Set the FC or UTA/UTA2 configuration on node3

AFF and FAS Controller Upgrade

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Set the FC or UTA/UTA2 configuration on node3

If node3 has onboard FC ports, onboard unified target adapter (UTA/UTA2) ports, or a UTA/UTA2 card, you must configure the settings before completing the rest of the procedure.

About this task

You might need to complete Configure FC ports on node3, or Check and configure UTA/UTA2 ports on node3, or both sections.

NetApp marketing materials might use the term "UTA2" to refer to CNA adapters and ports. However, the CLI uses the term "CNA".

- If node3 does not have onboard FC ports, onboard UTA/UTA2 ports, or a UTA/UTA2 card, and you are upgrading a system with storage disks, you can skip to the Map ports from node1 to node3.
- However, if you have a V-Series system or a system with FlexArray Virtualization software with storage arrays, and node3 does not have onboard FC ports, onboard UTA/UTA ports, or a UTA/UTA2 card, return to *Install and boot node3* and resume at Step 22.

Choices

- Configure FC ports on node3
- Check and configure UTA/UTA2 ports on node3

Configure FC ports on node3

If node3 has FC ports, either onboard or on an FC adapter, you must set port configurations on the node before you bring it into service because the ports are not preconfigured. If the ports are not configured, you might experience a disruption in service.

Before you begin

You must have the values of the FC port settings from node1 that you saved in Prepare the nodes for upgrade.

About this task

You can skip this section if your system does not have FC configurations. If your system has onboard UTA/UTA2 ports or a UTA/UTA2 card, you configure them in Check and configure UTA/UTA2 ports on node3.

Important: If your system has storage disks, enter the commands in this section at the cluster prompt. If you have a V-Series system or have FlexArray Virtualization Software and are connected to storage arrays, enter commands in this section in maintenance mode.

Steps

1. Take one of the following actions:

If the system that you are upgrading…	Then…
Has storage disks	Go to Step 5

If the system that you are upgrading…	Then…
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	Go to Step 2

2. Boot node3 and access maintenance mode:

```
boot_ontap maint
```

3. Take one of the following actions:

If the system that you are upgrading…	Then…
Has storage disks	Enter the following command: `system node hardware unified-connect show`
Is a V-series system or has FlexArray Virtualization Software and is connected to storage arrays.	Enter the following command `ucadmin show`

The system displays information about all FC and converged network adapters on the system.

4. Compare the FC settings of node3 with the settings that you captured earlier from node1.
5. Take one of the following actions:

If the default FC settings on the new nodes are…	Then…
The same as the ones you that captured on node1	Go to Step 11.
Different from the ones that you captured on node1	Go to Step 6.

6. Take one of the following actions:

If the system that you are upgrading…	Then…

Has storage disks	Modify the FC ports on node3 as needed by entering one of the following commands:
	• To program target ports:
	`system node hardware unified-connect modify -type | -t target -adapter <port_name>`
	• To program initiator ports:
	`system node hardware unified-connect modify -type | -t initiator -adapter <port_name>`
	`-t` is the FC4 type: target or initiator.

Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	Modify the FC ports on node3 as needed by entering the following command: `ucadmin modify -m fc -t initiator -f <adapter_port_name>` `-t` is the FC4 type, target or initiator. **Note**: The FC ports must be programmed as initiators.

7. Take one of the following actions:

If the system that you are upgrading…	Then…
Has storage disks	Verify the new settings by entering the following command and examining the output: `system node hardware unified-connect show`
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	Verify the new settings by entering the following command and examining the output: `ucadmin show`

8. Exit maintenance mode by entering the following command:

```
halt
```

9. After you enter the command, wait until the system stops at the boot environment prompt.
10. Take one of the following actions:

If the system you are upgrading…	Then…
Is a V-Series system or has FlexArray Virtualization software running clustered Data ONTAP 8.3	Boot node3 and access maintenance at the boot environment prompt: `boot_ontap maint`

If the system you are upgrading…	Then…
Is not a V-Series system or does not have FlexArray Virtualization software	Boot node3 at the boot environment prompt: `boot_ontap`

11. Take one of the following actions:

If the system that you are upgrading…	Then…
Has storage disks	• If node3 has a UTA/UTA2 card or UTA/UTA2 onboard ports, go to Check and configure UTA/UTA2 ports on node3. • If node3 does not have a UTA/UTA2 card or UTA/UTA2 onboard ports, skip Check and configure UTA/UTA2 ports on node3 and go to Map ports from node1 to node3.
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	• If node3 has a card or onboard ports, go to Check and configure UTA/UTA2 ports on node3. • If node3 does not have a card or onboard ports, skip Check and configure UTA/UTA2 ports on node3, and return to *Install and boot node3* and resume at Step 7.

Check and configure UTA/UTA2 ports on node3

If node3 has onboard UTA/UTA2 ports or a UTA/UTA2 card, you must check the configuration of the ports and possibly reconfigure them, depending on how you want to use the upgraded system.

Before you begin

You must have the correct SFP+ modules for the UTA/UTA2 ports.

About this task

If you want to use a Unified Target Adapter (UTA/UTA2) port for FC, you must first verify how the port is configured.

NetApp marketing materials might use the term UTA2 to refer to CNA adapters and ports. However, the CLI uses the term CNA.

You can use the `ucadmin show` command to verify the current port configuration:

```
*> ucadmin show
          Current  Current    Pending  Pending    Admin
 Adapter  Mode     Type       Mode     Type       Status
 -------  -------  ---------  -------  ---------  -----------
 0e       fc       target     -        initiator  offline
 0f       fc       target     -        initiator  offline
 0g       fc       target     -        initiator  offline
 0h       fc       target     -        initiator  offline
 1a       fc       target     -        -          online
 1b       fc       target     -        -          online
6 entries were displayed.
```

UTA/UTA2 ports can be configured into native FC mode or UTA/UTA2 mode. FC mode supports FC initiator and FC target; UTA/UTA2 mode allows concurrent NIC and FCoE traffic sharing the same 10 GbE SFP+ interface and supports FC targets.

UTA/UTA2 ports might be found on an adapter or on the controller, and have the following configurations, but you should check the configuration of the UTA/UTA2 ports on the node3 and change it, if necessary:

- UTA/UTA2 cards ordered when the controller is ordered are configured before shipment to have the personality you request.
- UTA/UTA2 cards ordered separately from the controller are shipped with the default FC target personality.
- Onboard UTA/UTA2 ports on new controllers are configured before shipment to have the personality you request.

Attention: If your system has storage disks, you enter the commands in this section at the cluster prompt unless directed to enter maintenance mode. If you have a VSeries system or have FlexArray Virtualization Software and are connected to storage arrays, you enter commands in this section at the maintenance mode prompt. You must be in maintenance mode to configure UTA/UTA2 ports.

Steps

1. Check how the ports are currently configured entering on of the following commands on node3:

If the system…	Then…
Has storage disks	`system node hardware unified-connect show`
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	`ucadmin show`

The system displays output similar to the following examples:

```
cluster1::> system node hardware unified-connect show

                Current  Current    Pending  Pending  Admin
Node  Adapter   Mode     Type       Mode     Type     Status
----  -------   -------  ---------  -------  -------  ------
f-a   0e        fc       initiator  -        -        online
f-a   0f        fc       initiator  -        -        online
f-a   0g        cna      target     -        -        online
f-a   0h        cna      target     -        -        online
f-b   0e        fc       initiator  -        -        online
f-b   0f        fc       initiator  -        -        online
f-b   0g        cna      target     -        -        online
f-b   0h        cna      target     -        -        online
12 entries were displayed.
```

```
*> ucadmin show
         Current  Current    Pending  Pending  Admin
Adapter  Mode     Type       Mode     Type     Status
-------  -------  ---------  -------  -------  ------
0e       fc       initiator  -        -        online
0f       fc       initiator  -        -        online
0g       cna      target     -        -        online
0h       cna      target     -        -        online
0e       fc       initiator  -        -        online
0f       fc       initiator  -        -        online
0g       cna      target     -        -        online
0h       cna      target     -        -        online
*>
```

2. If the current SFP+ module does not match the desired use, replace it with the correct SFP+ module.

   Contact your NetApp representative to obtain the correct SFP+ module.

3. Examine the output of the `system node hardware unified-connect show` or `ucadmin show` command to determine whether the UTA/UTA2 ports have the personality you want.

4. Take one of the following actions:

If the UTA/UTA2 ports…	Then…
Do not have the personality that you want	Go to Step 5.
Have the personality that you want	Skip Step 5 through Step 12 and go to Step 13.

5. Take one of the following actions:

If the system…	Then…
Has storage disks and is running clustered Data ONTAP 8.3	Boot node3 and enter maintenance mode: `boot_ontap maint`
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	Go to Step 6. You should already be in maintenance mode.

6. Take one of the following actions:

If you are configuring…	Then…
Ports on a UTA/UTA2 card	Go to Step 7.
Onboard UTA/UTA2 ports	Skip Step 7 and go to Step 8.

7. If the adapter is in initiator mode, and if the UTA/UTA2 port is online, take the UTA/UTA2 port offline:

   `storage disable adapter <adapter_name>`

   Adapters in target mode are automatically offline in maintenance mode.

8. If the current configuration does not match the desired use, change the configuration as needed:

   `ucadmin modify -m fc|cna -t initiator|target <adapter_name>`

   - `-m` is the personality mode, `fc` or `cna`.
   - `-t` is the FC4 type, `target` or `initiator`.

   > You need to use the FC initiator for tape drives, FlexArray Virtualization systems, and MetroCluster configurations. You need to use the FC target for SAN clients.

9. Verify the settings:

   `ucadmin show`

10. Verify the settings:

If the system…	Then…

Has storage disks	a. Stop the system:
	
	`halt`
	
	The system stops at the boot environment prompt.
	
	b. Enter the following command:
	
	`boot_ontap`

If the system…	Then…
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	Reboot to maintenance mode: `boot_netapp maint`

11. Verify the settings:

If the system…	Then…
Has storage disks	`system node hardware unified-connect show`
Is a V-Series or has FlexArray Virtualization Software and is connected to storage arrays	`ucadmin show`

The output in the following examples show that the FC4 type of adapter "1b" is changing to `initiator` and that the mode of adapters "2a" and "2b" is changing to `cna`:

```
cluster1::> system node hardware unified-connect show

                Current  Current    Pending  Pending      Admin
Node  Adapter  Mode     Type       Mode     Type         Status
----  -------  -------  ---------  -------  -----------  ------
f-a   1a       fc       initiator  -        -            online
f-a   1b       fc       target     -        initiator    online
f-a   2a       fc       target     cna      -            online
f-a   2b       fc       target     cna      -            online

4 entries were displayed.
```

```
*> ucadmin show
         Current  Current    Pending  Pending    Admin
Adapter  Mode     Type       Mode     Type       Status
-------  -------  ---------  -------  ---------  ------
1a       fc       initiator  -        -          online
1b       fc       target     -        initiator  online
2a       fc       target     cna      -          online
2b       fc       target     cna      -          online
*>
```

12. Place any target ports online by entering one of the following commands, once for each port:

If the system…	Then…
Has storage disks	`network fcp adapter modify -node <node_name> -adapter <adapter_name> -state up`

If the system…	Then…
Is a V-Series system or has FlexArray Virtualization Software and is connected to storage arrays	`fcp config <adapter_name> up`

13. Cable the port.
14. Take one of the following actions:

If the system…	Then…
Has storage disks	Go to Map ports from node1 to node3.
Is a V-series system or has FlexArray Virtualization Software and is connected to storage arrays	Return to *Install and boot node3* and resume at Step 7.