



Understanding Virtual Network Function Descriptors

- [Virtual Network Function Descriptor Overview, on page 1](#)
- [Creating Extensions to the Virtual Network Function Descriptor, on page 1](#)

Virtual Network Function Descriptor Overview

In ESC, ETSI supports a TOSCA based VNF Descriptor (VNFD). The VNFD conforms to the GS NFV-SOL 001 specifications and standards specified by ETSI.

The Virtual Network Function Descriptor (VNFD) file describes the instantiation parameters and operational behaviors of the VNFs. It contains KPIs, and other key requirements that can be used in the process of onboarding and managing the lifecycle of a VNF.

For VNF Lifecycle operations, see [VNF Lifecycle Operations Using ETSI API](#).

Creating Extensions to the Virtual Network Function Descriptor

ESC creates extensions to the VNFD during instantiation. These extensions specified by ESC map to the ETSI VNFD template attributes.

The ESC extensions are passed to the VNFD template through the *cisco_esc_properties* extension.

ESC Interface Field

The ESC interface field maps to the Connection Point Descriptor (CPD) in the VNFD template.

The following interface fields are currently supported.

- type
- nicid
- network
- allowed_address_pairs
- static_ip_address_pool
- security_groups

Example:

```

node_2_nic0:
  type: toasca.nodes.nfv.Cpd.CiscoESC
  properties:
    layer_protocol: ipv4
    cisco_esc_properties:
      management: true
      nicid: 0
      allowed_address_pairs:
        - ip_address: 162.77.11.0/24
        - ip_address: 162.77.6.0/20
  requirements:
    - virtual_link: esc-net
    - virtual_binding: vdu_node_2

node_2_nic1:
  type: toasca.nodes.nfv.Cpd.CiscoESC
  properties:
    layer_protocol: ipv4
    cisco_esc_properties:
      type: virtual
      management: false
      nicid: 1
      static_ip_address_pool:
        - 182.18.1.10
        - 182.18.1.11
        - 182.18.1.13
        - 182.18.1.15
      allowed_address_pairs:
        - ip_address: 172.77.12.0/30
      security_groups:
        - default
        - restricted_ssh
  requirements:
    - virtual_link: automation-static-network
    - virtual_binding: vdu_node_2

```

Day 0 Configuration

The ESC day 0 configuration parameters are passed through the VNFD template.

Example:

```

vdu_node_1:
  type: toasca.nodes.nfv.VDU.Compute.CiscoESC
  capabilities:
  ..
  properties:
    additional_vnfc_configurable_properties: {}
    cisco_esc_properties:
      vim_flavour: Some-Flavor-3_14
      config_data:
        some_config.txt:
          file: http://10.85.103.34/share/qatest/day0/specific_config.sh
      variables:
        CF_DOMAIN_NAME: cisco.com
        CF_NAME_SERVER: 171.70.168.183

```

```
# staros_param.cfg:
# file: http://10.85.103.34/share/automation_scripts/day0/asa_config.sh
```

Deployment Level Lifecycle Stages (LCS) Policies

ESC deployment level Lifecycle Stages (LCS) are passed through the VNFD template.

Example:

```
capabilities:
  deployment_flavour:
    properties:
      flavour_id: default
      description: 'Default VNF Deployment Flavour'
      vdu_profile:
        vdu_node_1:
          min_number_of_instances: 1
          max_number_of_instances: 1
      instantiation_levels:
        default:
          description: 'Default Instantiation Level'
          vdu_levels:
            vdu_node_1:
              number_of_instances: 1
      default_instantiation_level_id: default
      vnf_lcm_operations_configuration: {}
      cisco_esc_properties:
        policies:
          # Policy name in this case is "1"
          1:
            conditions:
              - name: 'LCS::PRE_DEPLOY'
            actions:
              - name: 'NOTIFY'
                type: 'pre-defined'
                properties:
                  prop_one: value_of_prop
                  script_filename: /opt/cisco/esc/esc-scripts/esc_vpc_chassis_id.py
...

```

Volume Container

The ESC volume maps to the virtual storage in the VNFD template.

The following fields are currently supported:

- bus
- vol_id
- type
- boot_index

Example:

```
vdu_node_1:
  type: toasca.nodes.nfv.VDU.Compute.CiscoESC
  capabilities:
    virtual_compute:
  ..
  requirements:
    - virtual_storage: test-volume-ets
```

```
...

    test-volume-ets:
      type: toasca.nodes.nfv.VDU.VirtualStorage.CiscoESC # CiscoESC - NOTE: NFVO can strip
suffix
      properties:
        type_of_storage: volume # SOL001
        size_of_storage: 5 # SOL001 - NOTE: in GB
        cisco_esc_properties:
          vol_id: 0
          bus: virtio
          type: LUKS
```

For VNF Lifecycle operations, see [VNF Lifecycle Operations Using ETSI API](#).