Advanced Configurations (at-scale) for Intersight Managed Mode (IMM)

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BRKCOM-2005



Cisco Webex App

Questions?

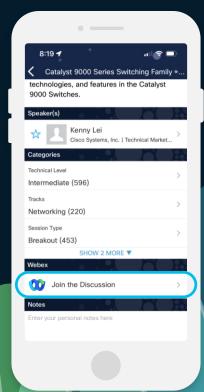
Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click "Join the Discussion"
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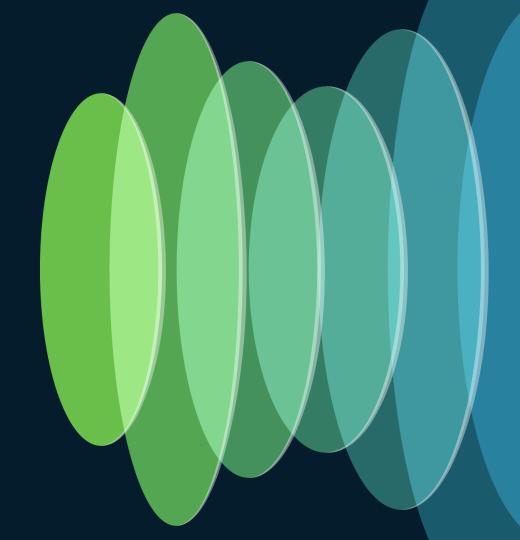
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Agenda

- Intersight Organizations & Resource Groups
- Intersight RBAC
- Shared Organizations in IMM
- Cloning Across Organizations
- LAN and SAN Connectivity Policies
- Transitioning from Standalone Organizations to Shared Organizations
- IMM Server Policy Cleanup Discovery Cleanup
- Domain Profile & Chassis Profile Templates
- IMM Learning Resources





What are Organizations and Resource Groups?

- Organizations and Resource Groups are Intersight constructs that enable an administrator to "segment/compartmentalize" the UCS Infrastructure and apply applicable, desired RBAC. It enables multitenancy
- Organizations directly compartmentalize the Logical Policy Model (Pools, Policies, Templates and Profiles). The Organization get's designated first with the creation of any policy

What are Organizations and Resource Groups?

- Resource Groups reflect Hardware Membership, and then 1 or more RGs get added to Organizations. (Think of UCS Central Domain Groups)
- Intersight includes a Default Organization and Default Resource Group
- For Policy Creation, you select the Organization first thing
- For HW Device Claim, all HW gets added to "Default RG" by default...can be edited/removed by Account Administrator

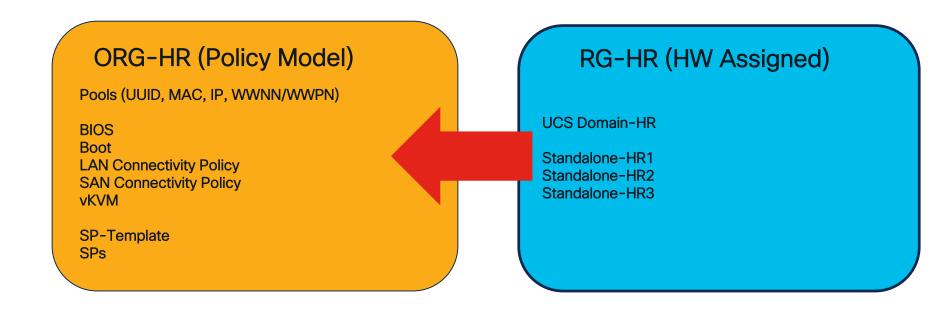


So why use Organizations and Resource Groups?

- RBAC Applied to the Organizations & Resource Groups. Do you need to compartmentalize your infrastructure? Who manages what?
- Need for security or compliance?
- Segment on business group, site location, or customer?
- Segment on Domain/Server configuration differences (Bare Metal/OS Type/Hypervisor Cluster)?

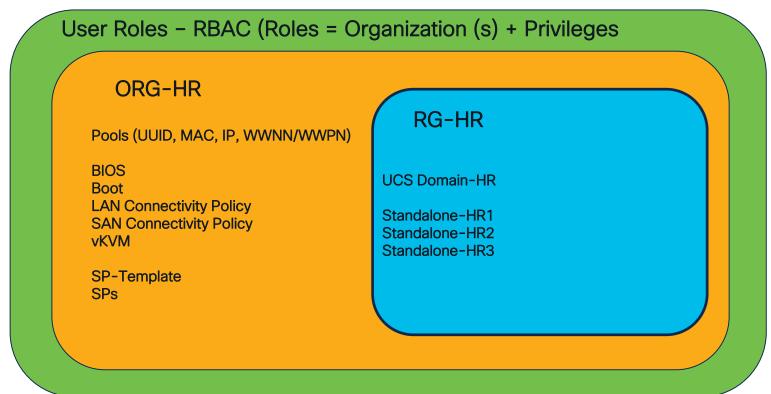
Organizational differences from UCSM?

- No Hierarchy No Policy Resolution Path. Not a bad thing, and Policy atscale is addressed with IMM Shared Organizations
- Intersight Organizations are flat, all the same, and some can be Shared Organizations, and some can be designated Target Organizations
- No Automatic deploy (UCSM used Maint Policy w/user Ack). Intersight is not always trying to make sure "end-state" matches "desired-state" Instead, with Intersight, we have Drift Detection and provide visual alerting when we need to redeploy profiles upon a given change
- Segmentation Criticality Difference "Blast Radius" Concerns ...





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Organization & Resource Groups - Scalability Limits

- An Intersight Account can have up to 50 Organizations
- An Intersight Account can have up to 100 Resource Groups
- Up to 10 Resource Groups can be added to an Organization

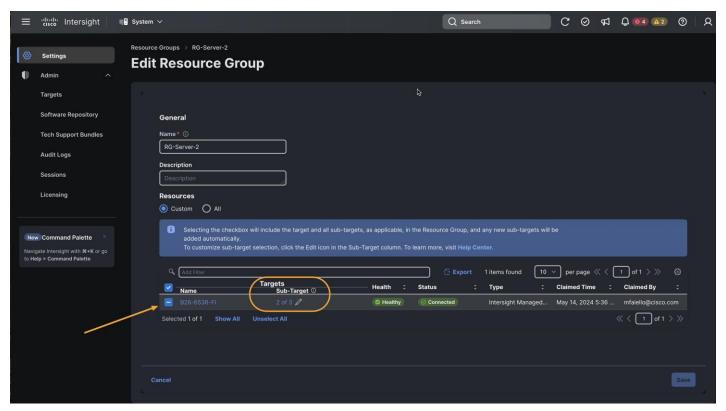
Note: Organizational Sharing Rules covered later ...

NEW! Adding Servers to Resource Groups (verses the entire UCS Domain)

- Up to this point, you had to add an entire UCS Domain to a Resource Group (RG).
- We are excited to bring to Intersight an important capability of adding individual UCS Domain Servers (B/X Series IMM Blades) to RGs
- This will assist Large Enterprise and MSP's with further segmenting a UCS Domain across multiple Use-Cases and Customers.

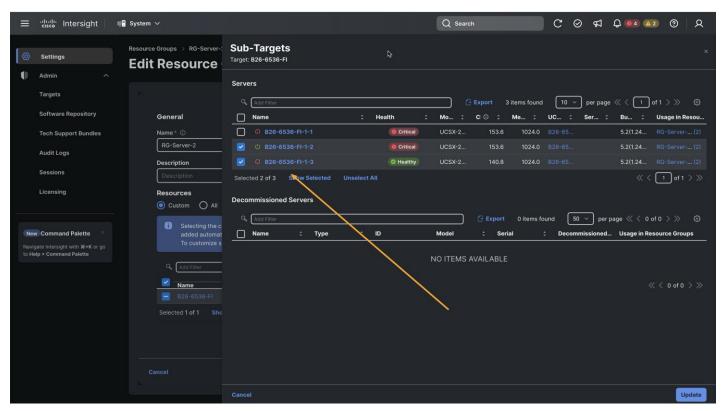


Adding Servers to Resource Groups





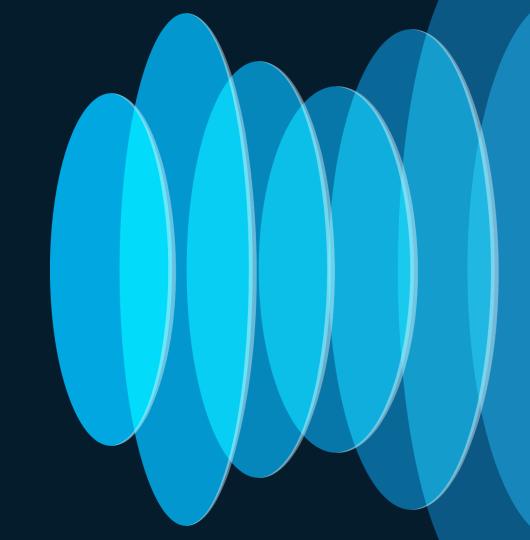
Adding Servers to Resource Groups





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Intersight RBAC



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Intersight RBAC

Reviewing Intersight RBAC Roles - and Assigning Roles to Users

- Currently, Intersight includes 12 system defined Roles and 43 assignable Privileges
- System Roles cannot be changed
- Custom roles can be created and in creating the custom role you can select which Organization (all or specific) and what assignable Privilege you wish to associate with that Organization.
- You can add additional Organization-Privilege combinations to that custom role.



System Roles - Built in ...

- Account Administrator
- Read-Only
- Device Technician
- Device Administrator
- Server Administrator
- User Access Administrator
- Storage Administrator

- Workload Optimizer Admin
- Workload Optimizer Deployer
- Workload Optimizer Observer
- Workload Optimizer Automator
- HX Cluster Administrator



System Privileges - 43 Available ... includes

- Account Administrator
- · Read-Only
- User Access Administrator
- Device Administrator
- Device Technician
- Server Administrator
- Storage Administrator
- Virtualization Administrator
- UCS Domain Administrator

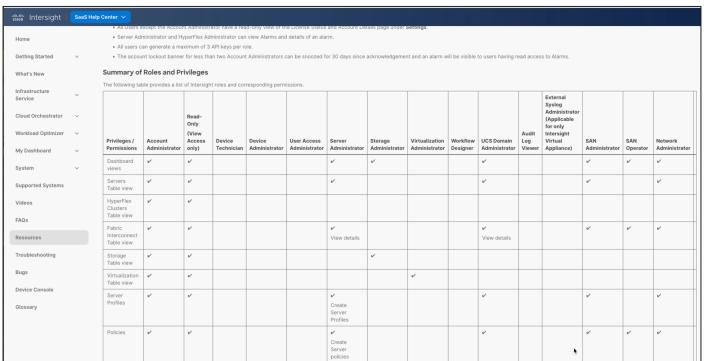
- Audit Log Viewer
- SAN Administrator
- SAN Operator
- Network Operator
- Network Administrator
- Nexus Observer
- Nexus Administrator
- Nexus Config Administrator
- Integrated Systems Operator

- · Integrated Systems Admin
- Support Services
- · Service Designer
- Catalog Use
- Catalog Administrator
- Service Operator
- Nexus Analyst
- vKVM Only



Intersight.com/help - Resources

Summary of Roles and Privileges

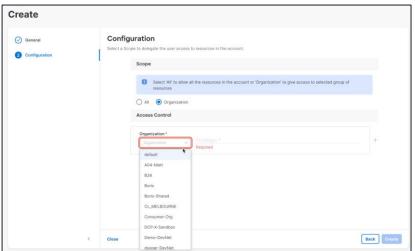




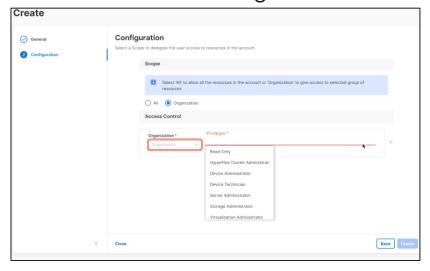
Creating a Custom Role

Selecting Org(s) and Privilege

Select Organization ...



Select Privilege ...





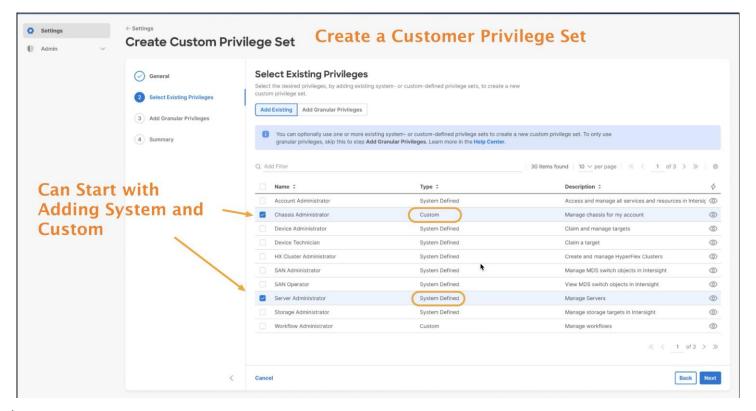
New Enhanced RBAC!

Coming End of CY24/Beginning CY25

Exciting Changes Coming! - Enhanced RBAC

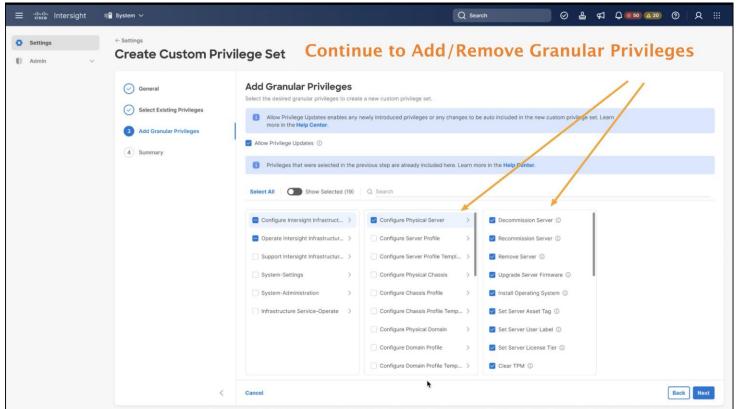
- Can Use Existing Roles (Privilege Set*) as a baseline to Modify, or Create Net-New
- Each Privilege Set is broken-down in successive, more granular settings
- Provides ability to customize Individual Actions

Coming - New Intersight Enhanced RBAC!



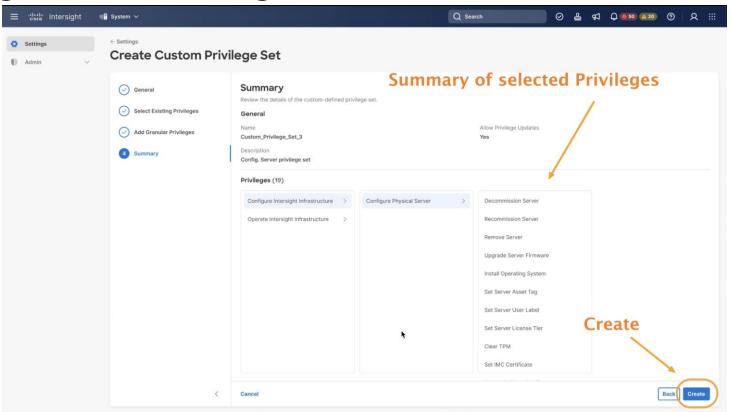


Coming - New Intersight Enhanced RBAC!



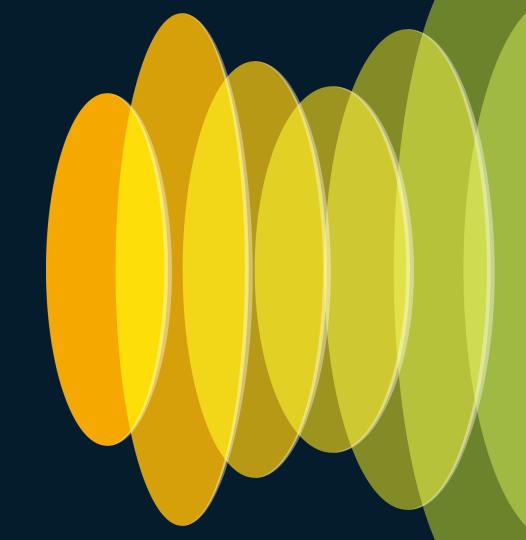


Coming - New Intersight Enhanced RBAC!





Shared Organizations in IMM



Intersight IMM - Shared Organizations

- Original IMM mandated Silo'd Organization structures
- Now we have Shared Organizations in IMM
- Addresses Policy Sprawl in creating large infrastructures
- Specifically focused on the IMM Policy Model
- Shared Organizations reduce OPEX
- Compare with UCSM/Central Org Policy Resolution (no nesting or hierarchical upward policy resolution)



IMM Shared Organizations - Scalability

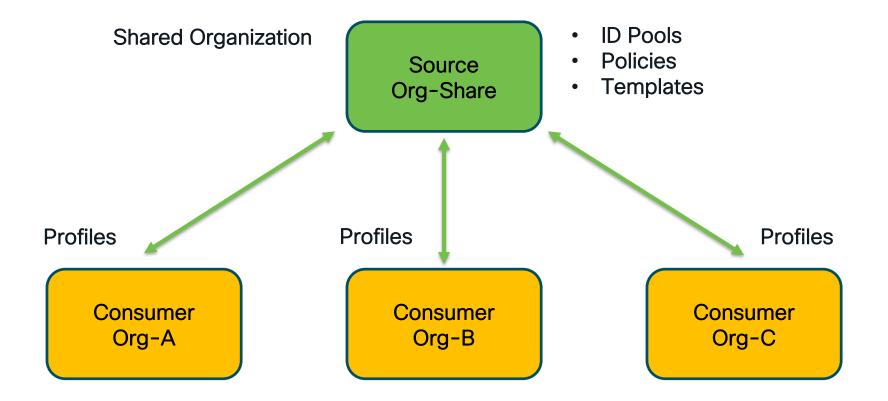
- Max Organizations in Intersight Account = 50
- Max Organizations that can be added to a Role = 5
- Max Sharing Rules in an Intersight Account = 200
- Max Resource Groups that can be added or Organization = 10
- Max Resource Groups in an Intersight Account = 100
- Max resources that can be added to a Resource Group = 5,000
- Note: Looking to expand these limits in the future...



IMM Shared Organizations - Rules

- A source Organization can be shared with up to 49 consumer Organizations (50 per Account = 1 Shared + 49 Consumer)
- Example: 4 source Orgs shared with 46 consumer Orgs. That is 4+46=50 Total Orgs and 4x46=184 (max is 200) sharing rules
- An Organization with a Resource Group attached, cannot be shared
- Phase-1: Port Policies (and embedded policies) must be in the same Org. Supported possibly by year-end.
- A consumer Org user must have at-least Read Access to the Shared source Org

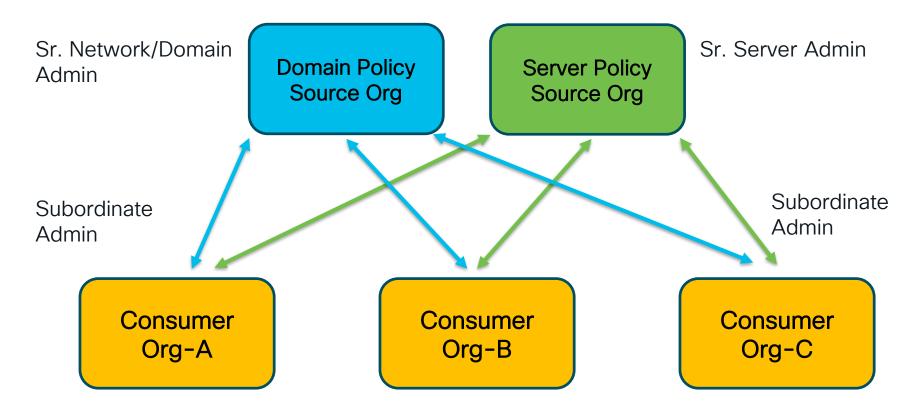




GREEN - Shared Org ORANGE - Target Org

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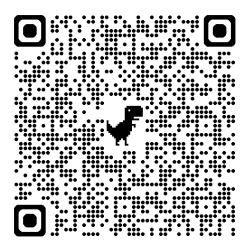
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GREEN - Shared Server Policy Org BLUE - Shared Domain Policy Org ORANGE - Target Org

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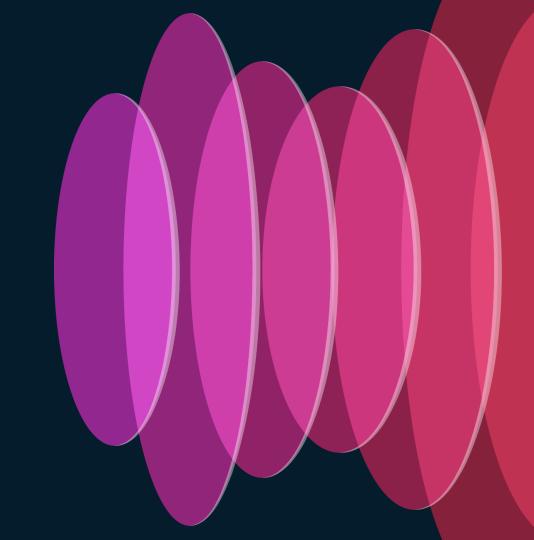
Org Sharing & Policy Cloning Whitepaper



https://www.cisco.com/c/en/us/products/collateral/cloud-systemsmanagement/intersight/imm-con-sharing-across-organization-cloning-wp.html



Cloning across Organizations



Policy Cloning

- For times where you want to replicate a policy to another Org and have it remain as its own entity, no connection to the source Org
- Great utility for "scaling-out" UCS Architectures.
- Can Clone within same Organization and across Organizations
- No Org Sharing required to Clone across Organizations
- For Policies that do not include embedded Policies or Pools, then those single policies are cloned to the destination Organization with the same name
- Note: Deep Clone of Server Profile Templates coming by end of June 2024!

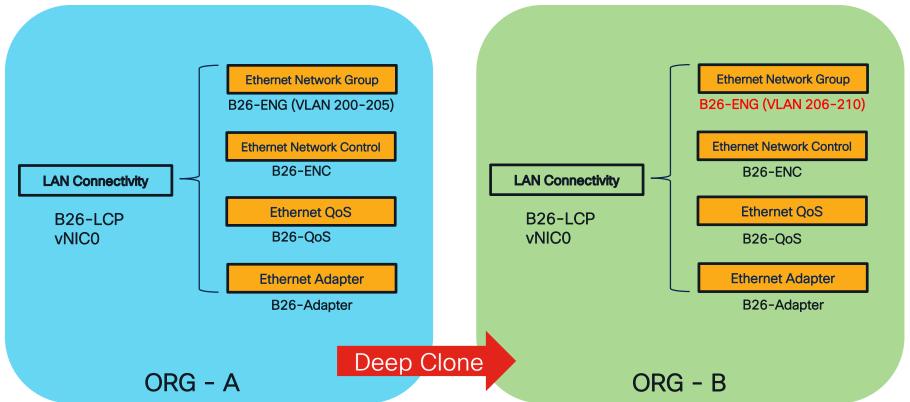


Policy Cloning - Across Organizations

- Deep Policy Clone Behavior For Policies with <u>embedded</u> Policies or Pools (LAN/SAN Connectivity Policies, for example) the User can choose one of 2 behaviors ...
 - 1. Same Name Use policies and pools in the destination Org with the same name otherwise clone them, if not found
 - If any policies in destination Org have same name (exactly matches case sensitive) ... the embedded polices in the destination Org will substitute for the embedded policies in the source Org (be careful!)
 - 2. Clone All clone all policies and pools into the destination Org
 - All policies cloned if a policy exists in the destination Org with the same name as the Source policy, then a clone of the original will be created with a suffix and used by the parent cloned policy

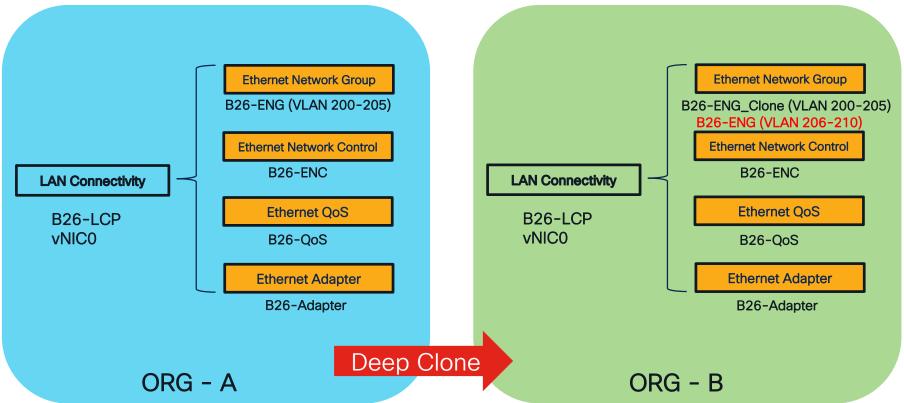


Deep Policy Cloning - "Same Name" Example





Deep Policy Cloning - "Clone All" Example





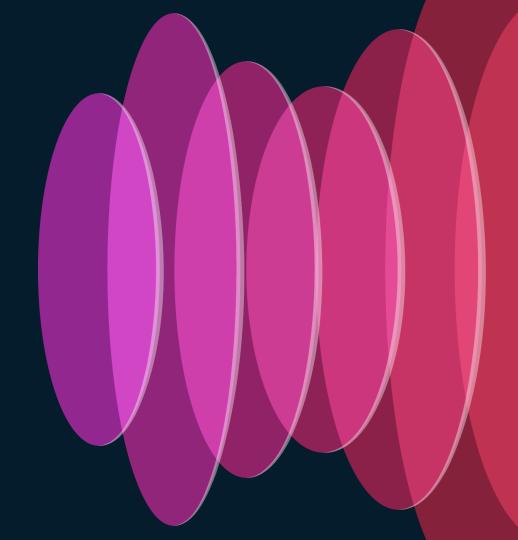
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https://www.cisco.com/c/en/us/products/collateral/cloud-systemsmanagement/intersight/imm-con-sharing-across-organization-cloning-wp.html



LAN and SAN Connectivity Policies



LAN & SAN Connectivity Policies

- Use Case 1: Using Auto vNIC Placement X210C M6 Compute Node with VIC 14425 MLOM + Demo
- Use Case 2: Manual vNIC Configuration w/ Simple Placement -X210C M6 Compute Node with VIC 14425 MLOM + Demo
- Use Case 3: Manual vNIC & vHBA Configuration with Advanced Placement - X210C M6 Compute Node with VIC 14425 MLOM + Demo
- Use Case 4: Manual vNIC & vHBA Configuration with Advanced Placement – B200 M5 with VIC 1440 MLOM & VIC 1480 + Demo



Use Case 1: Using Auto vNIC Placement

Example X210C M6 Compute Node with VIC 14425 MLOM

- Can use Auto vNICs Placement, in which the system defines the Adapter placement and PCI order – Just choose Fabric (A or B)
- Great for single adapter Blades/Servers and you don't necessarily care about the PCI Order of vNICs and vHBAs (vNICs precede vHBAs)
- With Auto-Placement, if more than one Adapter is being used (Example, VIC 1440 and 1480), then the newly created vNICs are distributed across both adapters during SP deployment
- If using Auto vNIC Placement for the LAN Connectivity Policy, then you must also choose Auto Placement for SAN Connectivity Policy. Cannot Mix Placement Options between the two Policies on a given SP



Use Case 2: Manual vNIC Config w/ Simple Placement

Example X210C M6 Compute Node with VIC 14425 MLOM

- With Manual, must select PCI Order, and that order must start with 0 for the first PCIe Device, and then increment for additional PCIe Devices. This unique numbering is per Adapter, and needs to be honored across LAN & SAN Connectivity policies
- Simple Placement allows system to automatically determine the Slot ID and PCI Link (applies to 1300 Series VICs), In case of multiple adapters in the Blade/Server, it chooses the first Adapter and places all the vNICs on that first adapter. Choose Fabric (A or B) and Define PCI Order
- Don't use Simple Placement for 1300 series VICs with Dual PCI Link

Use Case 3: Manual vNIC/vHBA Config with Advanced Placement

X210C M6 Compute Node with VIC 14425 MLOM

- With Manual and Advanced Placement, that not only allows for selecting PCI Order, but also Slot ID & PCI Link
- Slot ID corresponds to the Adapter in the Server/Blade. Numbering starts with MLOM, and then can be 1-15 afterwards. Single Adapter Configurations can be just MLOM
- PCI Link should be 0, unless you are dealing with a 1300 Series VIC with the Dual PCI Link Cruz-based ASIC
- PCI Order must start with 0 for the first PCIe Device, and then increment for additional PCIe Devices. This unique numbering is per Adapter, and needs to be honored across LAN & SAN Connectivity policies

Use-Case 4: Manual vNIC/vHBA Configuration with Advanced Placement with 2 x Adapters

- B200 M5 Server with VIC 1440 (Slot ID=MLOM) and VIC 1480 (Slot ID=1)
- Setup LAN & SAN
 Connectivity Polices,
 creating HA Pair of vNICs
 and vHBAs, and making
 sure to place those HA
 Pair's of PCle devices on
 different Adapters

vNIC/vHBA	PCI Order	Placement	Switch ID
vhba0	0	MLOM	А
vhba1	0	1	В
vnic0	1	MLOM	А
vnic1	1	1	В
vnic2	2	MLOM	ŅΑ
vnic3	2	1	В



Intersight LAN & SAN Connectivity Policies

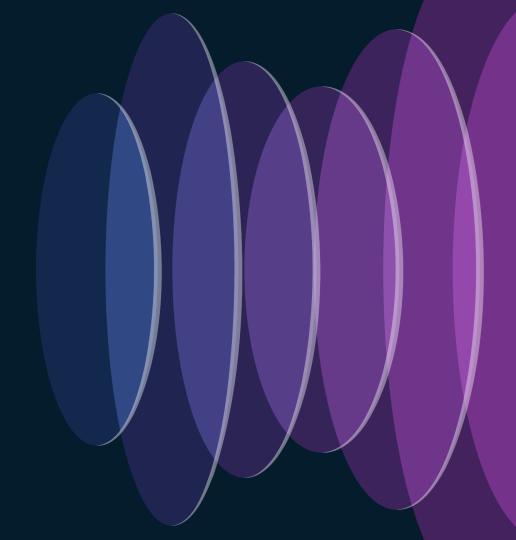
Tutorial and Recorded Demo!



https://www.youtube.com/watch?v=O1oMmwPxjnQ



Transitioning from Standalone Orgs to Shared Orgs

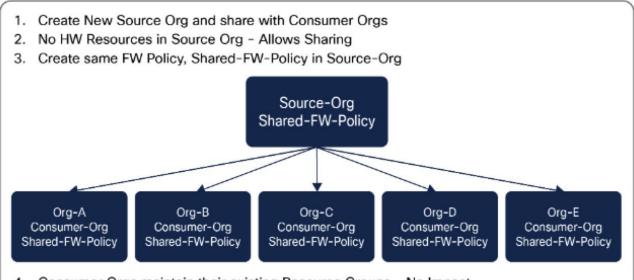


Migrating from Standalone Orgs to Shared Orgs





Migrating from Standalone Orgs to Shared Orgs



- Consumer Orgs maintain their existing Resource Groups No Impact
- Within each SP-Template/SP in each Consumer Org, edit and change reference for the FW-Policy to the Shared-FW-Policy in the Source-Org
- After all SP-Templates/SPs have switched their references to the Shared-FW-Policy in the Source-Org, remove the individual FW-Policies in the Consumer-Orgs (Cleanup)



ORANGE - Silo'd Org GREEN - Silo'd Org

T-Org-A Silo'd

- Domain Policies
- DP Templates/DPs
- UUID/MAC Pools
- Server Policies (FW Policy)
- SP Templates/SPs
- RG Server 1

T-Org-B Silo'd

- Domain Policies
- DP Templates/DPs
- UUID/MAC Pools
- Server Policies (FW Policy)
- SP Templates/SPs
- RG Server 2, Server 3

ORANGE - Target Org GREEN - Target Org BLUE - Shared Org

SH-Org

- Domain Policies
- DP Templates/DPs
- Server Polices : SH-FW-Policy

T-Org-A

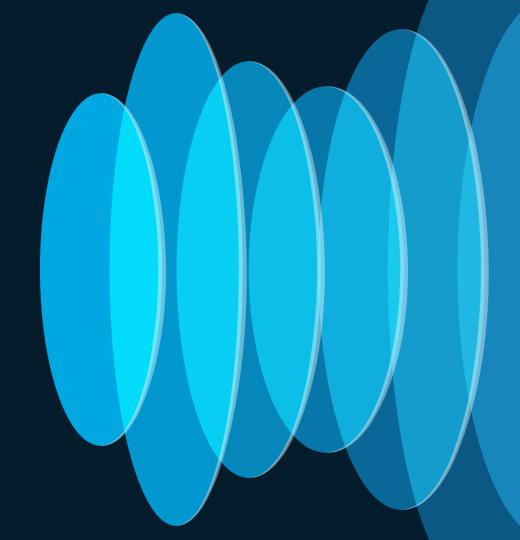
- Domain Policies
- DP Templates/DPs
- UUID/MAC Pools
- Server Policies (FW Policy)
- SP Templates/SPs
- RG Server 1

T-Org-B

- Domain Policies
- DP Templates/DPs
- UUID/MAC Pools
- Server Policies (FW Policy)
- SP Templates/SPs
- RG Server 2, Server 3



IMM Server Policy Cleanup – Discovery Cleanup



Server Policy Cleanup

New Capability - Available in Q3FY24 - 1st Phase

- Goal: Cleanup configurations when policies are removed from a deployed Server Profile and the Profile is re-deployed
- Existing Profiles When a policy is detached, and the SP is not redeployed, then that Profile will be marked as "Inconsistent with Pending Changes" and will be cleaned-up on next SP deploy
- Some 16 Policies will be cleaned-up ...
- Won't be touching Storage Policies & there's nothing to clean-up with FW Policies



Server Policy Cleanup - Discovery

New Capability - Available in Q3FY24 - 1st Phase

- Policy Cleanup during first time Discovery
- Policy Cleanup also during Decommission/Recommission Considered first time Discovery



Domain/Chassis Profile Templates

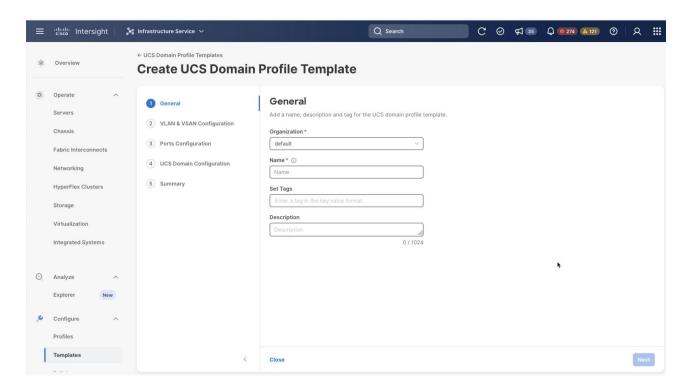


Domain Profile & Chassis Profile Templates!

- Very Powerful to scale UCS Domains, particularly for near future UCS-X Direct
- For Each Domain Profile Template Derive up to 20 Domain Profiles
- For Each Chassis Profile Template Derive up to 80 Chassis Profiles
- For Domain Profile Templates Consider FI Types, Consider Port Policies, Consider VLAN/VSAN Policies

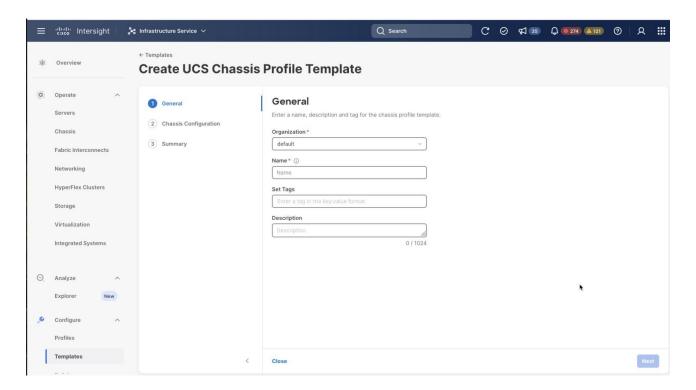


Domain Profile Template



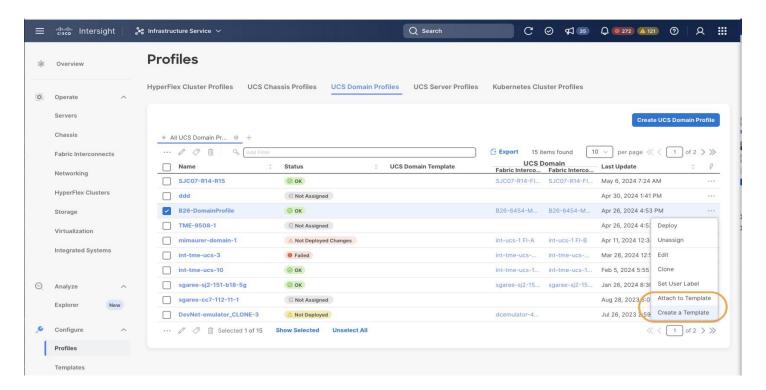


Chassis Profile Template



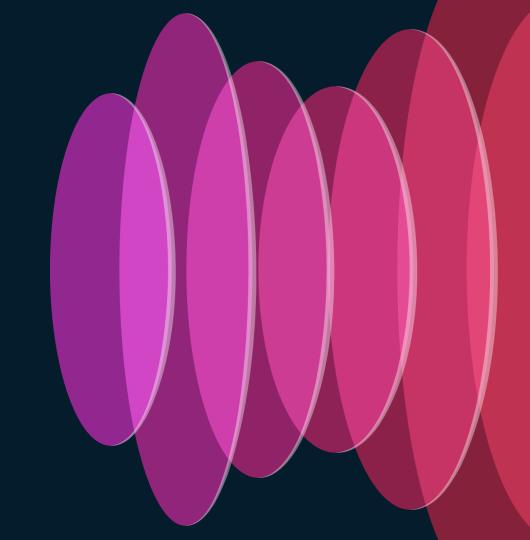


Create DPT from a DP or Attach DP to DPT

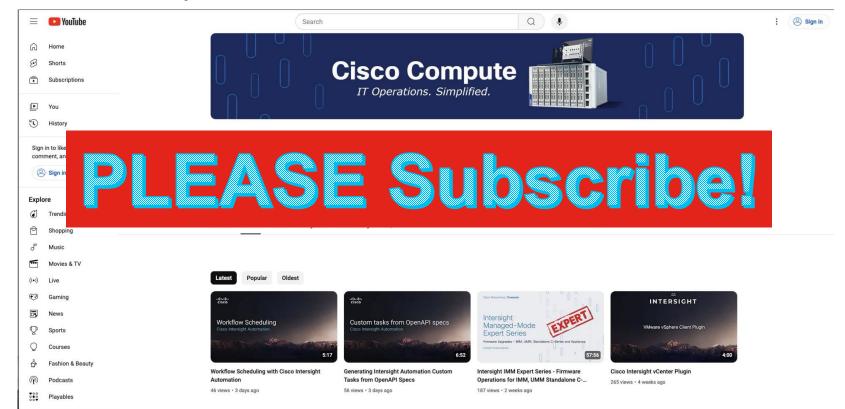




Intersight Learning Resources



Cisco Compute - YouTube Channel



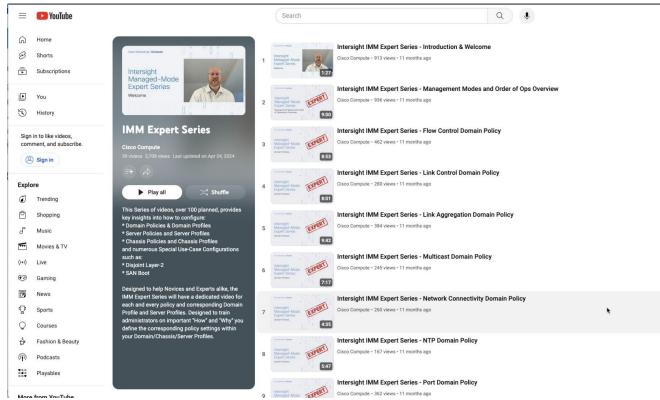
Cisco Compute - YouTube Channel URL & QR Code



https://www.youtube.com/@CiscoCompute/videos



IMM Expert Series of Videos - 39 & Counting ...





IMM Expert Series - Cisco Compute **URL & QR Code**

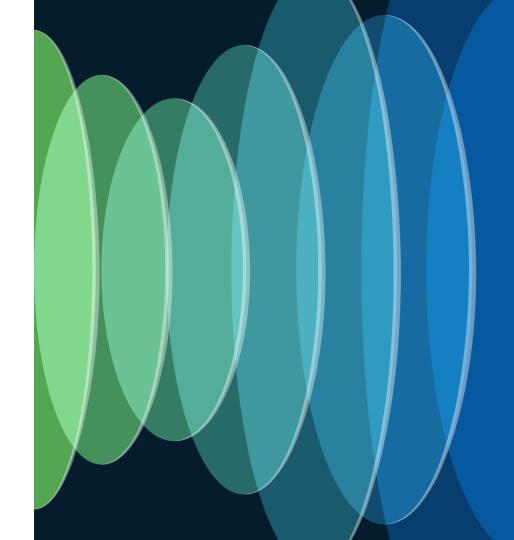


https://www.youtube.com/playlist?list=PLIIKAL_0d4EyjLS_chD-BecRc3NrT8O6X



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Session Demo's Video YouTube Link



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https://youtu.be/_ss0DDtKQSU



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Thank you

