Upgrade Scenarios Covered in the MOP

- Upgrade from 6.0.1 + k9 sec (with or without SMUs installed) to R6.1.2 with k9sec + CDR3 SMU – Recommended
- R6.1.2 Prod SMU Installation – Only for already upgraded boxes

Scenario -1 : Upgrade from 6.0.1 + k9 sec + Prod SMUs (both) to R6.1.2 with k9sec + CDR3 SMU

Steps involved: (Overall time required : 1 hour 10 mins)

1. Validating the current status (5 mins)
2. Upgrade of SW and SMU (15 mins)
3. Updating FPD & Slice status (Traffic impact will be observed) (40 mins)
4. Validating the status after upgrade (10 mins)

1. Baseline the current status by executing below command. Please log the output for reference during and after the procedure

1.1 XR Active packages:

```
RP/0/RP0/CPU0:ios#show install active
Mon Apr  3 11:45:05.441 UTC
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv0
  Active Packages: 6
        ncs1k-xr-6.0.1 version=6.0.1 [Boot image]
        ncs1k-k9sec-2.0.0.0-r601
        ncs1k-iosxr-infra-2.0.0.1-r601.CSCuz86633
       ncs1k-parser-1.0.0.1-r601.CSCuz86633
       ncs1k-os-support-2.0.0.1-r601.CSCuz86634
       ncs1k-os-support-2.0.0.2-r601.CSCvb35594
```

1.2 XR committed packages:

```
RP/0/RP0/CPU0:ios#show install committed
Mon Apr  3 11:45:42.563 UTC
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv0
  Committed Packages: 6
       ncs1k-xr-6.0.1 version=6.0.1 [Boot image]
       ncs1k-k9sec-2.0.0.0-r601
      ncs1k-iosxr-infra-2.0.0.1-r601.CSCuz86633
```

ncs1k-parser-1.0.0.1-r601.CSCuz86633
ncs1k-os-support-2.0.0.1-r601.CSCuz86634
ncs1k-os-support-2.0.0.2-r601.CSCvb35594

1.3 Ncs1k-sysadmin Active packages:

sysadmin-vm:0_RP0# show install active
Mon Apr 3 12:13:48.102 UTC
Node 0/RP0 [RP]
Active Packages: 4
ncs1k-sysadmin-6.0.1 version=6.0.1 [Boot image]
ncs1k-sysadmin-ncs-common-6.0.1.2-r601.CSCva41433
ncs1k-sysadmin-ncs1k-6.0.1.2-r601.CSCva41433
ncs1k-sysadmin-shared-6.0.1.1-r601.CSCva41433

1.4 Ncs1k-sysadmin committed packages

sysadmin-vm:0_RP0# show install committed
Mon Apr 3 12:14:02.590 UTC
Node 0/RP0 [RP]
Committed Packages: 4
ncs1k-sysadmin-6.0.1 version=6.0.1 [Boot image]
ncs1k-sysadmin-ncs-common-6.0.1.2-r601.CSCva41433
ncs1k-sysadmin-ncs1k-6.0.1.2-r601.CSCva41433
ncs1k-sysadmin-shared-6.0.1.1-r601.CSCva41433

1.5 Current FPD Status:

RP/0/RP0/CPU0:ios#show hw-module fpd
Mon Apr 3 11:58:27.832 UTC

			FPD Versions			
			==========			
Location	Card type	HWver	FPD device	ATR Status	Running	Programd
0/0	NCS1002-K9	1.2	CDSP_PORT_05	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_06	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_12	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_13	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_19	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_20	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_26	CURRENT	3.62	3.62
0/0	NCS1002-K9	1.2	CDSP_PORT_27	CURRENT	3.62	3.62
0/0	NCS1002-K9		CFP2_PORT_05	NOT READY		
0/0	NCS1002-K9	2.1	CFP2_PORT_06	CURRENT	5.21	5.21

```
0/0     NCS1002-K9          CFP2_PORT_12      NOT READY
0/0     NCS1002-K9     2.1  CFP2_PORT_13      CURRENT   5.21   5.21
0/0     NCS1002-K9          CFP2_PORT_19      NOT READY
0/0     NCS1002-K9     2.1  CFP2_PORT_20      CURRENT   5.21   5.21
0/0     NCS1002-K9          CFP2_PORT_26      NOT READY
0/0     NCS1002-K9     2.1  CFP2_PORT_27      CURRENT   5.21   5.21
0/0     NCS1002-K9     0.1  CTRL_BKP_LOW   B  CURRENT          1.22
0/0     NCS1002-K9     0.1  CTRL_BKP_UP    B  CURRENT          1.22
0/0     NCS1002-K9     0.1  CTRL_FPGA_LOW     CURRENT   1.22   1.22
0/0     NCS1002-K9     0.1  CTRL_FPGA_UP      CURRENT   1.22   1.22
0/RP0   NCS1K-CNTLR    0.1  BIOS_Backup    BS CURRENT         13.10
0/RP0   NCS1K-CNTLR    0.1  BIOS_Primary    S CURRENT  13.10  13.10
0/RP0   NCS1K-CNTLR    0.1  Daisy_Duke_BKP  BS CURRENT         0.15
0/RP0   NCS1K-CNTLR    0.1  Daisy_Duke_FPGA  S CURRENT 0.15   0.15
```

1.6 Verify "Status" is "Provisioned" and "HW status" is "Current" for all the configured slices

RP/0/RP0/CPU0:ios#show hw-module slice all

2. Upgrade to 6.1.2 CCO + PROD.SMU (No traffic impact expected, 20 mins)

2.1 Software Upgrade Steps:

Customers are strictly recommended to Add and Activate both CCO Image and SMU's together in a single step.

Install add source <6.1.2.image tar or mini.iso + k9sec> <ncs1k-6.1.2.CSCvd63122.tar> <ncs1k-sysadmin-6.1.2.CSCvc80004.tar>
install activate id <add id>
System will go for reload.
install commit

Note: Please refer to Cisco NCS1002 SMU install guide for actual commands.
http://www.cisco.com/web/Cisco_IOS_XR_Software/pdf/NCS1K-System-Upgrade.pdf

2.2 XR Active packages:

```
RP/0/RP0/CPU0:ios#show install active
Mon Apr  3 12:47:35.114 UTC
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv8
  Active Packages: 5
```

ncs1k-xr-6.1.2 version=6.1.2 [Boot image]
ncs1k-k9sec-3.1.0.0-r612
ncs1k-iosxr-infra-4.0.0.1-r612.CSCvd63122
ncs1k-os-support-3.0.0.1-r612.CSCvd63122
ncs1k-iosxr-os-5.0.0.1-r612.CSCvd63122

2.3 XR committed packages:

RP/0/RP0/CPU0:ios#show install committed
Mon Apr 3 12:47:38.917 UTC
Node 0/RP0/CPU0 [RP]
Boot Partition: xr_lv8
Committed Packages: 5
ncs1k-xr-6.1.2 version=6.1.2 [Boot image]
ncs1k-k9sec-3.1.0.0-r612
ncs1k-iosxr-infra-4.0.0.1-r612.CSCvd63122
ncs1k-os-support-3.0.0.1-r612.CSCvd63122
ncs1k-iosxr-os-5.0.0.1-r612.CSCvd63122

2.4 Ncs1k-sysadmin Active packages

sysadmin-vm:0_RP0# show install active
Mon Apr 3 12:48:21.169 UTC
Node 0/RP0 [RP]
Active Packages: 3
ncs1k-sysadmin-6.1.2 version=6.1.2 [Boot image]
ncs1k-sysadmin-ncs1k-6.1.2.1-r612.CSCvc80004
ncs1k-sysadmin-shared-6.1.2.1-r612.CSCvc80004

2.5 Ncs1k-sysadmin committed packages

sysadmin-vm:0_RP0# show install committed
Mon Apr 3 12:48:28.309 UTC
Node 0/RP0 [RP]
Committed Packages: 3
ncs1k-sysadmin-6.1.2 version=6.1.2 [Boot image]
ncs1k-sysadmin-ncs1k-6.1.2.1-r612.CSCvc80004
ncs1k-sysadmin-shared-6.1.2.1-r612.CSCvc80004

2.6 FPD Status after SU

RP/0/RP0/CPU0:ios#show hw-module fpd
Mon Apr 3 12:49:01.294 UTC

					FPD Versions	
					==========	
Location	Card type	HWver	FPD device	ATR Status	Running	Programd
0/0	NCS1002-K9	1.2	CDSP_PORT_05	NEED UPGD	3.62	3.62

```
0/0     NCS1002-K9      1.2  CDSP_PORT_06      NEED UPGD  3.62   3.62
0/0     NCS1002-K9      1.2  CDSP_PORT_12      NEED UPGD  3.62   3.62
0/0     NCS1002-K9      1.2  CDSP_PORT_13      NEED UPGD  3.62   3.62
0/0     NCS1002-K9      1.2  CDSP_PORT_19      NEED UPGD  3.62   3.62
0/0     NCS1002-K9      1.2  CDSP_PORT_20      NEED UPGD  3.62   3.62
0/0     NCS1002-K9      1.2  CDSP_PORT_26      NEED UPGD  3.62   3.62
0/0     NCS1002-K9      1.2  CDSP_PORT_27      NEED UPGD  3.62   3.62
0/0     NCS1002-K9           CFP2_PORT_05      NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_06      CURRENT    5.21   5.21
0/0     NCS1002-K9           CFP2_PORT_12      NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_13      CURRENT    5.21   5.21
0/0     NCS1002-K9           CFP2_PORT_19      NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_20      CURRENT    5.21   5.21
0/0     NCS1002-K9           CFP2_PORT_26      NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_27      CURRENT    5.21   5.21
0/0     NCS1002-K9      0.1  CTRL_BKP_LOW   B  NEED UPGD         1.22
0/0     NCS1002-K9      0.1  CTRL_BKP_UP    B  NEED UPGD         1.22
0/0     NCS1002-K9      0.1  CTRL_FPGA_LOW     NEED UPGD  1.22   1.22
0/0     NCS1002-K9      0.1  CTRL_FPGA_UP      NEED UPGD  1.22   1.22
0/RP0   NCS1K-CNTLR     0.1  BIOS_Backup    BS CURRENT          13.10
0/RP0   NCS1K-CNTLR     0.1  BIOS_Primary    S NEED UPGD 13.10  13.10
0/RP0   NCS1K-CNTLR     0.1  Daisy_Duke_BKP  BS CURRENT          0.15
0/RP0   NCS1K-CNTLR     0.1  Daisy_Duke_FPGA  S CURRENT 0.15    0.15
0/PM0   NCS1K-2KW-AC    0.0  PO-PriMCU         CURRENT    4.00   4.00
0/PM1   NCS1K-2KW-AC    0.0  PO-PriMCU         CURRENT    4.00   4.00
```

2.7 Slice Status after SU

1. Verify all Slice status shows NEED_UPGRADE after SU

3. FPD Upgrade Steps

[BIOS, CTRL FPGA, CDSP needs upgrade]

Note: FPD Upgrade is recommended only by executing "upgrade hw-module location all fpd all".

Do not perform "hw-module location 0/RP0 reload " command after BIOS upgrade.

Strictly not recommended in R6.1.2.

3.1 FPD Upgrade:

1. **From XR , Upgrade fpd all via "upgrade hw-module location all fpd all"**

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Mon Apr  3 13:22:13.170 UTC
                                FPD Versions
```

```
                                                  =================
Location   Card type       HWver FPD device      ATR Status   Running Programd
--------------------------------------------------------------------------------
0/0      NCS1002-K9       1.2  CDSP_PORT_05       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_06       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_12       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_13       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_19       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_20       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_26       CURRENT    3.65    3.65
0/0      NCS1002-K9       1.2  CDSP_PORT_27       CURRENT    3.65    3.65
0/0      NCS1002-K9          CFP2_PORT_05        NOT READY
0/0      NCS1002-K9       2.1  CFP2_PORT_06       CURRENT    5.21    5.21
0/0      NCS1002-K9          CFP2_PORT_12        NOT READY
0/0      NCS1002-K9       2.1  CFP2_PORT_13       CURRENT    5.21    5.21
0/0      NCS1002-K9          CFP2_PORT_19        NOT READY
0/0      NCS1002-K9       2.1  CFP2_PORT_20       CURRENT    5.21    5.21
0/0      NCS1002-K9          CFP2_PORT_26        NOT READY
0/0      NCS1002-K9       2.1  CFP2_PORT_27       CURRENT    5.21    5.21
0/0      NCS1002-K9       0.1  CTRL_BKP_LOW    B  CURRENT           2.23
0/0      NCS1002-K9       0.1  CTRL_BKP_UP     B  CURRENT           2.23
0/0      NCS1002-K9       0.1  CTRL_FPGA_LOW      RLOAD REQ  1.22  2.23
0/0      NCS1002-K9       0.1  CTRL_FPGA_UP       RLOAD REQ  1.22   2.23
0/RP0    NCS1K-CNTLR      0.1  BIOS_Backup     BS CURRENT          13.10
0/RP0    NCS1K-CNTLR      0.1  BIOS_Primary     S RLOAD REQ 13.10   13.41
0/RP0    NCS1K-CNTLR      0.1  Daisy_Duke_BKP   BS CURRENT          0.15
0/RP0    NCS1K-CNTLR      0.1  Daisy_Duke_FPGA   S CURRENT 0.15    0.15
0/PM0    NCS1K-2KW-AC     0.0  PO-PriMCU          CURRENT    4.00    4.00
0/PM1    NCS1K-2KW-AC     0.0  PO-PriMCU          CURRENT
```

3.2 Reload NCS1K

1. **From Ncs1k-sysadmin , Reload using " hw-module location all reload"**
   Note: This action is expected to be traffic impacting. Expected hit time: 30 minutes

4. Validate FPD and Slice Status

4.1 Verify FPD all

RP/0/RP0/CPU0:ios#show hw-module fpd

```
Mon Apr  3 13:29:12.934 UTC
                                                  FPD Versions
                                                  =================
Location   Card type       HWver FPD device      ATR Status   Running Programd
--------------------------------------------------------------------------------
0/0      NCS1002-K9       1.2  CDSP_PORT_05       CURRENT    3.65    3.65
```

```
0/0     NCS1002-K9      1.2  CDSP_PORT_06      CURRENT   3.65   3.65
0/0     NCS1002-K9      1.2  CDSP_PORT_12      CURRENT   3.65   3.65
0/0     NCS1002-K9      1.2  CDSP_PORT_13      CURRENT   3.65   3.65
0/0     NCS1002-K9      1.2  CDSP_PORT_19      CURRENT   3.65   3.65
0/0     NCS1002-K9      1.2  CDSP_PORT_20      CURRENT   3.65   3.65
0/0     NCS1002-K9      1.2  CDSP_PORT_26      CURRENT   3.65   3.65
0/0     NCS1002-K9      1.2  CDSP_PORT_27      CURRENT   3.65   3.65
0/0     NCS1002-K9         CFP2_PORT_05       NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_06      CURRENT   5.21   5.21
0/0     NCS1002-K9         CFP2_PORT_12       NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_13      CURRENT   5.21   5.21
0/0     NCS1002-K9         CFP2_PORT_19       NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_20      CURRENT   5.21   5.21
0/0     NCS1002-K9         CFP2_PORT_26       NOT READY
0/0     NCS1002-K9      2.1  CFP2_PORT_27      CURRENT   5.21   5.21
0/0     NCS1002-K9      0.1  CTRL_BKP_LOW    B  CURRENT        2.23
0/0     NCS1002-K9      0.1  CTRL_BKP_UP     B  CURRENT        2.23
0/0     NCS1002-K9      0.1  CTRL_FPGA_LOW      CURRENT   2.23   2.23
0/0     NCS1002-K9      0.1  CTRL_FPGA_UP       CURRENT   2.23   2.23
0/RP0   NCS1K-CNTLR     0.1  BIOS_Backup     BS  CURRENT       13.10
0/RP0   NCS1K-CNTLR     0.1  BIOS_Primary    S  CURRENT   13.41   13.41
0/RP0   NCS1K-CNTLR     0.1  Daisy_Duke_BKP  BS  CURRENT        0.15
0/RP0   NCS1K-CNTLR     0.1  Daisy_Duke_FPGA  S  CURRENT 0.15   0.15
0/PM0   NCS1K-2KW-AC    0.0  PO-PriMCU         CURRENT   4.00   4.00
0/PM1   NCS1K-2KW-AC    0.0  PO-PriMCU         CURRENT   4.00   4.00
```

4.2 Verify "Status" is "Provisioned" and "HW status" is "Current" for all the configured slices

```
RP/0/RP0/CPU0:ios#show hw-module slice all
Mon Apr  3 13:49:24.014 UTC
Slice ID:             0
Status:               Provisioned
Client Bitrate:       100
Trunk Bitrate:        200
DP FPGA FW Type:      X100
DP FPGA FW Version:   01.01
HW Status:            CURRENT

Encryption Supported:   FALSE
LLDP Drop Enabled:      FALSE
Client Port -   Trunk Port       CoherentDSP0/0/0/5   CoherentDSP0/0/0/6
Traffic Split Percentage

HundredGigECtrlr0/0/0/0                 100             0
HundredGigECtrlr0/0/0/1                 100             0
HundredGigECtrlr0/0/0/3                   0           100
```

```
HundredGigECtrlr0/0/0/4                 0           100
```

Note : If Slice Status is still in NEED_UPGRADE after provisioning is completed, perform "upgrade hw-module slice <no.> re-provision" and then verify Slice status.

4.3 Verify environment voltages on ncs1k-sysadmin

Note: Highlighted voltage values should be greater than 950.

```
sysadmin-vm:0_RP0# show environment voltages | inc CDR | inc V0P9
Mon Apr  3  13:31:05.383 UTC
Down-SLICE2-V0P9_CDR3      996   810   860  1050  1100
Down-SLICE3-V0P9_CDR3      1014   810   860  1050  1100
Up-SLICE0-V0P9_CDR3        998   810   860  1050  1100
Up-SLICE1-V0P9_CDR3        1014   810   860  1050  1100
```

Note 1 : For unprovisioisned slices ignore Voltage values.
Note 2 : If the above highlighted output values are less than 950, perform "upgrade hw-module slice <no.> re-provision" (from xr prompt) again and verify highlighted voltage should be greater than 950.
Note 3 : Please contact Cisco TAC if there are any unresolved issues during this MOP

Scenario -2 : R6.1.2 Prod SMU Installation – Only for already upgraded boxes

Steps involved: (Overall time required : 1 hour 10 mins)

1. Validating the current status (5 mins)
2. Upgrade of SMU (15 mins)
3. Updating FPD & Slice status (Traffic impact will be observed) (40 mins)
4. Validating the status after upgrade (10 mins)

1. Baseline the current status by executing below command. Please log the output for reference during and after the procedure

Note: If ENG SMU is installed then please do deactivate and remove package before proceeding. Please refer to the following to deactivate and remove the SMU. This is mandatory step before proceeding.
http://www.cisco.com/web/Cisco_IOS_XR_Software/pdf/NCS1K-System-Upgrade.pdf

1.1 XR Active packages:

RP/0/RP0/CPU0:ios#show install active
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv7
  Active Packages: 2
      ncs1k-xr-6.1.2 version=6.1.2 [Boot image]
      ncs1k-k9sec-3.1.0.0-r612

1.2 XR committed packages:

RP/0/RP0/CPU0:ios#show install committed
Thu Apr 6 12:27:21.132 IST
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv7
  Committed Packages: 2
      ncs1k-xr-6.1.2 version=6.1.2 [Boot image]
      ncs1k-k9sec-3.1.0.0-r612

1.3 Ncs1k-sysadmin Active packages:

sysadmin-vm:0_RP0# show install active
Thu Apr 6 06:57:29.176 UTC
 Node 0/RP0 [RP]
   Active Packages: 1
     ncs1k-sysadmin-6.1.2 version=6.1.2 [Boot image]

1.4 Ncs1k-sysadmin committed packages

sysadmin-vm:0_RP0# show install commit
Thu Apr 6 06:57:34.390 UTC
Node 0/RP0 [RP]
Committed Packages: 1
ncs1k-sysadmin-6.1.2 version=6.1.2 [Boot image]

1.5 Current FPD Status:

RP/0/RP0/CPU0:ios#show hw-module fpd
Thu Apr 6 13:52:49.809 IST

FPD Versions
==========

Location	Card type	HWver	FPD device	ATR Status	Running	Programd
0/0	NCS1002-K9	1.2	CDSP_PORT_05	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_06	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_12	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_13	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_19	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_20	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_26	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_27	CURRENT	3.65	3.65
0/0	NCS1002-K9	2.0	CFP2_PORT_05	CURRENT	4.38	4.38
0/0	NCS1002-K9	2.1	CFP2_PORT_06	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_12	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_13	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_19	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_20	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_26	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_27	CURRENT	5.21	5.21
0/0	NCS1002-K9	0.1	CTRL_BKP_LOW	B CURRENT		2.23
0/0	NCS1002-K9	0.1	CTRL_BKP_UP	B CURRENT		2.23
0/0	NCS1002-K9	0.1	CTRL_FPGA_LOW	CURRENT	2.23	2.23
0/0	NCS1002-K9	0.1	CTRL_FPGA_UP	CURRENT	2.23	2.23
0/RP0	NCS1K-CNTLR	0.1	BIOS_Backup	BS CURRENT		13.10
0/RP0	NCS1K-CNTLR	0.1	BIOS_Primary	S CURRENT	13.40	13.40
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_BKP	BS CURRENT		0.15
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_FPGA	S CURRENT	0.15	0.15
0/PM0	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT		
0/PM1	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT	4.00	4.00

1.6 Verify “Status” is “Provisioned” and “HW status” is “Current” for all the configured slices

RP/0/RP0/CPU0:ios#show hw-module slice all
Thu Apr 6 13:52:46.271 IST
Slice ID: 0
Status: Provisioned
Client Bitrate: 100
Trunk Bitrate: 250
DP FPGA FW Type: X100
DP FPGA FW Version: 01.01
HW Status: CURRENT

Encryption Supported: FALSE
LLDP Drop Enabled: FALSE
Client Port - Trunk Port CoherentDSP0/0/0/5 CoherentDSP0/0/0/6
Traffic Split Percentage

HundredGigECtrlr0/0/0/0	100	0
HundredGigECtrlr0/0/0/1	100	0
HundredGigECtrlr0/0/0/2	50	50
HundredGigECtrlr0/0/0/3	0	100
HundredGigECtrlr0/0/0/4	0	100

Slice ID: 1
Status: Provisioned
Client Bitrate: 100
Trunk Bitrate: 250
DP FPGA FW Type: X100
DP FPGA FW Version: 01.01
HW Status: CURRENT

Encryption Supported: FALSE
LLDP Drop Enabled: FALSE
Client Port - Trunk Port CoherentDSP0/0/0/12 CoherentDSP0/0/0/13
Traffic Split Percentage

HundredGigECtrlr0/0/0/7	100	0
HundredGigECtrlr0/0/0/8	100	0
HundredGigECtrlr0/0/0/9	50	50
HundredGigECtrlr0/0/0/10	0	100
HundredGigECtrlr0/0/0/11	0	100

Slice ID: 2
Status: Provisioned
Client Bitrate: 100

Trunk Bitrate: 250
DP FPGA FW Type: X100
DP FPGA FW Version: 01.01
HW Status: CURRENT

Encryption Supported: FALSE
LLDP Drop Enabled: FALSE
Client Port - Trunk Port CoherentDSP0/0/0/19 CoherentDSP0/0/0/20
Traffic Split Percentage

HundredGigECtrlr0/0/0/14	100	0
HundredGigECtrlr0/0/0/15	100	0
HundredGigECtrlr0/0/0/16	50	50
HundredGigECtrlr0/0/0/17	0	100
HundredGigECtrlr0/0/0/18	0	100

Slice ID: 3
Status: Provisioned
Client Bitrate: 100
Trunk Bitrate: 250
DP FPGA FW Type: X100
DP FPGA FW Version: 01.01
HW Status: CURRENT

Encryption Supported: FALSE
LLDP Drop Enabled: FALSE
Client Port - Trunk Port CoherentDSP0/0/0/26 CoherentDSP0/0/0/27
Traffic Split Percentage

HundredGigECtrlr0/0/0/21	100	0
HundredGigECtrlr0/0/0/22	100	0
HundredGigECtrlr0/0/0/23	50	50
HundredGigECtrlr0/0/0/24	0	100
HundredGigECtrlr0/0/0/25	0	100

2. Upgrade to 6.1.2 CCO + PROD.SMU (No traffic impact expected)

2.1 SMU Upgrade Steps:

Customers are strictly recommended to Add and Activate SMU as a tar file (of all rpms) together in a single step.

Install add source <ncs1k-6.1.2.CSCvd63122.tar> <ncs1k-sysadmin-6.1.2.CSCvc80004.tar>
install activate id <add id>
System will go for reload.
install commit

Note: Please refer to Cisco NCS1002 SMU install guide for actual commands.
http://www.cisco.com/web/Cisco_IOS_XR_Software/pdf/NCS1K-System-Upgrade.pdf

2.2 XR Active packages:

```
RP/0/RP0/CPU0:ios#show install active
Mon Apr  3 12:47:35.114 UTC
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv8
  Active Packages: 5
       ncs1k-xr-6.1.2 version=6.1.2 [Boot image]
       ncs1k-k9sec-3.1.0.0-r612
       ncs1k-iosxr-infra-4.0.0.1-r612.CSCvd63122
       ncs1k-os-support-3.0.0.1-r612.CSCvd63122
       ncs1k-iosxr-os-5.0.0.1-r612.CSCvd63122
```

2.3 XR committed packages:

```
RP/0/RP0/CPU0:ios#show install committed
Mon Apr  3 12:47:38.917 UTC
Node 0/RP0/CPU0 [RP]
  Boot Partition: xr_lv8
  Committed Packages: 5
       ncs1k-xr-6.1.2 version=6.1.2 [Boot image]
       ncs1k-k9sec-3.1.0.0-r612
       ncs1k-iosxr-infra-4.0.0.1-r612.CSCvd63122
       ncs1k-os-support-3.0.0.1-r612.CSCvd63122
       ncs1k-iosxr-os-5.0.0.1-r612.CSCvd63122
```

2.4 Ncs1k-sysadmin Active packages

```
sysadmin-vm:0_RP0# show install active
Mon Apr  3  12:48:21.169 UTC
 Node 0/RP0 [RP]
    Active Packages: 3
       ncs1k-sysadmin-6.1.2 version=6.1.2 [Boot image]
       ncs1k-sysadmin-ncs1k-6.1.2.1-r612.CSCvc80004
       ncs1k-sysadmin-shared-6.1.2.1-r612.CSCvc80004
```

2.5 Ncs1k-sysadmin committed packages

sysadmin-vm:0_RP0# show install committed

```
Mon Apr  3  12:48:28.309 UTC
 Node 0/RP0 [RP]
    Committed Packages: 3
       ncs1k-sysadmin-6.1.2 version=6.1.2 [Boot image]
       ncs1k-sysadmin-ncs1k-6.1.2.1-r612.CSCvc80004
       ncs1k-sysadmin-shared-6.1.2.1-r612.CSCvc80004
```

2.6 FPD Status after SMU Upgrade:

RP/0/RP0/CPU0:ios#show hw-module fpd
Thu Apr 6 14:16:27.485 IST

FPD Versions
==========

Location	Card type	HWver	FPD device	ATR Status	Running	Programd
0/0	NCS1002-K9	1.2	CDSP_PORT_05	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_06	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_12	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_13	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_19	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_20	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_26	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_27	CURRENT	3.65	3.65
0/0	NCS1002-K9	2.0	CFP2_PORT_05	CURRENT	4.38	4.38
0/0	NCS1002-K9	2.1	CFP2_PORT_06	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_12	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_13	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_19	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_20	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_26	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_27	CURRENT	5.21	5.21
0/0	NCS1002-K9	0.1	CTRL_BKP_LOW	B CURRENT	2.23	
0/0	NCS1002-K9	0.1	CTRL_BKP_UP	B CURRENT	2.23	
0/0	NCS1002-K9	0.1	CTRL_FPGA_LOW	CURRENT	2.23	2.23
0/0	NCS1002-K9	0.1	CTRL_FPGA_UP	CURRENT	2.23	2.23
0/RP0	NCS1K-CNTLR	0.1	BIOS_Backup	BS CURRENT	13.10	
0/RP0	NCS1K-CNTLR	0.1	BIOS_Primary	S NEED UPGD	13.40	13.40
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_BKP	BS CURRENT	0.15	
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_FPGA	S CURRENT	0.15	0.15
0/PM0	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT		
0/PM1	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT	4.00	4.00

2.7 Slice Status after SU

Verify All Slices shows NEED_UPGRADE in “show hw-module slice all”

3. FPD Upgrade Steps

3.1 FPD Upgrade:

1. **From XR , Upgrade fpd all via “upgrade hw-module location all fpd all” (Takes 2 mins)**

RP/0/RP0/CPU0:ios#show hw-module fpd
Thu Apr 6 14:57:47.700 IST

			FPD Versions			
			================			
Location	Card type	HWver	FPD device	ATR Status	Running	Programd
0/0	NCS1002-K9	1.2	CDSP_PORT_05	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_06	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_12	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_13	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_19	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_20	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_26	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_27	CURRENT	3.65	3.65
0/0	NCS1002-K9	2.0	CFP2_PORT_05	CURRENT	4.38	4.38
0/0	NCS1002-K9	2.1	CFP2_PORT_06	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_12	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_13	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_19	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_20	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_26	CURRENT	5.21	5.21
0/0	NCS1002-K9	2.1	CFP2_PORT_27	CURRENT	5.21	5.21
0/0	NCS1002-K9	0.1	CTRL_BKP_LOW	B CURRENT		2.23
0/0	NCS1002-K9	0.1	CTRL_BKP_UP	B CURRENT		2.23
0/0	NCS1002-K9	0.1	CTRL_FPGA_LOW	CURRENT	2.23	2.23
0/0	NCS1002-K9	0.1	CTRL_FPGA_UP	CURRENT	2.23	2.23
0/RP0	NCS1K-CNTLR	0.1	BIOS_Backup	BS CURRENT		13.10
0/RP0	NCS1K-CNTLR	0.1	BIOS_Primary	S RLOAD REQ	13.40	13.41
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_BKP	BS CURRENT		0.15
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_FPGA	S CURRENT	0.15	0.15
0/PM0	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT		
0/PM1	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT	4.00	4.00

3.2 Reload NCS1K

5. **From Ncs1k-sysadmin , Reload using "hw-module location all reload"**
   Note: This action is expected to be traffic impacting. Expected hit time: 30 minutes

4. Validate FPD and Slice Status

4.1 Verify FPD all

RP/0/RP0/CPU0:ios#show hw-module fpd
Mon Apr 3 13:29:12.934 UTC

FPD Versions
==========

Location	Card type	HWver	FPD device	ATR Status	Running	Programd
0/0	NCS1002-K9	1.2	CDSP_PORT_05	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_06	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_12	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_13	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_19	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_20	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_26	CURRENT	3.65	3.65
0/0	NCS1002-K9	1.2	CDSP_PORT_27	CURRENT	3.65	3.65
0/0	NCS1002-K9		CFP2_PORT_05	NOT READY		
0/0	NCS1002-K9	2.1	CFP2_PORT_06	CURRENT	5.21	5.21
0/0	NCS1002-K9		CFP2_PORT_12	NOT READY		
0/0	NCS1002-K9	2.1	CFP2_PORT_13	CURRENT	5.21	5.21
0/0	NCS1002-K9		CFP2_PORT_19	NOT READY		
0/0	NCS1002-K9	2.1	CFP2_PORT_20	CURRENT	5.21	5.21
0/0	NCS1002-K9		CFP2_PORT_26	NOT READY		
0/0	NCS1002-K9	2.1	CFP2_PORT_27	CURRENT	5.21	5.21
0/0	NCS1002-K9	0.1	CTRL_BKP_LOW	B CURRENT	2.23	
0/0	NCS1002-K9	0.1	CTRL_BKP_UP	B CURRENT	2.23	
0/0	NCS1002-K9	0.1	CTRL_FPGA_LOW	CURRENT	2.23	2.23
0/0	NCS1002-K9	0.1	CTRL_FPGA_UP	CURRENT	2.23	2.23
0/RP0	NCS1K-CNTLR	0.1	BIOS_Backup	BS CURRENT	13.10	
0/RP0	NCS1K-CNTLR	0.1	BIOS_Primary	S CURRENT	13.41	13.41
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_BKP	BS CURRENT	0.15	
0/RP0	NCS1K-CNTLR	0.1	Daisy_Duke_FPGA	S CURRENT	0.15	0.15
0/PM0	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT	4.00	4.00
0/PM1	NCS1K-2KW-AC	0.0	PO-PriMCU	CURRENT	4.00	4.00

4.2 Verify "Status" is "Provisioned" and "HW status" is "Current" for all the configured slices

RP/0/RP0/CPU0:ios#show hw-module slice all
Mon Apr 3 13:49:24.014 UTC
Slice ID: 0
Status: Provisioned
Client Bitrate: 100
Trunk Bitrate: 200
DP FPGA FW Type: X100
DP FPGA FW Version: 01.01
HW Status: CURRENT

Encryption Supported: FALSE
LLDP Drop Enabled: FALSE
Client Port - Trunk Port CoherentDSP0/0/0/5 CoherentDSP0/0/0/6

Traffic Split Percentage

HundredGigECtrlr0/0/0/0	100	0
HundredGigECtrlr0/0/0/1	100	0
HundredGigECtrlr0/0/0/3	0	100
HundredGigECtrlr0/0/0/4	0	100

Note : If Slice Status is still in NEED_UPGRADE after provisioning is completed, perform "upgrade hw-module slice <no.> re-provision" and then verify Slice status.

4.3 Verify environment voltages on ncs1k-sysadmin

Note: Highlighted voltage values should be greater than 950

```
sysadmin-vm:0_RP0# show environment voltages | inc CDR | inc V0P9
 Mon Apr  3  13:31:05.383 UTC
Down-SLICE2-V0P9_CDR3      1017   810   860  1050  1100
Down-SLICE3-V0P9_CDR3       999   810   860  1050  1100
Up-SLICE0-V0P9_CDR3        1015   810   860  1050  1100
Up-SLICE1-V0P9_CDR3         998   810   860  1050  1100
```

Note 1 : For unprovisioisned slices ignore Voltage values.
Note 2 : If the above highlighted output values are less than 950, perform "upgrade hw-module slice <no.> re-provision" (from xr prompt) again and verify highlighted voltage should be greater than 950.
Note 3 : Please contact Cisco TAC if there are any unresolved issues during this MOP