This is a file to collect the specifications that WP6/OPERA has for the EWC.

The information should be provided to EUMETNET Secretariat by September 4th, 2023

**1. What kind of operative applications WP6/OPERA is planning to develop and operate in the EWC?**

a) OPERA needs an archive for its data, which can then be used as back-end for the RODEO interface

* Radar composite archive 2011 - BUFR/HDF5, already downloaded to EWC, built the link to OPERA production lines to be updated continuously (push/pull?), COMPOSITE GEOTIFF COVERTER (it would be wise to convert this archive already when uploading it to EWC)
* Radar volume data archive since 2011 BUFR/HDF5, locates currently at Météo France, needs the transfer link to be updated regularly.
  + OPERA DATABASE/METADATA EXPORTER: metadata should be taken separately, currently there is a sql-based built in DWD for the newer archive, for the older archive at Météo France needs clarification.
  + METADATA store
  + Important question to EUMETNET members: If EWC will be acting as the back-end of the RODEO and archive locates there. Is there a need to have an secondary archive (geo-redundancy) at DWD for incoming data and for the composites at Météo France.
* Incoming volume data should be pushed to EWC from DWD?

b) NOTIFICATION SERVICE

c) EDR API for both the OPERA data as well as for the NMSs’ national composite

d) FEMDI functions – API GATEWAY, MESSAGE BROCKER, DATA CATALOGUE

For these services RODEO WP6 will implement them, however it is yet unclear who will maintain the service, with what costs and how much does it cost to have it on the EWC.

**2. What kind of requirements those plans cast to the EWC platform? What functions / requirements are particularly hard to implement in current setup?**

a) Extracting metadata from the volume data

b) volume data comes in different file structures - should these be combined for the archive, but not for the 24h cache? What about quality control?

c) if OPERA doesn’t keep a backup archive – if such a back-up id needed should be should this be at EWC.

**3. What service levels would be needed up to the applications layer, what resources are required on the side of system monitoring, 1st and 2nd level support and other user support elements, and who would cover those functions?**

OPERA monitors its data collection and production and follows the performance.

OPERA has the SLAs for its production. These are provided below as an example. The service level of EWC should aim to be close the same, there is no need to be more stringent than in OPERA. OPERA does not provide 24/7 support, the issues are dealt during working days.

At EWC the API performance and archiving (Message Broker) should be followed.

**4. What type of additional support WP6/OPERA may need from ECMWF and EUMETSAT and under what conditions that support might be useful?**

OPERA volume data requires authorization services since some of the countries are not following the open data policy.

There is maybe a need for prioritizing the users and the use of data, depending on the downloadable volume of data.

Just background information: OPERA volume data distribution data is doubled to DWD which has geo-redundancy for collecting (Offenbach and Berlin), which both send data to GeoSphere and MF which have floor redundancy in production.

Security – radar data can be used to security applications, however, OPERA cannot be committed to provide 24/7 services.

The users might build an app service based on the radar data, should there be restrictions that EWC should not be used as server for such apps or can the cache of 24h serve as one?

Updates and security patches (CI/CD)

Security vulnerability detections

Orchestration of the workloads

Triggering / scheduling systems

Short summary of the current SLAs of OPERA:

|  |  |  |  |
| --- | --- | --- | --- |
| Production line | Data/Product |  |  |
| CUMULUS | Incoming volume data | Availability | Input availability targets are set for all radars:  >= 95%  >= 85% and < 95%  < 85%  Sites will not be rejected from the OPERA data system if they fall below target |
| CUMULUS | Incoming volume data | Timeliness | On average over a monthly period the data arrived:  >= 0 to <5 Minutes after the nominal time.  >= 5 to <=7 Minutes after the nominal time.  > 7 Minutes or <0 Minutes after the nominal time |
| CUMULUS | Incoming volume data | Data Structure | Data should preferably be submitted sweep by sweep. Full volumes will be accepted during the transition time to be agreed by the Expert Team. Each parameter can be either in the same file or in separate files. |
| CUMULUS | Incoming volume data | Quality | The data provider must commit to reasonable endeavors to provide good quality data. |
| STRATUS | Transferring volume data | Availability | Loss L < 0.1 % (A file is considered as lost if the recipient receives it 300s after transmission at Cumulus or ideally after the start of data acquisition.) |
| STRATUS | Transferring volume data | Timeliness | T2 – T1 (mean) < 5s and T2 – T1 (99.87th percentile) < 10s |
| STRATUS | Transferring volume data | Support cover | The first answer to support enquiries in 75% of cases within three working days and 75% of the closing answers within two weeks. |
| STRATUS | Transferring volume data | Service failures | one ‘break’ of up to 15 minutes in any 7-day period  one ‘break’ of up to 60 minutes in any quarter of a year  one ‘break’ of over 60 minutes in any one year, with service being restored within 4 hours. |
| STRATUS | Transferring volume data | Fault resolution | For system or hardware faults that affect general availability, the target will be to respond within 2 hours of notification in 98% of cases (calculated over a year). |
| CIRRUS | Max Reflectivity composite product | Availability | (|T2 – T1| ≤ 600 s) > 99 %  Percentage of available CIRRUS composites at each selected recipient within 600 s based on expected provision of incoming data (ICD) to CUMULUS and expected provision of pre-processed data (PPD)  T1: Nominal time of the respective CIRRUS composite  T2: Arrival time of the respective CIRRUS composite at each selected recipient |
| CIRRUS | Max Reflectivity composite product | Timeliness of delivery | (|T2 – T1| ≤ 420 s) > 90 %  Percentage of available CIRRUS composites at each selected recipient within 420 s (T1 and T2 are defined above) |
| CIRRUS | Max Reflectivity composite product | Timeliness of delivery | (|T3 – T1| ≤ 300 s) > 90 %  Percentage of available CIRRUS composites at Météo France within 300 s (T1 is defined above)  T3: Time when the respective CIRRUS composite has been written to disk at Météo France |
| NIMBUS | Rain rate composite products | Availability | (|T2 – T1| ≤ 1800 s) > 99 %  Percentage of available quality-controlled Nimbus volumes at each selected recipient within 1800 s based on expected provision of incoming data (ICD) to Cumulus and expected provision of pre-processed data (PPD)  T1: Nominal time of the respective quality-controlled Nimbus volume  T2: Arrival time of the respective quality-controlled Nimbus volume at each selected recipient |
| NIMBUS | Rain rate composite products | Timeliness (delivery) | (|T2 – T1| ≤ 1020 s) > 90 %  Percentage of available quality-controlled Nimbus volumes at each selected recipient within 1020 s (T1 and T2 are defined above) |
| NIMBUS | Rain rate composite products | Timeliness (production) [%] | (|T3 – T1| ≤ 900 s) > 90 %  Percentage of available quality-controlled Nimbus volumes at ZAMG within 900 s (T1 is defined above)  T3: Time when the respective quality-controlled Nimbus volume has been written to disk at ZAMG |