



Deploy the Deployer VM and Smart PHY Cluster

This section explains how to use the `deployer` script to deploy the deployer virtual machine (VM) and the Cisco Smart PHY cluster.

In some environments, the default docker IP subnet (172.17.0.0/16) of the deployer VM may overlap with IP networks in your environment. For deploying the Cisco Smart PHY application in such environments, contact Cisco support.

- [Deploy the Deployer VM and Smart PHY Cluster, on page 1](#)
- [Verify Installation, on page 3](#)

Deploy the Deployer VM and Smart PHY Cluster

From the staging server, run the `deployer` script to deploy the clusters using the following command:

```
$ ./deploy
Usage: ./deploy -c <config_file> <options>
with the following optional parameters or flags:
  -i <install_opt> : Cluster installation option: deploy, redeploy, or upgrade
  -u                : Deployer upgrade flag
  -v                : Config validation flag
```

The following options are available in the `deployer` script:

- `-c <config_file>`: Configuration file (Mandatory Argument). This option is the first option in the command.
- `-i <install_opt>`: Cluster installation options: `deploy`, `redeploy`, or `upgrade` [Optional]
- `-u`: Cluster Upgrade Flag [Optional]
- `-v`: Config Validation Flag, [Optional]

The `-u` flag is for updating the deployer. When this flag is present, the script processes all deployers in the `deployers` section in the configuration file. Also, ignores clusters in the `clusters` section.

For the cluster installation, use one of the following options in the `-i` flag section:

- `deploy`: The default installation mode when you do not provide the `-i` option in the command. In this mode, the cluster is pinged. If it is not pingable, the cluster is deployed. Otherwise, no operation is performed on the cluster.

- `redeploy`: In this mode, the cluster is uninstalled, if it is already available. Then the new cluster is redeployed.

With the `redeploy` option, all data in the original cluster is lost.

- `upgrade`: In this mode, the cluster is upgraded with the software in the package.

The `deployer` script triggers the `docker` command that requires root permission to run. Depending on your setting, you can use the `sudo` to the `deploy` command.

The `deployer` script does the following operations:

- If you are running the `deployer` script for the first time, it prompts you to enter all passwords required for installation.
 - For vCenter environment: vCenter password for the user specified in the environment configuration.
 - For `deployer`: SSH password of the user `admin` for the `deployer`'s Operation Center.
 - For Cisco Smart PHY cluster: SSH password for all VMs in the cluster; for user specified in the cluster's config. Also, the SSH passwords for the three Operation Centers (Cisco Smart PHY, Operations Hub, and CEE); for user `admin`.

You are prompted twice to enter each password. The password is saved inside the staging directory in encrypted form for future use.

- Passwords for the `deployer`, the cluster, and the Operation Centers must be eight characters long, and must have a lowercase letter, uppercase letter, a digit, and a special character.
- The `deployer` script generates an SSH key pair when the `private-key-file` line is missing for the `deployer` or the cluster in the configuration file. The generated private key files are in the `.sec` sub directory under the staging directory, with `<cluster-name>_auto.pem` filename.
- The root user owns the generated private keys. When logging in using SSH and these private key files, make sure that you run it with `sudo`.
- If the `deployer` VM is not running, the `deployer` script installs the `deployer` VM.
- The `deployer` script checks if the `deployer` VM is missing any of the product packages that are found in the `offline-images` directory, and if it finds any missing, it uploads them to the `deployer` VM.
- The script also generates the configuration for each cluster and pushes them to the `deployer` VM.
- The `deployer` script triggers the `deployer` VM to perform the `sync` operation for the cluster. The `sync` operation applies the configuration to the cluster. If you have not set up the cluster, it installs the cluster. Or the `sync` operation updates the cluster with the configuration.
- If the `sync` operation times out, the `deployer` script triggers the `sync` operation again. The script waits for the `sync` operation to complete, and then continues to monitor the cluster to make sure that all helm charts are deployed and all pods are created.

You can repeat the `deployer` script to deploy more than one cluster by providing the corresponding configuration files. Alternatively, you can run this command appending a `-v` flag. The `-v` flag forces the `deployer` script to skip the `sync` operation and the rest. Use this option to push the configuration of a cluster to the `deployer` without deploying or updating the cluster.

**Important**

The Deployer VM must be up and operational always. The Deployer VM hosts the internal container registry of the Cisco Smart PHY application. For the ESXi hosted VMs to start without errors, after a reboot or a crash, the Deployer VM must be up and reachable.

Verify Installation

After successfully deploying the Cisco Smart PHY application using the deployer script, the console shows a success message.

Log in to one of the control-plan nodes and make sure that all the pods are in the `Running` state.

```
kubectl get pod --all-namespaces
```

Make sure that all pods are in the `Running` state.

A few internal services and pods may need more time to complete the startup tasks and successfully establish communication with other services within the cluster. After a few minutes, you can initiate all operations from the Cisco Smart PHY web UI page.

