OOF Casablanca M1 Release Planning Template

DRAFT PROPOSAL FOR COMMENTS

The content of this template is expected to be fill out for M1 Release Planning Milestone.

Overview

Project Name	Enter the name of the project
Target Release Name	Casablanca
Project Lifecycle State	Incubation
Participating Company	AT&T, Huawei, Intel, OAM Technologies, VMWare

Scope

What is this release trying to address?

Committed:

- Harden the OOF development platform (Highest priority)
    - Deployment scripts, CSIT, CI for different streams, Nexus image cleanup
    - Using Music as a service
- Maintaining current S3P levels of the project as new functional requirements are supported (Highest priority)
    - Security enhancements progressing towards Silver badge
        - All internal communication encrypted (Frank Sandoval)
        - AAF integration - role-based access control and authorization for all calls (depending on Python support from AAF) (Frank Sandoval)
        - Code coverage: achieve 60% target code coverage
    - Performance: Creating a plan for performance improvements
    - Manageability:

- Adherence to log specification v1.2 - ONAP Application Logging Specification v1.2 (Casablanca)
- Externalized config management
  - Usability
    - Adherence to ONAP API Common Versioning Strategy (CVS) Guidelines
    - move all internal and external facing APIs to Swagger 2.0 *(Frank Sandoval)*
    - Documentation *(Frank Sandoval)*

Functional Requirements:

- HPA enhancements *(resources from Intel)*
  - Service Assurance - streaming telemetry about health of platform (CPU pinning, and NUMA) - primarily from OpenStack
- Homing enhancements improving the **deployability of Services Using ONAP platform**
  - Homing multiple simultaneous instances of the service: queueing homing requests based on discovering dependency on shareable resources *(resources from AT&T)*
  - Considering Latency Reduction (in addition to geographical distances) for homing optimization *(resources from AT&T)*
  - Policy-based enhancements to capacity checks - requirements coming in from Edge Automation *(resources from VMWare)*
    - Workflow and Policy API: Edge Scoping MVP for Casablanca - ONAP Enhancements#ONAPEnhancements-Cloud-agnosticPlacement/Networking&HomingPolicies(Phase1-CasablancaMVP,Phase2-StretchGoal)
- 5G SON Optimization *(resources from Wipro, TechM, AT&T, Reliance Jio)*
  - PCI optimization POC using OSDF
  - Health Checks, CSIT, Dockerization, K8S HELM Chart, S3P with 60% code coverage
- Change Management *(resources from AT&T)*
  - VNF/PNF support - scheduler for Change Management.
  - Targeting support for 5G use case.
- CCVPN *(resources from Huawei)*

Stretch goals:

- Homing 5G RAN VNFs
  - Extending the Homing feature developed in R2 for 5G RAN VNFs
- Auto Scale Out Functional requirement
  - Homing in VNF Scale Out
- OOF POC with Service Mesh (ITSIO) ❓
  - Aligned with the MultiCloud efforts on the sam item.
- Homing enhancements
  - Resource reservation
- Edge Automation through ONAP *(resources from VMWare)* – Edge Scoping MVP for Casablanca - ONAP Enhancements#ONAPEnhancements-DistributedEdgeCloudInfrastructureObjectHierarchy(StretchGoal)
  - HAS in Edge Orchestration

Use Cases

- vCPE (supporting R2 homing workflows)

Minimum Viable Product

- OOF-HAS - Homing Service that can be provides optimized placement based on policy constraints, across multiple clouds and multiple sites
- OOF-OSDF - Optimization Design framework, that supports HAS, the Homing Optimizer

Functionalities

List the functionalities that this release is committing to deliver by providing a link to JIRA Epics and Stories. In the JIRA Priority field, specify the priority (either High, Medium, Low). The priority will be used in case de-scoping is required. Don't assign High priority to all functionalities.

Epics

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
OPTFRA-275	This epic spans the stories to improve deployability of services	⚡	Jun 28, 2018	Jul 31, 2020		Unassigned	None	≫	CLOSED	Done
OPTFRA-274	This epic spans the work to progress further from the current Usability level	⚡	Jun 28, 2018	Nov 23, 2018		Unassigned	None	≫	CLOSED	Done
OPTFRA-272	This epic spans the work to progress further from the current Performance level	⚡	Jun 28, 2018	Nov 23, 2018		Unassigned	None	︿	CLOSED	Done

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
OPTFRA-269	This epic covers the work to get the OOF development platform ready for Casablanca development	⚡	Jun 28, 2018	Nov 23, 2018		Unassigned	None	⤊	CLOSED	Done
OPTFRA-267	OOF - HPA Enhancements	⚡	Jun 27, 2018	Dec 30, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-266	Integrate OOF with Certificate and Secret Management Service (CSM)	⚡	Jun 27, 2018	Nov 23, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-106	OOF Functional Testing Related User Stories and Tasks	⚡	Feb 14, 2018	Aug 20, 2018		Unassigned	None	=	CLOSED	Duplicate

7 issues

Stories

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
OPTFRA-356	pairwise testing OOF-HAS and AAF	🔖	Sep 21, 2018	Nov 07, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-343	Integrate OSDF with Secret Management Service	🔖	Sep 15, 2018	Oct 24, 2018		Unassigned	None	⌄	CLOSED	Done
OPTFRA-342	Implement PCI Optimization request and do SON Optimization	🔖	Sep 14, 2018	Jan 21, 2019		Unassigned	None	=	CLOSED	Done
OPTFRA-324	OSDF-HAS API change according to change of Policy schema	🔖	Aug 24, 2018	Oct 24, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-322	Support SRIOV NIC	🔖	Aug 22, 2018	Nov 29, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-320	VF-C Integration with Homing	🔖	Aug 21, 2018	Nov 07, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-313	HPA Score based selection for placement	🔖	Aug 16, 2018	Sep 14, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-312	Placement Statistics visualization using Prometheus	🔖	Aug 16, 2018	Jan 21, 2019		Unassigned	None	=	CLOSED	Done
OPTFRA-309	CM Scheduler to Schedule a VNF instance at specific time to execute the change management workflow	🔖	Aug 08, 2018	Jul 10, 2019		Unassigned	None	=	CLOSED	Done
OPTFRA-301	Clean up nexus binaries and maven versioning	🔖	Jul 06, 2018	Aug 13, 2018		Unassigned	None	⤊	CLOSED	Done
OPTFRA-296	Support SON (PCI) optimization using OSDF	🔖	Jul 03, 2018	Jan 17, 2019		Unassigned	None	⌃	CLOSED	Done
OPTFRA-294	AAF - CADI integration of OOF	🔖	Jul 03, 2018	Nov 21, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-289	Use Music as a service for HAS	🔖	Jul 03, 2018	Nov 12, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-288	CI Jobs for Beijing and Master branches	🔖	Jul 03, 2018	Aug 08, 2018		Unassigned	None	⤊	CLOSED	Duplicate
OPTFRA-287	Fix the Deployment scripts for OOF	🔖	Jul 03, 2018	Sep 15, 2018		Unassigned	None	⤊	CLOSED	Done
OPTFRA-286	Implement a separate CSIT job for optf-osdf-CSIT	🔖	Jul 03, 2018	Oct 01, 2018		Unassigned	None	⤊	CLOSED	Done

OPTFR A-285	Implement ONAP Common Versioning Strategy (CVS) for OSDF API	🔖	Jul 03, 2018	Oct 05, 2018	Unassigned	None	∧	CLOSED	Done
OPTFR A-284	Implement ONAP Common Versioning Strategy (CVS) for HAS API	🔖	Jul 03, 2018	Oct 01, 2018	Unassigned	None	∧	CLOSED	Done
OPTFR A-283	Export external facing OSDF APIs to swagger 2.0	🔖	Jul 03, 2018	Sep 19, 2018	Unassigned	None	∧	CLOSED	Done
OPTFR A-282	Export external facing HAS APIs to swagger 2.0	🔖	Jul 03, 2018	Sep 19, 2018	Unassigned	None	∧	CLOSED	Done

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Longer term roadmap

As the ONAP platform matures and new capabilities are introduced over time, the need for platform optimization services will grow along with it. The ONAP Optimization Framework is envisioned to handle this need as effectively as possible, by enabling creation of new optimization services with minimal or little new code development. The goal of OOF is to provide a growing set of core platform optimization services such as VNF placement and resource allocation (OOF-HAS), change management scheduling (OOF-CMSO), etc.

Vision for OSDF:

OOF-OSDF is envisioned to be a collection of design time optimization libraries along with reusable runtime tools and microservices to facilitate and simplify the creation of new specific runtime optimization functionalities. The goal of OSDF is to avoid siloed optimization tools and associated duplicated efforts and overheads. For instance, the Homing Service, HAS (which was provided in the Beijing release) will not only contribute its reusable components to the framework, but also leverages the framework in its own feature development. Other potential optimization services that can be built using this framework include energy optimization in networks, optimal route selection for various network services, and radio access network (RAN) performance optimization.

Vision for HAS:

OOF-HAS, or the Homing Service is a distributed resource broker that enables automated policy-driven optimized placement of services on a global heterogeneous platform using ONAP. HAS is architected as an extensible homing service that can accommodate a growing set of homing objectives, policy constraints, data sources and placement algorithms. It is service-agnostic by design and can easily onboard new services with minimal effort. HAS is designed to be used as a building block for both initial deployment, as well as runtime redeployment due to failures or runtime-capacity increase (scale-out). While the immediate deliverable of HAS in Beijing Release is to provide optimized homing/placement of services during the service instantiation workflows in ONAP, HAS naturally extends to a general policy-driven optimizing placement platform for all platform placement functions, including placements of VMs, containers (e.g., for DCAE micro-services), ONAP Control Loops or VNF specific resources. HAS will also eventually allow placements of additional resource types such as licenses, VNF resources, etc.

Release Deliverables

Indicate the outcome (Executable, Source Code, Library, API description, Tool, Documentation, Release Note...) of this release.

Deliverable Name	Deliverable Description
OOF-HAS	Executable, and source code for the Homing Service for the ONAP platform
OOF-OSDF	Executable and source code that provides optimization design framework support to optimizers like HAS

Sub-Components

- OOF-HAS - Homing Service that can be provides optimized placement based on policy constraints, across multiple clouds and multiple sites.
- OOF-OSDF - Optimization Design framework that helps create new types of policy- and model-driven optimizers.
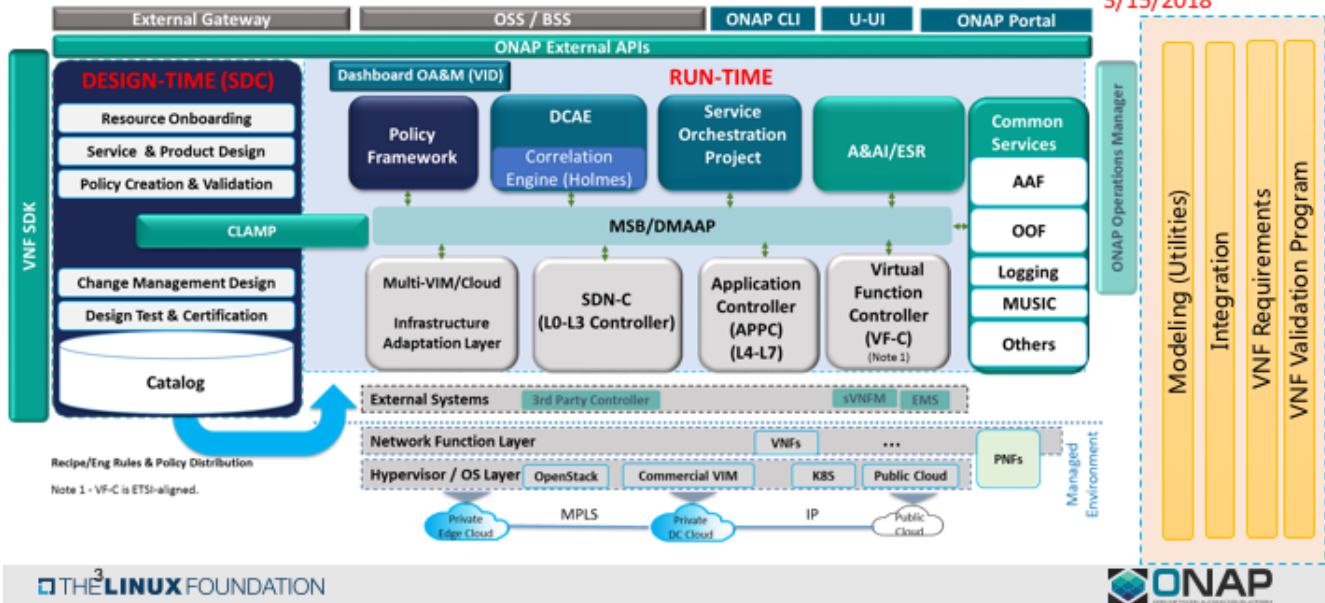
Architecture

High level architecture diagram
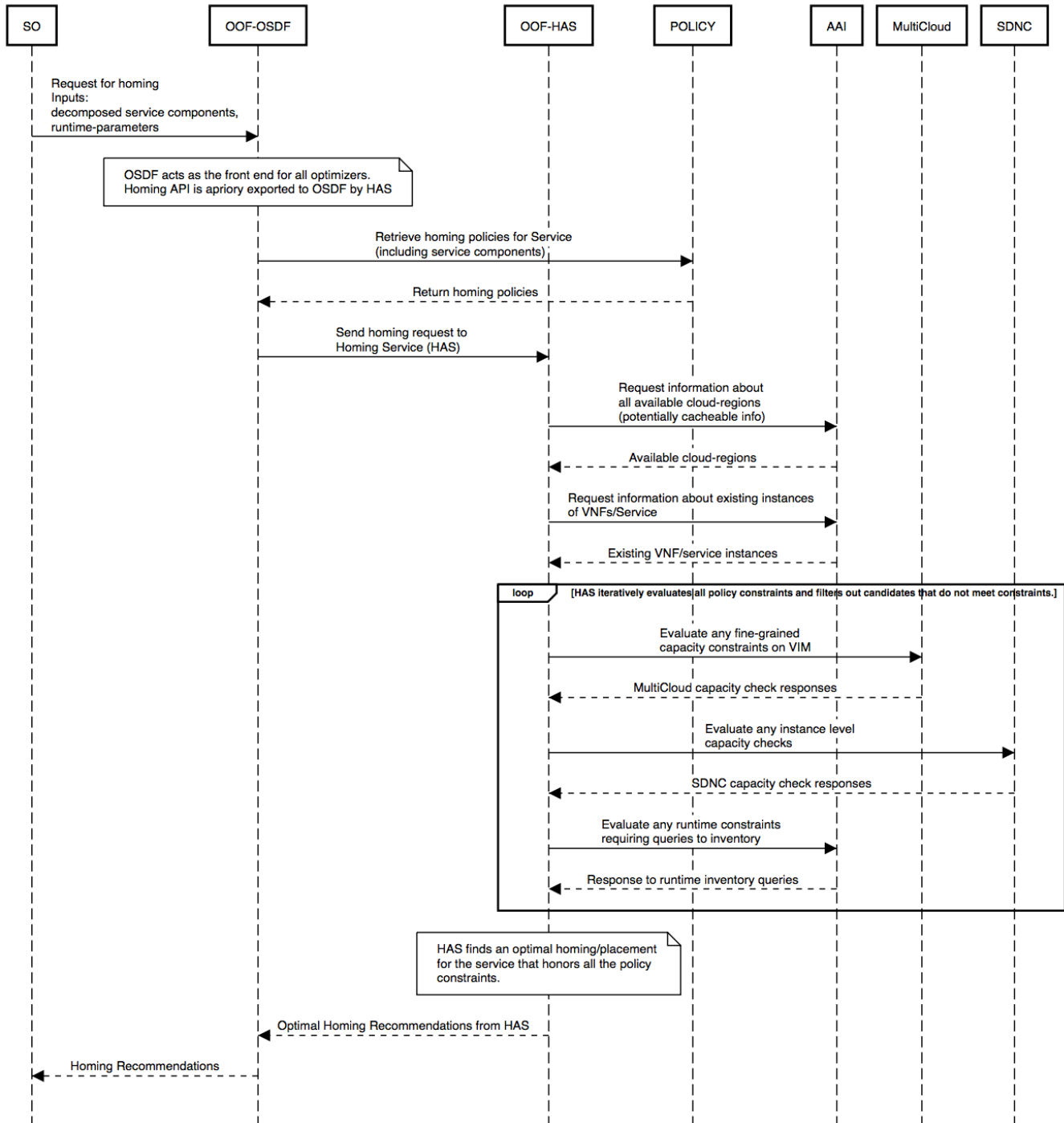
ONAP Beijing Architecture
(High-Level View with Projects)

Version 2.0.3
3/15/2018

Sequence Diagram showing OOF interaction with other ONAP components during the Homing workflow:

OOF interaction with other ONAP components

SO	OOF-OSDF	OOF-HAS	POLICY	AAI	MultiCloud	SDNC

Request for homing
Inputs:
decomposed service components,
runtime-parameters

OSDF acts as the front end for all optimizers.
Homing API is apriory exported to OSDF by HAS

Retrieve homing policies for Service
(including service components)

Return homing policies

Send homing request to
Homing Service (HAS)

Request information about
all available cloud-regions
(potentially cacheable info)

Available cloud-regions

Request information about existing instances
of VNFs/Service

Existing VNF/service instances

loop [HAS iteratively evaluates all policy constraints and filters out candidates that do not meet constraints.]

Evaluate any fine-grained
capacity constraints on VIM

MultiCloud capacity check responses

Evaluate any instance level
capacity checks

SDNC capacity check responses

Evaluate any runtime constraints
requiring queries to inventory

Response to runtime inventory queries

HAS finds an optimal homing/placement
for the service that honors all the policy
constraints.

Optimal Homing Recommendations from HAS

Homing Recommendations

ONAP Dependencies

The following are the dependencies for the project based on the scope for the Casablanca Release. The required dependencies have been identified based on the homing workflow requirements of Casablanca release.
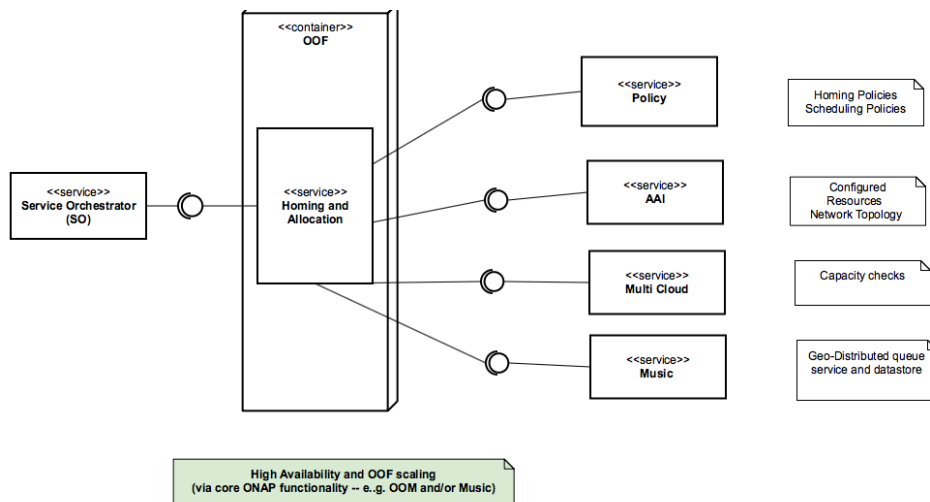
Platform Maturity

Refering to CII Badging Security Program and Platform Maturity Requirements, fill out the table below by indicating the actual level , the targeted level for the current release and the evidences on how you plan to achieve the targeted level.

Area	Actual Level	Targeted Level for current Release	How, Evidences	Comments
Performance	1	1 ■ create plans for performance improvement		• 0 -- none • 1 – baseline performance criteria identified and measured • 2 & 3 – performance improvement plans created & implemented
Stability	1	1	NA	• 0 – none • 1 – 72 hours component level soak w/random transactions • 2 – 72 hours platform level soak w/random transactions • 3 – 6 months track record of reduced defect rate
Resiliency	2	2	NA	• 0 – none • 1 – manual failure and recovery (< 30 minutes) • 2 – automated detection and recovery (single site) • 3 – automated detection and recovery (geo redundancy)
Security	1	1 with some progress towards 2 ■ 60% code coverage ■ encrypted communication between components ■ AAF integration (depends on support for Python projects)		• 0 – none • 1 – CII Passing badge + 50% Test Coverage • 2 – CII Silver badge; internal communication encrypted; role-based access control and authorization for all calls • 3 – CII Gold
Scalability	1	1	NA	• 0 – no ability to scale • 1 – single site horizontal scaling • 2 – geographic scaling • 3 – scaling across multiple ONAP instances
Manageability	1	1 with progress on adherence to Logging v1.2 spec		• 1 – single logging system across components; instantiation in < 1 hour • 2 – ability to upgrade a single component; tracing across components; externalized configuration management
Usability	1	1	NA	• 1 – user guide; deployment documentation; API documentation • 2 – UI consistency; usability testing; tutorial documentation

- # API Incoming Dependencies

List the API this project is expecting from other projects.
Prior to Release Planning review, Team Leads must agreed on the date by which the API will be fully defined. The API Delivery date must not be later than the release API Freeze date.

Prior to the delivery date, it is a good practice to organize an API review with the API consumers.

API Name	API Description	API Definition Date	API Delivery date	API Definition link (i.e.swagger)	Status
Policy	Policy Client API to create, update and retrieve homing policies.	Beijing Release	TBD		work in progress
AAI	REST Web Service provided by AAI, to query available cloud-regions, and existing service instances where a new order can be placed.	Beijing Release	TBD		work in progress
MultiCloud	API to retrieve VIM capacities (infrastructure metrics model)	Beijing Release	TBD		work in progress
Music	Music client REST API	Beijing Release	TBD		

- ## API Outgoing Dependencies

API this project is delivering to other projects.

API Name	API Description	API Definition Date	API Delivery date	API Definition link (i.e. swagger)	Status
HAS API	API to submit homing requests, and retrieve homing solutions.	Beijing Release	TBD		

Third Party Products Dependencies

Third Party Products mean products that are mandatory to provide services for your components. Development of new functionality in third party product may or not be expected.

The following link shows the dependencies and their license information: Project FOSS dependencies for OOF.

In case there are specific dependencies (Centos 7 vs Ubuntu 16. Etc.) list them as well.

- # Testing and Integration Plans

The following testing will be planned for OOF in this release:

- **Unit Tests and Code Coverage:** Target level 60% code coverage
- **Continuous System Integration Testing (CSIT)**: Enhance existing CSIT functional tests to cover new features

- # Gaps

This section is used to document a limitation on a functionality or platform support. We are currently aware of this limitation and it will be delivered in a future Release.
List identified release gaps (if any), and its impact.

Gaps identified	Impact
Homing - Capacity checks and capability checks are treated independent of each other	Cannot guarantee capacity of a certain resource with a specific capability
Support for resource reservation not available	Contention of resources can result in a homing recommendation not being realized during the actual spin up.

- # Known Defects and Issues

Provide a link toward the list of all known project bugs.

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
OPTFRA-402	Correct broken link	🔴	Nov 22, 2018	Nov 29, 2018		Unassigned	None	⌄	CLOSED	Done
OPTFRA-395	CMSO - Fix security violations and increment version	🔴	Nov 04, 2018	Jul 10, 2019		Unassigned	None	=	CLOSED	Done
OPTFRA-388	Fix OOF to handle sdnr /configdb api changes	🔴	Nov 01, 2018	Nov 02, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-385	resourceModelName is sent in place of resourceModuleName	🔴	Oct 31, 2018	Oct 31, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-384	Generate and Validate Policy for vFW testing	🔴	Oct 30, 2018	Jul 10, 2019		Unassigned	None	⌃⌃	CLOSED	Done
OPTFRA-383	OOF 7 of 8 pods are not starting in a clean master 20181029	🔴	Oct 29, 2018	Nov 26, 2018		Unassigned	None	=	CLOSED	Cannot Reproduce
OPTFRA-375	SO-OSDF request is failing without modelCustomizationName value	🔴	Oct 12, 2018	Oct 12, 2018		Unassigned	None	⌃⌃	CLOSED	Done
OPTFRA-374	'ModelCustomizationName' should be optional for the request	🔴	Oct 12, 2018	Oct 12, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-370	Update the version of the OSDF and HAS images	🔴	Oct 08, 2018	Oct 11, 2018		Unassigned	None	⌃⌃	CLOSED	Done
OPTFRA-366	HAS CSIT issues	🔴	Oct 07, 2018	Oct 25, 2018		Unassigned	None	⌃⌃	CLOSED	Done
OPTFRA-365	Fix Jenkins jobs for CMSO	🔴	Oct 05, 2018	Oct 30, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-362	AAF Authentication CSIT issues	🔴	Sep 28, 2018	Oct 08, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-359	Create index on plans table for HAS	🔴	Sep 27, 2018	Oct 04, 2018		Unassigned	None	⌃⌃	CLOSED	Done
OPTFRA-358	Tox fails with the AttributeError: 'module' object has no attribute 'MUSIC_API'	🔴	Sep 21, 2018	Sep 24, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-354	Generalize the logic to process Optimization policy	🔴	Sep 19, 2018	Oct 05, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-344	Fix broken HPA CSIT test	🔴	Sep 15, 2018	Oct 07, 2018		Unassigned	None	=	CLOSED	Not a Bug
OPTFRA-341	Cannot support multiple candidates for one feature in one flavor	🔴	Sep 14, 2018	Sep 27, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-338	Create authentication key for OOF-VFC integration	🔴	Sep 08, 2018	Sep 08, 2018		Unassigned	None	=	CLOSED	Done
OPTFRA-336	OOM oof deployment failure on missing image - optf-osdf: 1.2.0	🔴	Sep 05, 2018	Sep 18, 2018		Unassigned	None	⌃	CLOSED	Done
OPTFRA-335	Making flavors an optional field in HAS candidate object	🔴	Sep 05, 2018	Oct 11, 2018		Unassigned	None	⌃	CLOSED	Done

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- # Risks

List the risks identified for this release along with the plan to prevent the risk to occur (mitigation) and the plan of action in the case the risk would materialized (contingency).

Risk identified	Mitigation Plan	Contingency Plan
Insufficient resources for delivering the functional features in the scope: - 5G - SON, Slice optimization - VNF Auto scale out - Change management scheduler	Limit the functional features to use Beijing features for homing Prioritize the items in the scope into different priority levels and stretch goals	

• Resources

Fill out the Resources Committed to the Release centralized page.

• Release Milestone

The milestones are defined at the Release Level and all the supporting project agreed to comply with these dates.

• Team Internal Milestone

This section is optional and may be used to document internal milestones within a project team or multiple project teams. For instance, in the case the team has made agreement with other team to deliver some artifacts on a certain date that are not in the release milestone, it is erecommended to provide these agreements and dates in this section.

It is not expected to have a detailed project plan.

Date	Project	Deliverable
To fill out	To fill out	To fill out

• Documentation, Training
- Highlight the team contributions to the specific document related to he project (Config guide, installation guide...).
- Highlight the team contributions to the overall Release Documentation and training asset
- High level list of documentation, training and tutorials necessary to understand the release capabilities, configuration and operation.
- Documentation includes items such as:
    - Installation instructions
    - Configuration instructions
    - Developer guide
    - End User guide
    - Admin guide
    - ...

> ⚠ **Note**
>
> The Documentation project will provide the Documentation Tool Chain to edit, configure, store and publish all Documentation asset.

Other Information

• Vendor Neutral

If this project is coming from an existing proprietary codebase, ensure that all proprietary trademarks, logos, product names, etc. have been removed. All ONAP deliverables must comply with this rule and be agnostic of any proprietary symbols.

• Free and Open Source Software

FOSS activities are critical to the delivery of the whole ONAP initiative. The information may not be fully available at Release Planning, however to avoid late refactoring, it is critical to accomplish this task as early as possible.
List all third party Free and Open Source Software used within the release and provide License type (BSD, MIT, Apache, GNU GPL,...).
In the case non Apache License are found inform immediately the TSC and the Release Manager and document your reasoning on why you believe we can use a non Apache version 2 license.

Each project must edit its project table available at Project FOSS.

Charter Compliance

The project team comply with the ONAP Charter.