

HP Cloud Service Automation

Application Deployment on Realized Topology Instance using Sequenced Design



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Overview

The Topology Designer in CSA 4.00 lacks the capability to deploy applications on realized topology instances. This document provides the details on how to deploy applications on the realized topology instances using the Sequenced Designer and a new component that “delegates” to a topology design when the service is realized.

A new DELEGATED_TOPOLOGY component is introduced in the Sequenced Component palette, which is used to represent the Topology Design in the sequenced model. The service offerings need to be created only for the sequenced designs and not for topology designs. The Delegated Topology component has internal lifecycle actions for deploy and undeploy to help realize the topology design.

Delegated topology component

This is a new component available Out of the Box (OOTB) with the CSA 4.01 release. This gets automatically created when the 4.01 update is installed. This component type is used to represent the topology design in the sequenced design as a composite component.

The screenshot shows the 'Components' section in the HP CSA interface. The main title is 'Delegated Topology in HP CSA'. Below the title are tabs for 'Overview', 'Properties', 'Constraints', and 'Templates'. The 'Overview' tab is selected. The component details are as follows:

Field	Value
Name	DELEGATED_TOPOLOGY
Display Name	Delegated Topology
Description	This component type is used to delegate execution to a CSA Topology based design.
Base Component Type	None
Consumer Visible	Yes
Pattern	No

An 'Image' field is also present, showing a 3D molecular model with seven colored spheres (red, blue, green, purple, yellow, brown, grey) connected by lines.

The following are the lifecycle actions that the Delegated Topology Component includes;

- Deploy – lifecycle state - DEPLOYING, lifecycle substate – TRANSITION
- Undeploy – lifecycle state - UNDEPLOYING, lifecycle substate – PRE_TRANSITION

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A component template (DELEGATED_TOPOLOGY type) is automatically created whenever a new topology design is created, and this template can be used in sequenced designs to invoke the specific topology. This template contains the lifecycle actions for deploy and undeploy along with the defined properties - **profile** and **topologyId**. This template is not allowed to be modified or deleted by the designer.

The screenshot shows the 'Templates' page for 'Delegated Topology in HP CSA'. It lists two templates:

- CLOUDOS_SIMPLE_TOPOLOGY_v4.00.00**: This template was auto-generated and is used to delegate execution to the following CSA Topology based service design 'CLOUDOS_SIMPLE_TOPOLOGY_v4.00.00'. A simple topology design with floating IP assigned at the time of provisioning the servers.
- Topology Test Design**: This template was auto-generated and is used to delegate execution to the following CSA Topology based service design 'Topology Test Design'.

Note: During the upgrade from 4.00 to 4.01, the delegated topology component templates are created for all the existing topology designs created on 4.00.

The Delegated Topology Component template will be updated when the topology design is updated for the properties, such as **Name**, **Display Name**, **Icon**, and **Description**.

When the topology design is cloned, a new delegated topology component template is created automatically.

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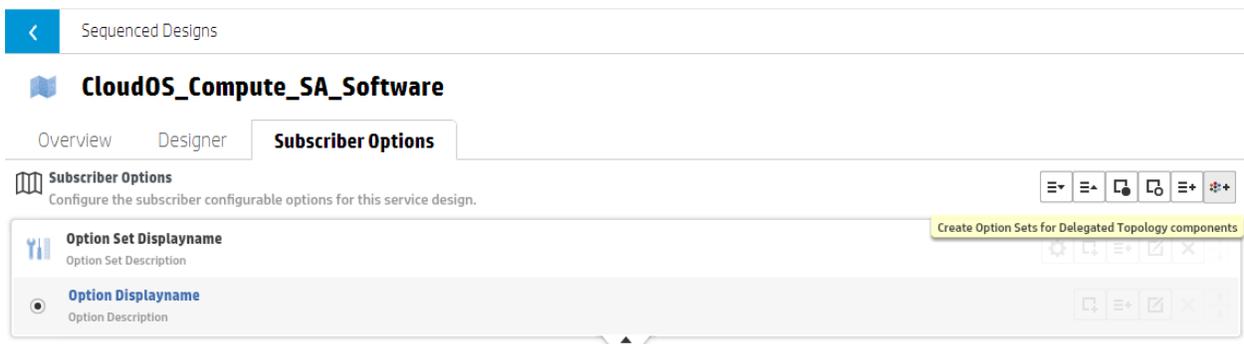
When the topology design is deleted, the delegated topology component template for that design is also deleted.

The topology design cannot be deleted when its delegated topology component template has been used in any of the sequenced designs. If you try to delete the topology design, it will lead to an error.

Subscriber options

The topology design profiles are represented in the sequenced design as subscriber options, using the option set when the Delegated Topology component is used.

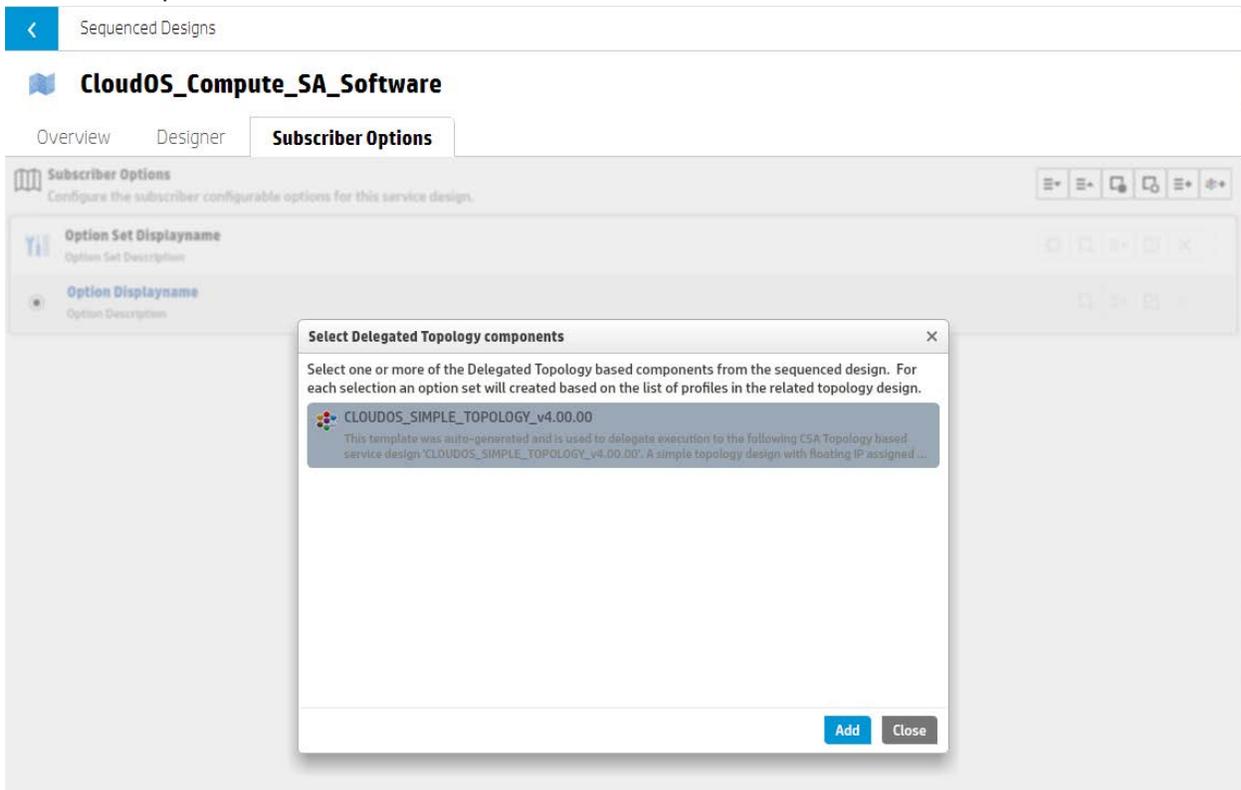
When the sequenced design contains the Delegated Topology component, there will be a button  to Create Option Sets for Delegated Topology component.



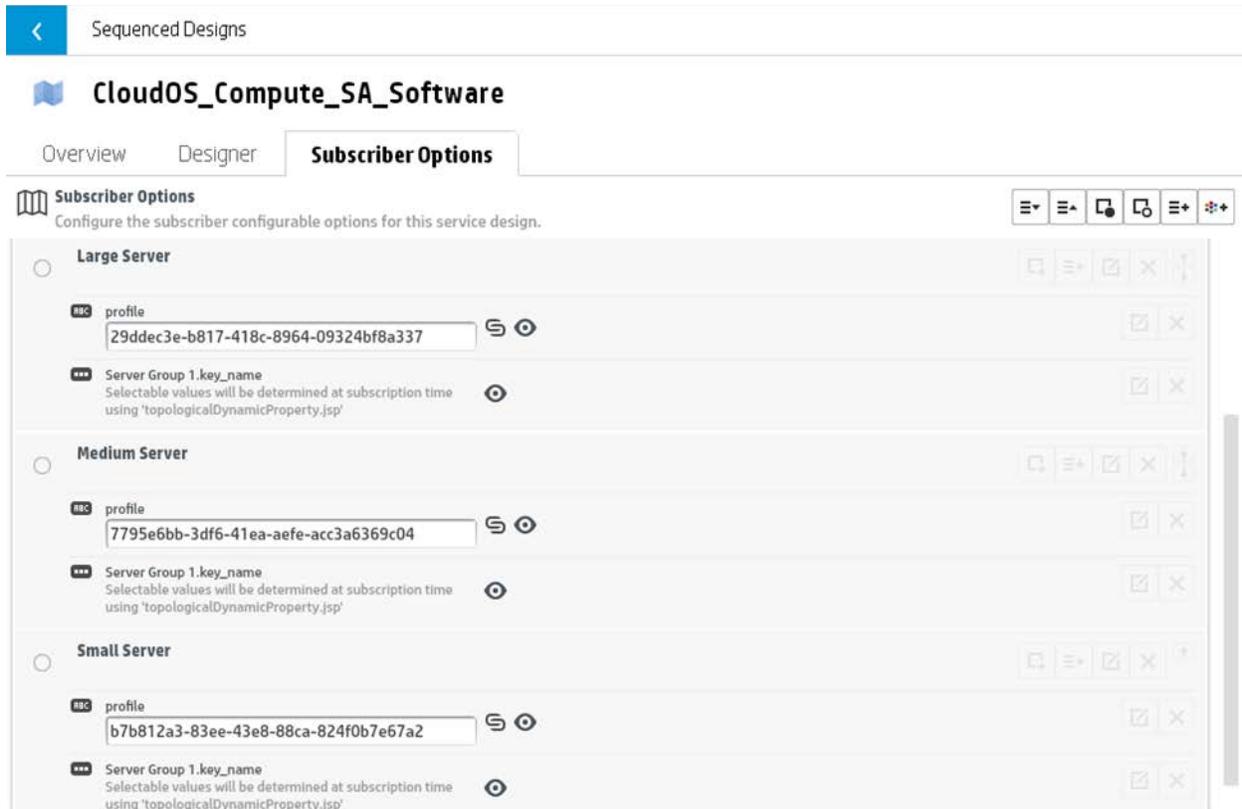
When the option is selected it will pop up a new dialog for selecting one or more of the Delegated Topology components used in the sequenced design. This is a multi-select list; use the **Ctrl** or **Shift** key

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to make multiple selections.



For each selected Delegated Topology component, an option set will be created based on the list of profiles in the respective topology design.



For each selected item in the dialog box, an Option Set is added in the sequenced design subscriber options. Each option set contains an option per profile in the topology design, and each option contains the list of modifiable properties from that profile.

Note: The **Server Group.key_name** property is made available with each profile and is not present in the topology design property list; it has to be the Key Pair name used to connect to the realized HP Cloud OS instance.

Import/Export of service designs

In this approach, there will be a sequenced design and topology design created. Each of these designs has to be exported individually to a separate archive file, via a separate export operation.

When importing the service designs, the sequence design has a dependency on the topology design; hence, the topology design has to be imported prior to the sequenced design as a separate import operation. During import of a sequenced design that utilizes a delegated topology component, the corresponding topology design must exist on the target system and must have the same display name as that referenced in the delegated topology component.

If the topology design does not exist, then the sequenced design import will fail with an error. The **Preview** option can be used during the import operation to determine whether the sequenced design import will succeed and to determine if all the dependencies are resolved.

The catalog import containing the Delegated Topology component will fail because the topology designs are imported last. Hence, the topology design has to be imported separately before importing the catalog, so when the catalog is imported it will re-use the previously imported topology design, instead of attempting to re-import them.

Out-of-the-box content

HP CSA provides OOTB service designs and resource offerings that demonstrate the capability to deploy applications with topology design using the sequenced designs.

The following are the OOTB contents;

- OOTB Topology Design – includes Server Group, Network Segment and Router

The screenshot displays the HP CloudOS Grizzly interface for a topology design. The main workspace shows a network diagram with the following components: 'Server Group 1' (represented by a server icon), 'Network Segment 1' (represented by a network icon), 'Router 1' (represented by a router icon), and 'External Network Segment 1' (represented by a network icon). The design is titled 'CLOUDOS_SIMPLE_TOPOLOGY_v4.00.00' and is in a 'Published' state. The right-hand panel shows the configuration for the 'Server Group' component, with the following fields:

- Name:** Server Group 1
- Instance Name Prefix:** CSA
- Minimum Instances:** 1
- Maximum Instances:** 1
- Image:** NOVELIMAGE2
- Machine Flavor:** m1.large

- OOTB Sequenced Design – includes a service composite and Delegated Topology component of the OOTB topology design.

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The screenshot shows the HP Cloud Service Automation Designer interface. The main workspace displays a sequenced design with two steps: 'Service Composite' and 'CLOUDOS_SIMPLE_TOPOLOGY_v4.00.00'. The right-hand panel shows the properties for the 'CLOUDOS_SIMPLE_TOPOLOGY_v...' component, which is a 'Delegated Topology'. The properties listed are:

- configurationId**: Internal property, used to store topology profile id
- internalIPRegEx**: Identifies the internal IP Address on the topology instance
- newUserName**: User login name to be created on the topology instance
- password**: Password for the user login
- osType**: Operating System Type – LINUX
- saPolicyName**: Software Policy Name in HP Server Automation to be deployed
- sshDefaultUsername**: Default User Name for SSH Login
- topologyId**: internal property, ID of the topology gets assigned automatically from the component template

- The following are the properties for the OOTB Service Design.

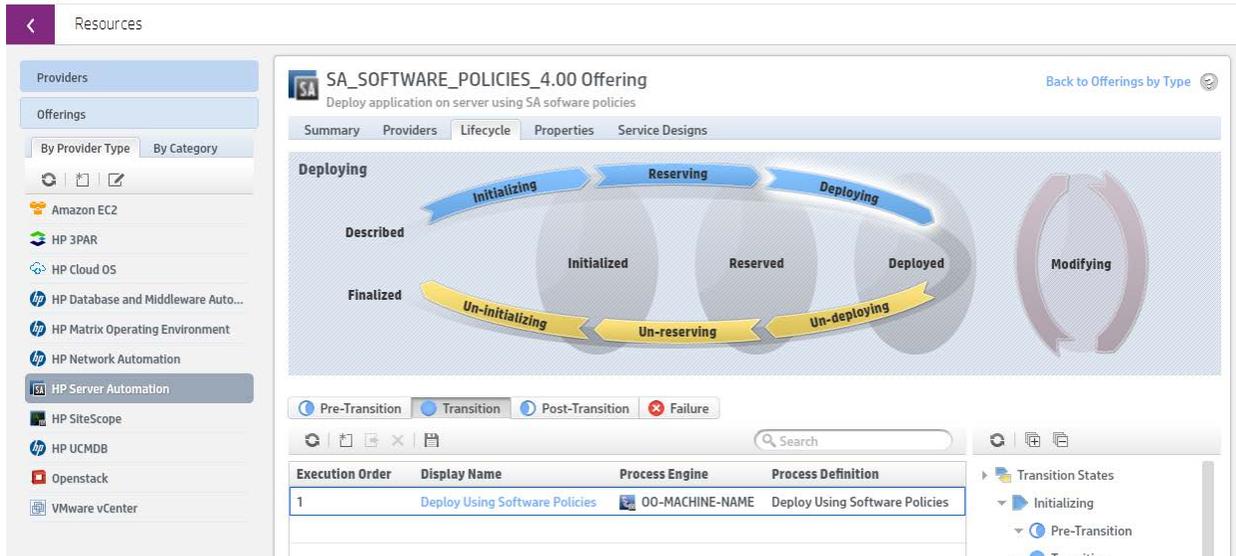
Property	Description
configurationId (profile)	Internal property, used to store topology profile id
InternalIPRegEx	Identifies the internal IP Address on the topology instance
newUserName	User login name to be created on the topology instance
password	Password for the user login
osType	Operating System Type – LINUX
saPolicyName	Software Policy Name in HP Server Automation to be deployed
sshDefaultUsername	Default User Name for SSH Login
topologyId	internal property, ID of the topology gets assigned automatically from the component template

- The **configurationId** and **topologyId** are filled by default with the component template you choose; do not change those values.

OOTB Resource Offering for Application Deployment

There are two new Resource Offerings available OOTB.

- **SA_SOFTWARE_POLICIES_4.00** – deploys the application on the HP Cloud OS instance using HP Server Automation (HP SA) and works with realized topology instances.
- **SA_MANAGE_TOPOLOGY_SERVERS_4.00** – manages the HP Cloud OS instance into HP SA.



These resource offerings have to be associated to the Delegated Topology component using the Resource Binding option.

All the realized server instances of the topology design referenced by the Delegated Topology component will be considered as server components on which the resource offering will operate. If there are multiple tiers in the topology design, they are considered to be a single group of realized server instances.

Note: The **Server_Group.key_name** on the Delegated Topology component profile is used as the key pair name to connect to the realized HP Cloud OS instance to deploy the application.

Prerequisite

The following are the prerequisite to use the OOTB Contents

1. The OOTB Resource offering is available only for the HP Server Automation provider. HP Server Automation must be installed and configured before you can use it to deploy applications.
2. Software Policies should be preconfigured on HP SA.
3. The HP SA server should be reachable by the HP Cloud OS private network.

Known issues

1. Option Set cannot be changed after importing the service designs

Issue: After importing the higher level entities (such as a catalog) that contain service design(s) with delegated topology(s), the user will not be able to change the option sets for a service design that has an associated service offering without disassociating the service offering.

Solution: No solution exists.

Workaround: The user needs to export/import the topology designs separately in addition to exporting/importing the sequential designs that utilize delegated topologies separately, prior to importing the catalog. Importing the designs prior to importing the catalog will allow designers to re-configure or synchronize the option sets in the sequenced design with the profiles of topology design.

2. Add Server action on the Server Group will not deploy applications

Issue: When the **add_server_to_server_group** action is executed, it will only create a new HP Cloud OS Instance; it will not deploy the application.

Solution: No solution exists

Workaround: No workaround exists

3. HP SA can only manage one instance deployed through HP Cloud OS

Issue: When the HP Cloud OS instances are managed thru HP SA, it can only manage the first instance registered. The subsequent instances cannot be managed because all the instances will have same chassis id.

Solution: No solution exists

Workaround: No workaround exists