## SSM On-Prem 8.X High Availability Cluster Working

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## Introduction

This document describes how the Smart Software Manager (SSM) On-Prem Account synchronization and Product Instance registration works on the SSM On-Prem server deployed as a High Availability (HA) Cluster, at the time of Failover and Fallback scenarios.

## Prerequisites

#### Requirements

Cisco recommends that you have knowledge of these topics:

- SSM On-Prem
- HA

#### **Components Used**

The information in this document is based on SSM On-Prem 8 and above.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

## **Background Information**

These are the reference documents that provide information on HA.

- <u>https://www.cisco.com/web/software/286285517/151968/Smart\_Software\_Manager\_On-Prem\_8\_Console\_Guide.pdf</u>
- <u>https://www.cisco.com/web/software/286285517/152313/Smart\_Software\_Manager\_On-Prem\_8-202006\_Installation\_Guide.pdf</u>

# SSM On-Prem Account Synchronization during Failover and Fallback

HA between two SSM On-Prem servers should be configured with the help of this guide:

Deploy the HA cluster: <u>https://www.cisco.com/web/software/286285517/152313/Smart\_Software\_Manager\_On-Prem\_8-202006\_Installation\_Guide.pdf</u>

In this demonstration, use:

- .5 Primary Server's IP Address
- .10 Secondary Server's IP Address
- .12 Virtual IP Address

#### **High Availability**

1. Successful configuration of HA shows Primary server (.5) as Active, Secondary server (.10) as Standby and VIP (.12) sd shown in the image.



2. Synchronization of SSM On-Prem with Cisco Software Central has been completed successfully from the Primary/Active server as shown in the image.

ululu cisco									Logg	ed In Accou	int   Log Out
Smart So	oftware N	lanage	er On-Prem				Network			Syster	m Health Good
Access	High Sy	nchron Acc	ization	Schedules			Ger	ens192	Network Inter	Server Na Version Uptime	Your machine is working well me CentOS 8-202006 1 day
Accounts	Availabilit Status Network	Major Name	Minor m-on-prem-8-202006	Satellite Name	Last Synchronization 2020-Sep-01 14:13:44	Synchro 2020-0	c C	IPv4 Address	S	Resou CPU RAM DISK	I Constant of Percentage
	counts	8	Account Requests	Event Log						8 Recen	it Alerts
API Tooli	New Accou	Int	Đ				Searc	th by Account N	Name		
	Account annanr-ssm-o prem-8-2020	on- 06	Requested By	Cisco Smart Accou	nt Cisco Virtual Accour annanr-SSM-On- Prem-8-202006	it Aci	count Status tive	Actions Actions		dmin	octed Users 00:06:1
								Sh	owing All 1 Records		

3. Cluster HA status show that the primary server's database (Replication Master) on the left replicates to the secondary server's database (Replication Slave) on the right as expected as shown in the image.



#### Failover

1. Stopping HA cluster on Primary Server as shown in the image.



2. Primary|Secondary as shown in the image.



- 3. Logged into the SSM On-Prem GUI with the use of VIP and the Primary GUI is down.
- 4. The secondary server (.10) is shown as an Active server.
- 5. Heartbeat is disconnected.
- 6. Primary server (.5) moved to Standby state.

uluilu cisco							
Smart S	oftware Mana	High Availability Host Event	Logs		8	Syste	m Health Good
Access Management	Security	Degraded The cluster is degraded One	of the cluster nodes is offline	Heartbeat Connection status: Disconne	octed	Server Ni Version Uptime Resoo	rour machine is working well ime CentOS 8-202006 1 day urce Monitor Percentage
		VIP .12				RAM DISK	-
hoodunis	outings	Active Serve public address (*	.10)	Standby public address	y Server	ens192	
	20	secondary-node (19	2.168.1.5)	primary-node	(192.168.1.4)		
API Toolkit	Support Center				***		
	<b>3</b>	Active		Degr	aded	Conn &admin	octed Users 00:00:25
High Availability Status	Synchronization	System Information					
	(Ú)	Physical Memory	7.62 GB	Physical Memory			
Network	Users	Disk Space	7.70 GB	Disk Space			
		Current Version	8-202006	Current Version			

7. Synchronization of SSM On-Prem Account with Cisco Software Central can be seen successfully from the Secondary/Active server GUI as shown in the image.

cisco													
Smart S	oftware	Mo	Dagor On Bro									System He	alth
omarco	ontinuit	Acc	ounts							*		💽 Go	od
<b>P</b>	9	_	Accounts	Account Requests	Event Log		Network				8	Server Name Version	CentOS 8-202006
Access Management	Security		New Account	D			Gen	eral	Network Interface	Proxy		Uptime	1 day
			Account	Requested By	Cisco Smart Account C	isco	•••	Connected	1	PUBLIC ^		CPU	Monitor Percentage
Accounts	Sattinge		annanr-ssm-on- prem-8-202006	annanr@cisco.com	u com a	nnar Tem-		IPv4 Address	10	Subnet Mask 255.255.255.0		RAM DISK	
Accounts	Gottinga							IPv6 Addre	55	Prefix		ens192 *	↑ 635.6 KB/s ↓ 161 KB
TOOLS	•	Sy	Accounts	Schedules				View Interfa	3C0			Recent Ak	erts
API Toolkit	Support	1		_							_		
			🚺 Major 🕕 Minor									Connected	d Users
	( 🚵		Name	Satellite Name	Last Synchronization							admin	00:02:26
High Availability	Synchroniz	ati	annanr-ssm-on-prem-8	3-202006 annanr-ssm-o	n 2020-Sep-01 14:13:	:44							
Status	ļ												
Network	Users										fiis		

8. Starting the HA cluster on the Primary server as shown in the image.



9. HA Cluster status shows that the Primary database is replicated from the Secondary database.

10. Primary|Secondary as shown in the image.



11. GUI shows heartbeat as connected, Secondary in Active state and Primary in Standby state as shown in the image.



		High Availability				8
<del>6</del>	I)	Host	Event Logs			
Access /lanagement	Security	Normal		Heartb	eat	
		The status of the	high availability cluster is norm		ion status: Connected	
Accounts	Settings	VIP ·	.12			
	**		Active Server		Sta	ndby Server
		public	address ( 10)		public add	dress ( i.5)
API Toolkit	Support	second	ary-node (192.168.1.5)	Λ	primary-r	node (192.168.1.4)
	Center	E Deservice C C C C C C C C C C C C C C C C C C C	Active		i i i i i i i i i i i i i i i i i i i	Standby
High	Synchronia		Addive			olandoy
Availability Status						
	ļ	System Infor	mation			
Network	Users	Physical Mem	ory 7.62	GB	Physical Memory	
		Disk Space	7.70	GB	Disk Space	
		Current Versi	on 8-202	200	Current Version	

12. Create a new TEST account and activate it on Active standby. (.10) server.

13. Primary (.5) GUI will not be accessible at this stage.

counts							
Accounts	Account Requests	Event Log					
New Account	D			-	Search by Account Name		
Account	Requested By	Cisco Smart Account	Cisco Virtual Account	Account Status	Actions		
annanr-ssm-on-prem-8- 202006	annanr@cisco.com	.com	annanr-SSM-On-Prem-8- 202006	Active	Actions		
TEST	annanr@cisco.com		TEST123	Active	Actions		
					Showing All 2 Records		

VIP	.12	
	Active Server	Standby Server
	public address (* .10)	public address (
	secondary-node (192.168.1.5)	primary-node (192.168.1.4)
California (Ca	**	
	Active	Standby

#### Fallback

1. Stopping Ha\_cluster in Secondary as shown in the image.



2. The current status of the Primary server's database and Secondary server's database can be seen here.



- 3. Logged into the SSM On-Prem GUI with the use of VIP and the Secondary GUI is down.
- 4. The Primary server (.5) is shown as an Active server.
- 5. Heartbeat is disconnected.
- 6. Secondary server (.5) moved to Standby state.



7. The newly created TEST Account can be seen in synced state as the replication happened from Secondary to Primary database as shown in the image.

ahah	High Availability	Account   Log Out
cisco	Host Event Logs	
Smart Software Manager On-Prem	Degraded     The cluster is degraded One of the cluster nodes is offline     Heartbeat     Connection status: Disconnected	System Health GOOD Your machine is working well lerver Name CentOS dension 8-202006 bitime 1.dev
Access Security Management	VIP .12	pane roay
• *	Active Server Standby Server public address (* 1.5) public address (* .10)	CPU   RAM DISK
Accounts Settings	primary-node (192.168.1.4) secondary-node (192.168.1.5)	ns192 → ↑ 876.4 KB/s ↓ 371
		Recent Alerts
API Toolkit Support	Active	
Center	Accounts Account Requests Event Log	cted Users 00:01:43
High Synchronization Availability	New Account Search by Account Name	
Status	Account Requested By Cisco Smart Account Cisco Virtual Account Account Status Actions	
	annanr-ssm-on- prem-8-202006 annanr@cisco.com com Prem-8-202006 Active Actions	
Network Users	TEST annanr@cisco.com com TEST123 Active Actions	
Accounts	Showing All	I 2 Records
		di.
Major O Minor	Search by Name	
Name	astremme mame Lass synchronization Synchronization U/ue Alerts Ac	
TEST	TEST 2020-Sep-02 07:35:42 2020-Oct-02 07:35:42 Synchronization Successful Acti	

8. GUI will be accessible from the VIP address (.12) at this stage and not the secondary IP address.

9. Starting HA Cluster on the Secondary server as shown in the image.



10. The cluster HA status shows that the Primary server's database (Replication Master) on the left is replicating to the secondary server's database (Replication Slave) on the right as expected as shown in the image.



11. The GUI shows Heartbeat connected between Active Primary server and Standby Secondary server.

12. The TEST account synchronizes successfully with Cisco Software Central.



# Product Instance Registration with SSM On-Prem VIP during Failover and Fallback

High Availability between two SSM On-Prem servers should be configured using this guide:

Deploying the HA

cluster: <u>https://www.cisco.com/web/software/286285517/152313/Smart\_Software\_Manager\_On-Prem\_8-202006\_Installation\_Guide.pdf</u>

In this demonstration, use:

- .11 Primary Server's IP Address
- .9 Secondary Server's IP Address
- .14 Virtual IP Address

#### **High Availability**

1. Successful configuration of HA that shows Primary server (.11) as Active, Secondary server (.9) as Standby and VIP (.14).

cisco							Licensing Workspace	
Smart So	oftware	Mana High A	eger On-Prem vailability Host Event Logs			8		System Health Constraints of the sworking well Server Name annan-8-202105 Version 8-202105 Uptime 14 days
Management		0	Normal The status of the high availability cluster is a	ormal. Connect	eat iion status: Connected			Resource Monitor Percentage CPU   RAM DISK   Ventors
Accounts	Getunga	VIF	.14					ens192
TOOLS	•		Active Server public address ( '.11)		Stand public addre	by Server ss ( .9)		Insufficient Licenses
API Toolkit	Support Center	and the second second	primary-node (169.254.0.1)		secondary-ne	anctby		Connected Users Ledmin 00.07/26
Status	ļ	Sy	stem Information					
Network	Users		Active Server		Standby S	erver		
			Physical Memory 7 Disk Space 7	.62 GB .83 GB	Physical Memory Disk Space	1		
			Current Version 8	202105	Current Version			

2. Cluster HA status shows that the primary server's database (Replication Master) on the left replicates to the secondary server's database (Replication Slave) on the right as expected as shown in the image.

MCSD Status: primaty-mode: Online secondary-mode: Online	PCDS Status: secondary-node: Online primary-node: Online
Seemen Status: sorosys: active/emabled pscemaker: active/emabled psdf: active/emabled Last legin: Sum Jum 20 10:12:43 UTC 2021 on pts/0	Deemon Statuu: correspo: sctive/enabled pscemaker: active/enabled pcdd: sctive/enabled Last legin: Sun Jun 20 10:11:42 UTC 2021 on pts/0
Database Replication Status:	Database Replication Status:
Database is currently the replication master - Replicating to secondary-node ( .9)	Database is currently the replication slave - Replicating from primary-node (
seplication to slave: client_addr   backend_start   state  write_lag  flush_lag   replay_lag	Replication to slave: Client_addr   backend_start   state   write_lag   flush_lag   replay_lag
	(0 rows)
140/204.0.2 /2021-06-18 15:58:57.211321+00   streeming   0   0   0 (1 row)	Replication from master: pg_last_klog_replay_location
Replication from master: pg_last_ulog_replay_location	0/C763AF8 (1 row) >> >>

3. When SSM On-Prem is deployed as a HA Cluster, login to SSM On-Prem **Administration Workspace**, navigate to the **Security** > **Certificates** and use the Virtual IP Address on the Host Common Name. 4. This value must match the value you plan to use for the product destination URL. If deploying dual-stack (both IPv4 and IPv6) this value must be an FQDN and not an IP address.

5. After you have updated the Host Common Name, ensure that your certificates are regenerated with the new Common Name by synchronizing your Local Accounts with Cisco Smart Software Manager.

6. You must synchronize before attempting to re-register the products with the new Common Name in the destination URL configuration.

7. Not synchronizing can result in the products failing to register with the new Host Common Name.

cisco	Licensing Workspace	Logged In Account Log Out
Smart Software Manager On-Prem		System Health
Security Account Password Certificates	Event Log	Your machine is working well Server Name annan-8-202105 Version 8-202105 Uptime 14 days
Access Security Management Product Certificate Host Common Name .14		Resource Monitor Percentage CPU 1 RAM DISK 1
Accounts Settings Save NOTE: The Host Common Name is typically composed of Host + Domain Name a for product communications is specific to the Common Name that has been issue to configure the Cisco Product when connecting to SSM On-Prem. If you change issue a new CSR	and will look like "www.yoursite.com" or "yoursite.com". The SSL Server Certificate used ed at the Host. Therefore, the Common Name must match the Web address you will use the Common Name, you must resynchronize your Local Account in order for Cisco to	ensitiz • 1.8 MB/s • 1.8 MB/s Recent Alerts Insufficient Licenses
API Toolkit Support Center Add Generate CSR		Connected Users Ladmin 00:15:11
High Synchronization Availability Status		Lagged In   Account   Lag Out
cisco	Product Registration URL ×	Admin Workspace
Smart Software Manager On-Prem > Smart Licensing Smart Licensing	https://14/Transportgateway/services/DeviceRequest-fandle t Press ctrl + c to copy selected text to clipboard.	annann-sam-on-prem-8-2021 👻
Alerts Inventory Convert to Smart Licensing Reports Preference	ces Activity	
Local Virtual Account: Default General Licenses Product Instances SL Using Policy	Event Log	
Local Virtual Account		
Description This is the default virtual account create Default Local Virtual Account: Yes	ted during company account creation.	
Product Instance Registration Tokens The registration tokens below can be used to register new product instances to this Local Wrtual Account. For product support Smart Likerning Using Policy that use calue as transport, you must configure the "license smart transport relise use the Smart Call Home Registration URL: The recommendent embid is Smart Transport. Press cound your Prov	ucts that support Smart Transport, you must configure the "license smart urt" on the product to use the Smart Transp Iu" to use the CSLU Transport URL. For legacy products that still use Smart Cail Home, you must configure the "dest	ort Registration URL. For products that ination address http:" on the product to

8. Two product instances, (annanr-39) and (cucmpub) are registered to SSM On-Prem's VIP address as seen on the **Product Instances** tab.

9. License consumed/requested by these product instances are reflecting on the License tab.

cisco							🐣 Hello, Local Admir	Admin Workspace	eccos   rayou		
Smart Software Man	ager On-Prem > Smart Licensing							annanr-ssm-on-prem-8	-2021 👻		
Smart L	icensing										
Alerts	Inventory Convert to S	mart Licensing Repo	rts Preferences	Activity							
Local Virtu	al Account: Default										
Gene	eral Licenses	Product Instances	SL Using Policy	Event Log							
Þ								Search by Name, Product Type Q			
Name		Product Type	Last Contact	Alerts			Actions				
UDI_PID:	PI-SOFTWARE;UDI_SN:annanr-39	SDNMGMT	2021-Jun-20 18:39:00				Actions				
cuompub	1	UCL	2021-Jun-20 18:36:56				Actions				
							10 - Showing	g Page 1 of 1(2 Records)  4 ≪  > >			
								Logged in J	ccount Log Out		
cisco							🐣 Hello, Local Admin	Admin Workspace			
Smart Software Mar Smart L	nager On-Prem > Smart Licensing							annanr-ssm-on-prem-8-	2021 🗸		
Alorte	Investory Convert to S	mart Licensing Danc	de Profemocos	Articity							
		interesting top		- Adding							
Local Virtu	al Account: Default										
Gen	eral Licenses	Product Instances	SL Using Policy	Event Log							
Available	Actions * Manage License Tags-	C						By Name By Tag Search by License Q			
0 10	inse	Billing	Purchased	In Use	Substitution	Balance	Alarts	Actions			
	me Infrastructure 3.x, BASE Lic.	Prepaid	0	1	CODD. MININ	-1	Insufficient Licenses	Actions *			
D Priz	me Infrastructure 3.x, Lifecycle Lic.	Prepaid	0	34		-34	O Insufficient Licenses	Actions -			
	Manager Enhanced License (12.x)	Prepaid	0	3		-3	O Insufficient Licenses	Actions *			
	Manager Enhanced Plus License (12.x)	Prepaid	0	1		-1	O Insufficient Licenses	Actions *			
	Manager Telepresence Room License (12.x)	Prepaid	0	1		-1	O Insufficient Licenses	Actions •			

Showing All 5 Records

#### Failover

1. Stopping HA cluster on Primary Server as shown in the image.

PCSD Status: primary-node: Online secondary-node: Online	PCBD Status: secondary-mode: Online primary-mode: Online
Daemon Status: corosync: active/enabled pscemaker: active/enabled pcsd: active/enabled Last login: Sun Jun 20 18:12:43 UTC 2021 on pts/0	Daemon Status: corosync: active/enabled pacemaker: active/enabled pcsd: active/enabled Last login: Sun Jun 20 18:11:42 UTC 2021 on pts/0
Database Replication Status:	Database Replication Status:
Database is currently the replication master - Replicating to secondary-node ( '.9)	Database is currently the replication slave - Replicating from primary-node ( .11)
Replication to slave: olient_addr   backend_start   state   write_lag   flush_lag   replay inc	Replication to slave: 
169.254.0.2   2021-06-18 15:58:57.211121+00   streaming   0   0 (1 row)	(@ rows) Replication from master: pg_last_slog_replay_location
Replication from master: pg_last_xlog_replay_location	0/C763AF8 (1 Tow)
(1 row)	
>> ha_cluster_stop Last login: Sun Jun 20 18:12:45 UTC 2021 on pts/0	a b b
Stopping Cluster (pacemaker)	
Stopping Cluster (corosync)	

- 2. Logged into the SSM On-Prem GUI with the use of VIP (.14) and the Primary GUI is down.
- 3. Secondary server (.9) is shown as an Active server.
- 4. Heartbeat is disconnected.
- 5. The Primary server (.11) is moved to the Standby state.

cisco				Licensing Workspace
Smart Software	e Mana	ger On-Prem		System Health
	High Av	vailability	8	Your machine is working well
		Host Event Logs		Server Name annanr/2018-05 Varsion 8-202105
Access Security Management		Degraded	Heartbeat	Resource Monitor Percentage
	) —	The cluster is degraded One of the cluster nodes is offlin	Connection status: Disconnected	CPU   RAM DISK
Accounts Settings	VIP	.14		ens192 v 15.8 MB/s 43.9 MB/s
		Active Server	Standby Server	Insufficient Licenses
		public address (	public address ( 11)	
API Toolkit Support Center	rt r cal	secondary-node (169.254.0.2)	primary-node (169.254.0.1)	
🛑 🚳	E mar			Connected Users
High Synchronic	ia	Active	Cogradou	
Status				
🛞 🏢	Sys	stem Information		
Network Users		Active Server	Standby Server	
		Physical Memory 7.62 GB	Physical Memory	
		Current Version 8-202105	Current Version	

6. Registering product instances with the use of SSM On-Prem VIP in product registration URL at Transport Gateway setting as shown in the image.



7. Product Instance Name: pi37 has been successfully registered with SSM On-Prem with the use of a VIP address as shown in the image.

etc.					Q - Application Search	🐥 😣 9	root - ROOT-DOMAIN	٥
Administration / Licenses and Softwar	re Updates / Smart Software Lie	censing 🖈				Licensing Dash	board   🚱 💭 🗭	5
Licensing Settings License Dashboard Setting	8							
Smart Software Licensing								-
To view and manage Smart Licenses for your Cisco Sr	nart Account, go to Smart Software Manager							
Smart Software Licensing Status								
Licensing Mode Smart Software Licens	ina							
Product Name Prime Infrastructure								
Registration Status 🔤 Registered (Jun 20.	2021)							
License Authorization Status 🙁 Out of Compliance	(Jun 20, 2021)							
Smart Account annanr-ssm-on-prem-8	3-202105							
Virtual Account Default								
Product Instance Name pi37								
Transport Settings Transport Galeway vie	w) cat							
<ul> <li>Smart License Usage</li> </ul>								
Choose Licenses			Last updated: Sunday Jun 20, 20	21 at 7:28 PM				
License 🔺	Description	Count	Status					
Prime Infrastructure 3.x, Assurance Lic.	The Assurance license	2	🙁 Out of Compliance	0				
Prime Infrastructure 3.x, BASE Lic.	The Base license	1	😣 Out of Compliance	0				
Prime Infrastructure 3.x, Lifecycle Lic.	The Lifecycle license	14	😣 Out of Compliance	0				
Prime Infrastructure 3.x, UCS Server MGMT Lic.	The Data Center license	0	No Licenses in Use	0				
Prime Infrastructure 3.x, UCS VM	The Data Center Hypervisor license	0	No Licenses in Use	0				
Actions v								

8. Registering other product instances with the use of SSM On-Prem VIP in product registration URL at Transport Gateway setting.

Success Smart agent registered successfully

- Status									
Transport settings saved successfully.									
Configure how the product instance will communicate with Cisco.									
○ Direct - product communicates directly with Cisco licensing servers.									
U	JRL : https://tool	ls.cisco.com/its/service/oddce/services/DDCEServic	e:						
• Transport Gateway - proxy data via Transport Gateway or Smart Softwa	re Manager satel	llite.							
U	JRL : https://	.14/Transportgateway/services/De							
O HTTP/HTTPS Proxy - send data via an intermediate HTTP or HTTPS Proxy	/.								
Authentication needed on HTTP or HTTPS proxy									
IP Address/Host Na	me :								
Р	ort :								
User Na	me :								
Passwo	ord :								
Do not share my hostname or IP address with Cisco.									

9. Product registration successfully completed with SSM On-Prem using a VIP address as shown in the image.

- Chabus
i Registration completed successfully
Smart Software Licensing Product Registration
To register the product for Smart Software Licensing:
Paste the Product Instance Registration Token you generated from Smart Software Manager or your Smart Software Manager satellite

10. Product Instance Name: cucm-pub-30 has been successfully registered with SSM On-Prem with the use of a VIP address as shown in the image.

Cisco Unified CM Administr	ation s		
System      Call Routing      Media Resources      Advanced F	eatures - Device - Application -	User Management 👻 Bulk Administration 👻 Help 👻	
License Management			
Status			
Smart Software Licensing: The system is operating w	ith an insufficient number of licenses.	Configure additional licenses in Smart Software Manag	er within 72 days to avoid losing the ability to provision users and devices.
- Smart Software Licensing			
Registration Status		Registered	
License Authorization Status		Out of Compliance (Sunday, June 20, 2021 10:29	53 PM FEST)
Smart Account		annanr-ssm-on-prem-8-202105	
Virtual Account		Default	
Product Instance Name		cucm-pub-30	
Export-Controlled Functionality		Allowed Transport Cateway View/Edit the Licensing Empire Co	Liene estines
Licensing Mode		Enterprise	Linome securings
Below is a summary of current license usage on the s     deployment.     View All License Type Descriptions And Device Classificatio     Update Usage Details     Usage Details Usage Details Last Updated: 2021     r License Requirements by Type	ystem. Current usage details for each ns -06-20 22:30:09	type are available by pressing "Update Usage Details"	Note that collecting these data is a resource intensive process and may take several
License Type	Current Usage	Status	Report
CUWL	0	No Licenses in Use	Users( 0 )   Unassigned Devices( 0 )
Enhanced Plus	0	No Licenses in Use	Users( 0_)
Enhanced	44	🙆 Out of Compliance	Users( 8.)   Unassigned Devices( 36.)
Basic	2	🙆 Out of Compliance	Users( 1 ) Unassigned Devices( 1 )
Essential	4	Out of Compliance	Users( 0.)   Unassigned Devices( 4.)
TelePresence Room	0	🗹 No Licenses in Use	Users( 0 )   Unassigned Devices( 0 )
- lisers and linesigned devices			
Lines		View Hanne Benert	
Unassigned Devices	41	View Usage Report	
		11517 Scientific 135(551.5	

11. Two new product instances, (pi37) and (cucm-pub-30) are registered to SSM On-Prem's VIP address as seen on the **Product Instances** tab.

12. License consumed/requested by these product instances are reflecting on the License tab.

				🐣 Hello, Local Adr	Logge min Admin Workspace	
	n > Smart Licens				annanr-ssm-on-p	prem-8-21
	ļ					
nsing Reports	story C	Reports Preferences Activity				
	: Default					
ct Instances S	Licenses	SL Using Policy Event Log				
					Search by Name, Product Type Q	
ct Type		Last Contact Alert	rts	Actio	ins	-
IGMT	UDI_SN:annanr-39	2021-Jun-20 18:39:00		Actic	ons	
AGMT	UDL_PID:PI-SOFTWARE;UDL_SN:pi37: SDNMGMT			Actio	ons	
		2021-Jun-20 18:36:56		Actic	ons	
		2021-Jun-20 19:28:51		Actic	ons	
		2021-Jun-20 19:28:51		Action	ons wing Page 1 i	of 1(4 Records)  { 🕂 帐 >> >

cisco							📥 Hello, Local Admin	Admin Workspace
Smart Software Manager	On-Prem > Smart Licensing							annanr-ssm-on-prem-8-2
Smart Lice	nsing							
Alerts	Inventory Convert to Smart Uo	ansing Reports	Preferences	Activity				
Local Virtual A	ccount: Default							
General	Licenses Prod	luct Instances SL	Using Policy	Event Log				
Available Actio	ns * Manage Libense Tags	Ð						By Name By Tag Search by License Q
License		Billing	Purchased	In Use	Substitution	Balance	Aierts	Actions
Prime Infr	rastructure 3.x, Assurance Lic.	Prepaid	0	2		-2	Insufficient Licenses	Actions +
Prime infr	astructure 3.x, BASE Lio.	Prepsid	0	2		-2	Insufficient Licenses	Actions +
<ul> <li>Prime Infr</li> </ul>	rastructure 3.x, Lifecycle Lic.	Prepaid	0	48		-48	Insufficient Licenses	Actions +
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	ger Enhanced License (12.x)	Prepaid	0	47		-47	Insufficient Licenses	Actions +
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UC Mana	ger Enhanced Plus License (12.x)	Propaid	0	1		-1	Insufficient Licenses	Actions +
UC Mana UC Mana	ger Enhanced Plus License (12.x) ger Essential License (12.x)	Propaid	0	1		-1 -4	Insufficient Licenses     Insufficient Licenses	Actions * Actions *

13. Starting the HA cluster on the Primary server.



14. HA Cluster status shows that the Primary database is replicated from the Secondary database.

15. Primary|Secondary as shown in the image.



16. GUI shows heartbeat as connected, Secondary in Active state and Primary in Standby state as shown in the image.



#### Fallback

1. Stopping Ha\_cluster in secondary.

2. Current status of the Primary server's database and the Secondary server's database down can be seen.

Last login: Sun Jun 20 18:58:34 UTC 2021 on pts/0	>> >>
Database Replication Status: Database is currently the replication slave - Replicating from secondary-node (	<pre>&gt;&gt; ha_cluster_stop Last login: Sun Jun 20 18:45:56 UTC 2021 Stopping Cluster (pacemaker)</pre>
Replication to slave: 	Stopping Cluster (corosync)
(@ rows)	<pre>&gt;&gt; ha_status Last login: Sun Jun 20 18:47:20 UTC 2021 on pts/0 Fron: Outstar is not currently running on this onde</pre>
Replication from master: pg_last_xlog_replay_location	Last login: Sun Jun 20 18:57:24 UTC 2021 on pts/0
0/E012F30 (1. row)	Database Replication Status:
	DB service not currently running.

- 3. Logged into the SSM On-Prem GUI using VIP (.14) and the Secondary GUI is down.
- 4. Primary server (.11) is shown as an Active server.
- 5. Heartbeat is disconnected.
- 6. Secondary server (.9) moved to Standby state.



7. GUI will be accessible from the VIP address (.14) at this stage and not the Secondary IP address.

8. Starting HA Cluster on the Secondary server.



9. Cluster HA status shows that the primary server's database (Replication Master) on the left replicates to the secondary server's database (Replication Slave) on the right as expected.

PCD Status: primary-node: Online secondery-node: Online	PCBD Status: secondary-ndde: Online primary-ndde: Online
Daemon Status: corosync: active/enabled pacemaker: active/enabled pcsd: active/enabled Last login: Sun Jun 20 19:05:59 UTC 2021 on pts/0	Daemon Status: corosync: active/enabled pacemaker: active/enabled pcsd: active/enabled Last login: Sun Jun 20 19:04:47 UTC 2021 on pts/0
Database Replication Status:	Database Replication Status:
Database is currently the replication master - Replicating to secondary-node ( .9)	Database is currently the replication slave - Replicating from primary-node ( 11)
Replication to slave: client_addr   backend_start   state   write_lag   flush_lag   replay inc	Replication to slave: client_sddr   backend_start   state   write_lag   flush_lag   replay_lag
169.254.0.2   2021-06-20 19:01:56.616211+00   streaming   0   0 (1 row)	Replication from master: pg_last_slog_replay_location
Replication from master: pg_last_rlog_replay_location	0/1000000 (1 row)
0/E012F30 (1 row)	

10. The GUI shows Heartbeat connected between Active Primary server and Standby Secondary server.



11. All four product instances registered to SSM On-Prem's VIP address as seen on the **Product Instances** tab.

12. License consumed/requested by these product instances are reflecting on the License tab.

				Logged In Ao
ware Manager On-Prem > Smart Licensing				annan-ssm-on-prem-8-200
Alerts Inventory Convert to 3	Smart Licensing Re	ports Preferences A	ctivity	
al Virtual Account: Default				
General Licenses	Product Instances	SL Using Policy Event L	og	
()				Search by Name, Product Type Q
Name	Product Type	Last Contact	Alerts	Actions
UDI_PID:PI-SOFTWARE;UDI_SN:annann-39	SDNMGMT	2021-Jun-20 18:39:00		Actions
UDI_PID:PI-SOFTWARE;UDI_SN:pi37:	SDNMGMT	2021-Jun-20 19:26:47		Actions
cuempub	UCL	2021-Jun-20 18:36:56		Actions
cucm-pub-30	UCL	2021-Jun-20 19:28:51		Actions
				10 💌 Showing Page 1 of 1(4 Records)  4 44  >>  4

co						📥 Hello, Local Admin	Admin Workspace
Software Manager On-Prem > Smart Licensing							annam-ssm-on-prem-
Smart Licensing							
Alerts Inventory Convert to Smart U	icensing Reports	Preferences	Activity				
Local Virtual Account: Default							
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## **Downgrade a High Availability Cluster**

- 1. A Cisco Smart Manager On-Prem cluster can be directly downgraded to a single node standalone.
- 2. Use the On-Prem Console to connect to the Primary/Active SSM On-Prem with the use of the <ha\_teardown> command.
- 3. After you verify the SSM On-Prem's operation, the Secondary/Standby server must be discarded and cannot be reused.
- 4. You will now have a standalone system instead of a cluster.
- 5. The teardown has been initiated as shown in the image.



6. Triggering teardown on the Secondary server as shown in the image.

```
Database Replication Status:
Database is currently the replication slave - Replicating from primary-node (
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
(0 rows)
Replication from master:
pg_last_xlog_replay_location
0/9000D30
Last login: Wed Sep 2 11:12:42 UTC 2020 on pts/0
and convert this service node into stand-alone mode without a cluster.
This script operates on the local service node and will not
Adjusting firewall...
success
The interface is under control of NetworkManager, setting zone to default.
success
Destroying HA cluster...
Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
Shutting down pacemaker/corosync services...
Killing any remaining services...
Removing all cluster configuration files...
Disabling HA services.
Removed symlink /etc/systemd/system/multi-user.target.wants/pcsd.service.
Stopping SSH tunnel
Cleaning up...
atlantis_default
rvice.
Deleting SSH tunnel user...
HA cluster has been destroyed. SSMS is now in stand-alone mode.
```

7. HA cluster has been destroyed. SSMS is now in a stand-alone mode.



8. GUI accessed with the use of the Secondary server IP address does not snow the High availability widget anymore.

alialia cisco								Logger	d in   Account   Log Out	
Smart Se	oftware Manage	er On-Prem							System Health	
Access Management	Settings	Accounts	Schedules		8				Your machine is Server Name CentOS Version 8-20200 Uptime 1 day	working well
Accounts	Support	Major Minor Name annanr-ssm-on-prem-8-202006	Satellite Name annanr-ssm-on	Last Synchronization 2020-Sep-02 07:33:32	Synchroniz 2020-Oct-	Network			Resource Monitor P CPU I RAM	arcentage 3/s ↓ 397.5 KB/s
API Toolkit	Synchronization	TEST	TEST	2020-Sep-02 07:35:42	2020-Oct-	General ens192 Connected Pv4 Address	Network Interface	Proxy Subnet Mask 255 255 255 0	PUBLIC ^	
Network	Users					IPv6 Address	i	Prefix		00:01:17

9. Triggering teardown on the Primary server as shown in the image.



10. HA has been disabled successfully.



11. GUI accessed with the use of the Primary server IP address does not snow the High availability widget anymore.

ululu cisco										Log	ged in Accour	t   Log Out	
Smart So	oftware Manager	On-Prem								System	m Health		
Access	Settings	Accounts	ns	ichedules					(	8	Server Nar Version Uptime	Your machine is working the CentOS 8-202006 2 days	well
management		O Major O M	or				Search by Nam		Resource Monitor Percentage				
	•	Name		Satellite Name	Last Synchronizat	ion Sy	nchronization Due	Alerts	Actions	-	RAM		
Accounts	Support	annanr-ssm-on-pr	m-8-202006	annanr-ssm-on	2020-Sep-02 07:	33:32 20	020-Oct-02 07:33:32	Synchronization Successful	Actions		Interface		
	Center	TEST		TEST	2020-Sep-02 07:	35:42 20	020-Oct-02 07:35:42	Synchronization Successful	Actions		ens192	↑ 943.5 KB/s	↓ 429 KB/s
TOOLS	<b>a</b>		Network				8			h.	Necen	Allenta	
API Toolkit	Synchronization			Seneral	Network Interface	_	Proxy						
			•	ens192			PUBLIC ^				Conne	ted Users	
Network	Users			IPv4 Address		Subnet Mar 255.255.	sk .255.0				<b>≜</b> admin	oc	:00:25
				IPv6 Address		Prefix							
Security				Edit Interface	,								

#### What Next?!

1. Log in to SSM On-Prem Primary **Administration Workspace**, navigate to the **Security > Certificates** and use the Primary server's (IP address/Hostname/FQDN) on the Host Common Name.

2. After you have updated the Host Common Name, ensure that your certificates are regenerated with the new Common Name by synchronizing your Local Accounts with Cisco SSM.

3. You must synchronize before you attempt to re-register the products with the new Common Name in the destination URL configuration.

4. Not synchronizing can result in the products failing to register with the new Host Common Name.

## **Related Information**

Console Guide:

https://www.cisco.com/web/software/286285517/151968/Smart\_Software\_Manager\_On-Prem\_8\_Console\_Guide.pdf • User Guide:

https://www.cisco.com/web/software/286285517/151968/Smart\_Software\_Manager\_On-Prem\_8\_User\_Guide.pdf

Installation Guide:
 <u>https://www.cisco.com/web/software/286285517/152313/Smart\_Software\_Manager\_On-Prem\_8-202006\_Installation\_Guide.pdf</u>

<u>Technical Support & Documentation - Cisco Systems</u>