Install licenses

Cluster and storage switches

NetApp
October 14, 2022

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Install licenses for BES-53248 cluster switches

The BES-53248 cluster switch base model is licensed for 16 10GbE or 25GbE ports and two 100GbE ports. New ports can be added by purchasing more licenses.

The following licenses are available for use on the BES-53248 cluster switch:

License type	License details
Supported firmware version	SW-BES-53248A1-G1-8P-LIC
Broadcom 8P 10-25,2P40-100 License Key, X190005/R	EFOS 3.4.3.3 and later
SW-BES-53248A1-G1-16P-LIC	Broadcom 16P 10-25,4P40-100 License Key, X190005/R
EFOS 3.4.3.3 and later	SW-BES-53248A1-G1-24P-LIC
Broadcom 24P 10-25,6P40-100 License Key, X190005/R	EFOS 3.4.3.3 and later
SW-BES54248-40-100G-LIC	Broadcom 6Port 40G100G License Key, X190005/R
EFOS 3.4.4.6 and later	SW-BES53248-8P-10G25G-LIC
Broadcom 8Port 10G25G License Key, X190005/R	EFOS 3.4.4.6 and later
SW-BES53248-16P-1025G-LIC	Broadcom 16Port 10G25G License Key, X190005/R
EFOS 3.4.4.6 and later	SW-BES53248-24P-1025G-LIC
Broadcom 24Port 10G25G License Key, X190005/R	EFOS 3.4.4.6 and later

Steps

1. Connect the cluster switch to the management network.
2. Use the `ping` command to verify connectivity to the server hosting EFOS, licenses, and the RCF file.

   This example verifies that the switch is connected to the server at IP address 172.19.2.1:

```
(cs2)# ping 172.19.2.1
Pinging 172.19.2.1 with 0 bytes of data:

Reply From 172.19.2.1: icmp_seq = 0. time= 5910 usec.
```

3. Check the current license usage on switch cs2:

   `show license`

```
(cs2)# show license
Reboot needed.................................. No
Number of active licenses...................... 0

License Index  License Type     Status
-------------- ---------------- -----------

No license file found.
```

4. Install the license file. The following example uses SFTP to copy a license file to a key index 1.

   Repeat this step to load more licenses and to use different key index numbers.

```
(cs2)# copy sftp://root@172.19.2.1/var/lib/tftpboot/license.dat
nvram:license-key 1
Remote Password:**

Mode........................................... SFTP
Set Server IP.................................. 172.19.2.1
Path........................................... /var/lib/tftpboot/
Filename....................................... license.dat
Data Type...................................... license


Management access will be blocked for the duration of the transfer
Are you sure you want to start? (y/n) y

File transfer in progress. Management access will be blocked for the
duration of the transfer. Please wait...

License Key transfer operation completed successfully. System reboot is
required.
```

5. Display all current license information and note the license status before switch cs2 is rebooted:

   `show license`

```
(cs2)# show license

Reboot needed.................................. Yes
Number of active licenses..................... 0


License Index  License Type      Status
-------------- ----------------- --------------------------------
1              Port              License valid but not applied
```

6. Display all licensed ports:

   ```
   show port all | exclude Detach
   ```

   The ports from the additional license files are not displayed until after the switch is rebooted.

```
(cs2)# show port all \| exclude Detach

                 Admin     Physical   Physical   Link   Link    LACP
Actor
Intf      Type   Mode      Mode       Status     Status Trap    Mode
Timeout
--------- ------ --------- ---------- ---------- ------ ------- ------
--------
0/1              Disable   Auto                  Down   Enable  Enable
long
0/2              Disable   Auto                  Down   Enable  Enable
long
0/3              Disable   Auto                  Down   Enable  Enable
long
0/4              Disable   Auto                  Down   Enable  Enable
long
0/5              Disable   Auto                  Down   Enable  Enable
long
0/6              Disable   Auto                  Down   Enable  Enable
long
0/7              Disable   Auto                  Down   Enable  Enable
long
0/8              Disable   Auto                  Down   Enable  Enable
long
0/9              Disable   Auto                  Down   Enable  Enable
long
0/10             Disable   Auto                  Down   Enable  Enable
long
0/11             Disable   Auto                  Down   Enable  Enable
long
0/12             Disable   Auto                  Down   Enable  Enable
long
0/13             Disable   Auto                  Down   Enable  Enable
long
0/14             Disable   Auto                  Down   Enable  Enable
long
0/15             Disable   Auto                  Down   Enable  Enable
long
0/16             Disable   Auto                  Down   Enable  Enable
long
0/55             Disable   Auto                  Down   Enable  Enable
long
0/56             Disable   Auto                  Down   Enable  Enable
long
```

7. Reboot the switch:

   `reload`

```
(cs2)# reload

The system has unsaved changes.
Would you like to save them now? (y/n) y

Config file 'startup-config' created successfully .

Configuration Saved!
Are you sure you would like to reset the system? (y/n) y
```

8. Check that the new license is active and note that the license has been applied:

   `show license`

```
(cs2)# show license

Reboot needed.................................. No
Number of installed licenses................... 1
Total Downlink Ports enabled................... 16
Total Uplink Ports enabled..................... 8

License Index  License Type              Status
-------------- -------------------------
-----------------------------------
1              Port                      License applied
```

9. Check that all new ports are available:

   `show port all | exclude Detach`

```
(cs2)# show port all \| exclude Detach

                Admin     Physical   Physical   Link   Link    LACP
Actor
Intf      Type  Mode      Mode       Status     Status Trap    Mode
Timeout
--------- ------ --------- ---------- ---------- ------ ------- ------
--------
0/1             Disable    Auto                Down   Enable  Enable
long
0/2             Disable    Auto                Down   Enable  Enable
```

```
long
0/3               Disable    Auto                 Down   Enable  Enable
long
0/4               Disable    Auto                 Down   Enable  Enable
long
0/5               Disable    Auto                 Down   Enable  Enable
long
0/6               Disable    Auto                 Down   Enable  Enable
long
0/7               Disable    Auto                 Down   Enable  Enable
long
0/8               Disable    Auto                 Down   Enable  Enable
long
0/9               Disable    Auto                 Down   Enable  Enable
long
0/10              Disable    Auto                 Down   Enable  Enable
long
0/11              Disable    Auto                 Down   Enable  Enable
long
0/12              Disable    Auto                 Down   Enable  Enable
long
0/13              Disable    Auto                 Down   Enable  Enable
long
0/14              Disable    Auto                 Down   Enable  Enable
long
0/15              Disable    Auto                 Down   Enable  Enable
long
0/16              Disable    Auto                 Down   Enable  Enable
long
0/49              Disable   100G Full             Down   Enable  Enable
long
0/50              Disable   100G Full             Down   Enable  Enable
long
0/51              Disable   100G Full             Down   Enable  Enable
long
0/52              Disable   100G Full             Down   Enable  Enable
long
0/53              Disable   100G Full             Down   Enable  Enable
long
0/54              Disable   100G Full             Down   Enable  Enable
long
0/55              Disable   100G Full             Down   Enable  Enable
long
0/56              Disable   100G Full             Down   Enable  Enable
long
```

When installing additional licenses, you must configure the new interfaces manually. Re-applying an RCF to an existing working production switch is not advisable.

Restrictions and limitations

Where problems arise when installing a license, the following debug commands should be run before running the `copy` command again to install the license.

Debug commands to use are: `debug transfer` and `debug license`

```
(cs2)# debug transfer
Debug transfer output is enabled.
(cs2)# debug license
Enabled capability licensing debugging.
```

When you run the `copy` command with the `debug transfer` and `debug license` options enabled, the following log output is returned:

```
transfer.c(3083):Transfer process  key or certificate file type = 43
transfer.c(3229):Transfer process  key/certificate cmd = cp
/mnt/download//license.dat.1 /mnt/fastpath/ >/dev/null 2>&1CAPABILITY
LICENSING :
Fri Sep 11 13:41:32 2020: License file with index 1 added.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: Validating hash value
29de5e9a8af3e510f1f16764a13e8273922d3537d3f13c9c3d445c72a180a2e6.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: Parsing JSON buffer {
  "license": {
    "header": {
      "version": "1.0",
      "license-key": "964B-2D37-4E52-BA14",
      "serial-number": "QTFCU38290012",
      "model": "BES-53248"
  },
  "description": "",
  "ports": "0+6"
  }
}.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: License data does not
contain 'features' field.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: Serial number
QTFCU38290012 matched.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: Model BES-53248 matched.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: Feature not found in
license file with index = 1.
CAPABILITY LICENSING : Fri Sep 11 13:41:32 2020: Applying license file 1.
```

Check for the following in the debug output:

- Check that the Serial number matches: `Serial number QTFCU38290012 matched.`
- Check that the switch Model matches: `Model BES-53248 matched.`
- Check that the specified license index was not used previously. Where a license index is already used, the following error is returned: `License file /mnt/download//license.dat.1 already exists.`
- A port license is not a feature license. Therefore, the following statement is expected: `Feature not found in license file with index = 1.`

Use the `copy` command to backup port licenses to the server:

```
(cs2)# copy nvram:license-key 1
scp://<UserName>@<IP_address>/saved_license_1.dat
```

See Installing licenses for BES-53248 cluster switches for details of the firmware versions supported for available licenses.

If you need to downgrade the switch software from version 3.4.4.6, the licenses are removed. This is expected behavior.

You must install an appropriate older license before reverting to an older version of the software.

Edit the Reference Configuration File (RCF)

In order to activate newly licensed ports, you need to edit the latest version of the RCF and uncomment the applicable port details. The default license activates ports 0/1 to 0/16 and 0/55 to 0/56 while the newly licensed ports will be between ports 0/17 to 0/54 depending on the type and number of licenses available.

If you try to edit a previously installed RCF, the process might fail because there is an existing configuration for other areas in the RCF, see Edit a previously installed RCF file.

For details of the available license types for use on the BES-53248 cluster switch, see Installing licenses for BES-53248 cluster switches.

For example to activate the SW-BES54248-40-100G-LIC license, you must uncomment the following section in the RCF:

```
.
.
!
! 2-port or 6-port 40/100GbE node port license block
!
interface 0/49
no shutdown
description "40/100GbE Node Port"
!speed 100G full-duplex
speed 40G full-duplex
service-policy in WRED_100G
spanning-tree edgeport
mtu 9216
switchport mode trunk
datacenter-bridging
priority-flow-control mode on
priority-flow-control priority 5 no-drop
exit
exit
!
interface 0/50
no shutdown
description "40/100GbE Node Port"
!speed 100G full-duplex
speed 40G full-duplex
```

```
service-policy in WRED_100G
spanning-tree edgeport
mtu 9216
switchport mode trunk
datacenter-bridging
priority-flow-control mode on
priority-flow-control priority 5 no-drop
exit
exit
!
interface 0/51
no shutdown
description "40/100GbE Node Port"
speed 100G full-duplex
!speed 40G full-duplex
service-policy in WRED_100G
spanning-tree edgeport
mtu 9216
switchport mode trunk
datacenter-bridging
priority-flow-control mode on
priority-flow-control priority 5 no-drop
exit
exit
!
interface 0/52
no shutdown
description "40/100GbE Node Port"
speed 100G full-duplex
!speed 40G full-duplex
service-policy in WRED_100G
spanning-tree edgeport
mtu 9216
switchport mode trunk
datacenter-bridging
priority-flow-control mode on
priority-flow-control priority 5 no-drop
exit
exit
!
interface 0/53
no shutdown
description "40/100GbE Node Port"
speed 100G full-duplex
!speed 40G full-duplex
service-policy in WRED_100G
```

```
spanning-tree edgeport
mtu 9216
switchport mode trunk
datacenter-bridging
priority-flow-control mode on
priority-flow-control priority 5 no-drop
exit
exit
!
interface 0/54
no shutdown
description "40/100GbE Node Port"
speed 100G full-duplex
!speed 40G full-duplex
service-policy in WRED_100G
spanning-tree edgeport
mtu 9216
switchport mode trunk
datacenter-bridging
priority-flow-control mode on
priority-flow-control priority 5 no-drop
exit
exit
!
.
.
```

For high-speed ports between 0/49 to 0/54 inclusive, uncomment each port but only uncomment one **speed** line in the RCF for each of these ports, either:

- speed 100G full-duplex
- speed 40G full-duplex

as shown in the example.

For low-speed ports between 0/17 to 0/48 inclusive, uncomment the entire 8-port section when an appropriate license has been activated.

Edit a previously installed RCF file

After you edit a previously installed RCF file and run the `script apply` command, you might get the following error message:

```
(CS1)# script apply BES-53248_RCF_v1.6-Cluster-HA.scr
Are you sure you want to apply the configuration script? (y/n) y
```

After you select **y**, you get the following error message:

```
config
 ...
 match cos 5
 Unrecognized command : match cos 5
 Error! in configuration script file at line number 40.
 CLI Command :: match cos 5.
 Aborting script.
```

To avoid or resolve this issue, you can choose one of the following options:

- To avoid the error, you can use following procedure:
  1. Create a second RCF containing only the new port configuration.
  2. Copy the second RCF to the switch.
  3. Apply the script to the switch using the command: `script apply`.
- To resolve the error, see the Knowledge Base article: Error! in configuration script file at line number XX when applying a new RCF

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