ThoughtSpot

ThoughtSpot Deployment Guide for SMC

Release 6.0

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910 Hermosa Court, Sunnyvale, California 94085

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Deploying on the SMC appliance

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Follow these steps to deploy ThoughtSpot on your Super Micro Computer (SMC) appliance.

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Related information

Use these references to aid you in successful installation and administration of ThoughtSpot.

- the nodes.config file [See page 0]
- Parameters of the nodes.config file [See page 0]
- Using the cluster create command [See page 0]
- Parameters of the `cluster create` command [See page 0]
- Deployment Overview [See page 0]
- Contact Support [See page 0]

Prerequisites

Summary: Complete these prerequisites before installing your ThoughtSpot clusters on the SMC appliance.

Installation Prerequisites

Ensure that you have the following items, information, and understanding of policies before you begin deploying ThoughtSpot on your SMC appliance.

- ❑ Appliance Port Location [See page 8], to locate data and IPMI ports.
- ❑ Data center with proper environment controls, such as cooling.
- ❑ AC power
- ❑ 10GbE switch, with enabled IPv6 broadcast and multicast. You need one for each node.
- ❑ 10GbE network cables, either direct attach copper (DAC) or fiber. Refer to the Cable reference [See page 0] for more information to decide between the two types.
- ❑ 100Mbps or 1Gbps switch for IPMI, for Out of Band Management. You need one for each node.
- ❑ Cat5 network cables. You need one for each node.
- ❑ Rack space of 2U or 3.5 inches for each appliance, and a power strip
- ❑ Monitor and keyboard
- ❑ 10G connection: SFP+ for the switch side
- ❑ Networking information: for data, management IPs, DNS, timezone, and default gateway IP. Contact your network administrator for this information, and fill out the ThoughtSpot site survey so that you have a quick reference before beginning the install process.
- ❑ Network policies [See page 0], to determine the ports you need to have open for your cluster.

Review hardware requirements

Next, review hardware requirements [See page 4].

Hardware Requirements

Summary: Learn about your SMC hardware before deploying ThoughtSpot.

About the Hardware

You can deploy ThoughtSpot on two different appliance hardware platforms: Haswell and Skylake. Both of the platforms provide the same performance. Refer to Haswell and Skylake hardware details [See page 4] for details on their physical differences.

Details	Haswell	Skylake
Dimensions	2 RU chassis (17.25” x 3.47” x 28.5” (WxHxD))	2 RU chassis (17.6” x 3.47” x 28.75” (WxHxD))
# of nodes	Populated with 1 to 4 nodes	Populated with 1 to 4 nodes
Node specifications	Each node is independent and consists of a server board (removable from rear), 1x 200GB SSD, 3x 2TB HDD	Each node is independent and consists of a server board (removable from rear), 1x 240GB SSD, 3x 2TB HDD
Max power consumption	2000 W	2200 W
Required power input	200-240V / 11.8 - 9.8A / 50-60Hz	220-240 VAC 50-60 Hz

Haswell front and back views

These images show the front and back views of each appliance.

The nodes on the back of both appliances are in a reverse N shape, with Node A at the bottom right and Node D at the top left.

Haswell front view

Haswell back view

The Haswell appliance shown here is not fully populated, as it only has three nodes. Your appliance may be populated with 1-4 nodes, depending on the ordered configuration. If you order less than four nodes, ThoughtSpot fills the empty slot with a filler panel.

Skylake front and back views

Skylake front view

Skylake back view

The Skylake appliance shown here is fully populated with four nodes.

Connect the appliance

Next, connect the appliance. [See page 7]

Connect the SMC appliance

Summary: Connect the SMC appliance before you can deploy ThoughtSpot.

After you rack and stack the appliance, it is time to configure it. If necessary, review the Hardware Appliance Overview [See page 0]. Follow the steps in this checklist.

- ❏ Step 1: Connect switches to 10GbE ports [See page 0]
- ❏ Step 2: Connect IPMI ports [See page 0]
- ❏ Step 3: Turn on nodes [See page 0]
- ❏ Step 4: Log in [See page 0]

Step 1: Connect switches to 10GbE ports

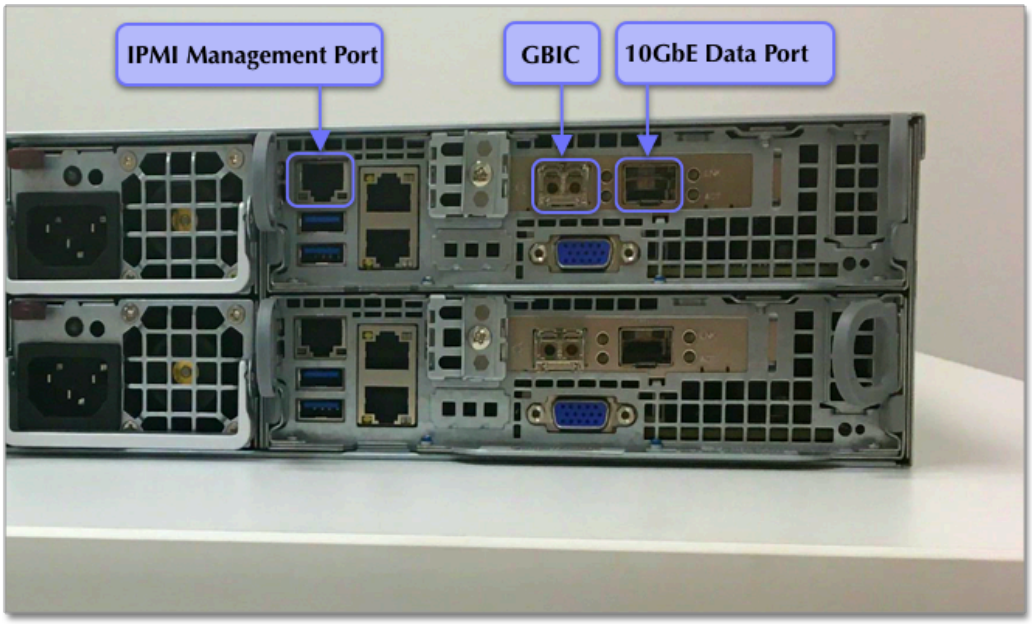
Connect the 10GbE port of each node, as illustrated in Haswell port location [See page 8] and Skylake port location [See page 8], to the 10GbE switches on your own rack, using either fiber or DAC cables.

Refer to the Cable reference [See page 0] for information on the cable types:

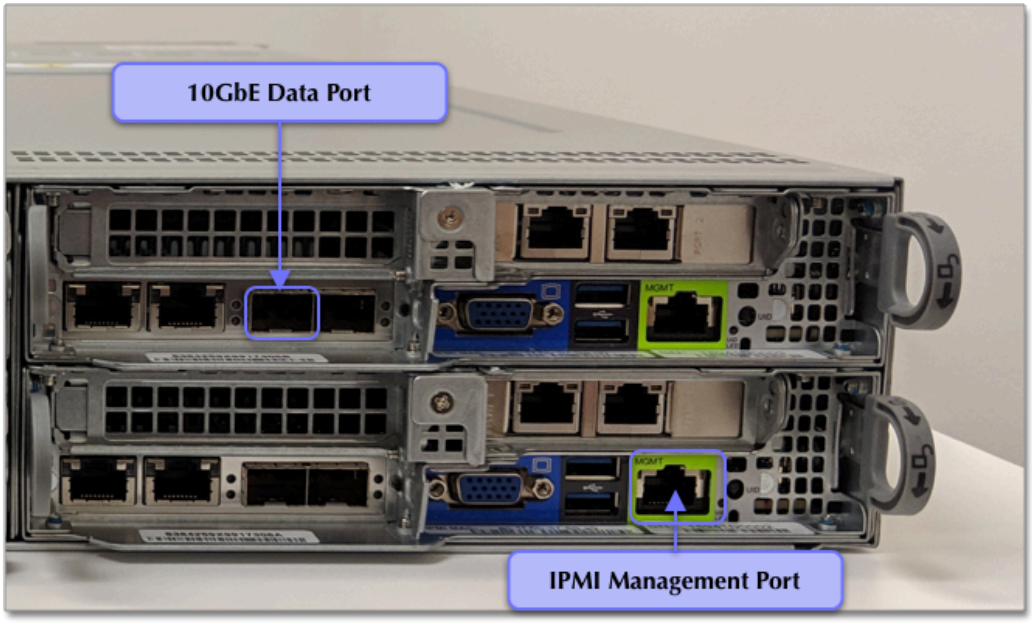
- Fiber Cables [See page 0]
- DAC Cables [See page 0]

> ℹ **Note:** Ask your hardware vendor for more details about what they supply and what you need to buy.

Depending on which version of the SMC appliance you have, Haswell or Skylake, your 10GbE ports are in a different spot on the back of the appliance. Here is a picture of the back of each appliance.



Haswell port location



Skylake port location

- Connect to switches **only** the appliances (4 nodes each) that you plan to use in the cluster.
- You must power off, or disconnect from the switch, all other appliances or nodes.

  This prevents accidental configuration of incorrect nodes.
- You must connect all nodes, even if using only one node, to a 10G switch.

- Verify that the connection is valid by pinging the gateway:

  Enter `ping <default-gateway-IP>`.

  Ask your network administrator for your default gateway IP if you have not already listed it in your ThoughtSpot site survey.

```
$ ping <default-gateway-IP>
```

Step 2: Connect IPMI ports

Connect the IPMI port of each node to the management switch.

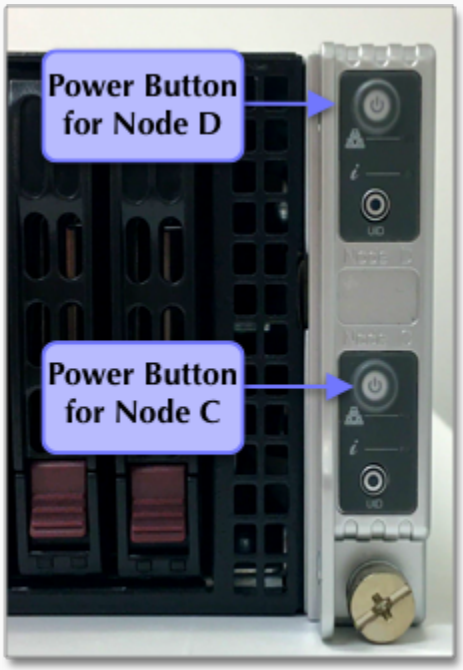
See Haswell port location [See page 8] and Skylake port location [See page 8].

Step 3: Turn on nodes

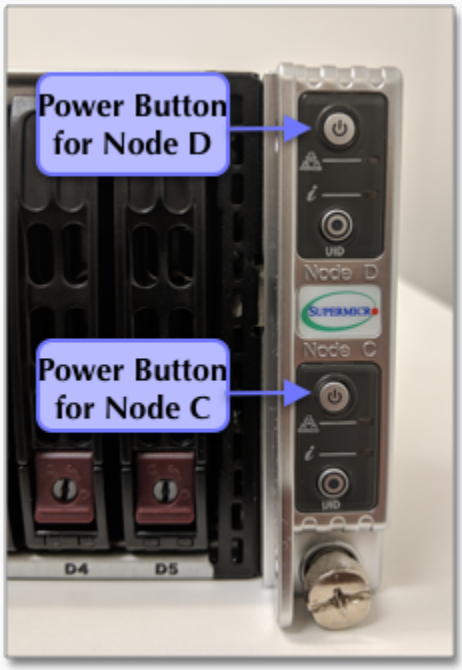
Turn on the power to the nodes by pressing the power button; see Appliance Power Button [See page 10].

There is one power button for each node.

Haswell Appliance



Skylake Appliance



Step 4: Log in

1. Connect a keyboard and the mouse to each node on the appliance.
2. You should see a login prompt on the screen. If you don't see one or the screen isn't responsive, press the key combination **control–alt–F2** on your keyboard to bring up the login prompt.
3. Log in using the admin user credentials for the console. If you do not know the admin credentials, ask your network administrator.

Configure nodes

Next, configure nodes. [See page 11]

Configure ThoughtSpot Nodes on the SMC Appliance

Summary: Configure your nodes before you can install your cluster(s).

After you connect the appliance, configure the nodes in your Mac or Windows terminal emulator. Follow the steps in this checklist.

- ❏ Step 1: SSH into your cluster [See page 0]
- ❏ Step 2: Change to the `install` directory [See page 0]
- ❏ Step 3: Get a template for network configuration [See page 0]
- ❏ Step 4: Prepare node configuration [See page 0]
- ❏ Step 5: Configure the nodes [See page 0]
- ❏ Step 6: Confirm node configuration [See page 0]

If you completed ThoughtSpot's site survey form and returned it to ThoughtSpot Support [See page 0] before ThoughtSpot shipped the appliance, the appliance may be pre-configured for your network environment and ready to install and connect to your network.

If the network configuration was not pre-set, then this step must be done as part of the installation process.

Follow these steps to determine the configuration status of your appliance.

1. SSH into your cluster. Run `ssh admin@<cluster-IP>` or `ssh admin@<hostname>`.

```
$ ssh admin@<clusterIP>
```

2. Run `tscli cluster status`.

```
$ tscli cluster status
```

3. If the output shows READY, and looks like the cluster status output [See page 17] in the next article, your appliance is configured.
4. Skip to Finalize installation [See page 18].

If your status is not READY, continue with the installation process outlined below.

Step 1: SSH into your cluster

SSH into your cluster with admin credentials.

1. Run the command `ssh admin@<cluster-IP>` or `ssh admin@<hostname>` on the command line.
   Replace `clusterIP` or `hostname` with your specific network information.

```
$ ssh admin@<clusterIP>
```

2. Enter your admin password when prompted.
   Ask your network administrator if you don't know the password.

Step 2: Change to the `install` directory

In your terminal, change directory to `/home/admin/install` by running the command `cd /home/admin/install`. If your `/install` subdirectory does not exist, you may have to use the `/home/admin` directory.

```
$ cd /home/admin/install
```

Step 3: Get a template for network configuration

Run the `tscli cluster get-config` command to get a template for network configuration. Redirect it to the file `nodes.config`. You can find more information on this process in the nodes.config file reference [See page 0].

```
$ tscli cluster get-config |& tee nodes.config
```

Step 4: Prepare node configuration

1. Add your specific network information for the nodes in the `nodes.config` file, as demonstrated in the autodiscovery of one node example [See page 0].
2. Fill in the areas specified in Parameters of the nodes.config file [See page 0] with your specific network information.
   If you have additional nodes, complete each node within the nodes.config file in the same way.

Edit only the parts of the nodes.config file that are explicitly discussed in Parameters of `nodes.config` [See page 0]. If you delete quotation marks, commas, or other parts of the code, it may cause setup to fail.

Step 5: Configure the nodes

Configure the nodes in the `nodes.config` file using the `set-config` command.

Run `$ cat nodes.config | tscli cluster set-config` in your terminal.
If the command returns an error, refer to set-config error recovery [See page 19].

```
$ cat nodes.config | tscli cluster set-config

Connecting to local node-scout
Setting up hostnames for all nodes
Setting up networking interfaces on all nodes
Setting up hosts file on all nodes
Setting up IPMI configuration
Setting up NTP Servers
Setting up Timezone
Done setting up ThoughtSpot
```

Step 6: Confirm node configuration

Use the `get-config` command to confirm node configuration.

Your output may look similar to the following:

```
$ tscli cluster get-config

{
  "ClusterId": "",
  "ClusterName": "",
  "DataNetmask": "255.255.252.0",
  "DataGateway": "192.168.4.1",
  "IPMINetmask": "255.255.252.0",
  "IPMIGateway": "192.168.4.1",
  "Timezone": "America/Los_Angeles",
  "NTPServers": "0.centos.pool.ntp.org,1.centos.pool.ntp.or
g,2.centos.pool.ntp.org,3.centos.pool.ntp.org",
  "DNS": "192.168.2.200,8.8.8.8",
  "SearchDomains": "example.company.com",
  "Nodes": {
        "ac:1f:6b:8a:77:f6": {
          "NodeId": "ac:1f:6b:8a:77:f6",
          "Hostname": "Thoughtspot-server1",
          "DataIface": {
            "Name": "eth2",
            "IPv4": "192.168.7.70"
          },
          "IPMI": {
            "IPv4": "192.168.5.70"
          }
        }
  }
}
```

Install the cluster

Next, install your cluster. [See page 16]

Install ThoughtSpot Clusters on the SMC Appliance

Summary: Install your clusters on the SMC appliance.

Install the cluster using the release tarball. Installation takes approximately one hour. Make sure you can connect to ThoughtSpot remotely. If you can, you can run the installer on your local computer.

Refer to your welcome letter from ThoughtSpot to find the link to download the release tarball. If you have not received a link to download the release tarball, open a support ticket at ThoughtSpot Support [See page 0] to access the release tarball.

Step 1. Run the Installer

1. Copy the downloaded release tarball to `/home/admin`. Run `scp <release-number>.tar.gz admin@<hostname>:/home/admin/<file-name>`.

   Note the following parameters:

   - `release-number` is the release number of your ThoughtSpot installation, such as `6.0`, `5.3`, `5.3.1`, and so on.
   - `hostname` is your specific hostname.
   - `file-name` is the name of the tarball file on your local machine.

   ```
   $ scp 0.0.tar.gz admin@hostname:/home/admin/file-name
   ```

2. Create the cluster.

   Run `tscli cluster create <release-number>`.

   ```
   $ tscli cluster create 6.0.tar.gz
   ```

3. Edit the output using your specific cluster information. For more information on this process, refer to Using the cluster create command [See page 0] and Parameters of the `cluster`

`create` command [See page 0].

The cluster installer automatically reboots all the nodes after the install. Wait at least 15 minutes for the installation process to complete. The system is rebooting, which takes a few minutes.

Log into any node to check the current cluster status, using the command `tscli cluster status`.

Step 2. Check Cluster Health

After you install the cluster, check its status using the `tscli cluster status` command.

```
$ tscli cluster status
Cluster: RUNNING
Cluster name    : thoughtspot
Cluster id      : 1234X11111
Number of nodes : 3
Release         : 6.0
Last update     = Wed Oct 16 02:24:18 2019
Heterogeneous Cluster : False
Storage Type    : HDFS

Database: READY
Number of tables in READY state: 2185
Number of tables in OFFLINE state: 0
Number of tables in INPROGRESS state: 0
Number of tables in STALE state: 0
Number of tables in ERROR state: 0

Search Engine: READY
Has pending tables. Pending time = 1601679ms
Number of tables in KNOWN_TABLES state: 1934
Number of tables in READY state: 1928
Number of tables in WILL_REMOVE state: 0
Number of tables in BUILDING_AND_NOT_SERVING state: 0
Number of tables in BUILDING_AND_SERVING state: 128
Number of tables in WILL_NOT_INDEX state: 0
```

Step 3. Finalize Installation

After the cluster status changes to “Ready,” sign into the ThoughtSpot application on your browser. Follow these steps:

1. Start a browser from your computer.
2. Enter your secure IP information on the address line.

```
https://<IP-address>
```

3. If you don’t have a security certificate for ThoughtSpot, you must bypass the security warning to proceed:
    - Click **Advanced**
    - Click **Proceed**
4. The ThoughtSpot sign-in page appears.
5. In the ThoughtSpot sign-in window [See page 18], enter admin credentials, and click **Sign in**. If you do not know the admin credentials, ask your network administrator. ThoughtSpot recommends changing the default admin password.

ThoughtSpot's sign-in window

Error recovery

`Set-config` error recovery

If you get a warning about node detection when you run the `set-config` command, restart the node-scout service.

Your error may look something like the following:

```
Connecting to local node-scout WARNING: Detected 0 nodes, but f
ound configuration for only 1 nodes.
Continuing anyway. Error in cluster config validation: [] is no
t a valid link-local IPv6 address for node: 0e:86:e2:23:8f:76 C
onfiguration failed.
Please retry or contact support.
```

Restart the node-scout service with the following command.

```
$ sudo systemctl restart node-scout
```

Ensure that you restarted the node-scout by running `sudo systemctl status node-scout`. Your output should specify that the node-scout service is active. It may look something like the following:

```
$ sudo systemctl status node-scout
  ● node-scout.service - Setup Node Scout service
    Loaded: loaded (/etc/systemd/system/node-scout.service; ena
bled; vendor preset: disabled)
    Active: active (running) since Fri 2019-12-06 13:56:29 PS
T; 4s ago
```

Next, retry the set-config command.

```
$ cat nodes.config | tscli cluster set-config
```

The command output should no longer have a warning.