



# Cisco Smart Licensing for Video

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The Cisco Smart Licensing for Video on the Cisco cBR router leverages existing Cisco cBR Smart Licensing framework that includes Call Home and SLA capabilities.

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## Video Smart Licensing

The Cisco Smart Licensing feature uses a pooled license model. All FRUs in the chassis and multiple such chassis share the entitlements for Upstream (US), Downstream (DS), WAN, Narrowcast (NC), Broadcast (BC), encrypted licenses (PME, PKY, DVB), and Replicate (RPL) as long as they do not exceed the entitlement count for that pool.

For information on entitlement usage, see the [Cisco Smart Licensing](#).

## Information About Video Smart Licensing

### Benefits of Smart Licensing

Cisco Smart Licensing is intended to overcome the limitations and issues of the enforced licensing method. For more information, see the [Cisco Smart Licensing](#) document .

### Prerequisites for Video Smart Licensing

See the [Cisco Smart Licensing](#) document.

## Restrictions for Video Smart Licensing

For video services, the VCG service type determines the number of licenses consumed for bound VCGs. The QAM channel **shut/no shut** state has no relevance for video (unlike DOCSIS services). When the service type is not defined, the NC license entitlements are consumed per QAM channel.

## How to Verify Video Smart Licensing

### Verifying Video Smart Licensing Using Show Commands

Use the **show cable license** command to verify video smart licensing configuration.

To verify all license information, use the **show cable license all** command:

```
Router# show cable license all

-----
Entitlement:  Downstream License
Consumed count: 768
Consumed count reported to SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  Upstream License
Consumed count: 64
Consumed count reported to SmartAgent: 64 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  WAN License
Consumed count: 2
Consumed count reported to SmartAgent: 2 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  LCHA License
Consumed count: 0
Consumed count reported to SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  Video Narrowcast License
Consumed count: 0
Consumed count reported to SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  Video Narrowcast Replicate License Consumed count: 0 Consumed count reported
to SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  Video Narrowcast PKEY License Consumed count: 0 Consumed count reported to
SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  Video Narrowcast PME License Consumed count: 0 Consumed count reported to
SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement

-----
Entitlement:  Video Narrowcast DVB License Consumed count: 0 Consumed count reported to
SmartAgent: 0 Forced-Shut count: 0 Enforced state: No Enforcement
```

To view specific video license configuration, use the appropriate keyword with the **show cable license** command:

```
Router# show cable license ?
  all      Show all license information
  ds       DOCSIS downstreams
  lcha     LCHA groups
  nc       Narrowcast video
  nc_dvb   Narrowcast video DVB
  nc_pky   Narrowcast video PowerKEY
  nc_pme   Narrowcast video PME
  nc_rpl   Narrowcast video replicate
  us       DOCSIS upstreams
  wan      WAN ports
```

For example, to verify Narrowcast video configuration, use the **show cable license nc** command:

```
Router # show cable license nc
-----
Entitlement:  Video Narrowcast License
Consumed count: 128
Consumed count reported to SmartAgent: 128 Forced-Shut count: 0 Enforced state: No Enforcement
```

## Configuration Examples

### Example 1: Show Running Output for Basic Configuration

```
cable video
service-distribution-group sdg-lic id 64
  rf-port integrated-cable 7/0/0
service-distribution-group sdg-lic1 id 63
  rf-port integrated-cable 7/0/1
virtual-carrier-group vcg-lic1 id 158
  rf-channel 0 tsid 65535 output-port-number 1
virtual-carrier-group vcg-lic2 id 157
  rf-channel 1-3 tsid 65532-65534 output-port-number 2-4
virtual-carrier-group vcg-lic3 id 156
  rf-channel 4-7 tsid 65528-65531 output-port-number 5-8
virtual-carrier-group vcg-lic4 id 155
  rf-channel 8-15 tsid 65520-65527 output-port-number 9-16
virtual-carrier-group vcg-lic5 id 154
  rf-channel 16-31 tsid 65504-65519 output-port-number 17-32
virtual-carrier-group vcg-lic6 id 153
  rf-channel 32-63 tsid 65472-65503 output-port-number 33-64
virtual-carrier-group vcg-lic7 id 152
  rf-channel 64-127 tsid 65408-65471 output-port-number 65-128
virtual-carrier-group vcg-lic8 id 151
  rf-channel 0-127 tsid 65280-65407 output-port-number 129-256
bind-vcg
vcg vcg-lic1 sdg sdg-lic
vcg vcg-lic2 sdg sdg-lic
vcg vcg-lic3 sdg sdg-lic
vcg vcg-lic4 sdg sdg-lic
vcg vcg-lic5 sdg sdg-lic
vcg vcg-lic6 sdg sdg-lic
```

```

vcg vcg-lic7 sdg sdg-lic
vcg vcg-lic8 sdg sdg-lic1
exit

```

### Example 2: Show Running Output for QRG and NC License Configuration

```

cable video
service-distribution-group sdg-lic id 64
  rf-port integrated-cable 7/0/0
  rf-port integrated-cable 7/0/2
service-distribution-group sdg-lic1 id 63
  rf-port integrated-cable 7/0/1
  rf-port integrated-cable 7/0/3
  rf-port integrated-cable 7/0/4
  rf-port integrated-cable 7/0/5
  rf-port integrated-cable 7/0/6
  rf-port integrated-cable 7/0/7
virtual-carrier-group vcg-lic1 id 158
  rf-channel 0-55 tsid 65480-65535 output-port-number 1-56
virtual-carrier-group vcg-lic2 id 157
  rf-channel 0-55 tsid 65424-65479 output-port-number 57-112
bind-vcg
  vcg vcg-lic1 sdg sdg-lic
  vcg vcg-lic2 sdg sdg-lic1
exit

```

## Use Cases or Deployment Scenarios

### Case 1: Narrowcast Video Services with PowerKEY Encryption

```

cable video
encrypt
linecard 7/0 ca-system powerkey scrambler des
service-distribution-group sdg-lic id 64
  rf-port integrated-cable 7/0/0
  rf-port integrated-cable 7/0/2
  rf-port integrated-cable 7/0/3
service-distribution-group sdg-lic1 id 63
  rf-port integrated-cable 7/0/1
  rf-port integrated-cable 7/0/4
  rf-port integrated-cable 7/0/5
  rf-port integrated-cable 7/0/6
  rf-port integrated-cable 7/0/7
virtual-carrier-group vcg-lic1 id 158
encrypt
  rf-channel 0 tsid 65535 output-port-number 1
virtual-carrier-group vcg-lic2 id 157
  rf-channel 1-3 tsid 65532-65534 output-port-number 2-4
virtual-carrier-group vcg-lic3 id 156
encrypt
  rf-channel 4-7 tsid 65528-65531 output-port-number 5-8
virtual-carrier-group vcg-lic4 id 155
  rf-channel 8-15 tsid 65520-65527 output-port-number 9-16
virtual-carrier-group vcg-lic5 id 154
encrypt
  rf-channel 16-31 tsid 65504-65519 output-port-number 17-32

```

```

virtual-carrier-group vcg-lic6 id 153
  rf-channel 32-63 tsid 65472-65503 output-port-number 33-64
virtual-carrier-group vcg-lic7 id 152
encrypt
  rf-channel 64-127 tsid 65408-65471 output-port-number 65-128
virtual-carrier-group vcg-lic8 id 151
encrypt
  rf-channel 0-127 tsid 65280-65407 output-port-number 129-256
bind-vcg
vcg vcg-lic1 sdg sdg-lic
vcg vcg-lic2 sdg sdg-lic
vcg vcg-lic3 sdg sdg-lic
vcg vcg-lic4 sdg sdg-lic
vcg vcg-lic5 sdg sdg-lic
vcg vcg-lic6 sdg sdg-lic
vcg vcg-lic7 sdg sdg-lic
vcg vcg-lic8 sdg sdg-lic1
exit

```

## Case 2: Narrowcast Video Services with PME Encryption

```

cable video
encrypt
linecard 7/0 ca-system pme scrambler dvs042
service-distribution-group sdg-lic id 64
  rf-port integrated-cable 7/0/0
  rf-port integrated-cable 7/0/2
  rf-port integrated-cable 7/0/3
service-distribution-group sdg-lic1 id 63
  rf-port integrated-cable 7/0/1
  rf-port integrated-cable 7/0/4
  rf-port integrated-cable 7/0/5
  rf-port integrated-cable 7/0/6
  rf-port integrated-cable 7/0/7
virtual-carrier-group vcg-lic1 id 158
  rf-channel 0 tsid 65535 output-port-number 1
virtual-carrier-group vcg-lic2 id 157
encrypt
  rf-channel 1-3 tsid 65532-65534 output-port-number 2-4
virtual-carrier-group vcg-lic3 id 156
  rf-channel 4-7 tsid 65528-65531 output-port-number 5-8
virtual-carrier-group vcg-lic4 id 155
encrypt
  rf-channel 8-15 tsid 65520-65527 output-port-number 9-16
virtual-carrier-group vcg-lic5 id 154
  rf-channel 16-31 tsid 65504-65519 output-port-number 17-32
virtual-carrier-group vcg-lic6 id 153
encrypt
  rf-channel 32-63 tsid 65472-65503 output-port-number 33-64
virtual-carrier-group vcg-lic7 id 152
  rf-channel 64-127 tsid 65408-65471 output-port-number 65-128
virtual-carrier-group vcg-lic8 id 151
encrypt
  rf-channel 0-127 tsid 65280-65407 output-port-number 129-256
bind-vcg
vcg vcg-lic1 sdg sdg-lic
vcg vcg-lic2 sdg sdg-lic
vcg vcg-lic3 sdg sdg-lic
vcg vcg-lic4 sdg sdg-lic
vcg vcg-lic5 sdg sdg-lic
vcg vcg-lic6 sdg sdg-lic
vcg vcg-lic7 sdg sdg-lic

```

```
vcg vcg-lic8 sdg sdg-lic1
exit
```

## Feature Information for Video Smart Licensing

*Table 1: Feature Information for Video Smart Licensing*

Feature Name	Releases	Feature Information
Video Smart Licensing	Cisco IOS XE Everest 16.6.1	This feature was integrated on the Cisco cBR Series Converged Broadband Routers.