



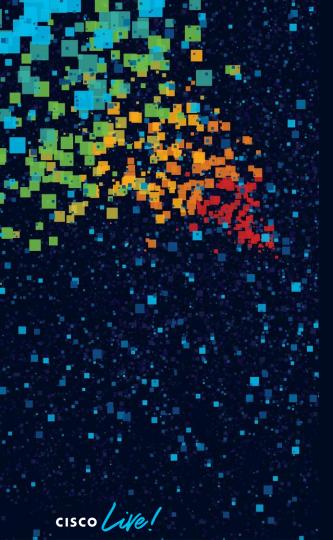
#CiscoLive

# DGTL-TSCDCN-307 Hyperflex Licensing Demystified

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DGTL-TSCDCN-307

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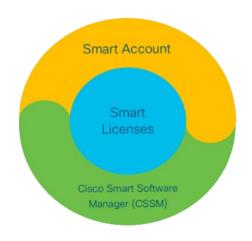
# Agenda

- Introduction
- Smart Licensing Refresher
- Hyperflex Licensing Overview
- Hyperflex Smart Licensing
- Hyperflex License Reservations
- Conclusion



## Cisco Smart Licensing

- Flexible approach that streamlines the management of your software licenses.
- Smart Account used to create users and groups, and organize licenses according to your business needs.
- Cisco Smart Software Manager (CSSM)
   CSSM is an intuitive portal where you
   can activate and manage all of your
   Cisco licenses. An On-Prem version is
   available for security-sensitive
   customers.





### Cisco Smart Licensing

### What makes Smart Licenses different?

#### Classic Licenses:



#### Limited view

Customers often do not know what licenses they own.



#### PAK registration

Customers must manually register each device with a product activation key.



#### Device-specific

Licenses are specific to only one device.

#### Smart Licenses:



#### Complete view

Software, services, and devices are all visible in an easy-to-use portal.



#### Easy registration

No product activation keys (PAKs) needed. Activation is easy and software is ready to use.



#### Company-specific

Flexible licensing with use across all devices.



# Cisco Smart Licensing Types

- Direct For environments with direct or proxy'd Internet access
- On-premises Deploy a Smart Software Manager on-premises
- Offline Site with no direct or indirect access to the Internet

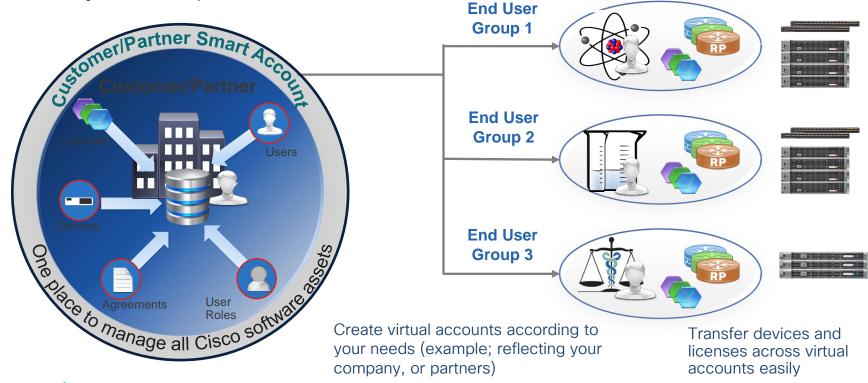
Deployment options for different security profiles



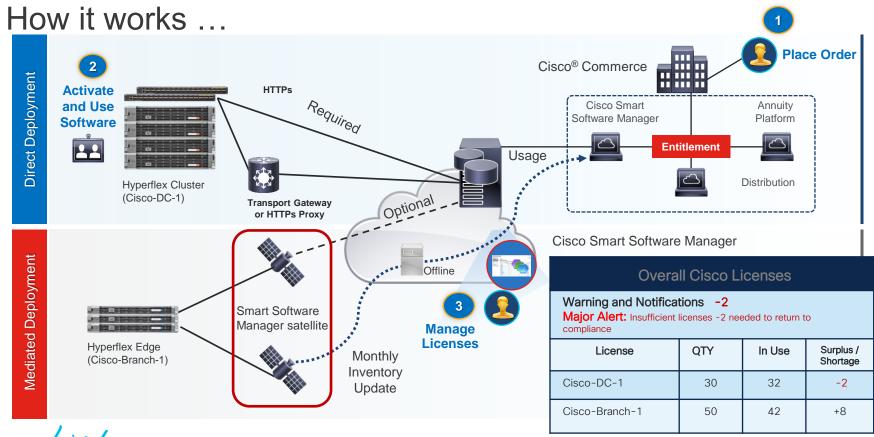


### **Smart Accounts & Virtual Accounts**

Assets are represented as company owned allowing effortless sharing across your enterprise



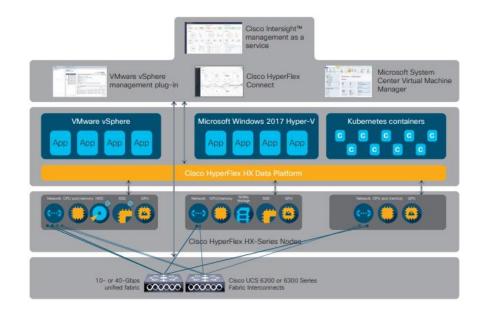
# Deploying Smart License Enabled Hyperflex





# Hyperflex Licensing Overview

- Hyperflex License
- OS/Hypervisor License
  - VMware ESXi
  - Microsoft Windows Server
  - Cisco Container Platform
  - Kubernetes





# Hyperflex License types

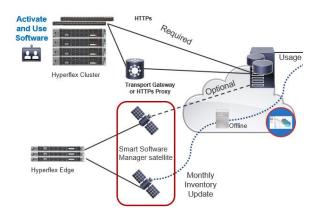
- Either Online or License Reservation based
- 3 license levels

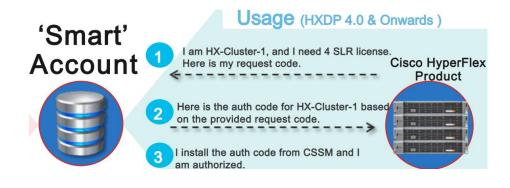
Cisco HX Data Platform Software Edition	Description
Edge	HyperFlex Data Platform Edge Edition (applicable only for Edge platform type).
Standard	HyperFlex Data Platform Standard Edition (applicable only for Datacenter platform types).
Enterprise	HyperFlex Data Platform Enterprise Edition (applicable only for Datacenter platform types).



# Hyperflex Smart License types

- Online license is token based and connects directly to the Internet or via your Smart Satellite Connector.
- License Reservation for dark sites where there is no direct or indirect Internet access.







# VMware ESXi license types

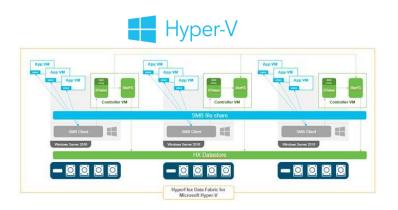
Embedded License Keys Versus PAC License Keys for Hypervisors

	<u> </u>
Embedded License Keys	PAC License Keys
Pre-installed at factory.	Requires manual activation.
No VMware.com download entitlement including core ESXi software, add-on features, and patches. Software is obtained from Cisco.	Full VMware.com download entitlements.
No active and centralized management of license keys through <i>My VMware Portal</i> .	Active and centralized management of license keys including: folder organization, user delegation with role-based access controls, and full license history view.
Pre-installed on each node.	Nodes will ship with vSphere Foundation key.

 Also have the option of Foundation licenses and you bring your own ESXi keys to install after cluster is setup.

# Windows Server Hyper-V and other hypervisors

- Can purchase Windows Server Standard or Data Center with the HX Cluster or use your own site licenses for Windows Server.
- Cisco Container Platform
  - Licensed per Kubernetes node









## Hyperflex Edge

- HyperFlex Data Platform Edge Edition (applicable only for Edge platform type).
- Notable features:
  - 2-4 node Cluster size
  - No Fabric Interconnect requirement
  - 1G/10G and Single/Dual network topologies





# Hyperflex Standard

- HyperFlex Data Platform Standard Edition (applicable only for Datacenter platform types).
- Notable features:
  - Compute Only Nodes
  - Self Encrypting Drives (SED)
  - 10G/25G/40G connectivity
  - NVMe Cache tier





# Hyperflex Enterprise

- HyperFlex Data Platform Enterprise Edition (applicable only for Datacenter platform types).
- Notable features:
  - All NVMe on Capacity tier
  - Hardware Acceleration cards
  - Stretch Clusters
  - Performance Turbo/ Boost





### **Default License**

- Enabled Once Cluster is Formed
- 90-Day Evaluation Mode until Registration

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show summary

Smart Licensing is ENABLED

Registration:
   Status: UNREGISTERED
   Export-Controlled Functionality: Not Allowed

License Authorization:
   Status: EVAL MODE
   Evaluation Period Remaining: 78 days, 8 hr, 15 min, 34 sec
   Last Communication Attempt: NONE
```





### License Help command

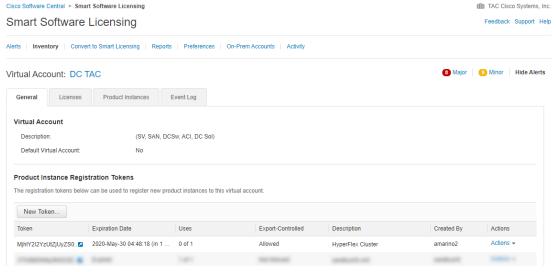
```
# stcli license --help
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license --help
usage: stcli license [-h] {register,deregister,show,renew,reservation} ...
smart licencing operations
positional arguments:
  {register, deregister, show, renew, reservation}
   register
   renew
   deregister
   show
   reservation
optional arguments:
 -h, --help
                        show this help message and exit
```



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# Register with Smart Licensing Portal - Step 1

- Generate Token in Virtual Account
  - Inventory > General > New Token
- Use stcli commands to register Hyperflex Cluster.





# Register with Smart Licensing Portal - Step 2

# stcli license register -idtoken IDTOKEN

admin@SpringpathControllerDKIJ1H7WT8:~\$ stcli license register --idtoken MjhlY2I2YzUtZ jUyZS00NzRkLTgwN2QtZDMxZmE3OGRlNjRhLTE1OTA4MTQw%0AOTg5MjZ8Mk8xeGtzb3lPajhPK3V4azlBVWJO YWYrT0xHM013ZytFUkY3ZElM%0AU3Uwdz0%3D%0A

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show summary
Smart Licensing is ENABLED
Registration:
  Status: REGISTERED
  Smart Account: TAC Cisco Systems, Inc.
  Virtual Account: DC TAC
  Export-Controlled Functionality: Allowed
  Initial Registration: SUCCEEDED on May 29 16:49:22 2020 NZST
  Last Renewal Attempt: SUCCEEDED on May 29 16:49:22 2020 NZST
  Next Renewal Attempt: Nov 25 17:49:22 2020 NZDT
  Registration Expires: May 29 16:44:22 2021 NZST
License Authorization:
  Status: AUTHORIZED on May 29 16:49:31 2020 NZST
  Last Communication Attempt: SUCCEEDED on May 29 16:49:31 2020 NZST
  Next Communication Attempt: Jun 28 16:49:31 2020 NZST
  Communication Deadline: Aug 27 16:44:30 2020 NZST
License Conversion:
 Automatic Conversion Enabled: true
 Status: NOT STARTED
Utility:
  Status: DISABLED
Transport:
  Type: CALLHOME
License Usage:
  License
                              Entitlement Tag
                                                                                                                          Status
  1c06ca12-18f2-47bd-bcea-518ab1fd4520regid.2016-11.com.cisco.HX-SP-DP-S001,1.0 1c06ca12-18f2-47bd-bcea-518ab1fd4520 4
                                                                                                                                   InCompliance
admin@SpringpathControllerDKIJ1H7WT8:~$
```



### Show all

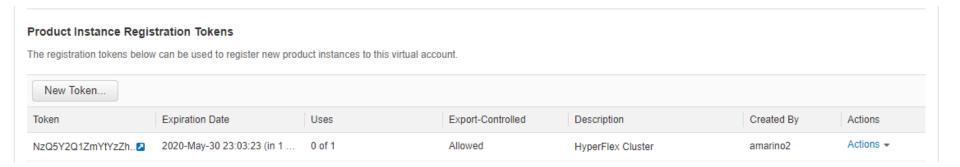
#### # stcli license show all

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show all
Smart Licensing Status
_____
Smart Licensing is ENABLED
Registration:
  Status: REGISTERED
  Smart Account: TAC Cisco Systems, Inc.
  Virtual Account: DC TAC
  Export-Controlled Functionality: Allowed
  Initial Registration: SUCCEEDED on May 29 16:49:22 2020 NZST
  Last Renewal Attempt: SUCCEEDED on May 29 16:49:22 2020 NZST
  Next Renewal Attempt: Nov 25 17:49:22 2020 NZDT
  Registration Expires: May 29 16:44:22 2021 NZST
License Authorization:
  Status: AUTHORIZED on May 29 16:49:31 2020 NZST
  Last Communication Attempt: SUCCEEDED on May 29 16:49:31 2020 NZST
  Next Communication Attempt: Jun 28 16:49:31 2020 NZST
  Communication Deadline: Aug 27 16:44:30 2020 NZST
License Conversion:
 Automatic Conversion Enabled: true
 Status: NOT STARTED
Utility:
  Status: DISABLED
Transport:
  Type: CALLHOME
Evaluation Period:
  Evaluation Mode: Not In Use
 Evaluation Period Remaining: 78 days, 8 hr, 9 min, 53 sec
```

```
License Usage
_____
License Authorization Status: AUTHORIZED as of May 29 16:49:31 2020 NZST
Cisco SP HyperFlex HX Data Platform SW v2.0 (HX-SP-DP-S001)
 Description: Cisco SP HyperFlex HX Data Platform SW v2.0
 Count: 4
 Version: 1.0
 Status: AUTHORIZED
 Export status: NOT RESTRICTED
  Feature Name: <empty>
 Feature Description: <empty>
Product Information
============
UDI: PID:HX220C-M4S, SN:14723289804880925, VID:9005386072666678297
Agent Version
_____
Smart Agent for Licensing: 3.0.9
admin@SpringpathControllerDKIJ1H7WT8:~$
                         © 2020 Cisco and/or its affiliates, All rights reserved. Cisco Public
          DGTL-TSCDCN-307
```

### Check license usage in a virtual account

Before and after using Token.



#### Product Instance Registration Tokens

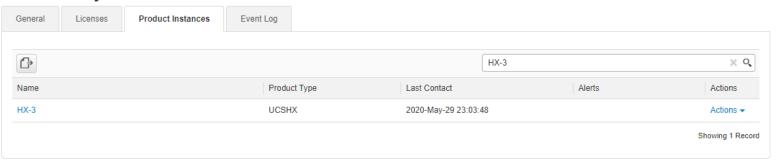
The registration tokens below can be used to register new product instances to this virtual account.

New Token						
Token	Expiration Date	Uses	Export-Controlled	Description	Created By	Actions
NzQ5Y2Q1ZmYtYzZh	Expired	1 of 1	Allowed	HyperFlex Cluster	amarino2	Actions ▼



### Check the Product Instance

### Inventory > Product Instances > Search for Cluster Name







### Troubleshooting - Check Status

If there is any error during registration it will show at "Status" line

admin@SpringpathControllerDKIJ1H7WT8:~\$ stcli license show status Smart Licensing is ENABLED Registration: Status: REGISTERED Smart Account: TAC Cisco Systems, Inc. Virtual Account: DC TAC Export-Controlled Functionality: Allowed Initial Registration: SUCCEEDED on May 29 16:49:22 2020 NZST Last Renewal Attempt: SUCCEEDED on May 29 16:49:22 2020 NZST Next Renewal Attempt: Nov 25 17:49:22 2020 NZDT Registration Expires: May 29 16:44:22 2021 NZST License Authorization: Status: AUTHORIZED on May 29 16:49:31 2020 NZST Last Communication Attempt: SUCCEEDED on May 29 16:49:31 2020 NZST Next Communication Attempt: Jun 28 16:49:31 2020 NZST Communication Deadline: Aug 27 16:44:30 2020 NZST License Conversion: Automatic Conversion Enabled: true Status: NOT STARTED Utility: Status: DISABLED Transport: Type: CALLHOME admin@SpringpathControllerDKIJ1H7WT8:~\$



### Troubleshooting – check tech-support

- # stcli license show tech-support
- It shows when next registration/auth renew check-in will happen and cert expiration date.

```
Upcoming Scheduled Jobs
REG RETRY: Not Available
AUTH RENEW: Sun Jun 28 16:49:31 NZST 2020
REG RENEW: Wed Nov 25 17:49:22 NZDT 2020
DEREG RETRY: Not Available
EVALUATION: Not Available
EVAL NOTIFY: Not Available
DLC POLL: Not Available
DLC RETRY: Not Available
RUM REPORT: Not Available
EXPORT AUTH RETRY: Not Available
EXPORT KEY RETURN RETRY: Not Available
EXPORT AUTH POLL: Not Available
EXPORT KEY RETURN POLL: Not Available
License Certificates
_____
ID Cert Info:
 Start Date: Fri May 29 16:44:22 NZST 2020
 Expiry Date: Sat May 29 16:44:22 NZST 2021
 Version: 3
 Serial Number: 13009434
 SUDI List:
Signing Cert Info:
 Start Date: Thu Sep 12 07:05:34 NZST 2013
 Expiry Date: Mon May 31 07:48:46 NZST 2038
 Version: 3
 Serial Number: 3
 SUDI List:
```

```
Other Info
==========
Software ID: regid.2016-11.com.cisco.HXDP_License,1.0_da0fa11c-dd27-4206-9926-b438459d45a9
Agent state: authorized
Transport: TransportCallHome
Locale: en_US.UTF-8
Current State ID: 4
Auth failed flag: off
Reg attempt flag: off
Reg failed flag: off
Cert type: Prod
Logger debug level: N/A
Event log max size: 5.00 MB
Event log current size: 1.35 KB
admin@SpringpathControllerDKIJ1H7WT8:~$
```



### Return License

# stcli license deregister

 Cluster returns to remaining countdown on 90 day Evaluation License.

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license deregister admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show summary

Smart Licensing is ENABLED

Registration:
   Status: UNREGISTERED
   Export-Controlled Functionality: Not Allowed

License Authorization:
   Status: EVAL MODE
   Evaluation Period Remaining: 78 days, 8 hr, 9 min, 53 sec
   Last Communication Attempt: NONE
```





# Specific License Reservation (SLR)

 Cisco HyperFlex Data Platform (HXDP) Software SKUs for disconnected and air-gapped deployments

HXDP SKU	Description		
Specific License Registration			
HXDP-S-SLR	Cisco HyperFlex Data Platform Standard Edition Specific License Registration Subscription		
HXDP-P-SLR	Cisco HyperFlex Data Platform Enterprise Edition Specific License Registration Subscription		
HXDP-E-SLR	Cisco HyperFlex Data Platform Edge Edition Specific License Registration Subscription		



### License Reservation Help command

# stcli license reservation --help

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license reservation --help
usage: stcli license reservation [-h]
                                  {enable, disable, request, install, return, cancel}
smart licencing reservation operations
positional arguments:
  {enable, disable, request, install, return, cancel}
    enable
    disable
   request
   install
   return
    cancel
optional arguments:
  -h, --help
                        show this help message and exit
admin@SpringpathControllerDKIJ1H7WT8:~$
```



# License Reservation Steps

- Enable / Disable Reservation
- 2. Reservation Request
- Generate Auth Code
- 4. Install Auth Code

### Optional

- Return Auth Code
- 2. Cancel Request



### **Enabling License Reservation**

# stcli license reservation enable

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license reservation enable
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show summary
Smart Licensing is ENABLED
License Reservation is ENABLED
Registration:
  Status: UNREGISTERED
  Export-Controlled Functionality: Not Allowed
License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 78 days, 8 hr, 1 min, 53 sec
  Last Communication Attempt: NONE
```



### Generate License Reservation Request

#stcli license reservation request

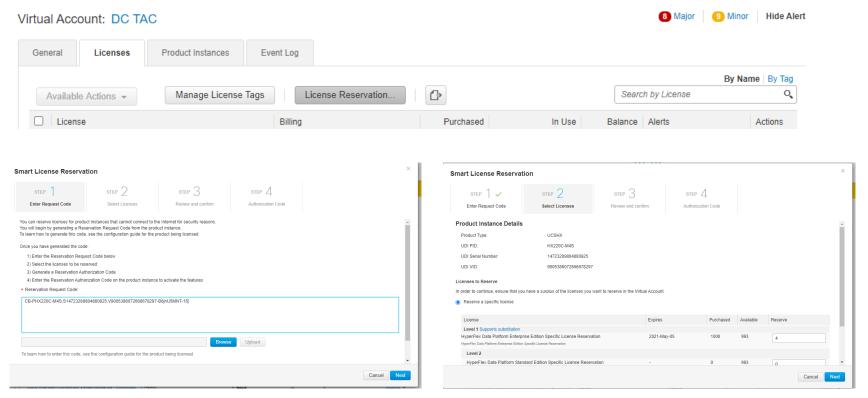
```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license reservation request
Enter the following reservation request code into the CSSM:
CB-PHX22OC-M4S,S14723289804880925,V9005386072666678297-B6jnU5MNT-15
admin@SpringpathControllerDKIJ1H7WT8:~$
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show reservation

Smart Licensing is ENABLED
License Reservation is ENABLED
RESERVATION IN PROGRESS
Request Code:CB-PHX22OC-M4S,S14723289804880925,V9005386072666678297-B6jnU5MNT-15
```



### Submit License Reservation Request Code

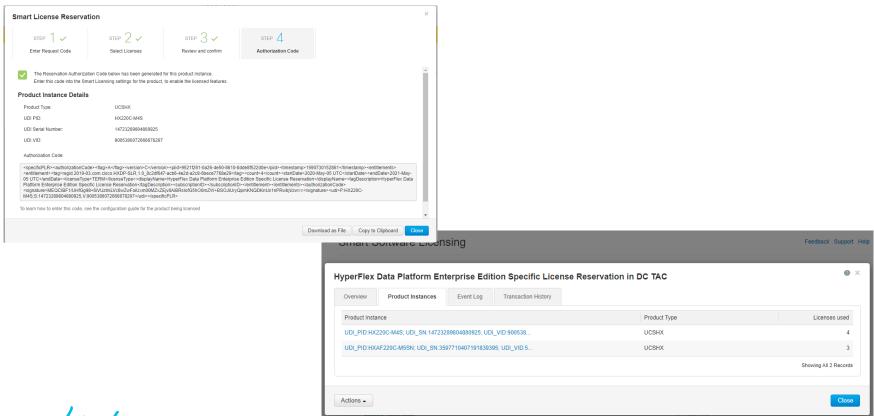
### Submit Request Code and get Auth Code from CSSM





### License Reservation Authorization Code

Submit Request Code and get Auth Code from CSSM



### License Reservation Authorization Code

Copy Authorization Code to the Storage Controller VM.

#### 🔚 AuthorizationCode.txt 🗵

admin@SpringpathControllerDKIJ1H7WT8:~\$ vim authcode.txt
admin@SpringpathControllerDKIJ1H7WT8:~\$ cat authcode.txt
<specificPLR><authorizationCode><flag>A</flag><version>C</version><piid>9521f261-0a26-4e50-86
co.HXDP-SLR,1.0\_8c2df647-acb6-4e2d-a2c8-6bece7768e29</tag><count>4</count><startDate>2020-May
Platform Enterprise Edition Specific License Reservation</displayName><tagDescription>HyperF
nID></entitlement></entitlements></authorizationCode><signature>MEQCIBF1/UHfGg98+6iVUztniLVc6
80925,V:9005386072666678297</udi>



### Install License Reservation Authorization Code

#stcli license reservation install -file ~/authcode.txt

```
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license reservation install --file authcode.txt
admin@SpringpathControllerDKIJ1H7WT8:~$
admin@SpringpathControllerDKIJ1H7WT8:~$ stcli license show reservation
Smart Licensing is ENABLED
License Reservation is ENABLED
Specified License Reservations:
  Status: SPECIFIC INSTALLED - SUCCEEDED on Fri May 29 17:36:09 NZST 2020
  Export-Controlled Functionality: Allowed
 Request Code: CB-PHX220C-M4S,S14723289804880925,V90053860726666678297-B6jnU5MNT-15
 Last Confirmation Code: 12e79faa
   License Type: TERM
   Description: HyperFlex Data Platform Enterprise Edition Specific License Reservation
   Start Date: 2020-May-05 NZST
   End Date: 2021-May-05 NZST
   Count: 4
    Subscription ID:
```



### **Show License Reservation**

#### # stcli license show all

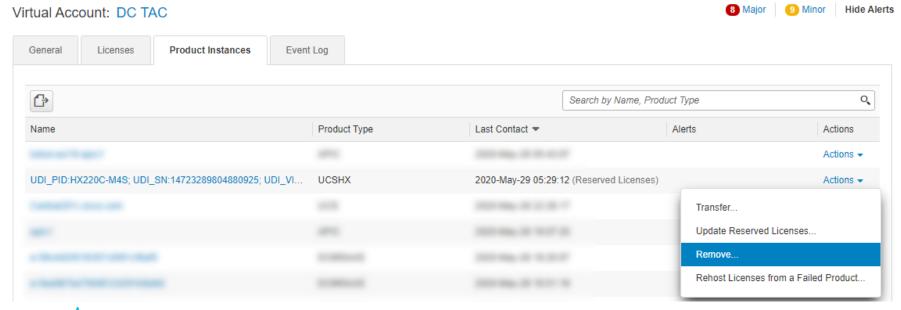
admin@SpringpathControllerDKIJ1H7WT8:~\$ stcli license show all License Usage \_\_\_\_\_ License Authorization Status: Smart Licensing Status Status: AUTHORIZED - RESERVED on Fri May 29 17:36:09 NZST 2020 Last Communication Attempt: SUCCEEDED on May 29 17:36:09 2020 NZST Smart Licensing is ENABLED Next Communication Attempt: NONE Communication Deadline: NONE License Reservation is ENABLED HyperFlex Data Platform Enterprise Edition Specific License Reservation (HXDP-SLR) Registration: Description: <empty> Count: 4 Status: REGISTERED - SPECIFIC LICENSE RESERVATION Version: 1.0 Export-Controlled Functionality: Allowed Status: AUTHORIZED Initial Registration: SUCCEEDED on Fri May 29 17:35:47 NZST 2020 Export status: NOT RESTRICTED Last Renewal Attempt: None Feature Name: <empty> Feature Description: <empty> License Authorization: Reservation: Reservation Status: SPECIFIC INSTALLED Status: AUTHORIZED - RESERVED on Fri May 29 17:35:47 NZST 2020 Total Reserved Count: 4 Term expiration: 2021-May-05 NZST Utility: Status: DISABLED Product Information \_\_\_\_\_ UDI: PID:HX220C-M4S, SN:14723289804880925, VID:9005386072666678297 Transport: Type: CALLHOME Agent Version \_\_\_\_ Evaluation Period: Smart Agent for Licensing: 3.0.9 Evaluation Mode: Not In Use Evaluation Period Remaining: 78 days, 7 hr, 46 min, 5 sec



### Return License Reservation

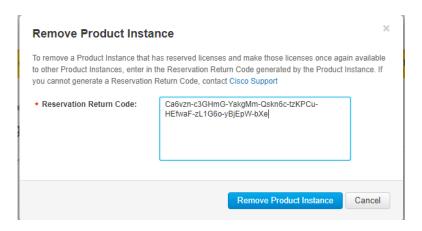
#### # stcli license reservation return

admin@SpringpathControllerDKIJ1H7WT8:~\$ stcli license reservation return
This command will remove the license reservation authorization code and the cluster will transition
back to the unregistered state. Are you sure you wish to continue [y/n]?y
Enter the following reservation return code into the CSSM:
Ca6vzn-c3GHmG-YakqMm-Qskn6c-tzKPCu-HEfwaF-zL1G6o-yBjEpW-bXe





### Return License Reservation









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