



Southbound Cloud Adapter Framework

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Creating Custom Cloud Adapters

Service developers and service provider customers can create their own custom cloud adapters for use with Cisco ICFP by using the Cisco ICFP developer guidelines. These guidelines ensure that any custom cloud adapter will work seamlessly with Cisco ICFP. To obtain the guidelines, contact your Cisco representative.

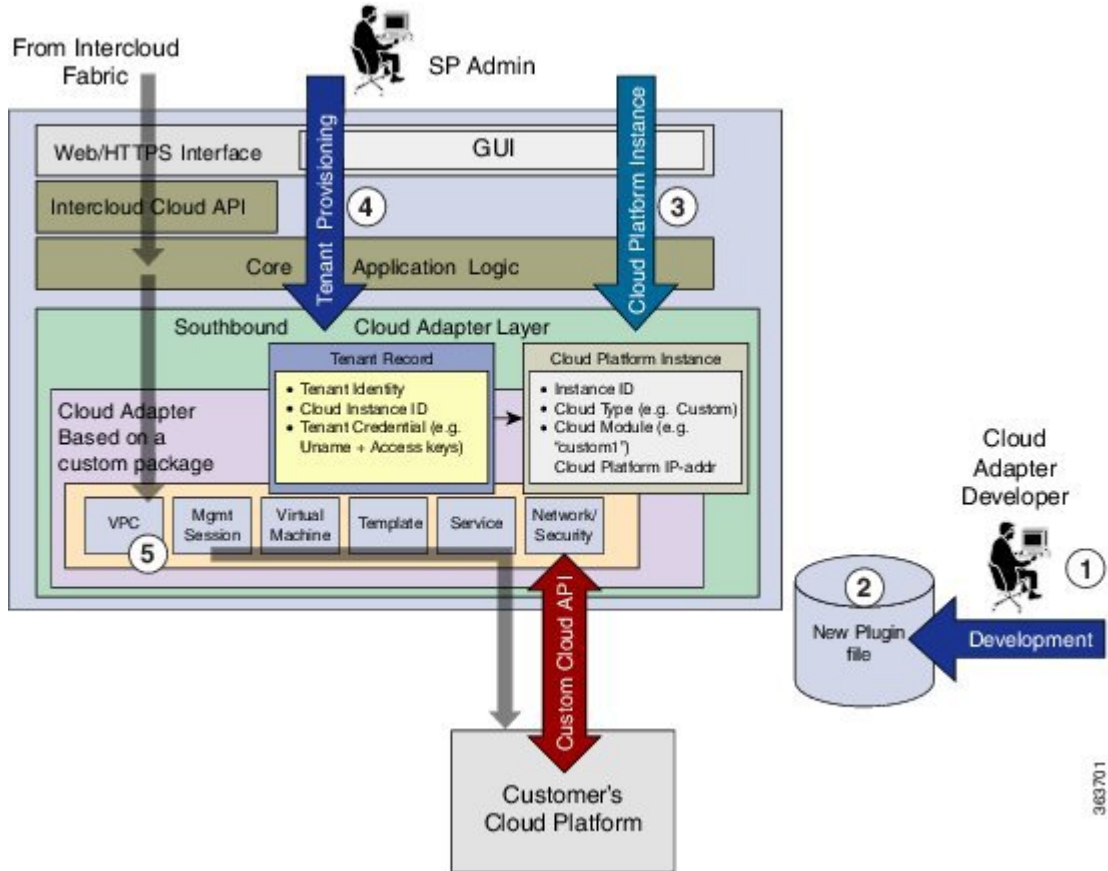
Custom Cloud Adapter Programming Model

After a custom cloud adapter is developed, you can load the adapter code into Cisco ICFP and enable the cloud adapter functions for the targeted tenants as described in the following workflow:

- 1 The service provider developer downloads the cloud adapter SDK from www.cisco.com to develop a custom cloud adapter. For assistance, contact your Cisco representative.
- 2 When the customer cloud adapter code is ready to use, the developer loads the adapter package using the Cisco ICFP GUI.
- 3 The service provider administrator uses the **cloudinstances** API to create a new instance for the custom adapter. In the **Cloud Instance Provision** API request, the service provider administrator enters the name of the southbound adapter in the **Cloud Module** field. The name must be the same name that is used in the **service interface** API implementation. The API binds the adapter code to the cloud instance to be added.
- 4 After the service provider administrator provisions a tenant on the Cisco ICFP platform using the **tenant management** API, the service provider administrator can bind the tenant to the cloud instance created in Step 3.
- 5 When the tenant issues Cisco Intercloud Fabric cloud API requests with a Cisco Intercloud Fabric instance, the API requests are handled by the newly-added cloud adapter code.

The following figure illustrates how custom cloud adapter code is loaded into Cisco ICFP and processes incoming Cisco Intercloud Fabric cloud API requests that are issued by a tenant.

Figure 1: Cisco ICFP Programming Model Overview



The following tables summarize the current southbound API stub functions that are supported in the cloud adapter classes.

Table 1: Management Session Interface API

Class API Category	API Name	Input Parameters	Output Parameters	Comments
Management Session Interface	createClientSession	CapiTenantAccountVO <i>account</i>	Session ID	Creates a management session with a cloud platform instance.
	deleteClientSession	Session ID		Deletes a management session.
	validateClientSession	CapiTenantAccountVO <i>account</i>		Validates a current management session.

Table 2: Service Management Interface API

Class API Category	API Name	Input Parameters	Output Parameters	Comments
Service Management Interface	listCapabilities		Provider Capability	Lists the cloud platform capabilities.
	listLocations		Location Details	Lists the locations or sites supported by the provider.

Table 3: Network Management Interface API

Class API Category	API Name	Input Parameters	Output Parameters	Comments
Network Management Interface	listPublicIpAddress	CapiTenantAccountVO <i>account</i>	IP address List	Lists the public IP addresses.

Table 4: Template Management Interface API

Class API Category	API Name	Input Parameters	Output Parameters	Comments
Template Management Interface	createTemplate	CapiTenantAccountVO <i>account</i> , capiTemplate <i>template</i>	Template ID	Creates a template based on an image.
	deleteTemplate	CapiTenantAccountVO <i>account</i> , Template ID		Deletes a template.

Table 5: VM Management Interface API

Class API Category	API Name	Input Parameters	Output Parameters	Comments
VM Management Interface	deployVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i>	capiServer <i>server</i>	Deploys a VM based on the template ID.
	destroyVirtualMachine	CapiTenantAccountVO <i>account</i> , Server ID		Removes a VM based on the server ID.
	downloadVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i> , string <i>diskId</i> , capiVMAction <i>vmAction</i>		Downloads the VM disk from the cloud provider catalog to Cisco ICFP.
	listVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i>	capiServer <i>server</i>	Lists all VMs instantiated by the tenant.
	rebootVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i> , capiAction <i>actionType</i>		Reboots a VM on the specified server.
	startVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i> , capiAction <i>actionType</i>		Starts a VM that was previously stopped on the specified server.
	stopVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i> , capiAction <i>actionType</i>		Stops a VM on the specified server.
	updateVirtualMachine	CapiTenantAccountVO <i>account</i> , capiServer <i>server</i>		Updates attributes of a VM, such as the IP address.

Table 6: Virtual Private Cloud (VPC) Management Interface API

Class API Category	API Name	Input Parameters	Output Parameters	Comments
VPC Management Interface	createVpc	CapiTenantAccountVO <i>account</i> , capiProviderVpcDetail <i>model</i>	capiProviderVpcDetails <i>vpcdetails</i>	Creates a provider VPC.
	createVpcNetwork	CapiTenantAccountVO <i>account</i> , capiProviderVpcNetwork <i>networkModel</i> , capiProviderVpcDetails <i>model</i>	capiProviderVpcNetwork <i>networkModel</i>	Creates a VPC network.
	deleteVpc	CapiTenantAccountVO <i>account</i> , vpcId		Deletes a VPC.
	deleteVpcNetwork	CapiTenantAccountVO <i>account</i> , vpcId, networkId		Deletes a network from a VPC.
	listProviderVpc	CapiTenantAccountVO <i>account</i>		Lists the VPCs of a tenant.
	listVpcById	CapiTenantAccountVO <i>account</i> , vpcId		Lists the specified VPC of a tenant.
	listVpcNetworkById	CapiTenantAccountVO <i>account</i> , vpcId, networkId		Lists the specified network of a specific VPC for a tenant.
	updateVpc	CapiTenantAccountVO <i>account</i> , capiProviderVpcDetail <i>model</i>		Updates a VPC.

Installing or Upgrading an Adapter

You can install or upgrade an adapter by using the Cisco ICFP GUI.

Before You Begin

Confirm that the adapter file is:

- A `tar.gz` file.
- Accessible from the Cisco ICFP virtual appliance.

Procedure

Step 1 In the Cisco ICFP GUI, choose **Upgrade Software** and click the **Upgrade Adapter** icon.

Step 2 In the **Upgrade Adapter** dialog box, provide the following information:

Field	Description
Adapter Type	Choose the adapter type: Cisco or Custom.

Field	Description
Adapter Name	The adapter name. If you choose Cisco in the Adapter Type field, this field defaults to CAPI and cannot be modified.
Adapter Description	The description of the adapter.
Adapter Version	The adapter version.
Select File to Upload	Select the required adapter file and click Upload .

Step 3 When prompted, click **Yes** to confirm the upload.

Step 4 Restart services as follows:

- a) Using SSH, log in to the ShellAdmin console for the virtual appliance.
- b) Choose **Stop Services**.
- c) Choose **Start Services**.

Validating an Adapter

Complete the following steps to confirm that an adapter was installed or upgraded successfully.

Procedure

Step 1 In the Cisco ICFP GUI, choose **Upgrade Software**.

Each installed adapter is listed with its name, version, and build number.

Step 2 Click the **Details** icon for the required adapter to view additional information, including the build date, the last modified date, and the version hash value.