 13 17:03:59 GMT 2014
                 Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: succeeded
SP Network Setup Failure Reason: -
Node: node2
                Address Family: IPv6
            Interface Enabled: false
               Type of Device: SP
                      Status: online
                 Link Status: disabled
                 DHCP Status: none
                  IP Address: -
                 MAC Address: ab:cd:ef:fe:ed:02
                     Netmask: -
 Prefix Length of Subnet Mask: -
   Router Assigned IP Address: -
        Link Local IP Address: -
           Gateway IP Address: -
      Time Last Updated: Fri Jun 13 17:03:59 GMT 2014
                 Subnet Name: -
Enable IPv6 Router Assigned Address: -
      SP Network Setup Status: not-setup
SP Network Setup Failure Reason: -
4 entries were displayed.

cluster1::>
```

# system service-processor network auto-configuration disable

Disable Service Processor Auto-Configuration

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor network auto-configuration disable` command disables the SP's use of subnet resource for the automatic configuration of its networking port. This command is a cluster-wide configuration. When you disable the SP automatic network configuration, all SPs in the cluster will be configured to use IPv4 DHCP. Any addresses previously allocated from the subnet to the SP will be released. If the SP fails to obtain an IPv4 IP address from the DHCP server, an EMS message warns you about the failure. The IPv6 interface will be disabled.

## Parameters

**`-address-family {IPv4|IPv6}` - Subnet Address Family**

This parameter specifies whether the IPv4 or the IPv6 automatic configuration is to be disabled for the SP.

## Examples

The following example disables the automatic configuration for IPv4 on the SP. It first displays the current network configuration and then disables the SP IPv4 automatic network configuration.

```
cluster1::>system service-processor network show
           Address
Node          Status         Family    Link State  IP Address
------------- -------------- --------- -----------
------------------------
node1
              online         IPv4      up          192.168.1.2
               DHCP: none
                          MAC Address: ab:cd:ef:fe:ed:01
                    Network Gateway: 192.168.1.1
             Network Mask (IPv4 only): 255.255.255.0
      Prefix Length (IPv6 only): -
                IPv6 RA Enabled: -
                    Subnet Name: ipv4_test
        SP Network Setup Status: succeeded
```

```
cluster1::>system service-processor network auto-configuration disable
-address-family Ipv4

cluster1::>system service-processor network auto-configuration show
Cluster Name         SP IPv4 Subnet Name          SP IPv6 Subnet Name
-------------------- ---------------------------
---------------------------
cluster1            -                            -
```

```
cluster1::>system service-processor network show
                             Address
Node          Status         Family    Link State  IP Address
------------- -------------- --------- -----------
------------------------
node1
              online         IPv4      up          192.168.1.184
DHCP: v4
                          MAC Address: ab:cd:ef:fe:ed:01
                    Network Gateway: 192.168.1.1
             Network Mask (IPv4 only): 255.255.255.0
      Prefix Length (IPv6 only): -
                IPv6 RA Enabled: -
                    Subnet Name: -
        SP Network Setup Status: succeeded
```

# system service-processor network auto-configuration enable

Enable Service Processor Auto-Configuration

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor network auto-configuration enable` command enables the automatic network configuration for the SP. This is a cluster-wide configuration. Every node in the cluster will use the specified subnet to allocate IP address, subnet mask and gateway address for the SP configuration. When the SP automatic network configuration is enabled, you do not need to manually manage the SP network of individual nodes. A node that subsequently joins the cluster uses the specified subnet to configure its SP network automatically.

Prior to running this command, the subnet you want to use for the SP automatic network configuration must already be defined in the cluster and must have no resource conflicts with the SP network interface.

## Parameters

**`-address-family {IPv4|IPv6}` - Subnet Address Family**

This parameter specifies whether the IPv4 or the IPv6 automatic configuration is to be enabled for the SP.

**`-subnet-name <text>` - Subnet Name**

This parameter specifies the network subnet that the SP will use for automatic network configuration.

## Examples

The following example enables the automatic network configuration for IPv4 on the SP. It first displays the current SP network configuration, displays available network subnet in the cluster, and then enable the SP to

use the subnet for IPv4 automatic configuration.

```
cluster1::>system service-processor network show
                             Address
Node          Status         Family    Link State  IP Address
------------- -------------- --------- -----------
------------------------
node1
              online         IPv4      up          192.168.1.201
DHCP: v4
                          MAC Address: ab:cd:ef:fe:ed:01
                      Network Gateway: 192.168.1.1
             Network Mask (IPv4 only): 255.255.255.0
            Prefix Length (IPv6 only): -
                      IPv6 RA Enabled: -
                          Subnet Name: -
              SP Network Setup Status: succeeded
```

```
cluster1::> network subnet show

IPspace: Default
Subnet                       Broadcast                    Avail/
Name      Subnet             Domain    Gateway            Total   Ranges
--------- ---------------- --------- --------------- ---------
---------------
ipv4_test 192.168.1.0/24  Default   192.168.1.1       3/5    192.168.1.2-
192.168.1.6
```

```
cluster1::>system service-processor network auto-configuration enable
-address-family ipv4 -subnet-name ipv4_test

cluster1::system service-processor network> show
                             Address
Node          Status         Family    Link State  IP Address
------------- -------------- --------- -----------
------------------------
node1
              online         IPv4      up          192.168.1.2
DHCP: none
                          MAC Address: ab:cd:ef:fe:ed:01
                      Network Gateway: 192.168.1.1
             Network Mask (IPv4 only): 255.255.255.0
            Prefix Length (IPv6 only): -
                      IPv6 RA Enabled: -
                          Subnet Name: ipv4_test
              SP Network Setup Status: succeeded
```

# system service-processor network auto-configuration show

Display Service Processor Auto-Configuration Setup

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor network auto-configuration show` command displays the names of the IPv4 and IPv6 network subnet objects configured in the cluster that the SP uses for automatic configuration.

## Examples

The following example shows that the SP is configured to use the "ipv4_test" IPv4 subnet in the cluster for the SP automatic network configuration.

```
cluster1::>system service-processor network auto-configuration show
Cluster Name         SP IPv4 Subnet Name          SP IPv6 Subnet Name
-------------------- ---------------------------
----------------------------
cluster1        ipv4_test       -
```

# system service-processor ssh add-allowed-addresses

Add IP addresses to the list that is allowed to access the Service Processor

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor ssh add-allowed-addresses` command grants IP addresses access to the Service Processor.

## Parameters

**`-allowed-addresses <IP Address/Mask>,…` - Public IP Addresses**

Use this parameter to specify one or more IP addresses with corresponding netmasks. The value should be specified in the format of address/netmask, for example, 10.98.150.10/24, fd20:8b1e:b255:c09b::/64. Use commas to separate multiple address/netmask pairs. If "0.0.0.0/0, ::/0" is specified in the parameter, any IP address is allowed to access the Service Processor.

## Examples

The following examples grant the specified IP addresses access to the Service Processor and display the list of public IP addresses that are allowed to access the Service Processor.

```
cluster1::> system service-processor ssh show
  Allowed Addresses: 0.0.0.0/0, ::/0

cluster1::>  system service-processor ssh add-allowed-addresses -allowed
-addresses 192.168.1.202/24, 192.168.10.201/24
Warning: The default "allow all" setting (0.0.0.0/0, ::/0) will be
replaced
         with your changes. Do you want to continue? {y|n}: y

cluster1::>  system service-processor ssh show
  Allowed Addresses: 192.168.1.202/24, 192.168.10.201/24

The following example enables all IP addresses to access the Service
Processor.
cluster1::> system service-processor ssh add-allowed-addresses -allowed
-addresses 0.0.0.0/0, ::/0

cluster1::> system service-processor ssh show
  Allowed Addresses: 0.0.0.0/0, ::/0
cluster1::>
```

# system service-processor ssh remove-allowed-addresses

Remove IP addresses from the list that is allowed to access the Service Processor

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor ssh remove-allowed-addresses` command blocks the specified IP address from accessing the Service Processor. If all IP addresses are removed from the access list, then the Service Processor is not accessible from any IP address.

## Parameters

**`-allowed-addresses <IP Address/Mask>,…` - Public IP Addresses**

Use this parameter to specify one or more IP addresses with corresponding netmasks. The value should be specified in the format of address/netmask, for example, 10.98.150.10/24, fd20:8b1e:b255:c09b::/64. Use commas to separate multiple address/netmask pairs.

## Examples

The following example prevents the specified IP addresses from accessing the Service Processor. It also displays the list of public IP addresses that are allowed to access the Service Processor.

```
cluster1::> system service-processor ssh show
  Allowed Addresses: 192.168.1.202/24, 192.168.10.201/24

cluster1::> system service-processor ssh remove-allowed-addresses -allowed
-addresses 192.168.1.202/24, 192.168.10.201/24

Warning: If all IP addresses are removed from the allowed address list,
all IP
         addresses will be denied access. To restore the "allow all"
default,
         use the "system service-processor ssh add-allowed-addresses
         -allowed-addresses 0.0.0.0/0, ::/0" command. Do you want to
continue?
          {y|n}: y

cluster1::> system service-processor ssh show
   Allowed Addresses: -

cluster1::>
```

# system service-processor ssh show

Display SSH security information about the Service Processor

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `system service-processor ssh show` command displays the IP addresses that are allowed to access the Service Processor by using SSH.

## Examples

The following example displays SSH security information about the Service Processor.

```
cluster1::> system service-processor ssh show
  Allowed Addresses: 0.0.0.0/0, ::/0

cluster1::>
```

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