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Hackfest Challenges

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OSM#15 Hackfest

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Hackfest Challenges

- Challenges are small work items, self-contained and achievable in the Hackfest time frame
- Could be bug fixes, new features, unit tests for modules, E2E Tests exercising use cases
- Challenges are proposed by relevant people in OSM community (TSC members, Module Development Leaders, Committers)
- Participants will group in pairs (ideally) or individually to solve the challenges
- Each challenge has 1 mentor
- Hackfest participants will have clear instructions on what to do and how to test their contributions
- Hackfest participants will be able to see **intermediate and solid progress**
- All challenges are defined by
 - Description and Definition of Done (DoD)
 - Steps To be Followed, which will be presented in detail to the challengers.

DISCLAIMER

Challenges have been designed, trying to take into account all the steps required to implement them.

However, since this is new code to be done, unexpected steps might be necessary

Hackfest Challenges

TITLE	MODULES	MENTORS	DIFFICULTY
Challenge 1. Global option <code>`-o <FORMAT>`</code> in osmclient to adapt output format	osmclient	Gerardo	LOW
Challenge 2. Global option <code>`-c`</code> in osmclient to filter output and show only selected fields in xxx-show and xxx-list commands	osmclient	Gerardo	LOW
Challenge 3. Deprecation framework for old commands in osmclient	osmclient	Gerardo	LOW
Challenge 4. Replace pycurl library in osmclient by requests library	osmclient, devops (installer)	Gerardo	MEDIUM
Challenge 5. Remove the duplicated information from VDUR in VNFR for Vertical-scaling operation	RO	Gulsum	MEDIUM
Challenge 6. NS Delete Operation should raise error if the deletion operation is not completed successfully	RO	Gulsum	MEDIUM
Challenge 7. Remove EE Charms when VNF has only day-1 operations	LCM, N2VC	Guillermo	HIGH
Challenge 8. Vulnerability fix of bug 2088 regarding Remote Code Execution in N2VC/LCM	N2VC, NBI, LCM	Pedro	MEDIUM/HIGH

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Osmclient challenges

- Objective: to update OSM Python client to add new capabilities or improve maintenance
- 4 challenges
 - **Challenge 1.** Global option ``-o <FORMAT>`` in osmclient to adapt output format
 - **Challenge 2.** Global option ``-c`` in osmclient to filter output and show only selected fields in xxx-show and xxx-list commands
 - **Challenge 3.** Deprecation framework for old commands in osmclient
 - **Challenge 4.** Replace pycurl library in osmclient by requests library
- Difficulty: low to medium
- They will allow to get a general picture of how OSM work and how to interact with OSM from an external system (in this case, OSM client)

Challenge 1. Global option in osmclient to adapt output format

- Description

- A new global option ``-o <FORMAT>`` will be added to osmclient to adapt output format
- The output formats could be: table, csv, yaml, json, jsonpath (default:table)
 - Reference example (kubectl): <https://medium.com/codex/kubectl-output-101-851f8e61fd51>
- It would only apply to xxx-show and xxx-list commands
- The code should be properly written so that all commands use the same call in all the cases:
print_output(format, header, rows)

- Definition of Done

- All sanity tests should pass. Nothing is broken
- All the xxx-show and xxx-list for NS, VNF and VIM should work with all the format options
- (Optional). A new Robot test is added or an existing one is updated to check all the options work for a specific osmclient command

Challenge 2. Global option in osmclient to filter output and show only selected fields

- Description

- A new global option ``-c <FORMAT>`` will be added to osmclient to filter output, based on first-level fields
- Reference example (openstack): `openstack server list -c Id`
- The argument “-c” must be stackable, e.g. `-c Name -c Id`
- It would only apply to xxx-show and xxx-list commands
- The code should be properly written so that all commands use the same call in all the cases:
filter_output(fields, dict)

- Definition of Done

- All sanity tests should pass. Nothing is broken
- All the xxx-show and xxx-list for NS, VNF and VIM should work with the new option
- (Optional). A new Robot test is added or an existing one is updated to check that the new option works for a specific osmclient command

Challenge 3. Deprecation framework for old commands in osmclient



- Description

- A deprecation framework will be defined and implemented in osmclient
- Some commands will be selected to be deprecated in favor of new commands (or no command) for a given release.
- The code should be properly written so that all commands check if they are deprecated, ideally without defining that code on a per-command basis

- Definition of Done

- All sanity tests should pass. Nothing is broken.
- The deprecation framework is implemented and documented.
- A selected number of commands (e.g. vnfd-xxx, nsd-xxx) will give a warning.
- A new Robot test is added or an existing one is updated to check that a deprecated command shows a warning

Challenge 4. Replace pycurl lib in osmclient by requests lib

- Description
 - The library pycurl is currently used to interact with OSM North Bound Interface (NBI)
 - The library requests is widely used
 - This challenge will replace all calls using to pycurl by requests calls
- Definition of Done
 - All sanity tests should pass. Nothing is broken.
 - Osmclient will work without pycurl as a requirement
 - Devops installer will work without installing libcurl4-openssl-dev and libssl-dev

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RO challenges

- Objective: to fix issues in Resource Orchestration (RO) module
- 2 challenges
 - **Challenge 5.** Remove the duplicated information from VDUR in VNFR for Vertical-scaling operation
 - **Challenge 6.** NS Delete Operation should raise error if the delete operation is not completed successfully
- Difficulty: medium
- They will allow to get some knowledge about how OSM platform works, and particularly how Resource Orchestration (RO) component works, how it interacts with OSM records in MongoDB and how it interacts with VIMs like Openstack.

Challenge 5. Remove the duplicated information from VDUR for Vertical-scale Operation

● Description

- After performing vertical-scale operation, the status and details of the VDU(VM) are updated in the VNFR record by RO.
- The expectation is that status and vim_details which exists in the vim_info of the VNFR is updated. Currently instead of updating existing parameters, new parameters are created for vim_details, vim_id, vim_message and vim_status in the VDUR section of the VNFR.
- After operation completed, existing parameters should be updated instead of adding new parameters.
- RO/ns_thread.py VimInteractionResize class should be fixed to handle vertical scale operation properly

● Definition of Done

- Create a NS including including at least one VNF and execute the vertical-scale operation
- Connect to MongoDB to check the VNF record
- VNFR/VDUR/vim_info includes vim_details, vim_id, vim_message and vim_status only once. Those parameters does not appear in any other place in the same VDU record.

Challenge 6. NS Delete Operation should raise error if the delete operation is not completed successfully

- Description

- NS deletion is reported as successful although the delete operation is not done properly because of some reasons such as down VIM connectivity.
- In the Openstack VIM connector delete operations methods, exceptions needs to be arranged to raise the VIM connectivity exceptions
- If the failure happens because of VIM connectivity during delete operation, operation should be reported as failed
- Scope is limited to Openstack VIM connector

- Definition of Done

- Launch an NS instance
- Close the port in OSM machine to reach one of the Openstack Services (e.g. Nova)
- Trigger NS Delete operation from OSM. Operation should be reported as failed

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LCM/N2VC challenges

- Objectives:
 - To add new functionality to OSM
 - To fix a vulnerability update OSM Python client to add new capabilities or improve maintenance
- 2 challenges
 - **Challenge 7.** Remove EE Charms when VNF has only day-1 operations
 - **Challenge 8.** Vulnerability fix of bug 2088 regarding Remote Code Execution in N2VC/LCM
- Difficulty: medium/high to high
- They will allow to acquire a deep knowledge of how OSM works internally

Challenge 7. Remove EE Charms when VNF has only day-1 operations

- Description

- When a VNF has day-1 operations in the descriptor new charms are created to perform these operations. After the operations are completed, the charms are still deployed, but they won't be executed anymore.
- The aim of this feature is to remove the charms after they are executed.
 - For that, we will need to check if only day-1 actions are included in the VNF descriptor.
 - If that is the case, LCM should delete the charm after day-1 actions are executed.

- Definition of Done

- Deploy a NF with day-1 actions.
- Charm is created to execute the day-1 actions.
- Actions are executed properly.
- Charm is deleted after the actions are executed.

Challenge 8. Vulnerability fix of bug 2088 regarding Remote Code Execution in N2VC/LCM

● Description

- A security-related bug in OSM allows that a user can execute malicious code
 - There is no proper verification of a potential malicious user input in the descriptors within the NBI
 - Someone can provide a VNF Descriptor with some value set to something malicious
 - LCM executes shell code to interact with Kubernetes via Helm and Kubectl clients
 - If someone provides a VNFD with vnfd.kdu.helm-chart value set to an exploit, that would be executed in LCM container.
- Bugzilla reference: https://osm.etsi.org/bugzilla/show_bug.cgi?id=2088

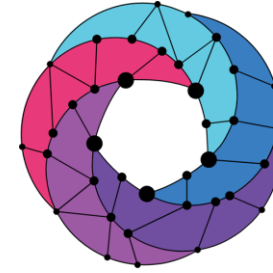
● Definition of Done

- The bug will be fixed
- Before the fix, the exploit will be able to create a file in LCM container
- After the fix, the exploit won't be able to create that file.

Challenge distribution

- Form: <https://forms.gle/HzqqZYxBruQpbK8z7>





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Thank You!