

PNF software upgrade in R6 Frankfurt

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BUSINESS DRIVERS

This section describes Business Drivers for this Use Case.

Executive Summary - PNF software updates are routine for network upgrades to support new features, improve efficiency or increase capacity on the field, and to eliminate bugs. This use case positions ONAP as a vantage point in orchestrating and managing PNF software upgrades inline with the business and service objectives.

Business Impact - Deployment and orchestration of new network services over both VNFs and PNFs in a model and software driven way simplifies the network management. As 5G networks will host a large number of PNFs from multiple vendors, streamlining service upgrades that involve PNF software changes through ONAP will reduce the OPEX substantially.

Business Markets - Carriers both in the mobile and fixed-line space host PNFs at the edge of the network. New 5G deployments as well as legacy 4G systems in the mobile carrier space should be considered as target markets.

Funding/Financial Impacts - Orchestrating PNF software updates via an ONAP deployment will enable better service planning, faster introduction of new network services over field-deployed PNFs, and reduce the operational costs.

Organization Mgmt, Sales Strategies - Harmonizing PNF and VNF software management in a model and workflow driven manner is essential in 5G systems where PNFs will continue to exist in large numbers and they are expected to have more frequent software upgrades (as they will have more capabilities that can be controlled or upgraded via software). Thus ONAP can be the "go-to" solution if this harmonization can be done successfully.

Current Status of PNF Software Upgrade

PNF in place software upgrade is supported in Casablanca and updated in Dublin

- With the support of an EM
- Ansible protocol only
- Plan to use LCM API with existing SO building blocks
- Impacts on SDNC only (not E2E solution yet)

More details, [5G - PNF Software Update](#) & [5G - PNF SW Upgrade \(Casablanca carry-over items\)](#)

PNF Software Upgrade Scenarios

There are 4 scenarios are proposed:

1. [Using direct Netconf/Yang interface with PNF](#)
2. [Enable service level LCM operations](#)
3. [Using Ansible protocol with EM](#)
4. [Using Netconf/Yang interface with EM](#)

Scenarios	Descriptions	Service level impacts	PNF software upgrade	Schema updates	Controller API	Protocols	EM	Proposed by	Target releases
1	 - Support direct PNF NETCONF interface with the vendor-specific YANG model. - Enhance SO in-place software upgrade workflow with generic SO building blocks, which can be used for workflow design in the design time. - Using CDS self-service API between SO and controller with the support of PNF in-place software upgrade - Enhance VID to demonstrate single PNF in-place software upgrade - Enhance SO procedure to support AAI update after the software upgrade completion.	No	one PNF instance	No	CDS self-service	Netconf	No	Ericsson	Frankfurt
3	 - Enhancement and additions of PNF in-place software update - Using LCM API - Using Ansible protocol - With EM	No	one PNF instance	No	LCM API	Ansible	Yes	Huawei	Frankfurt
4	 - NETCONF interface with EM - Using CDS self-service API	No	one PNF instance	No	CDS self-service	Netconf	Yes	Huawei	Frankfurt

Common tasks for all scenarios:

- Same SO work flows with generic workflow design and generic SO building blocks
- LCM evolution with API Decision Tree
- Same PNF upgrade UI in VID



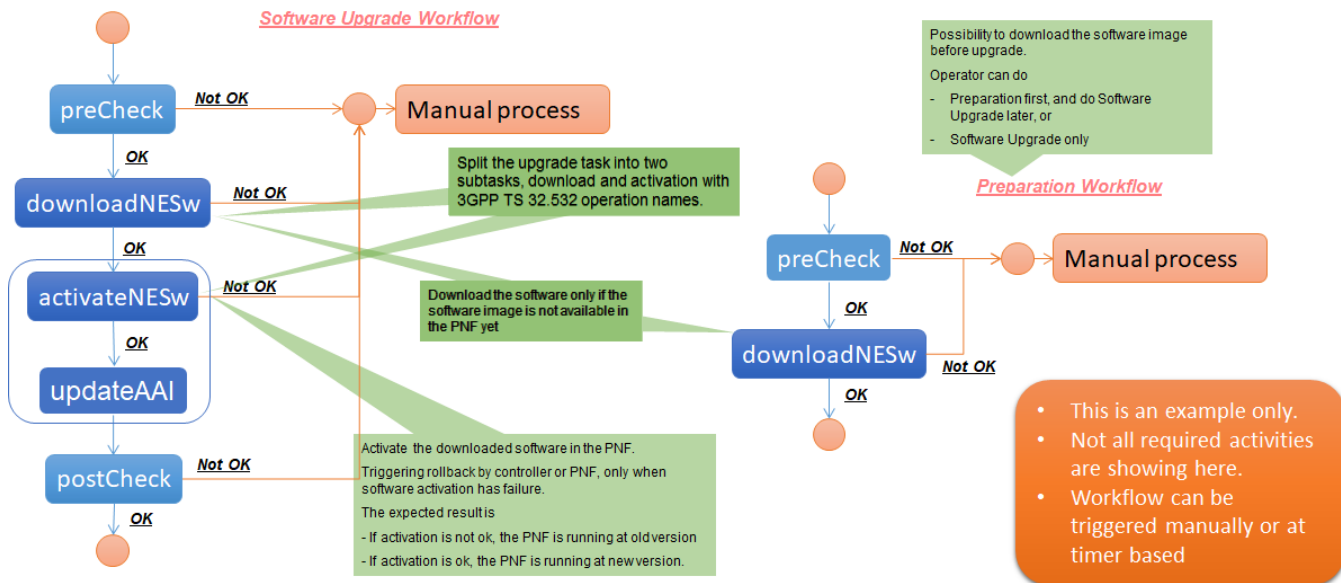
[scenario 2] Supporting schema update at software upgrade completion, targeting Frankfurt+

- Updating the design time service template using vendor provided onboarding package
- Upgrading a run time service instance based on the updated service template
- Updating the run time catalog at software upgrade completion



Common Tasks for all scenarios

SO workflow Example to upgrade one PNF instance



SO activities operations:

SO precheck/postcheck operation

precheck/postcheck

- Pre condition
 - PNF instance is in service
- Post condition
 - PNF instance is in service, and health
- Exceptions
 - PNF instance is not health and not upgradeable
- Inputs:
 - pnf-name
- Outputs:
 - Result: OK, not OK

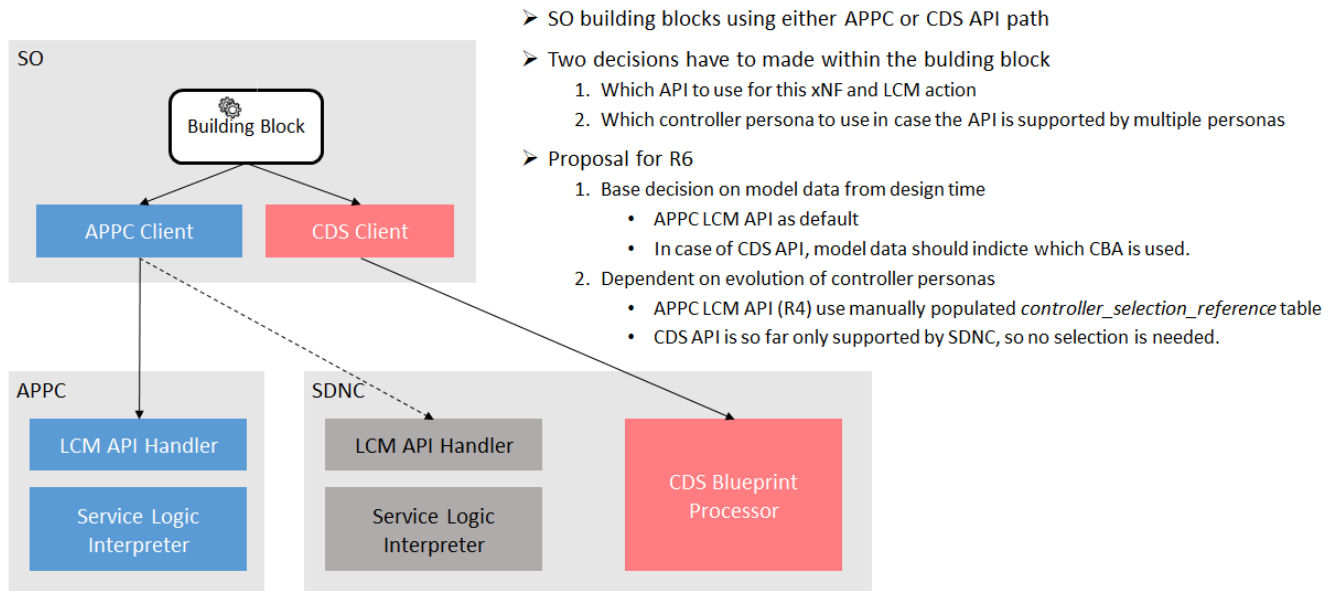
SO downloadNESw operation

- Pre condition
 - PNF instance is in service and health
 - Software image of the target software version is available for downloading on remote server
- Post condition
 - PNF storage cleanup is processed in the PNF before downloading, if there is a need.
 - Software download to the PNF of the target software version is completed
- Exceptions
 - Operation failed: e.g. Resource limitation.
- Inputs:
 - pnf-name (data type: string)
 - software-versions (data type: string array): the target software version list to be downloaded
- Outputs:
 - Result: completed, or failure
 - Reason if failure, e.g. Operation failed, Resource unavailable, etc.

SO activateNESw (+UpdateAAI) operation

- Pre condition
 - PNF instance is in service and health
 - Software image of the target software version is downloaded to the PNF instance
- Post condition
 - Software activate is completed and PNF instance is running is target software version
 - Software-version of the PNF instance is updated in AAI entry
- Exceptions
 - Operation failed, PNF instance is running in old software version
- Inputs:
 - pnf-name (data type: string)
 - software-version(data type: string): the target software version to be activated
- Outputs:
 - Result: completed, or failure
 - Reason if failure, e.g. Operation failed, Resource limitation, etc.

LCM evolution with API Decision Tree



Development Status

Impacts Summary

PROJECT	PTL	User Story / Epic	Requirement
A&AI	James Forsyth		
AAF	Jonathan Gathman		
APPC	Takamune Cho		
CLAMP	Gervais-Martial Ngueko		
CC-SDK	Dan Timoney	Epic #1: PNF Software Upgrade	1. Support LCM API / self service API for downloadNESw and activateNESw actions 2. Provide CDS blueprint for downloadNESw and activateNESw (Test only)
DCAE	Vijay Venkatesh Kumar		
DMaaP	Mandar Sawant		
External API	Matthieu Geerebaert		
MODELING	Hui Deng		
Multi-VIM / Cloud	Bin Yang		
OOF	Shankaranarayanan Puzhavakath Narayanan		
POLICY	Pamela Dragosh		
PORTAL	Manoop Talasila		
SDN-C	Dan Timoney	Epic #1: PNF Software Upgrade	1. Support LCM API for downloadNESw and activateNESw actions 2. Provide ansible playbooks for downloadNESw and activateNESw (Test only)
SDC	Ofir Sonsino	Epic #1: PNF Software Upgrade	1. support generic workflow design 2. CBA association enhancement to support PNF upgrade. Impacts on PNFD AID model 3. CBA association enhancement to support VNF upgrade. Impacts on VNFD AID model

SO	Seshu Kumar Mudiganti	Epic #1: PNF Software Upgrade	1. Support generic PNF CM workflow, including SO building block shall be extended to support PNF LCM actions 2. SO API extension: PNF software upgrade with target software version 3. SO BB for downloadNESw, activateNESw, preCheck, postCheck 4. API (LCM or CDS SS) selection within the same BB
VID	Ittay Stern	Epic #1: PNF Software Upgrade	1. trigger PNF Sw upgrade workflow, providing corresponding parameter values
VNFRQTS	Steven Wright	Epic #1: PNF Software Upgrade	update the PNF/VNF upgrade requirements
VNF-SDK	Weitao Gao		
CDS	Yuriy Malakov	Epic #1: PNF Software Upgrade	1. Provide CDS blueprint for downloadNESw and activateNESw 2. API (LCM or CDS SS) selection within the same BB
Integration	Brian Freeman		

List of PTLs: [Approved Projects](#)

Requirements Tickets

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
REQ-96	PNF S/W Upgrade with Netconf/yang with EM		Sep 17, 2019	Jan 10, 2021		Unassigned	None	=	DONE	Done
REQ-92	LCM API Evolution		Sep 16, 2019	Jan 10, 2021		Unassigned	None	^	DONE	Done
REQ-88	Enable PNF software version at onboarding		Sep 16, 2019	Jan 10, 2021		Unassigned	None	^	DONE	Done
REQ-84	PNF Software Upgrade using direct Netconf/Yang interface with PNF		Sep 16, 2019	Jan 10, 2021		Unassigned	None	^	DONE	Done
REQ-53	Enhancement on PNF S/W Upgrade with EM with Ansible		Sep 12, 2019	Jan 10, 2021		Unassigned	None	^	DONE	Done

5 issues

Scenario 1 Using direct Netconf/Yang interface with PNF

Key	Summary	T	Created	Updated	Assignee	Reporter	P	Status	Resolution	Sub-Tasks	Fix Version /s
VNFRQTS-830	Add new requirement for LCM operations via NETCONF		Feb 25, 2020	Mar 09, 2020	Unassigned	None	=	CLOSED	Done		Frankfurt Release
VNFRQTS-657	PNF Software Upgrade using direct Netconf/Yang interface		Jul 02, 2019	Mar 04, 2020	Unassigned	None	=	CLOSED	Done		Frankfurt Release
VID-823	Using A&AI API to support PNF SW Upgrade		May 05, 2020	Nov 05, 2020	Unassigned	None	=	OPEN	Unresolved		Honolulu Release
VID-505	update VID GUI to support PNF software upgrade		Jun 26, 2019	May 05, 2020	Ramesh Murugan Iyer	None	=	CLOSED	Done		Guilin Release

VID-504	Using SO API to support PNF UP		Jun 26, 2019	Nov 04, 2020	Unassigned	None		OPEN	Unresolved		Honolulu Release
SO-2756	Pnf workflow returning null		Mar 20, 2020	Apr 01, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2751	Fix PNF software upgrade workflow		Mar 19, 2020	Mar 26, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2660	SO API extension to retrieve all PNF workflow		Feb 14, 2020	Feb 24, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2540	SO API extension to retrieve PNF workflow		Nov 26, 2019	Feb 27, 2020	Unassigned	None		CLOSED	Done	SO-2558 SO-2559 SO-2656	Frankfurt Release
SO-2515	Create E2E workflow for software upgrade (PNF)		Nov 07, 2019	Jul 22, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2514	Create dispatcher class for PNF Software upgrade.		Nov 07, 2019	Feb 28, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2091	Create new SO building blocks - activateNESw		Jul 04, 2019	Feb 28, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2090	SO-CDS PNF Building Blocks back-end impl		Jul 04, 2019	Feb 24, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2089	Create a new SO building block - preCheck		Jul 04, 2019	Feb 28, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2073	Create a new SO building blocks - postCheck		Jun 26, 2019	Feb 28, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2072	Support PNF CM workflow execution		Jun 26, 2019	Feb 14, 2020	Unassigned	None		CLOSED	Won't Do		Frankfurt Release
SO-2071	SO API extension to support PNF Upgrade		Jun 26, 2019	Feb 27, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SO-2070	a generic decision points for API		Jun 26, 2019	Apr 28, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SDC-2582	CBA association enhancement in VNFD to support API decision		Sep 24, 2019	Mar 30, 2020	Unassigned	None		CLOSED	Done	SDC-2446	Frankfurt Release
SDC-2394	Support custom PNF workflow design		Jun 26, 2019	Sep 17, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SDC-2393	CBA association enhancement in PNFD to support API decision		Jun 26, 2019	Nov 22, 2019	Unassigned	None		CLOSED	Done	SDC-2445	Frankfurt Release
INT-1459	Manual Test for Pnf Sw upgrade		Feb 25, 2020	Apr 03, 2020	Unassigned	None		CLOSED	Won't Do		Frankfurt Release

INT-1450	Documentation of PNF software upgrade with direct Netconf /Yang interface with PNF		Jul 02, 2019	Apr 20, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
INT-1308	Test cases on PNF Software Upgrade using direct Netconf /Yang interface with PNF simulator		Oct 04, 2019	May 15, 2020	Ramesh Murugan Iyer	None		CLOSED	Done	INT-1500	Frankfurt Release
INT-1130	public PNF YANG model for demo		Jul 02, 2019	Mar 03, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
INT-1126	Creating blueprint script for PNF software upgrade demo		Jun 26, 2019	Mar 12, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
INT-1125	Creating Custom PNF Upgrade & preparation workflow		Jun 26, 2019	Feb 04, 2020	Unassigned	None		CLOSED	Not Done		Frankfurt Release
INT-1124	PNF simulator extension		Jun 26, 2019	Mar 03, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
CCSDK-2091	PNF Software Upgrade Blueprint		Feb 12, 2020	Mar 12, 2020	Unassigned	None		CLOSED	Done	CCSDK-2145	Frankfurt Release
CCSDK-1436	Enable use of CDS Blueprint Processor for the controller LCM actions		Jun 26, 2019	Feb 28, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release

30 issues

Scenario 2 Enable service level LCM operations

Key	Summary	T	Created	Updated	Assignee	Reporter	P	Status	Resolution	Sub-Tasks	Fix Version /s
VNFSDK-531	PNF package validation on PNF software version		Nov 27, 2019	Jan 13, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
VNFRQTS-753	update none-mano keyword in R-146092		Oct 31, 2019	Nov 27, 2019	Unassigned	None		CLOSED	Done		Frankfurt Release
VNFRQTS-744	Onboard PNF software version requirements		Oct 07, 2019	Jan 14, 2020	Unassigned	None		CLOSED	Done		Frankfurt Release
SDC-2589	Onboard PNF software version		Oct 01, 2019	Feb 29, 2020	Unassigned	None		CLOSED	Done	SDC-2615 SDC-2619 SDC-2641 SDC-2702	Frankfurt Release
REQ-91	TSC Approval at M4		Aug 21, 2019	Mar 12, 2020	Unassigned	None		DONE	Done		Frankfurt Release
REQ-90	TSC Approval at M3		Aug 21, 2019	Jan 24, 2020	Unassigned	None		DONE	Done		Frankfurt Release

REQ-89	TSC Approval at M1	✓	Aug 21, 2019	Nov 15, 2019	Unassigned	None	==	DONE	Done	Frankfurt Release
INT-1307	Testing PNF software version onboarding	📌	Oct 04, 2019	Apr 03, 2020	Unassigned	None	^	CLOSED	Done	Frankfurt Release

8 issues

Scenario 3 Using Ansible protocol

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
VNFRQ TS-698	PNF Software Upgrade with ansible with EM	✓	Aug 20, 2019	Apr 27, 2020		Unassigned	None	==	CLOSED	Won't Do
SO-2589	Support PNF software upgrade workflow using SDNC LCM API	📌	Jan 08, 2020	Mar 06, 2020		Unassigned	None	==	CLOSED	Done
SO-2588	Support LCM API of SDNC to support PNF SW Upgrade	📌	Jan 08, 2020	Mar 02, 2020		Unassigned	None	==	CLOSED	Done
SDNC-857	Provide DGs and Ansible playbooks for downloadNESw and activateNESw	📌	Aug 20, 2019	Jan 10, 2020		Unassigned	None	^	CLOSED	Done
SDNC-856	Support LCM API for downloadNESw and activateNESw actions	📌	Aug 20, 2019	Jan 10, 2020		Unassigned	None	^	CLOSED	Done
INT-1209	Integration document revision for PNF Sw Upgrade UC	✓	Aug 20, 2019	Apr 08, 2020		Unassigned	None	==	CLOSED	Done
INT-1208	EMS simulator extension for PNF SW Upgrade	📌	Aug 20, 2019	Mar 05, 2020		Unassigned	None	==	CLOSED	Done

7 issues

Scenario 4 Netconf/Yang interface with EM

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
VNFRQ TS-699	PNF Software Upgrade with netconf with EM	✓	Aug 20, 2019	Apr 27, 2020		Unassigned	None	==	CLOSED	Won't Do
INT-1211	EMS simulator extension to support netconf interaction with CDS	✓	Aug 20, 2019	Mar 23, 2020		Unassigned	None	==	CLOSED	Done
INT-1210	EM and CBA association enhancement to support PNF upgrade	📌	Aug 20, 2019	Mar 23, 2020		Unassigned	None	==	CLOSED	Done

3 issues

Test Status

1	There should be a test case for each item in the sequence diagram	NOT YET TESTED
2	create additional requirements as needed for each discrete step	COMPLETE
3	Test cases should cover entire Use Case	PARTIALLY COMPLETE
4	Test Cases should include enough detail for testing team to implement the test	FAILED

Scenario 1: PNF Software Upgrade Using direct NETCONF/YANG interface with PNF Test Cases

Test Case Id	Test Case	Test Type	Status
TEST-CASE-1	Test Check in SDNC certificates to connect node are properly installed	Integration (robot)	COMPLETE
TEST-CASE-2	Test Blue print archive is properly uploaded to blueprint-processor	Integration (robot)	COMPLETE
TEST-CASE-3	Test resource package and service is successfully distributed from SDC to SO	Integration (robot)	COMPLETE
TEST-CASE-4	Test all the pnf workflows are successfully fetched from SO	Integration (robot)	COMPLETE
TEST-CASE-5	Test Service instantiation is triggered from VID to SO and status is COMPLETED for preparation(Download) workflow	Integration (robot)	COMPLETE
TEST-CASE-6	Verify on PNF-simulator that there is pnf_sw_version-2.0.0 entry added into the list and its status is DOWNLOAD-COMPLETED	Integration (robot)	COMPLETE
TEST-CASE-7	Test Service instantiation is triggered from VID to SO and status is COMPLETED for software upgrade workflow	Integration (robot)	COMPLETE
TEST-CASE-8	Verify on PNF-simulator that there is pnf_sw_version-3.0.0 entry added into the list and its status is ACTIVATION-COMPLETED	Integration (robot)	COMPLETE
TEST-CASE-9	Verify on AAI-Simulator that for pnf PNF Demo sw-version is pnf_sw_version-3.0.0.	Integration (robot)	COMPLETE

Test Cases Details:

All the test cases for Scenario 1 are robot tests that can be ran automatically from the same steps which will be shown below.

Testing Steps	#	Step	Expected Result
	1	In the Integration csit repo, run plans/usecases/pnf-sw-upgrade robot tests	Pnf-sw-upgrade robot tests running
	2	Wait for the tests to finish	Tests finished without timeout
	3	Check the test reports	All test cases run successfully
Status (Pass/Fail)	ONAP Jira Ticket: · https://jira.onap.org/browse/INT-1308 ONAP PNF SW Upgrade Daily CSIT Tests: · https://logs.onap.org/production/vex-yul-ecomp-jenkins-1/usecases-master-verify-csit-pnf-sw-upgrade/17/log.html.gz		
Testing Lab	CSIT PNF SW Upgrade https://jenkins.onap.org/job/usecases-master-verify-csit-pnf-sw-upgrade/		

Test Case ID	Test Case Name	Description	Release
TEST-CASE-1	Test Check in SDNC certificates to connect node are properly installed	This test will check whether the keystore is setup and certificates installed for SDNC and ODL once SDNC is installed	Frankfurt
TEST-CASE-2	Test Blueprint archive is properly uploaded to blueprint-processor	Test Blueprint archive is properly uploaded to blueprint-processor	Frankfurt
TEST-CASE-3	Test resource package and service is successfully distributed from SDC to SO	Test resource package and service is successfully distributed from SDC to SO	Frankfurt

TEST-CASE-4	Test all the PNF workflows are successfully fetched from SO	Test all the PNF workflows are successfully fetched from SO	Fra nkfu rt
TEST-CASE-5	Test Service instantiation is triggered from VID to SO and status is COMPLETED for preparation (Download) workflow	Test Service instantiation is triggered from VID to SO and status is COMPLETED for preparation (Download) workflow	Fra nkfu rt
TEST-CASE-6	Verify on PNF-simulator that there is pnf_sw_version-2.0.0 entry added into the list and its status is DOWNLOAD-COMPLETED	Verify on PNF-simulator that there is pnf_sw_version-2.0.0 entry added into the list and its status is DOWNLOAD-COMPLETED	Fra nkfu rt
TEST-CASE-7	Test Service instantiation is triggered from VID to SO and status is COMPLETED for software upgrade workflow	Test Service instantiation is triggered from VID to SO and status is COMPLETED for software upgrade workflow	Fra nkfu rt
TEST-CASE-8	Verify on PNF-simulator that there is pnf_sw_version-3.0.0 entry added into the list and its status is ACTIVATION-COMPLETED	Verify on PNF-simulator that there is pnf_sw_version-3.0.0 entry added into the list and its status is ACTIVATION-COMPLETED	Fra nkfu rt
TEST-CASE-9	Verify on AAI-Simulator that for pnf PNFDemo sw-version is pnf_sw_version-3.0.0	Verify on AAI-Simulator that for pnf PNFDemo sw-version is pnf_sw_version-3.0.0	Fra nkfu rt

Scenario 2: PNF Software Information On boarding Test Cases

Test Case Id	Test Case	Test Type	Status
TEST-CASE-1	Test Onboarding of PNF Package with non-mano Software Information in SDC Sanity-API test	Sanity	Local SDC deployment: COMPLETE SDC Daily API Sanity: COMPLETE
TEST-CASE-2	Test Onboarding of PNF Package with non-mano Software Information in SDC GUI	Manual	Local SDC deployment: COMPLETE
TEST-CASE-3	Test Onboarding of PNF Package with non-mano Software Information in SDC Sanity-UI test	Sanity	Local SDC deployment: COMPLETE SDC Daily UI Sanity: COMPLETE

Test Types:

- **Sanity-API:** automated sanity tests for backend SDC APIs ([SDC Sanity](#));
- **Sanity-UI:** automated sanity tests for SDC GUI;
- **Manual:** manual test in SDC UI (either local SDC or ONAP deployment);
- **End to End (E2E):** end to end test with other interested ONAP components.

Test Cases Details

Test Case ID	TEST-CASE-1		
Test Case Name	Test Onboarding of PNF Package with non-mano Software Information in SDC Sanity-API test		
Description	The test will onboard PNF Packages with non-mano Software Information in the SDC Sanity API test flow		
Release	Frankfurt		
Preconditions	Local SDC or ONAP deployment available and running		
Testing Steps	#	Step	Expected Result
	1	Run SDC sdc-api-tests	sdc-api-tests running
	2	Wait for the tests to finish	Tests finished without timeout
	3	Check the test reports	All test cases run successfully

Status (Pass/Fail)	Local SDC deployment: COMPLETE https://jira.onap.org/browse/SDC-2641 SDC Daily API Sanity: COMPLETE https://jenkins.onap.org/view/sdc/job/sdc-master-csit-sanity-testng/2149/ SDC_CI_Extent_Report-sdc-master-csit-sanity-testng-2149-2019.11.21.html
Testing Lab	Local SDC deployment, SDC Daily API Sanity run https://jenkins.onap.org/view/sdc/job/sdc-master-verify-csit-sanity-testng/

Test Case ID	TEST-CASE-2		
Test Case Name	Test Onboarding of PNF Package with non-mano Software Information in SDC GUI		
Description	Manually onboard the PNF Package with non-mano Software Information in the SDC GUI, creating a VSP and importing as a ONAP PNF Resource.		
Release	Frankfurt		
Preconditions	- Local SDC or ONAP deployment available and running; - A SDC Vendor License Model already created; - A valid PNF Package with non-mano Software Information.		
Testing Steps	#	Step	Expected Result
	1	Access SDC GUI as a Designer.	SDC Home screen is shown.
	2	Go to the Onboard Workspace .	Onboard workspace is shown.
	3	Click on "CREATE NEW VSP".	"New Software Product" popup is shown.
	4	Fill in the "New Software Product" required information, selecting "Network Package" as the Onboarding Procedure and click on create.	The VSP Overview page is shown.
	5	In the VSP Overview screen, Software Product Attachments, click on select file and provide the PNF Package with non-mano Software Information.	The VSP attachment validation screen is shown.
	6	In the VSP attachment validation, click on the Submit button.	A "Commit & Submit" popup is shown.
	7	Fill the "Commit & Submit" popup with any comment and click in the "Commit & Submit" button.	A "Submit Succeeded" information is shown.
	8	Close the "Submit Succeeded" popup and go to the Home workspace.	SDC Home screen is shown.
	9	Hover your mouse to the IMPORT square and click in "Import VSP".	A "Import VSP" modal is shown with the SDC VSP list.
	10	Search for the created VSP.	The created VSP is shown in the VSP list.
	11	Click on the VSP and then in the Download VSP link.	The VSP CSAR package is downloaded.
	12	Open the CSAR package and check that the software information artifact is present in the folder Artifacts/Informational/PNF_SW_INFORMATION.	The onboarded artifact is present on the folder.
	13	Go back to the "Import VSP" modal and click on the "Import VSP" link.	The Resource Design General page is open with the PNF package information.
	14	Click on the "Create" button to create the resource.	A creation confirmation message is shown.
	15	On the left panel, click on the "Properties Assignment".	The "Properties Assignment" page is shown.
	16	Verify that the "software_versions" property is present and filled with the versions provided in the software information artifact.	The "software_versions" property is present with the expected content.

Status (Pass /Fail)	Local SDC deployment: COMPLETE
	Used package: onboarding-package.csar
Testing Lab	SDC V1.0.0-SNAPSHOT HOME PNF: pnf-sw-version-test1 Properties Assignment pnf-sw-version-test1 VO.1 IN DESIGN CHECK OUT General Deployment Artifact Information Artifact TOSCA Artifacts Composition Operation Activity Log Properties Assignment Req. & Capabilities Properties Inputs Policies Property Name Type ES Value ☐ skip_post_instantiation_configuration boolean TRUE ☐ nf_function string ☐ sdc_model_version string ☐ software_versions list string 5gDUV18.05.201 ☐ sdc_artifact_name string 5gDUV18.06.205 ☐ nf_role string ☐ nf_type string ☐ sdc_model_name string

resource-PnfSwVersionTest1-4

File Edit View Selection Find Packages Help

resource-PnfSwVersionTest1-template-into...

15 - annotations:

16 file: annotations.yml

17 node_types:

18 org.openecomp.resource.pnf.PnfSwVersionTest1:

19 derived from: org.openecomp.resource.abstract.nodes.PNF

20 properties:

21 skip_post_instantiation_configuration:

22 default: true

23 type: boolean

24 required: false

25 nf_function:

26 type: string

27 required: false

28 software_versions:

29 default:

30 - 5gDUV18.05.201

31 - 5gDUV18.06.205

32 type: list

33 required: false

34 entry_schema:

35 type: string

36 sdc_model_version:

37 type: string

38 required: false

39 nf_role:

40 type: string

41 required: false

42 sdc_artifact_name:

43 type: string

44 required: false

45 nf_type:

46 type: string

47 required: false

48 sdc_model_name:

49 type: string

50 required: false

Test Case ID	TEST-CASE-3													
Test Case Name	Test Onboarding of PNF Package with non-mano Software Information in SDC Sanity-UI test													
Description	The test will onboard the PNF Package with non-mano Software Information in the UI SDC Sanity test flow													
Release	Frankfurt													
Preconditions	Local SDC or ONAP deployment available and running													
Testing Steps	<table><tr><th>#</th><th>Step</th><th>Expected Result</th></tr><tr><td>1</td><td>Run SDC sdc-ui-tests</td><td>sdc-ui-tests running</td></tr><tr><td>2</td><td>Wait for the tests to finish</td><td>Tests finished without timeout</td></tr><tr><td>3</td><td>Check the test reports</td><td>All test cases run successfully</td></tr></table>		#	Step	Expected Result	1	Run SDC sdc-ui-tests	sdc-ui-tests running	2	Wait for the tests to finish	Tests finished without timeout	3	Check the test reports	All test cases run successfully
#	Step	Expected Result												
1	Run SDC sdc-ui-tests	sdc-ui-tests running												
2	Wait for the tests to finish	Tests finished without timeout												
3	Check the test reports	All test cases run successfully												
Status (Pass /Fail)	Local SDC deployment: COMPLETE SDC-2702 - Getting issue details... STATUS													
	SDC Daily UI Sanity: COMPLETE https://logs.onap.org/production/vex-yul-ecom-p-jenkins-1/sdc-master-csit-uiSanity-testng/1102/SDC_UI_Extent_Report.html.gz													
Testing Lab	Local SDC deployment, SDC Daily UI Sanity run https://jenkins.onap.org/view/sdc/job/sdc-master-csit-uiSanity-testng/													

Scenario 3: PNF Software Upgrade Using Ansible with EM Test Cases

Test Case Id	Test Case	Test Status
TEST-CASE-1	UpgradePreCheck for PNF instance from SDNC to EM using LCM API	COMPLETE
TEST-CASE-2	DownloadNESw for PNF instance from SDNC to EM using LCM API	COMPLETE
TEST-CASE-3	ActivateNESw for PNF instance from SDNC to EM using LCM API	COMPLETE

TEST-CASE-4	UpgradePostCheck for PNF instance from SDNC to EM using LCM API	COMPLETE
TEST-CASE-5	Test PNF SW upgrade Workflow for PNF instance from SO to SDNC (using LCM API) to EM	COMPLETE

Details at [Enhancement on PNF SW Upgrade using Ansible](#).

Scenario 4: PNF Software Upgrade Using Netconf/Yang Interface with EM Test Cases

Test Case Id	Test Case	Test Status
TEST-CASE-1	Download NE SW for PNF instance 1 from CDS to EM using SS REST API	COMPLETE
TEST-CASE-2	Activate NE SW for PNF instance 1 from CDS to EM using SS REST API	COMPLETE
TEST-CASE-3	Download NE SW for PNF instance 2 from CDS to EM using SS REST AP	COMPLETE
TEST-CASE-4	Activate NE SW for PNF instance 2 from CDS to EM using SS REST API	COMPLETE
TEST-CASE-5	Test PNF SW upgrade Workflow for PNF instance 1 from SO to CDS (using SS gRPC API) to EM	COMPLETE

Details at [PNF software upgrade with Netconf/Yang interface with EM](#).

Reference

[ONAP Controller Evolution Consideration - LCM APIs](#)

Discussion Materials

This section is to review slides for discussion.



PNF upgrade to ONAP Frankfurt.pdf

PNF Software Upgrade Proposal for Scenario 1 Controller to PNF Interface

Version 2 with updates from Aug 8 2019 meeting

PNF SW Upgrade Proposal v2.pptx

Analysis of SO Instance Management API

ONAP-PNF-Software-Upgrade-SO-v0.1.docx

ONAP-PNF-Software-Upgrade-SO-v0.2.docx

SO API requirements in R6

Related Meeting Links

- 5G PNF Upgrades, <https://zoom.us/j/519627903>
- [usecase] Change Management, <https://zoom.us/j/725247460>
- [usecase] Platform Evolution for Use Case Realization w/ SO, AAI, DCAE, SDC, VID, SDNC, <https://zoom.us/j/723094623>
- [usecase] 5G Usecase Team, <https://zoom.us/j/478423919>

Meeting Schedule for Impacted Project Discussion

The meeting schedule is to present this use case slides to the impacted projects.

Planned Date	Related Project/UC	Meeting Host	Other
July 15	SDC	Ofir Sonsino	
July 11	CDS	Yuriy Malakov	
July 10	Use case Realization	Benjamin Cheung	
July 10	Change Management	Ajay Mahimkar	
Oct 9	SO	Seshu Kumar Mudiganti	