Configuring Identity Service Templates

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Identity service templates contain a set of policy attributes or features that can be applied to one or more subscriber sessions through a control policy, a RADIUS Change of Authorization (CoA) request, or a user profile or service profile. This module provides information about how to configure local service templates for Identity-Based Networking Services.

Prerequisites for Identity Service Templates

For downloadable service templates, the switch uses the default password “cisco123” when downloading the service templates from the authentication, authorization, and accounting (AAA) server, Cisco Secure Access Control Server (ACS), or Cisco Identity Services Engine (ISE). The AAA, ACS, and ISE server must include the password “cisco123” in the service template configuration.

Information About Identity Service Templates

Service Templates for Cisco Identity-Based Networking Services

A service template contains a set of service-related attributes or features, such as access control lists (ACLs) and VLAN assignments, that can be activated on one or more subscriber sessions in response to session life-cycle events. Templates simplify the provisioning and maintenance of network session policies where policies fall into distinct groups or are role-based.

A service template is applied to sessions through its reference in a control policy, through RADIUS Change of Authorization (CoA) requests, or through a user profile or service profile. User profiles are defined per subscriber; service profiles can apply to multiple subscribers.

Identity-Based Networking Services supports two types of service templates:

- Downloadable Service Templates—The service template is configured centrally on an external ACS or AAA server and downloaded on demand.
- Locally Configured Service Templates—The service template is configured locally on the device through the Cisco IOS command-line interface (CLI).

Downloadable Service Templates

Cisco Identity Based Networking Services (IBNS) can download a service template defined on an external AAA server. The template defines a collection of AAA attributes. These templates are applied to sessions through the use of vendor-specific attributes (VSAs) included in RADIUS CoA messages received from the external AAA server or ACS. The name of the template is referenced in a user profile or a control policy, which triggers a download of the service template during processing.

The downloadable template is cached on the device and subsequent requests for a download will refer to the available cached template. The template however is cached only for the duration of its active usage. The downloaded template cached on the device is protected and cannot be deleted through the command line interface or through other applications. This ensures that the template is deleted only when there are no active references to it.

Locally Configured Service Templates

Service templates can be configured locally through the CLI. These service templates can be applied to subscriber sessions by a reference in a control policy.

When an active local template is updated, changes to that local template will be reflected across all sessions for which the template is active. If a template is deleted, all content from that template that is applied against sessions is removed.

How to Configure Identity Service Templates

Configuring a Local Service Template

A service template defines the local policies that can be applied to a subscriber session. Activate this service template on sessions on which the local policies must be applied.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**service-template** *template-name* **Example:** `Device(config)# service-template SVC_2`	Creates a service template and enters service template configuration mode.
Step 4	**absolute-timer** *minutes* **Example:** `Device(config-service-template)# absolute-timer 15`	(Optional) Enables an absolute timeout for subscriber sessions.

	Command or Action	Purpose
Step 5	**access-group** *access-list-name* **Example:** `Device(config-service-template)# access-group ACL_2`	(Optional) Applies an access list to sessions using a service template.
Step 6	**description** *description* **Example:** `Device(config-service-template)# description label for SVC_2`	(Optional) Adds a description for a service template.
Step 7	**inactivity-timer** *minutes* [**probe**] **Example:** `Device(config-service-template)# inactivity-timer 15`	(Optional) Enables an inactivity timeout for subscriber sessions.
Step 8	**redirect url** *url* **Example:** `Device(config-service-template)# redirect url www.cisco.com`	(Optional) Redirects clients to a particular URL.
Step 9	**sgt** *range* **Example:** `Device(config-service-template)# sgt 100`	(Optional) Associates a Security Group Tag (SGT) with a service template.
Step 10	**tag** *tag-name* **Example:** `Device(config-service-template)# tag TAG_2`	(Optional) Associates a user-defined tag with a service template.
Step 11	**vlan** *vlan-id* **Example:** `Device(config-service-template)# vlan 215`	(Optional) Applies a VLAN to sessions using a service template.
Step 12	**end** **Example:** `Device(config-service-template)# end`	Exits service template configuration mode and returns to privileged EXEC mode.
Step 13	**show service-template** [*template-name*] **Example:** `Device# show service-template SVC_2`	Displays information about configured service templates.

Example: Service Template

```
service-template SVC_2
 description label for SVC_2
 access-group ACL_2
 redirect url www.cisco.com
 vlan 215
 inactivity-timer 15
 absolute-timer 15
 tag TAG_2
```

What to do next

To activate a service template on a subscriber session, specify the service template in a control policy. See Configuring a Control Policy.

Configuration Examples for Identity Service Templates

Example: Activating a Service Template and Replace All

Local Service Template Configuration

The following example shows the configuration of a service template defined locally on the device. This template contains attributes that are applied to sessions that use the control policy named POSTURE_VALIDATION, shown below:

```
service-template DOT1X
 access-group SVC1_ACL
 redirect url www.cisco.com match URL_REDIRECT_ACL
 inactivity-timer 60
 absolute-timer 300
!
ip access-list extended URL_REDIRECT_ACL
 permit tcp any host 5.5.5.5 eq www
```

Control Policy Configuration

The following example shows a control policy that activates the service template named DOT1X with replace-all enabled. The successfully activated template will replace the existing authorization data and any service template previously applied to the session.

```
policy-map type control subscriber POSTURE_VALIDATION
 event session-started match-all
  10 class always do-until-failure
   10 authenticate using dot1x priority 10
   20 authenticate using webauth priority 20
 event authentication-success match-all
  10 class DOT1X do-all
   10 terminate webauth
   20 activate service-template DOT1X replace-all
```

Example: Activating a Service Template for Fallback Service

Local Service Template Configuration

The following example shows the configuration of a service template defined locally on the device. This template contains attributes that are applied to sessions that use the control policy named POSTURE_VALIDATION, shown below:

```
service-template FALLBACK
 description fallback service
 access-group ACL_2
 redirect url www.cisco.com
 inactivity-timer 15
 absolute-timer 15
 tag TAG_2
```

Control Policy Configuration

The following example shows a control policy that runs authentication methods dot1x and MAB. If dot1x authentication fails, MAB authentication is attempted. If MAB fails, the system provides a default authorization profile using the FALLBACK template.

```
policy-map type control subscriber POSTURE_VALIDATION
 event session-started match-all
  10 class always do-all
   10 authenticate using dot1x
 event authentication-failure match-all
  10 class DOT1X do-all
   10 authenticate using mab
  20 class MAB do-all
   10 activate service-template FALLBACK
```

Example: Deactivating a Service Template

Access Control List Configuration

The following example shows the configuration of an access control list (ACL) that is used by the local service template named LOW_IMPACT_TEMPLATE, shown below.

```
ip access-list extended LOW_IMPACT_ACL
 permit udp any any eq bootps
 permit tcp any any eq www
 permit tcp any any eq 443
 permit ip any 172.30.0.0 0.0.255.255
```

Local Service Template Configuration

The following example shows the configuration of the local service template that provides limited access to all hosts even when authentication fails.

```
service-template LOW_IMPACT_TEMPLATE
 description Service template for Low impact mode
 access-group LOW_IMPACT_ACL
 inactivity-timer 60
 tag LOW_IMPACT_TEMPLATE
```

Control Policy Configuration

The following example shows the configuration of a control policy that uses the template named LOW_IMPACT_TEMPLATE to provide limited access to all hosts even when authentication fails. If authentication succeeds, the policy manager removes the service template and provides access based on the policies downloaded by the RADIUS server.

```
class-map type control subscriber match-all DOT1X_MAB_FAILED
 no-match result-type method dot1x success
 no-match result-type method mab success
!
policy-map type control subscriber CONCURRENT_DOT1X_MAB_LOW_IMP_MODE
 event session-started match-all
  10 class always do-until-failure
   10 authorize
   20 activate service-template LOW_IMPACT_TEMPLATE
   30 authenticate using mab
   40 authenticate using dot1x
 event authentication-success match-all
  10 class always do-until-failure
   10 deactivate service-template LOW_IMPACT_TEMPLATE
 event authentication-failure match-first
  10 class DOT1X_MAB_FAILED do-until-failure
   10 authorize
   20 terminate dot1x
   30 terminate mab
 event agent-found match-all
  10 class always do-until-failure
   10 authenticate using dot1x
 event inactivity-timeout match-all
  10 class always do-until-failure
   10 clear-session
```

Feature Information for Identity Service Templates

This table provides release and related information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Table 1: Feature Information for Identity Service Templates

Release	Feature Name	Feature Information
Cisco IOS XE Everest 16.5.1a	Identity Service Template	Enables identity service templates to be configured locally and available at all times. Support for this feature was introduced only on the C9500-12Q, C9500-16X, C9500-24Q, C9500-40X models of the Cisco Catalyst 9500 Series Switches.
Cisco IOS XE Fuji 16.8.1a	Identity Service Template	Support for this feature was introduced only on the C9500-32C, C9500-32QC, C9500-48Y4C, and C9500-24Y4C models of the Cisco Catalyst 9500 Series Switches.