



ever-est

D6.3 Technical Note on Operations and Maintenance

Workpackage	6	VRE Deployment, maintenance and operations
Task	6.5	VRE Operations and evolutive maintenance
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Document Identifier	EVER-EST DEL WP6-D6.3	
Dissemination Level	Public	
Status	Approved by the EC	
Issue	1.1	
Date	14 December 2018	



Document Log

Date	Author	Changes	Version	Status
07/05/2018	Serena Avolio	First draft	0.1	Draft
01/09/2018	Fulvio Marelli	Second draft – Contributions from tech partners integrated	0.2	Draft
24/09/2018	Fulvio Marelli	Ready for internal review	0.3	Draft
15/10/2018	Fulvio Marelli	Internal review input consolidation	1.0	Draft to be approved by the EC
14/12/2018	Cristiano Silvagni	Document status	1.1	Approved by the EC



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Definitions and Acronyms

Acronym	Description
ACL	Access Control List
API	Application Programming Interface
COTS	Commercial Off-the-Shelf
DAS	Data Analytics Server
EO	Earth Observation
ES	Earth Science
ESA	European Space Agency
ESB	Enterprise Service Bus
EVER-EST	European Virtual Environment for Research - Earth Science Themes
GUI	Graphical User Interface
IS	Identity Server
JIT	Just In Time
JSON	JS Object Notation
MOM	Message Oriented Middleware
OIDC	Open ID Connect
OGC	Open Geospatial Consortium
PSNC	Poznań Supercomputing and Networking Center
RDF	Resource Description Framework
REST	Representational State Transfer
RO	Research Objects
RODL	Research Objects Digital Library
SPARQL	Protocol and RDF Query Language
SSO	Single Sign-On
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
VRC	Virtual Research Community
VRE	Virtual Research Environment
WCS	Web Coverage Service
WMS	Web Map Service
WSDL	Web Services Description Language
XML	EXtensible Mark-up Language



Applicable Documents

Document ID	Document Title
EVER-EST DEL WP5-D5.1	VRE Architecture and Interfaces Definition

Reference Documents

Document ID	Document Title
EVER-EST DEL WP5-D5.1	VRE Architecture and Interfaces Definition
EVER-EST DEL WP5-D5.2	Technical Note on common services, Intermediate version
EVER-EST DEL WP5-D5.3	Technical Note on digital information and e-collaboration services
EVER-EST DEL WP5-D5.4	Technical Note on e-Research application services, Intermediate version
EVER-EST DEL WP5-D5.7	Technical Note on Digital Information and E- Collaboration Services - Final Version



1 Introduction

The purpose of this document is to describe the operations phase, the problems encountered and the solutions implemented to solve them. This deliverable, which is based on the inputs from task T6.5, tracks all the corrections and improvements to the VRE developed during the project.

1.1 Background

As detailed within the proposal, a consistent part of the infrastructure is based on modules and experience derived from previous Earth Science EU projects, including among others, SCIDIP-ES, GEOWOW and EarthServer. Deliverable 5.1 describes in detail the EVER-EST VRE architecture and initial set of corresponding software components. The architecture reflects the organization of functions across the various layers and with regards to the core element of the design the following can be identified:

1. **Presentation Layer** - on the top part of the architectural diagram - contains the core elements and technologies that shall guarantee the availability of those services and functions, which shall be directly used by the different communities. It includes the ROHub, the e-collaboration, e-learning and e-research services along with the mechanisms for Earth Science data discovery.
2. **Service Layer** - in the central part of the architectural diagram - provides both generic VRE services and Earth Science specific services. These components represent the reasoning engine of the e-infrastructure and actually orchestrate and manage the services available to the VRE final users.
3. **Data Layer** - bottom part of the design - references the data holdings made available to the Virtual Research Communities (VRCs): data is linked and proper means are provided, where feasible, to access it from the VRE. As a default setting, data will not be copied or duplicated, but will continue to reside on the provider's local servers unless it is directly retrieved by the user.

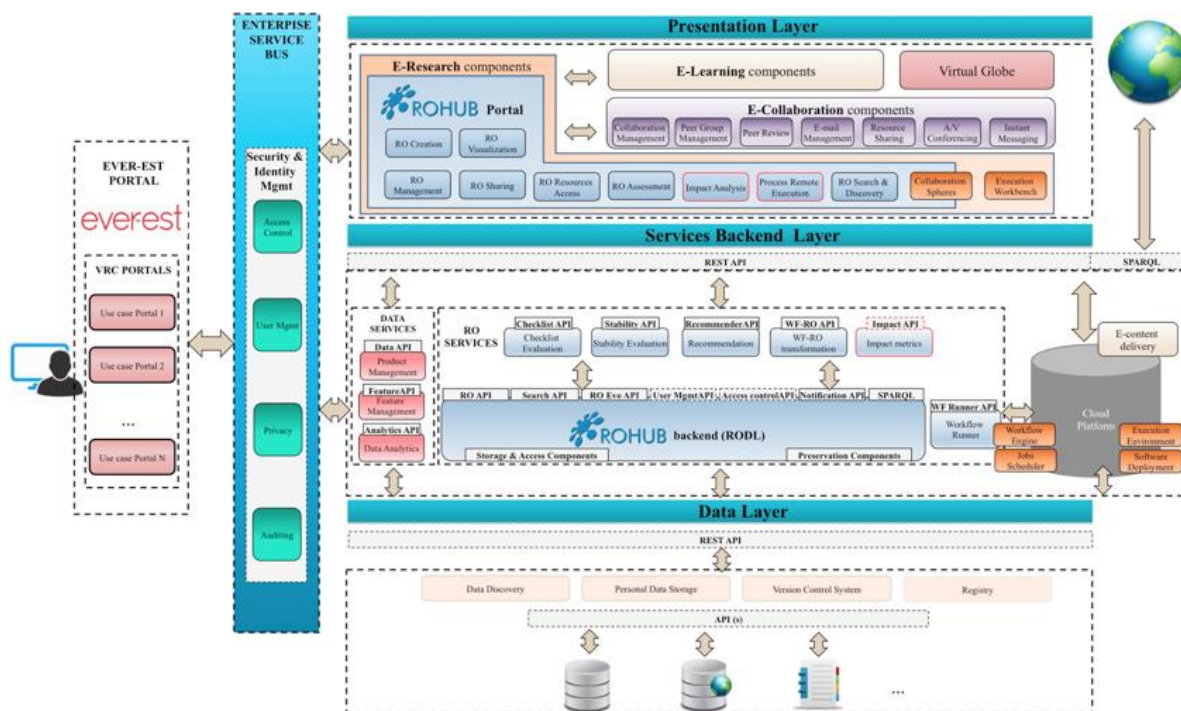


Figure 1 EVER-EST VRE architecture



The Presentation Layer includes the VRE portal which is the main access to the components and provides access to each VRC specific user interface. While some services and functions can be seen as common and transversal to all the VRCs, a set of features and functions are specific for each of the communities and required an ad-hoc design.

1.2 How this document is organized

From the Project Roadmap perspective, the EVER-EST VRE architecture design and implementation was divided in 4 main tasks:

- Task 5.2 - Common services
- Task 5.3 - Digital Information and E-Collaboration Services
- Task 5.4 - E-Research Application Services
- Task 5.5 - E-Learning application services

This document will use this service classification as the view angle to categorise all operational actions, technical discussions, SPR and additional issues that have emerged during the third year of the project. In this light, chapter 2 will provide an overview of each service category focusing on their technical role that they play within the infrastructure. The objective is to facilitate the comprehension of the specific criticalities connected to a service allowing the reader to better understand the actions, improvements, SPR and troubleshooting that have been implemented on each service by the technical teams. The team has also chosen to insert, where feasible, a lesson learned paragraph for future reference. Chapter 3 will detail the SPR notification procedure by VRC's and the agreements between technical partners about response times and workflows. Chapter 4 and 5 will show in detail each single SPR, Technological issue and system evolution tackled by the technical team following the inputs coming from VRE users.

1.3 Approach to operation and maintenance

After the final release of the VRE infrastructure the EVER-EST technical consortium has implemented a series of actions to improve the infrastructure and provide support to its users. These actions included the creation of an ever-est.support email account for SPR analysis and an Emergency Crisis Skype chat for instant discussion/reply to criticalities. As the amount of data/users on the VRE has increased in time, a series of major and minor issues/criticalities/bugs have been identified. This has led to the setup of a technical table (April 2018) for a general discussion on the state of the art of the VRE. The actions needed to solve some of the VRE problems or to improve it have been indexed in an Excel File and categorised in terms of priority, owner/s, timing, etc. The work carried out under this technical framework constitutes the first main input to this document. As all these technical issues have been tackled and solved, a second phase - started in June 2018 - brought the VRC and Technical team back together for a series of virtual meetings called "Debugging Sessions". In each meeting the VRC members were performing every single step of all their use cases and scenarios sharing their screen to the technical team. This allowed a second series of corrective actions/improvements to be identified and implemented. This work constitutes the second major input to the document.



2 EVER-EST Service Categories

2.1 Common services

The Common Services category represents the family of services, which guarantee the correct functioning between the various infrastructure components and between the infrastructure and the final users. The common services implemented include user authentication, API protection, account provisioning, identity administration, security, message routing, message transformation, auditing, data discovery, data access and data Storage. These services can be grouped by macro-topics coupled with software components. Detailed information on Common Services can be found on the [EVER-EST DEL WP5-D5.2] document and on the [EVER-EST DEL WP5-D5.6] document.

2.1.1 Identity management services

The services related to the identity management are supported by the WSO2 Identity and Access Management Server. The WSO2 Identity Server provides secure Identity Management for the EVER-EST Web Application services and APIs by managing identity and entitlements of the users. It operates through different authentication and authorization protocols as OpenId Connect, OAuth2 and SAML20 ensuring a SSO scenario. It is a COTS configured and customized for the EVER-EST environment.

2.1.2 Message Mediation Services

The mediation services requested by the EVER-EST infrastructure are supported by WSO2 Enterprise Service Bus. The process of routing requests to correct service provider and the process of transforming message formats between different applications are centralized and offered to the end user of the VRE Portal using the mediation of the ESB that acts as a middleware to integrate the ROHub and Taverna functionalities with the VRE portal. WSO2 Enterprise Service Bus is a COTS configured and customized for the EVER-EST environment.

2.1.3 Data Management

The services related to personal data management are supported by SeaFile. Seafiler offers a repository for the personal data storage. Seafiler has a web interface, web API and a desktop client. It guarantees file synchronization, version control, public link sharing, desktop client and web API.

A dedicated Seafiler instance was deployed for EVER-EST, which included the installation of the shibboleth module to enable the authentication via EVER-EST identity provider. Some issues found regarding implementation of single sign on required additional customizations that were done with some support of Seafiler developers. Other issues found, like problems handling multiple file upload requests concurrently were handled by upgrading the system.

2.2 Digital information and e-collaboration services

2.2.1 EVER-EST and VRC portals

The EVER-EST and Virtual Research Community (VRC) portals are the web environments where all functionalities to manage the full data cycle (discover, access, process, visualise, share) as well as for communication, cross-validation and the sharing of knowledge and science outputs are provided to Earth Science user communities.



The availability of visual components (i.e. independent objects that could be easily integrated in to a web page) and the high level modularization of the EVER-EST components, allowed each VRC to have a dedicated portal customized for Sea Monitoring, Natural Hazards, Land monitoring and Supersites community needs.

2.2.2 Visual Components

The main VCs implemented and integrated in the EVER-EST and VRC portals are:

- Discovery Visual Component: allows datasets and data discovery via OpenSearch queries on OpenSearch enabled repositories;
- RO Manager Visual Component: allows RO creation, visualization and editing;
- Virtual Globe Visual Component: allows EO data visualization;
- Upload to Seafile Visual Component: allows files upload to Seafile within the VRC.

A detailed description of the VCs can be found in [EVER-EST DEL WP5-D5.3] and [EVER-EST DEL WP5-D5.7].

2.2.3 E-Collaboration Services

The E-Collaboration Services component facilitates the interaction, communication and collaboration between VRC members using Forum, 1-to1 and 1-to-N Instant Messaging, Internal Messaging and Notification and Calendar/Scheduling.

2.3 e-research application services

2.3.1 ROHub

The research object (RO) management platform ROHub enables scientists to manage and preserve their research work via ROs, to make it available for publishing, to collaborate and to discover new knowledge. Built entirely around the RO concept, and inspired by sustainable software management principles, ROHub is the only existing platform implementing natively the full RO model and paradigm. ROHub comprises a backend service, a reference web client application (ROHub portal), and integrates multiple added-value RO services, as described below.

2.3.2 RODL (ROHub backend)

ROHub backend service (RODL) exposes a set of Restful APIs to support programmatic access to the functionalities for the management and preservation of ROs. RODL is at the core of EVER-EST VRE, supporting (and interacting with) the other components in the architecture, to enable the management and preservation of resources in Earth Science through the RO concept and tools.

Although available since 2012, RODL has been extended and improved during the course of EVER-EST project in different aspects. RODL was extended to support the RO model extension for Earth Science (created in EVER-EST), which covers key domain-specific metadata information, such as geospatial, time-period, intellectual property rights, data access policies, and general Earth Science metadata. Other RODL extensions include: i) the implementation of an enhanced RO lifecycle to support the capability to generate forks from an RO (inspired by Open Source Software development practices); ii) the implementation of an OpenSearch API with geospatial extensions (the de facto standard used in Earth Science to search across data repositories); iii) the capability to generate DOIs for ROs for their citation and credit (becoming a DataCite member).

During the course of the EVER-EST project, we also learned different lessons regarding i) challenges in the implementation of domain specific interfaces on top of RODL; ii) the typical usage of the system in (near-)real



settings, which allowed us to identify performance issues and configuration limits, which we addressed by taking different actions.

For instance, during the implementation of the VRE portals, it was found more efficient and effective to build a middleware layer on top of RODL API in order to abstract and to bundle individual operations provided by RODL into high-level operations reflecting the most common user actions. Thus, a middleware API operation maps a typical Earth Scientist user action into multiple RODL API calls, avoiding repetitive individual calls from the user interface (thus facilitating the implementation of the portals). It supports, however, only a limit set of operations (the typical ones). Additionally, for a better performance, this middleware API carries out multiple RODL API operations in parallel. This had repercussions in RODL, which was not originally designed or tested under such conditions, and during mid to heavy workloads, RODL started to give connection or out-of-memory errors. So, we carried out several stress tests in order to tune the best configuration of RODL that involved: i) increasing the RAM assigned to the RODL application up to 8GB (previously 1.5GB); ii) increasing connections limits by about 10 times ~ 500 (previously ~50). Regarding the latter, the proxy receiving requests to RODL has a current limit of 512 concurrent connection. Above this limit, the proxy refuses to accept calls, and no response is sent back to client, which will wait until connections are freed or until its own timeout. The proxy acts as a queue to the RODL Web application server (tomcat), which has a limit of 490 max concurrent connections. This is also the maximum number of concurrent connections it will try to open in the database, which has a limit itself of 500.

We also learned that since RODL is I/O intensive application, the underlying disk access speed is a crucial factor affecting its performance. Hence, we migrated RODL to a faster disk drive, which increased the performance about 500%.

Finally, we implemented additional API methods to i) boost performance of some repetitive, long and time-consuming operations, like aggregating multiple files to a research object and setting their title by adding a zip file with all these resources; or ii) to address consequences of concurrent operations, such as forcing the reindexing of the research object metadata, sometimes necessary after multiple concurrent operations initiated by the middleware API.

2.3.3 ROHub portal

ROHub portal is a Web client application providing a generic front-end for the management and preservation of ROs. It exposes the full set of RO management capabilities to end-users through an advanced, life cycle management-oriented, interface.

ROHub portal is an alternative user interface for research objects in the EVER-EST VRE. Unlike the VRC portals, which provide customized operational interfaces abstracting the RO terminology and details with a tailored access to (some of) the RO management capabilities, ROHub portal is intended for more technical/advanced users that have been already familiarised with ROs, or who would like to analyse or manage the RO in more detail.

The ROHub portal was completely redesigned and re-implemented as part of EVER-EST project. The previous version, though, enabled the collection of feedback from different user communities (inside and outside of EVER-EST) regarding the expectations about a generic interface for RO management, and was used during the initial months of the project to introduce and demonstrate in practice the RO concepts and tools to the VRCs users. Nevertheless, it was deemed necessary to develop a completely new portal following a modular approach to: i) improve the usability and performance of the portal; ii) update the technologies used in the implementation.

ROHub portal has a beta to production cycle, where new developments are initially tested in a beta instance and only after successful validation, they are deployed in production.

During the course of EVER-EST project, we received multiple feedback regarding the interface and expected functionalities behaviour. Taking a user-centred approach, we tried in every case to make the required changes/adaptations to address the users' feedback. For instance, some of the pages that received more



attention, and thus more feedback from the users, included the main RO landing page (asking for specific metadata to appear in the summary section), and the RO quality evaluation page (asking for more detailed information how to fix a non-fulfilled criteria).

2.3.4 Cloud platform

The EVER-EST VRC members are able to access execution environments with capabilities enabling to specify, launch and terminate Virtual Machines (VMs). These capabilities are provided by Terradue Cloud Platform, a Hybrid Cloud infrastructure associating PSNC resources with a cloud controller managing a scalable data management framework that are exploited by a Developer's application to deliver a Cloud Appliance. The software of the Cloud Platform is available at the OpenNebula GitHub - <https://github.com/OpenNebula>

The Terradue Cloud Controller uses the OpenNebula Sunstone GUI intended for both end users and administrators that simplifies the typical management operations in private and hybrid cloud infrastructures. This GUI allows easy management of all resources and performing typical operations on them. This software is available here: <https://github.com/OpenNebula/one>

2.3.5 Taverna server

Taverna server enables the remote execution of workflows. Workflows enable the automation of the research process and support other important aspects of research outputs as scholarly communications. Workflows contribute to reproduce and reuse research results; they can be repurposed for other goals or be used as training material about the research at-hand.

Workflows are first class citizens of the RO model and are the mechanism to specify the computational process that supports the scientific research. Thus, a key feature of Taverna, in the context of EVER-EST, is that it provides out-of-the-box the functionality for generating ROs with the workflows execution provenance.

In EVER-EST, VRC communities created multiple workflows, which allowed them to formalize and automatize many of their research or operational tasks. These workflows required execution of scripts in different languages, including R, python and Matlab. Thus, as part of EVER-EST, we had to deploy all of these engines alongside the Taverna server.

The main difficulty our users found, however, was to create workflows that could run remotely. They were able, after few introductory sessions, to create workflows using the workbench desktop application. However, these workflows did not run directly in the remote server, as they were using local resources for the inputs. Hence, we had to create a set of guidelines for the users to help them create workflows that were more portable and that could be executed remotely.

2.4 e-learning application services

The e-Learning Services for Earth Observation (EO) data are built using two core technologies: Data Cubes and Web Notebooks. The use of these technologies responds to the expectations of an easy integration of multi-source data and a capability to provide a complete analysis of the e-Learning modules in direct contact with the final user. The web context and the provision of services from both components allow participants to interactively execute the courses.

2.4.1 Web notebook jupyter

The Jupyter Notebook is an interactive computing environment that enables users to author notebook documents that include: live code, interactive widgets, plots, narrative text, equations, images and video. The Jupyter Notebook provides a complete and self-contained record of a computation that can be converted to various



formats and shared with others. The Jupyter Project source code is available in their GitHub at: <https://github.com/jupyter>

2.4.2 JupyterHub

JupyterHub allows the creation of a multi-user Hub that spawns, manages, and proxies multiple instances of the single-user Jupyter notebook server. Highly flexible with several customization options, JupyterHub can be used to serve notebooks to individual users or member of a given VRE.

JupyterHub is a multi-user server that manages and proxies multiple instances of the single-user Jupyter notebook server. There are three basic processes involved:

- Multi-user Hub (Python/Tornado)
- Configurable http proxy (node-http-proxy)
- Multiple single-user IPython notebook servers (Python/IPython/Tornado)

JupyterHyb uses a pluggable authentication module (PAM) as a mechanism to integrate multiple low-level authentication schemes into a high-level API. It allows the development of authentication mechanisms to be written independently of the underlying authentication scheme. The custom Authenticator subclasses were adapted to enable the EVER-EST OpenID Connect authentication schema. The JupyterHub source code is available in their GitHub at: <https://github.com/jupyterhub/>



3 EVER-EST ISSUE SOLUTION PROCEDURE

3.1 Interactions between VRCs and technical partners

Three types of interactions in the O&M phase were foreseen:

1. Detection of anomalies
2. Request for evolution
3. Notification from technical team

These processes are described by the following diagrams:

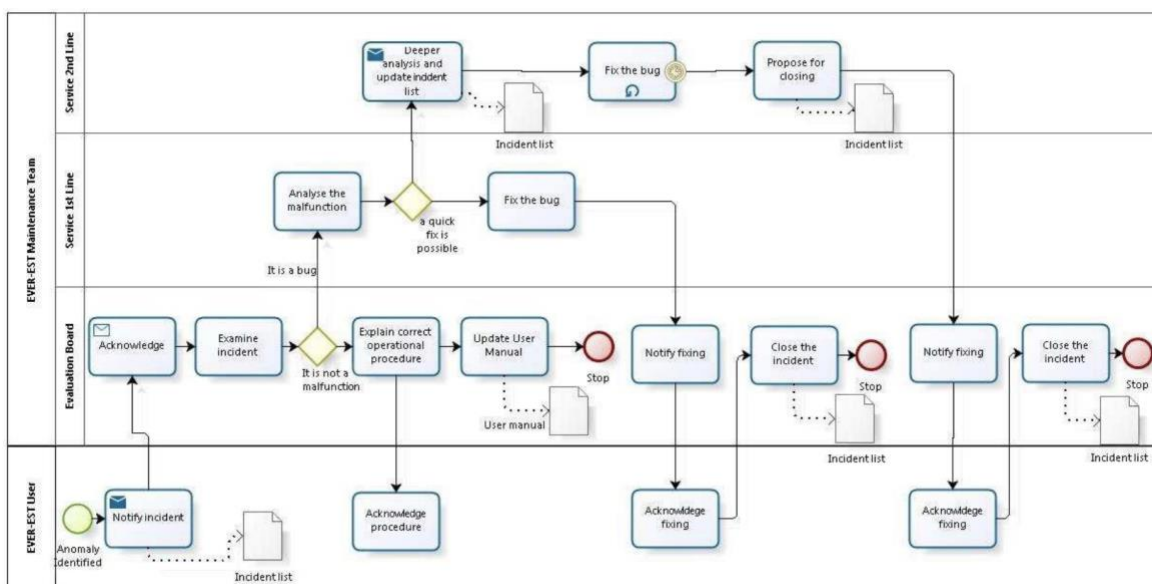


Figure 2 Anomaly Detection

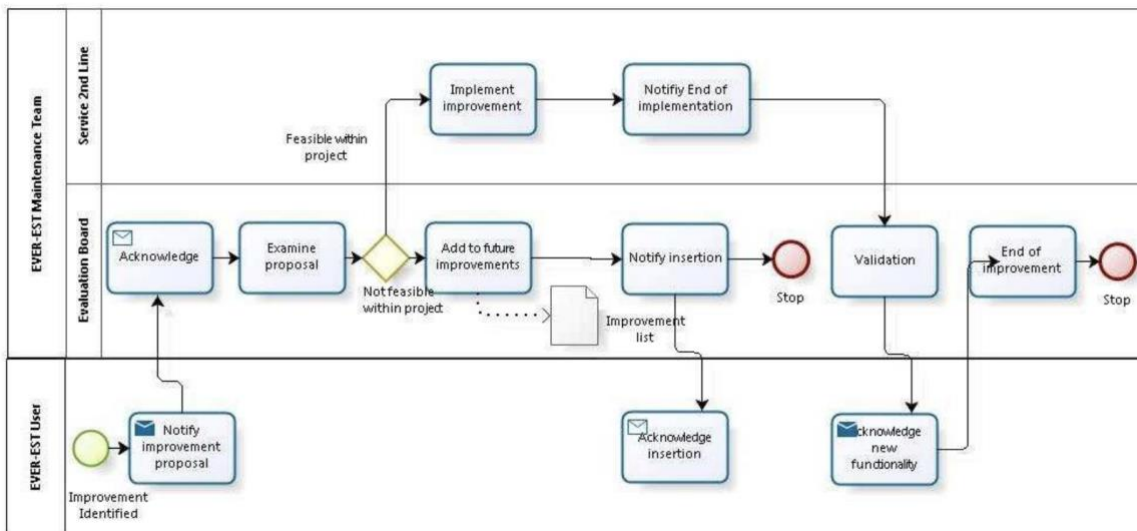


Figure 3 Evolution Management

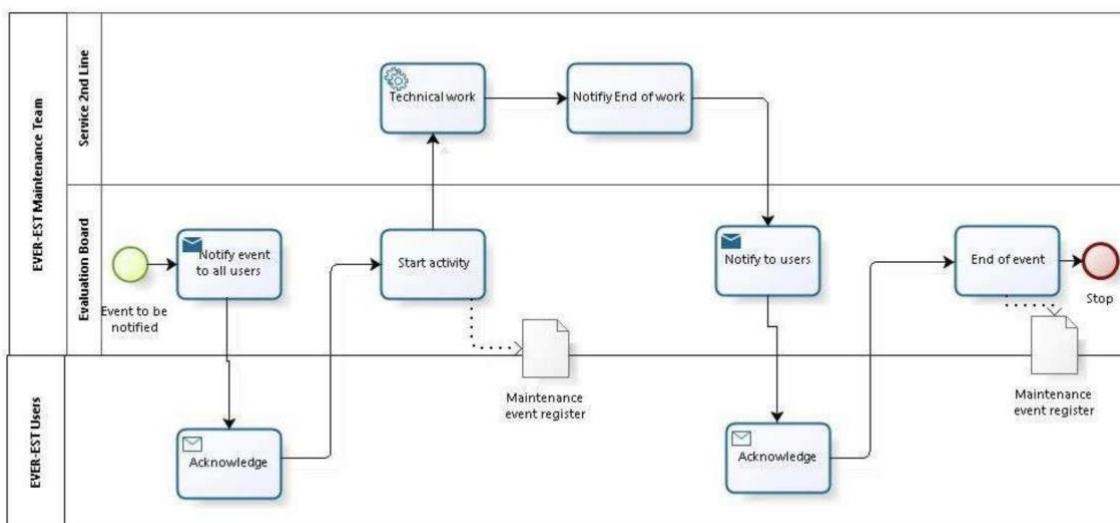


Figure 4 Management of notifications from technical partners

3.2 Roles and technical partnership

An EVER-EST User is any representative of the 4 target user communities entitled to use the system during the O&M phase, Evaluation Board is the body in charge of receiving the requests for anomaly corrections and evolution requests. It is composed of: - ACS - T2 - MEE0- PSNC - ESI - ESA Tech coordinator (who involves ESA PM if an evolution request has a wider impact).

Each of the above members can delegate one or more person, if needed. Service 1st Line is the body in charge of analysing the anomaly/malfunction, to solve is immediately, if possible, or to pass it for correction to the selected Service 2nd Line responsible group. It is composed of ACS Technical Leader, supported as needed by specific technical personnel. Service 2nd Line is the group of people identified to correct the anomaly/malfunction.



3.3 SPR Template

The Software Problem Report that is used to notify the malfunction contains the following information: - Name of the person who detected the problem - Date and Time (with the best possible granularity, to facilitate the diagnosis) - Operational configuration (OS, Browser, connection via WiFi/cable, ...) - Severity (Blocking/Medium/Low) - Description of the problem, with as many complementary information as possible.

The SPR form must be attached to the e-mail sent to the maintenance point of contact. Each SPR form must address only one anomaly. The Evaluation Board responds by e-mail to the SPR issuer to acknowledge the reception of the SPR, indicating in the subject the number and the title of the SPR and attaching the SPR, duly filled in.

The template is available to EVER-EST partners is depicted in the next picture:

EVER-EST OPERATIONS & MAINTENANCE

SOFTWARE PROBLEM REPORT

SPR NUMBER <i>Assigned by the Evaluation Board</i>	
Name of the SPR creator	
Affiliation	
Date of problem detection	
Time of problem detection <i>Please be as accurate as possible</i>	
Operational configuration <i>OS, browser, connection via WiFi/via cable, etc.</i>	
Severity <i>Assigned by the Evaluation Board</i>	
Problem Description	

Table 1 SPR Template for VRC

3.4 Point of contact

The point of contact to notify problems is the following: email to everest.support@esa.int

This address redirects to ACS Technical Leader, to ACS Project Manager and Deputy Project Coordinator. For urgent communications concerning system anomalies it is possible to reach Deputy Project Coordinator. However,



the official notification of any anomaly must be submitted via e-mail to the above mentioned address. An SPR Form, duly filled in, must be annexed to the notification email.

3.5 Time constraints

The maintenance service is provided according to the following timing. Time to acknowledge the reception of an SPR -> 0.5 working day. Target response times: - Blocking -> 3 working days - Medium -> 5 working days - Low -> 10 working days In case of piling of a big number of requests, the corrections could have some delays and will be scheduled according to the problem priorities.

3.6 Criteria for SPR categorising

Blocking problems are anomalies that prevent the user to accomplish his/her work with the VRE. Medium problems are anomalies that do not prevent the usage of the infrastructure but limit their functionality or performances. Low problems are minor anomalies that make the interaction between user and VRE not easy or not efficient.

3.7 Evolution Management

Evolutions are proposed by EVER-EST users by sending to the evaluation board's point of contact (see above) an e-mail with an Evolution Proposal. Once analysed and numbered by the Evaluation Board, the evolutions will either be accepted for implementation in the EVER-EST project timeframe or recorded for possible implementation after the project closure. In any case, the evolution proposals will be inserted in the improvement list for tracking.



4 EVER-EST SPR and Technical Issues

4.1 Introduction

Each issue or improvement will be summarised by means of a table indicating the Action ID, the issue/improvement requested, the component/s affected, the action tech responsible, the issue/improvement description, criticality, status (open/closed), date of closure (if any) and additional comments (if any). According to the main inputs described in the previous paragraph, the action ID will be labelled as *TECH-Number* or as *SPR-Number* depending on its source.

As depicted in the example that follows.

Action ID	Request from/date	Criticality	Responsible
TECH-001	SATCEN on Date	Blocking	T2
Component and description	Data Processing (WPS): The whole WPS execution on Copernicus data is slow (if the data are not cached, the whole chain lasts at least 10-15 minutes).The system must indicate the current level of completion (action already tracked). Caching strategy must be defined		
Solution	The only way is to cache data as needed. VRC to define which data can be stored: if this is the case, some "golden users" should have the possibility to define their area of interest.		
Status/ Date	Closed on Date		
Comments	The issue is data transfer from Copernicus sites which is time consuming when a vast number of images is requested for processing. All VRC have provided the areas of interest they monitor. The tech team has ensured a caching mechanism for S1A Copernicus data on those areas to speed up WPS and workflows execution.		

Table 2 Tech/SPR issue template

Please note that the numbering of both SPR and TECH items does not entirely reflect their issuing date: items have been re-indexed in time by the tech team depending on their priority and criticality levels.

4.2 EVER-EST SPR

Action ID	Request from / Date	Criticality	Responsible
SPR-001	CNR 02.11.2017	Blocking	PSNC/ MEEO



Component and description	Authentication Error (Arc/Info). The issue is regarding the ArcGIS CNR license. The service providing the network licenses (i.e., the License Server) is not reachable.
Solution	Originally related to a network connection issue. Proper communication mechanism have been implemented to notify users.
Status	Closed on 03.11.2017
Comments	When PSNC checks the connectivity from CNR VM to CNR licence server host this works.

Action ID	Request from / Date	Criticality	Responsible
SPR-002	CNR 01.03.2018	Blocking	PSNC
Component and description	Taverna Workflow Manager. Cannot execute a Taverna Workflow with Matlab Tool invocation using the workflow runner		
Solution	See comments.		
Status	Closed on 03.05.2018		
Comments	<p>The execution of the matlab workflow failed for the following reasons:</p> <p>Reason 1: The possibility of executing matlab scripts wasn't configured on Taverna Server. Solution: it was configured. Error generated: 'Error executing service: Error while checking workflow status: "Error executing service: Error while checking workflow status: "need more than 2 values to unpack"'</p> <p>Reason 2: Display images during the execution of a script is not allowed in a remotely executable workflow. Solution: The instructions for displaying images were removed from the Matlab script Error generated: "Error executing service: Error while checking workflow status: "need more than 2 values to unpack"'</p> <p>Reason 3: Wrong generation of the zip file containing the workflow results. Solution: the generation of the zip file was fixed in the Matlab script. Error generated: "Error executing service: Error while checking workflow status: "need more than 2 values to unpack"'</p> <p>Reason 4: Error during the upload of the workflow results on Seafile. Solution: removing the old 'result.zip' file from seafile. Error generated: "Exception: Error while uploading resource "results.zip" to Default Seafile Repo: "500 - Internal Server Error.'" generated by Seafile.</p>		

Action ID	Request from / Date	Criticality	Responsible
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SPR-003	CNR 13.03.2018	Blocking	PSNC
Component and description	Taverna Workflow Manager. Cannot execute a Taverna workflow using the workflows runner		
Solution	The cause was an update in the system (security), and it has required to reinstall R libraries.		
Status	Closed on 16.03.2018		
Comments	We follow now an approach to have libraries in a specified directory to avoid this in the future.		

Action ID	Request from / Date	Criticality	Responsible
SPR-004	NHP 10.04.2018	Blocking	PSNC
Component and description	Taverna Workflow Manager. ROs related workflows that were working previously are generating errors.		
Solution	The symptom was that the Rserve cannot write on its temporary dir. Solved restarting Rserve.		
Status	Closed on 24.04.2018		
Comments			

Action ID	Request from / Date	Criticality	Responsible
SPR-005	CNR 13.04.2018	Blocking	PSNC/ MEE0
Component and description	Try to create a new RO with an error message "error 500". When RO creation does not completely run the RO search after creation sends another error message "Error during RO content refresh: "2".		
Solution			
Status	In progress		
Comments			



Action ID	Request from / Date	Criticality	Responsible
SPR-006	CNR 03.05.2018	Medium	PSNC/ MEE0
Component and description	Error during Discovery Widget initialization: "undefined", Error during Recent RO call: "undefined", Error while retrieving Seafile libraries: "undefined". The error is random.		
Solution			
Status	In progress		
Comments			

Action ID	Request from / Date	Criticality	Responsible
SPR-007/8	CNR 04.05.2018	Blocking	PSNC
Component and description	Seafile. Can't access to personal seafile area within the vre Everest. Error: Error while retrieving Seafile libraries: "500 Internal Server Error".		
Solution	Solved restarting Seafile		
Status	Closed 07.05.2018		
Comments			

Action ID	Request from / Date	Criticality	Responsible
SPR-009	CNR 01.06.2018	Blocking	PSNC
Component and description	Error on WF runner with R		
Solution	It was related to the Seafile server update. In particular, when a workflow is selected, it is downloaded to the portal in order to be passed to Taverna Server and executed.		
Status	Proposed for closure		
Comments	During the download from Seafile, the name is dynamically obtained from the Content-Disposition header of the response (by a library). The		



	Content-Disposition contained a 'filename="<name_of_file>"' string that it has changed to 'filename*="utf-8 <name_of_file>"'.
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Action ID	Request from / Date	Criticality	Responsible
SPR-010	CNR 01.06.2018	Blocking	MEE0
Component and description	General error on VRE		
Solution	Related to VRE Portal Update not properly communicated		
Status	Proposed for closure		
Comments	Proper alert mechanism to users have been rationalised and implemented.		

Action ID	Request from / Date	Criticality	Responsible
SPR-011	CNR 06.06.2018	Medium	PSNC
Component and description	General error on VRE		
Solution	It was related to an unexpected behaviour of seafire, that is starting to respond with the HTTP code 403 to the HTTP calls from VRE.		
Status	Closed 07/06/2018		
Comments	The cause of the behaviour has not been isolated and therefore is still not clear. No other similar issues have happened afterwards.		

Action ID	Request from / Date	Criticality	Responsible
SPR-012	CNR 06.06.2018	Medium	
Component and description	General error on VRE		
Solution			



Status	Rejected - Related to wrong workflow implementation and execution
Comments	

Action ID	Request from / Date	Criticality	Responsible
SPR-013	CNR 07.06.2018	Blocking	
Component and description	General error on VRE. Timeout on concurrent requests to RODL (more than 200 concurrent calls)		
Solution			
Status	The issue has been solved after migrating the whole e-infrastructure on to a new hardware at PSNC.		
Comments			

Action ID	Request from / Date	Criticality	Responsible
SPR-014	CNR 18.06.2018	Low	PSNC/MEE0
Component and description	The list of RO types is not complete in the Sea monitoring VRE		
Solution	List of RO Types updated and added		
Status	Closed 20/06/2018		
Comments			

Action ID	Request from / Date	Criticality	Responsible
SPR-015	CNR 18.06.2018	Low	PSNC/ MEE0
Component and description	The list of annotations is not the same of the list in RoHub (see for example the missing of "keyword")		
Solution	Keyword list synched		



Status	Closed 20/06/2018
Comments	

Action ID	Request from / Date	Criticality	Responsible
SPR-016	CNR 18.06.2018	Medium	PSNC/ MEE0
Component description and	RO-HUB: error on ROHUB portal: "RUNTIME_ERROR during executing Annotate and transform operation for resource..."		
Solution			
Status	Closed 22/06/2018		
Comments	The operation of "Annotate and transform" cannot be done on two workflows having the same name annotated in Taverna. It was solved annotating the two workflows with different names.		

Action ID	Request from / Date	Criticality	Responsible
SPR-017	CNR 18.06.2018	Medium	PSNC
Component description and	Duplicated RO's		
Solution	The rodL code has been changed to make sure all triples are generated using typed values.		
Status	Closed 02/07/2018		
Comments	There were some duplicates entries in the result because there was an inconsistent way of generating the agent (creator/contributor/author/etc) graphs in the RODL code. In some cases, the graph included the type of the name (string) and in some cases not.		



4.3 EVER-EST Technical Issues

Please note a consistent part of the Technical improvements and bug fixing requests are dated 10 or 11 November 2017. This is when the consortium discussed all current issues at AHM in Reykjavik and the original Technical Issues excel file was created.

Action ID	Request from / Date	Criticality	Responsible
TECH-001	SATCEN 10.10.2017	Blocking	T2
Component description and	Data Processing The whole WPS is slow (if the data are not cached, the whole chain lasts at least 10-15 minutes).		
Solution	Improving time speed of the system is fundamental to foster EVER-EST use. The system must indicate the current level of completion (action already tracked). Caching strategy must be defined. Caching strategy has been defined		
Status	Closed		
Comments	The only way is to cache data as needed. VRC TO DEFINE WHICH ARE THE AREAS OF INTEREST so that data can be stored (if this is the case, some "golden users" should have the possibility to define their area of interest).		

Action ID	Request from / Date	Criticality	Responsible
TECH-002	SATCEN 10.10.2017	Blocking	ACS/PSNC
Component description and	RO search on Virtual Globe shall be allowed. ESB services to be updated to implement the functionality		
Solution	ACS to deliver a new ESB version		
Status	Closed 01.12.2017		
Comments	MEE0 is working on the possibility to add geographic coordinates to the RO at any moment (not only at creation). ACS implementing (in coordination with PSNC) a merge of geographical and semantic search. The results from the geographical search (OpenSearch) are then filtered by semantics (SPARQL)		



Action ID	Request from / Date	Criticality	Responsible
TECH-003	CNR 11.10.2017	Blocking	PSNC
Component description and	RO Creator error: "creator do not work, :Error during Last Experiments call: "500 Internal Server Error"		
Solution	Updated RO creator API		
Status	Closed 01.11. 2017		
Comments			

Action ID	Request from / Date	Criticality	Responsible
TECH-004	CNR 11.10.2017	Blocking	PSNC/ MEE0
Component description and	RO Creator error: "creator do not work, Error during Last Experiments call: "500 Internal Server Error"		
Solution	Updated RO creator API/ Tested on GUI		
Status	Closed 01.11. 2017		
Comments			

Action ID	Request from / Date	Criticality	Responsible
TECH-005	CNR 25/09/2017	Blocking	PSNC/ MEE0
Component description and	test new API for complete WF runner		
Solution	WF do not work Processor '2_UploadResultsOnSeafife' - Port 'link' Set of ErrorDocuments to follow. ErrorDocument 1 Processor '1_Rshell' - Port 'outdir': cannot change working directory ErrorDocument 2 Processor '1_Rshell' - Port 'workingdir': cannot change working directory"		
Status	Closed 29/09/2017		



Comments	"url" files already notified to PSNC (currently a temporary fix has been implemented on VRC portal side) PSNC deployed fix (remove .url in title) in RODL on 29/09/2017
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Action ID	Request from / Date	Criticality	Responsible
TECH-006	INGV 11/10/2017	Blocking	MEE0
Component description	and MODIS Data. Add MODIS Aqua satellite data – MYD05.Suggestion: choose MOD05 or MYD05 in the free text to discover only one satellite. Also MOD03/MYD03 and MOD21K/MYD21.		
Solution	Added MOD/MYD 03/21 and MYD05 data on the public platform (vre.ever-est.eu).		
Status	Closed 27/10/2017		
Comments			

Action ID	Request from / Date	Criticality	Responsible
TECH-007	NHP 11/10/2017	Blocking	MEE0+PSNC
Component description	and 'New RO' gets stuck on loading screen after submission		
Solution	Held meeting with NHP. Behaviour not reproduced. Under control		
Status	Closed 27/10/2017		
Comments	Shall be related to stability issues in SeaFile which have been solved		

Action ID	Request from / Date	Criticality	Responsible
TECH-008	NHP 11/10/2017	Blocking	PSNC
Component description	and Adding files to RO can result in additional (xml?) files being added		



Solution	Probably due to the Seafile stability, PSNC to inform when the issue is solved. CLOSED on K2
Status	Closed 27/10/2017
Comments	<p>Issue should be changed (this is connected to VRE Porta/ Middleware API). Tried to reproduce the problem.</p> <p>First attempt: start new RO from scratch, adding resources in some of the folders from the create RO wizard. Everything works fine.</p> <p>The only issue we found is that reloading the content from the VRE portal didn't work: explanation (Tim created the RO and added some resources, the creation process finished, but the content didnt show the resources even after clicking refresh, Tim had to reopen the RO to see the content)</p> <p>Second attempt: Tim tried to add a new resource. Problem: Adding a new resource in root, makes strange file appear. This is problem VRE portal/middleware API</p> <p>Third attempt: Tim tried to add a new resource (after previous issue). Problem: Adding a new resource in some folder, didn't work. Nothing was uploaded.</p> <p>Note: maybe was due to previous error</p> <p>Fourth attempt: see error at the bottom</p> <p>Fifth attempt: reload portal, creating a new RO from scratch, adding a resource in root, also created the strange file</p>

Action ID	Request from / Date	Criticality	Responsible
TECH-009	NHP 11/10/2017	Blocking	MEEO+PSNC
Component description and	In ROHUB, annotate and transform tool doesn't work on workflows uploaded on EVEREST portal		
Solution	PSNC to modify the procedure and load the files before applying the Annotate and Transform functionality 10/11/2017		
Status	Closed 27/10/2017		
Comments	This is being addressed by ROHub team now, problem is that annotate and transform expects a file, and the resources added from VRE portal are links, so when calling the service, we need to first download the file from the link and then call the service. 01 Dec 2017: deployed in beta ROHub, new released expected today.		



Action ID	Request from / Date	Criticality	Responsible
TECH-010	NHP 11/10/2017	Blocking	MEEO+PSNC
Component description and	In ROHUB, annotate and transform tool doesn't work on workflows uploaded on EVEREST portal		
Solution	PSNC to modify the procedure and load the files before applying the Annotate and Transform functionality 10/11/2017		
Status	Closed 27/10/2017		
Comments	This is being addressed by ROHub team now, problem is that annotate and transform expects a file, and the resources added from VRE portal are links, so when calling the service, we need to first download the file from the link and then call the service. 01 Dec 2017: deployed in beta ROHub, new released expected today.		

Action ID	Request from / Date	Criticality	Responsible
TECH-011	NHP 11/10/2017	Blocking	MEEO+NHP
Component description and	Can't reload panel from previous workflow run. Saving results of workflow run ('Add results to RO') removes panel from display. Subsequently clicking 'Workflow runner' presents empty boxes ready for a new run. Not the case when creating new RO from results.		
Solution			
Status	Closed 27/10/2017		
Comments	26/10/2017 => Previously supposed closed, it needs to be re-analysed		

Action ID	Request from / Date	Criticality	Responsible
TECH-012	INGV 11/10/2017	Blocking	MEEO+NHP
Component description and	VM connection issues (due to local wifi issues, as we had in ESA)		
Solution	Inform users in case connection is not available. Switch to port 80 to solve (Risky)		



Status	Closed 24/10/2017
Comments	

Action ID	Request from / Date	Criticality	Responsible
TECH-013	INGV 11/10/2017	Blocking	MEE0
Component description and	MODIS Data. Possibility to manually add the Bounding box coordinates.		
Solution			
Status	Closed 24/10/2017		
Comments	No more applicable		

Action ID	Request from / Date	Criticality	Responsible
TECH-013	INGV 11/10/2017	Blocking	MEE0
Component description and	MODIS Data. Possibility to manually add the Bounding box coordinates.		
Solution			
Status	Closed 24/10/2017		
Comments	No more applicable		

Action ID	Request from / Date	Criticality	Responsible
TECH-014	INGV 11/10/2017	Low	T2
Component description and	Auto-refresh of VM web page is not present		



Solution	There is an auto-refresh and refresh button (TBC refresh interval)
Status	Closed 24/10/2017
Comments	No more applicable

Action ID	Request from / Date	Criticality	Responsible
TECH-015	SatCEN 10/10/2017	Low	MEEO
Component description and	Data Selection: In the "Basket" window, it should be possible to remove easily the chosen image		
Solution	A "Remove" button added.		
Status	Closed 26/10/2017		
Comments	No more applicable		

Action ID	Request from / Date	Criticality	Responsible
TECH-016	CNR 18/09/2017	Low	MEEO
Component description and	Add .jpg. and kmz to virtual globe		
Solution	Virtual Globe manages TIFF file. Integrated as evolution		
Status	Closed 26/10/2017		
Comments	CNR changes the image format loaded in the RO MEEO will think about a way to communicate users the needed format to visualize image on the globe. Proposed as an evolution		

Action ID	Request from / Date	Criticality	Responsible
TECH-017	INGV 11/10/2017	Low	MEEO+PSNC



Component description and	“Inspect” right button. Not working for resources added from rohub.
Solution	
Status	Closed 26/10/2017
Comments	To be closed with a warning in the User Manual. ACS to talk to the User Manual Responsible

Action ID	Request from / Date	Criticality	Responsible
TECH-018	SatCEN 10/10/2017	Medium	ACS
Component description and	In the future, security mechanisms for the security community (e.g. anonymous search of data and AoI). Proposal for evolution		
Solution	To be clarified by SatCen, and assess what logs are being stored.		
Status	Open		
Comments	Constant work in progress		

Action ID	Request from / Date	Criticality	Responsible
TECH-019	CNR 27/09/2017	Medium	PSNC + MEE0
Component description and	Inspect function does not run		
Solution	Manage problem pending rohub solution		
Status	Closed with RO update		
Comments	Detected problems with new rohub file extensions		



Action ID	Request from / Date	Criticality	Responsible
TECH-020	INGV 11/10/2017	Medium	PSNC + INGV
Component description and	<p>Proposal for evolution. Virtual Machine for Windows is on but not suited for time series InSAR (150GB disk space not enough for storing and processing large Sentinel data stacks (several tens of images). Needed 1 Tb minimum. Processing speed must be tested afterwards.</p>		
Solution	Updates implemented upon request		
Status	Closed		
Comments			

Action ID	Request from / Date	Criticality	Responsible
TECH-020	INGV 11/10/2017	Medium	PSNC + INGV
Component description and	<p>Proposal for evolution. Virtual Machine for Windows is on but not suited for time series InSAR (150GB disk space not enough for storing and processing large Sentinel data stacks (several tens of images). Needed 1 Tb minimum. Processing speed must be tested afterwards.</p>		
Solution	Updates implemented upon request		
Status	Closed		
Comments			

Action ID	Request from / Date	Criticality	Responsible
TECH-021	INGV 11/10/2017	Medium	PSNC + MEE0
Component description and	<p>WF runner not well performing. Limited portability of WFs.</p>		
Solution	Bug fixed		



Status	Closed
Comments	

Action ID	Request from / Date	Criticality	Responsible
TECH-022	INGV 11/10/2017	Medium	T2
Component description and	Reduce double authentication requests, which are not user friendly. As in the case of VM access		
Solution	Fixed		
Status	Closed 24/11/2017		
Comments	T2 changed behaviour on the operational expected		

Action ID	Request from / Date	Criticality	Responsible
TECH-023	NHP 11/10/2017	Medium	PSNC+MEEO+ACS
Component description and	Uploaded files saved with a new alphanumeric string as file name on ROHUB		
Solution			
Status	Closed		
Comments	To investigate at VRC portal level the title/metadata/ID --> the alphanumeric ID is a temporary filename assigned by ROHUB: in case the communication between ESB and ROHUB get lost, the temporary filename remains		

Action ID	Request from / Date	Criticality	Responsible
TECH-024	NHP 11/10/2017	Medium	PSNC+MEEO
Component description and	Debugging workflows – can be hard to see what went wrong if run didn't complete. Can the standard output (e.g. print statements) of the R/Taverna runs be logged and accessible after the workflow has run (and		



	saved with the run results?)
Solution	
Status	Closed
Comments	

Action ID	Request from / Date	Criticality	Responsible
TECH-025	NHP 10/10/2017	Medium	MEE0
Component description and	Resampling of png rasters for display on the globe is fuzzy, even when the projection is set to WGS84. Is png being resampled/interpolated for display at a certain zoom level?		
Solution	Closed in K2		
Status	Closed		
Comments	2017/10/16 => NHP sent docs+ images + email to MEE0 2017/10/17 => identified issue in vglobe core technology and posted a ticket in the dev forum 2017/10/18 => core technology dev requested 2017/11/02 => core technology updated; k2 environment updated		

Action ID	Request from / Date	Criticality	Responsible
TECH-025	SatCEN 10/10/2017	Medium	MEE0
Component and description	Data Selection: In the "Basket" window, it is not easy to associated an image to the one chosen in the Data Discovery, (long name)		
Solution	Add the "Start" information (acquisition information) to the window.		
Status	Closed		
Comments			



Action ID	Request from / Date	Criticality	Responsible
TECH-026	SatCEN 10/10/2017	Medium	MEEO
Component and description	Data Processing: In the WPS options, the polygon selection should correspond to the initial Aoi selected by the user (with the Bounding box coordinates)		
Solution	There is no need to have this option available for the user (hide it). CLOSED in K2		
Status	Closed		
Comments			

Action ID	Request from / Date	Criticality	Responsible
TECH-027	SatCEN 10/10/2017	Medium	MEEO+PSNC+ESI
Component and description	RO Creation RO creation seems changed (and more complicated). E.g. Is the Seafile root folder necessary? Do we need a different login?		
Solution	If strictly required, a single sign-on in seafile should be available (no need of another ID). To be reproduced and investigated.		
Status	Closed		
Comments	MEEO to call SatCEN and clarify. Probably they users don't follow the correct procedure (i.e. clicking on "Shibboleth")		

Action ID	Request from / Date	Criticality	Responsible
TECH-028	SatCEN 10/10/2017	Medium	MEEO
Component and description	Data Selection In the "Data Discovery Results" window, once scrolling the list, all the available images should be visible on the map (overlap issue?)		



Solution	Deployed on VRE
Status	Closed
Comments	When hovering on the list, a clear correspondence between the selected image and the interface should be visible. Tentative date: 30/11/2017

Action ID	Request from / Date	Criticality	Responsible
TECH-029	VRC 10/10/2017	Medium	MEE0
Component and description	WPS shall be linked by specific RO service types		
Solution	A process must be defined		
Status	Open. List of Evolutions		
Comments	Need to be understood in terms of governance and copyright		

Action ID	Request from / Date	Criticality	Responsible
TECH-029	INGV 10/10/2017	Medium	MEE0
Component and description	For the INGV and Iceland Supersite communities, at least 3 permanent linux VMs are needed. Different users can have accounts in the same permanent VM.		
Solution	10 VM to be installed for INGV at PSNC		
Status	Closed		
Comments	Needs to define the golden image to be used (if different from the one currently being used)		



Action ID	Request from / Date	Criticality	Responsible
TECH-030	NHP 11/10/2017	Medium	T2/SATCEN
Component and description	Add ability to tell user when a service is not working		
Solution	Nagios has been deployed to monitor components of the platform. Internal alerts are managed by Terradue.		
Status	Closed		
Comments	Evaluate if Nagios can be used to monitor all services.		

Action ID	Request from / Date	Criticality	Responsible
TECH-031	SatCEN 10/10/2017	Medium	T2/SATCEN
Component and description	Evolution. Data Processing When the WPS is launched, there are no information on its status, only a percentage (33 %, 66, % and completed). What is the time of the download? What is the time of the processing?		
Solution	The percentage displayed is directly related to the number of nodes in the processing workflow. The level of granularity at the WPS process is bound to this number.		
Status	Closed. Won't fix.		
Comments	More information on the state and a percentage bar would be helpful. It depends on the specific application. Action to be agreed between T2 and SatCen		



This project is co-funded by
the European Union

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