

# DDS Hardware Installation and Configuration

## Introduction

The Deployable Defensive System (DDS) is a modular fly-away computing cluster that is purpose-built for conducting Defensive Cyber Operations (DCO) missions. This kit provides a platform with hardware and software for the US Army and its DoD mission partners.

## Installation and configuration

The DDS Modular (Large) kit provides an ample amount of compute and storage for handling traffic via distributed collection and analysis. Using a total of eight nodes, it is designed to aggregate network traffic above 15 Gbps. It can also be broken into smaller, powerful sensors distributed to separate collection points across one or more networks.

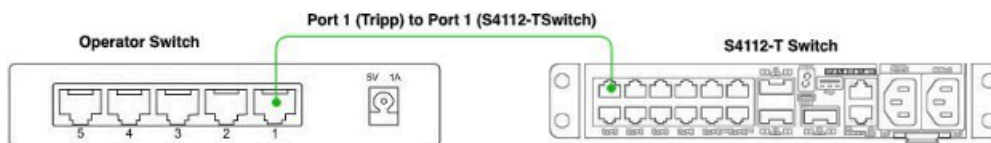
### Connect to the S4112-T switch

#### Cables Needed for T-Switch Connections

**(9) CAT 6 Cables** (Model: 70596) - Indicated by green line

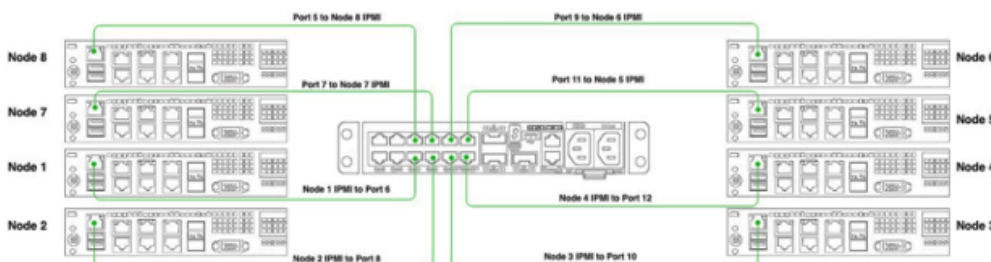
**(2) QSFP Breakout Cables** (Model: 36768) - Indicated by purple line

1. Begin by plugging a **CAT6** cable into **Port 1** on the **S4112-T** switch and the other end of the cable into the **Operator Switch**.



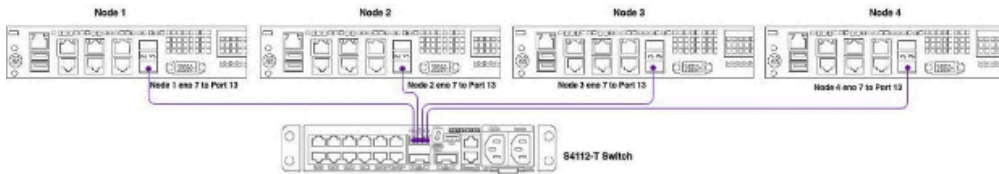
#### Step 1 T Switch

2. Next, use 8 additional **CAT6** cables to connect **Nodes 1-8 IPMI** into **Ports 5-12** on the **T** switch.



#### Step 2 T Switch

3. Use the **QSFP Breakout** cable to connect **Nodes 1-4 and 7** into **Port 13** on the **T** Switch.



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### Step 3 T Switch

- Using the other **QSFP Breakout** cable, connect **Nodes 5-8 eno 7** into **Port 14**.



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### Step 4 T Switch

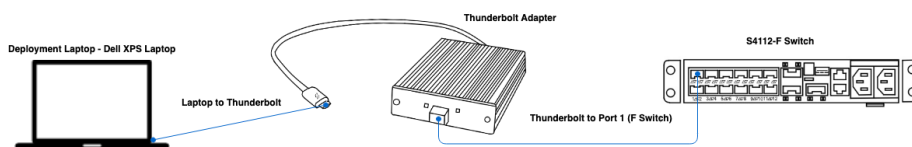
Connect to the S4112-F switch

#### Cable Needed for F-Switch Connections

(2) **QSFP Breakout Cables** (Model: 36768) - Indicated by purple line

(1) **SFP DAC Cable** (Model: 40141) - Indicated by blue line

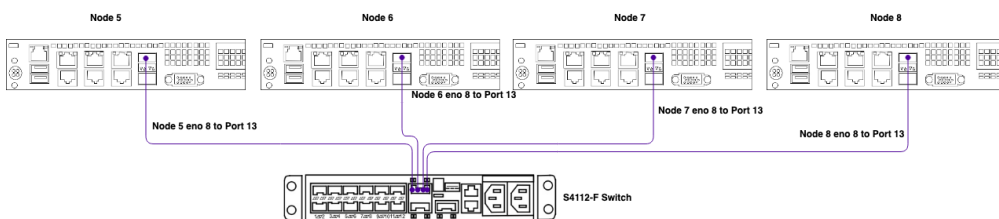
- Use the **SFP DAC** cable to connect the **Thunderbolt** adapter to **Port 1** on the **S4112-F** switch. Take the **USB** cable from the **Thunderbolt** adapter and connect to the **Deployment Laptop**.



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### Step 1 F Switch

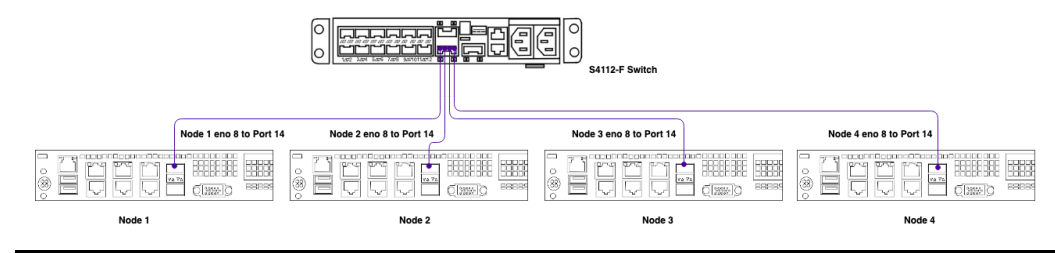
- Use a **QSFP Breakout** cable to connect **Nodes 5-8 eno 8** into **Port 13**.



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### Step 2 F Switch

- Take the second **QSFP Breakout** cable and connect **Nodes 1-4 eno 8** into **Port 14**.



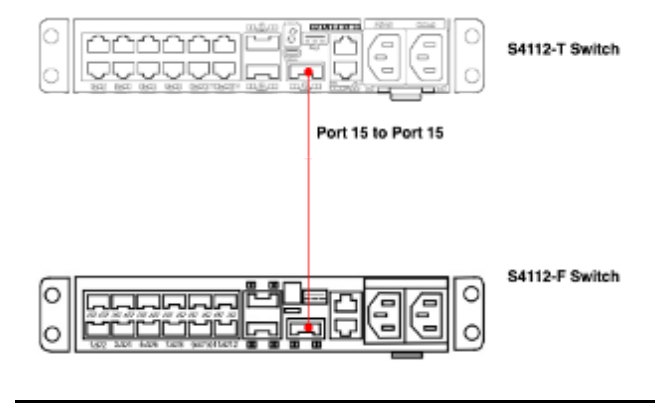
Step 3 F Switch

Connect both switches

Cable Needed for S4112-T to S4112-F Connection

(1) 100G Cable (Model: 50484) - Indicated by red line

- 1. Use the **100G** cable to connect the **S4112-T** switch, **Port 15**, to the **S4112-F** switch, **Port 15**.



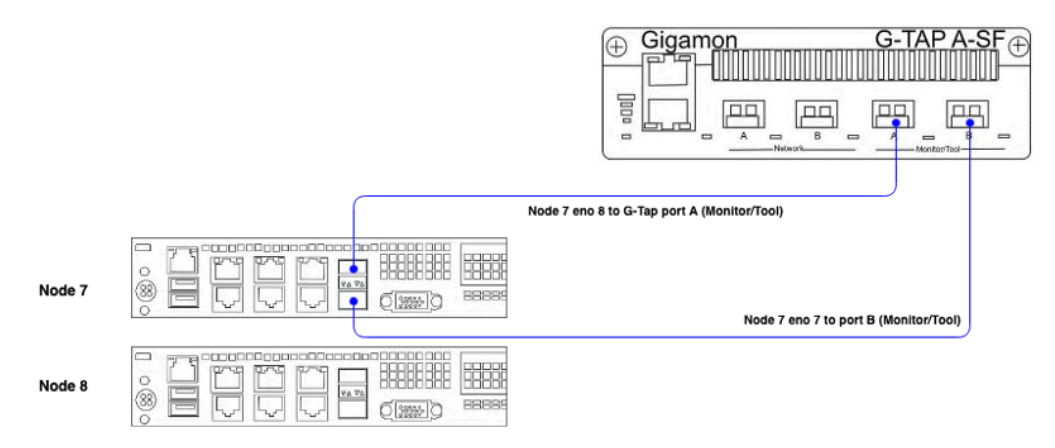
Step 1 Both Switches

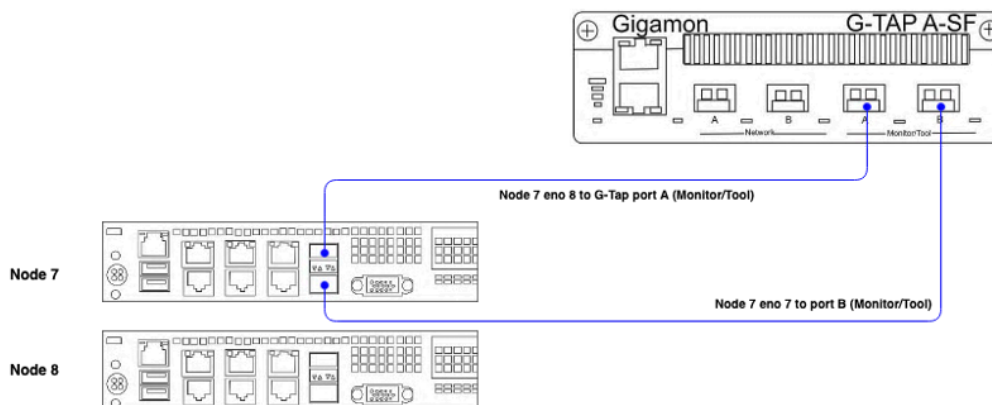
Connect to the Gigamon Network Tap

Cable Needed for Gigamon Connection

(2) SFP DAC Cables (Model: 40141) - Indicated by blue line

- 1. Using **SFP DAC** cables, connect **Node 7 eno 8** to the **Gigamon Tap Port A Monitor/Tool**.
- 2. Connect **Node 7 eno 7** to **Port B-Monitor/Tool**.





### Gigamon Tap

## System power-up sequence

To start the system sequence, begin by following the above procedure to connect switches and nodes. Next, power on the switches, followed by the laptop. Lastly, start the servers.

1. Start all nodes and wait approximately 5 minutes to complete loading.
2. SSH into one of the nodes, enter the **gluster** CLI, and start each volume.

**Tip:** The volume list will show which volumes are available.

```
[root@node1 ~]# gluster
gluster> volume start <volume name>
```

3. SSH into each node, in separate tabs, and use the **ovirt-ha-broker** and **ovirt-ha-agent** commands to enter maintenance mode.

```
systemctl start ovirt-ha-broker; systemctl start ovirt-ha-agent
```

4. Exit maintenance mode of the hosted engine by using the **--set-maintenance** command.

```
hosted-engine --set-maintenance --mode=none
```

The hosted engine virtual machine can take some time to load. You can verify the process by typing:

```
hosted-engine --vm-status
```

5. With a web browser, login to the hosted engine by entering **[kit number]cpb.mil**.
6. From the UI, activate all storage domains by selecting **Storage > Domains**.

7. Start all virtual machines by selecting **Computer > Virtual Machines**.
8. Lastly, Choose each virtual machine and select **Run**. Wait until all nodes are turned on.

## System power-down sequence

The power-down sequence is dependent upon what operating system and platform are deployed on the DDS-M kit. Proper power-up and power-down procedures should always be followed to prevent the loss of data.

1. From a web browser, go to the hosted engine and select **Administration Portal**.
2. Turn all virtual machines off by selecting **Compute > Virtual Machines**. Choose each virtual machine and select **Shutdown**.

**Tip:** Wait until all virtual machines are turned off before proceeding to the next step.

3. Change the storage domains to maintenance mode, except for the **hosted\_storage** domain.
4. Use SSH to login to a node, type the following commands to enter maintenance mode, and shut down the hosted engine.

```
hosted-engine --set-maintenance --mode=global  
hosted-engine --vm-shutdown
```

5. Confirm the hosted engine is shut down by entering the **--vm-status** command.

```
hosted-engine --vm-status
```

6. Login to all nodes with SSH.

**Tip:** It is best to login using separate tabs for each virtual machine.

7. Shut down all services using the **systemctl** command.

```
systemctl stop ovirt-ha-broker;systemctl stop ovirt-ha-agent
```

8. On each node, disconnect storage by typing the **disconnect-storage** command.

```
hosted-engine --disconnect-storage
```

9. From one of the nodes, open the **gluster** CLI.

```
gluster
```

10. View the names of the volumes by typing the `gluster > volume list` command.

```
[root@node1 ~]# gluster  
gluster > volume list  
data  
engine  
vmstore
```

11. Stop each volume with the `volume stop` command.

```
volume stop <volume name>
```

12. Turn off each system.