# Interface Control Document
# Reference System Trace tailored format

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# SUMMARY

This ICD explains how an application must format its traces for the Reference System platform, so all needed information for monitoring and performance analysis can be computed.

# CHANGE LOG

| Issue/Revision | Date | Change Requests | Observations |
|---|---|---|---|
| 01 draft A | 30/06/2022 | | Derived from S1PDGS cloud system ICD S1PD-ICD-ADST-1000585123 issue 4.0.<br><br>● Set "**BEGIN**" and "**END**" in uppercase (regularisation, the code is already in line with that)<br>● Remove "**segment_strings**" sections.<br>● Move from "**filename_strings**" to "**filename_string**" when there is a single element in the list.<br>● For **SyncWithUncompressedFile**, replace event "**error**" by "**END"**<br>● Update output section of **MetadaExtraction** task<br>● Update **missing_output** section of **JobProcessing** task<br>● Add parameter **t0_pdgs_date** for **JobProcessing** task<br>● Annex-A list **outputs elements** for MetadaExtraction task<br>● Annex-B list **missing elements** for JobProcessing task |
| 01 | 12/07/2022 | | Following meeting performed on the 12/07/2022, following changes have been performed :<br><br>● Annex-A :<br>**processor_name_string** and **processor_version_string** are removed from Sentinel-1 & Sentinel-3<br>Add properties satellite & channel for DSIB<br>Add properties satellite for chunks<br><br>● Annex-B :<br>Separate Granule & DataStrip for Sentinel-2. Remove **product_type_string** and **orbit_number_integer** for granule<br><br>● new Annex-C :<br>**missing_elements_count_long** and **corrupted_elements_count_long** are moved to the "quality" section. |
| 2.0 | 21/07/2022 | | Add the new **Aux files** table in Annex A with following elements:<br><br>● **satellite_string**<br>● **product_class_string**<br>● **validity_start_date**<br>● **validity_stop_date**<br>● **Product_type_string** |

| 3.0 | 05/09/2022 | | <ul><li>TBD :</li><li>Split RS core and RS add-on traces into directories.</li><li>Move S1 specific trace to §"Mission Specific Trace"</li><li>==Quality ?==</li></ul>**Version for RS V1.1** |
|---|---|---|---|

# TABLE OF CONTENTS

# 1. GENERAL

This document provides the **tailored** trace format for the Reference System.

The following applicable document provides the Trace format overall structure.

| Document name | Reference | Version |
|---|---|---|
| Reference System Trace format Interface Control Document | COPRS-ICD-ADST-001048446 | 3.0 |

## 2. RS ADD-ON COMMON TASKS

### 2.1. PRODUCTION TRIGGER

follows from: 'MetadataExtraction'

(<INPUT_TYPE> is either 'EdrsSession', 'L0Segment' or 'L0Slice')

| task | event | status | message | additional keys | parentOf |
| --- | --- | --- | --- | --- | --- |
| ProductionTrigger | BEGIN | | Received CatalogEvent for <PRODUCT_NAME> | `"input":{ "filename_string":<FILENAME> }` | SeaCoverageCheck, Dispatch, L0EWSliceMaskCheck |
| ProductionTrigger | END | OK | Product <PRODUCT_NAME> matches blacklist, skipping | `"input":{ "filename_string":<FILENAME> }` | SeaCoverageCheck, Dispatch, L0EWSliceMaskCheck |
| ProductionTrigger | END | OK | Product <PRODUCT_NAME> is RAW, skipping | `"input":{ "filename_string":<FILENAME> }` | SeaCoverageCheck, Dispatch, L0EWSliceMaskCheck |
| ProductionTrigger | END | OK | Product <PRODUCT_NAME> is not over sea, skipping | `"input":{ "filename_string":<FILENAME> }` | SeaCoverageCheck, Dispatch |
| ProductionTrigger | END | OK | Product <PRODUCT_NAME> is not intersecting EW slice mask, skipping | `"input":{ "filename_string":<FILENAME> }` | L0EWSliceMaskCheck, Dispatch |
| ProductionTrigger | END | OK | IpfPreparationJob for product <PRODUCT_NAME> created | `"input":{ "filename_string":<FILENAME> }` | SeaCoverageCheck, Dispatch, L0EWSliceMaskCheck |
| ProductionTrigger | END | NOK | Error on handling CatalogEvent: <ERRMESS> | `"input":{ "filename_string":<FILENAME> }` | SeaCoverageCheck, Dispatch, L0EWSliceMaskCheck |

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| Dispatch | BEGIN | | Dispatching AppDataJob <ID> <INPUT_TYPE> <PRODUCT_NAME> | `"input":{ "job_id_long": <JOB_ID>, "filename_string":[<FILENAME>], "input_type_string":<INPUT_TYPE> }` | |
| Dispatch | END | OK | AppDataJob <ID> for <INPUT_TYPE> <PRODUCT_NAME> dispatched | `"input":{ "job_id_long": <JOB_ID>, "filename_string":[<FILENAME>], "input_type_string":<INPUT_TYPE> }` | |
| Dispatch | END | NOK | Error on dispatching AppDataJob <ID> for <INPUT_TYPE> <PRODUCT_NAME>: <ERRMESS> | `"input":{ "job_id_long": <JOB_ID>, "filename_string": [<FILENAME>], "input_type_string": <INPUT_TYPE> }` | |

## 2.2. IPF PREPARATION WORKER

follows from: 'ProductionTrigger'

| task | event | status | message | additional keys |
|------|-------|--------|---------|-----------------|
| TaskTableLookup | BEGIN | | Start associating TaskTables to AppDataJob <ID> | `"input":{` `"filename_string":"<FILENAME>"` `}` |
| TaskTableLookup | END | NOK | No TaskTables found for AppDataJob <ID> | `"input":{` `"filename_string":"<FILENAME>"` `}` |
| TaskTableLookup | END | NOK | Error associating TaskTables to AppDataJob <ID>: <ERRMESS> | `"input":{` `"filename_string":"<FILENAME>"` `}` |
| TaskTableLookup | END | OK | END associating TaskTables to AppDataJob <ID> | `"input":{` `"filename_string":"<FILENAME>"` `}` <br><br> `"output":{` `"tasktable_strings":[<FILENAME>]` `}` |
| JobGenerator | BEGIN | | Start job generation | |
| JobGenerator | END | OK | END job generation | `"output":{` `"job_order_id_string":` `<jobOrderName>,` `"job_order_parameters_object": {` `<key_TYPE_NUMBER_1>_double:` `<TYPE_NUMBER_value1>,` `<key_TYPE_DATENUMBER_2>_date:` `<TYPE_DATENUMBER_value2>,` `...` `<key_TYPE_STRING_N>_string:` `<TYPE_STRING_valueN>` `}` |
| JobGenerator | END | NOK | Error on job generation <MESSAGE> | |

## 2.3. IPF EXECUTION WORKER

follows from: 'JobGenerator'

| task | event | status | message | additional keys | parentOf |
| --- | --- | --- | --- | --- | --- |
| JobProcessing | BEGIN | | Start job processing | `"input":{`<br>`"filename_strings": [<INPUTS>],`<br>`"job_order_id_string":<jobOrderId>,`<br>`"ipf_release_string":<ipfRelease>,`<br>`"etad_activation_mode_string":<ETAD_MODE>`<br>`}` | ObsRead, Processing, OQC, ObsWrite, GhostHandling |
| JobProcessing | END | OK | END job processing | `"input":{`<br>`"filename_strings": [<INPUTS>],`<br>`"job_order_id_string": <jobOrderId>,`<br>`"ipf_release_string": <ipfRelease>,`<br>`"etad_activation_mode_string":`<br>`<ETAD_MODE>`<br>`}`<br><br>`"output":{`<br>`"filename_strings": [<INPUTS>],`<br>`"debug": <VALUE_OF_DEBUG_FLAG>,`<br>`"t0_pdgs_date" : <DATE>`<br>`}`<br><br>`"missing_output":[`<br>`{`<br>`"product_metadata_custom_object":`<br>`{`<br>`"key1" : "value1",`<br>`"key2" : "value2" …`<br>`},`<br>`"end_to_end_product_boolean": <BOOLEAN>,`<br>`"estimated_count_integer": <INTEGER>`<br><br>`}]`<br><br>**The ANNEX-B provides the key/value parameters for section product_metadata_custom_object** | ObsRead, Processing, OQC, ObsWrite, GhostHandling |

| task | event | status | message | additional keys | parentOf |
| --- | --- | --- | --- | --- | --- |
| JobProcessing | END | NOK | &lt;ERR_CODE&gt;<br>&lt;MESSAGE&gt; | ```"input":{     "filename_strings": [<INPUTS>],     "job_order_id_string": <jobOrderId>,     "etad_activation_mode_string": <ETAD_MODE>     }```<br><br>```"missing_output":[ {   "product_metadata_custom_object":    {    "key1" : "value1",     "key2" : "value2" …    },   "end_to_end_product_boolean":   <BOOLEAN>,   "estimated_count_integer": <INTEGER> }]```<br><br>**The ANNEX-B provides the key/value parameters for section product_metadata_custom_object** | ObsRead, Processing, OQC, ObsWrite, GhostHandling |
| JobProcessing | END | NOK | Interrupted job processing | ```"input":{     "filename_strings": [<INPUTS>],     "job_order_id_string": <jobOrderId>,     "etad_activation_mode_string": <ETAD_MODE>     }```<br><br>```"missing_output":[ {   "product_metadata_custom_object":    {   "key1" : "value1",     "key2" : "value2" …    },   "end_to_end_product_boolean":   <BOOLEAN>,   "estimated_count_integer": <INTEGER> }]```<br><br>**The ANNEX-B provides the key/value parameters for section product_metadata_custom_object** | ObsRead, Processing, OQC, ObsWrite, GhostHandling |

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| Processing | BEGIN | | Start <LEVEL> processing | | ProcessingTask |
| Processing | END | OK | END <LEVEL> processing | | ProcessingTask |
| Processing | END | NOK | <ERR_CODE> <MESSAGE> | | ProcessingTask |
| ProcessingTask | BEGIN | | Start Task <BIN_PATH> | | |
| ProcessingTask | END | OK | END Task <BIN_PATH> with exit code <EXIT_CODE> | | |
| ProcessingTask | END | NOK | Interrupted Task <BIN_PATH> | | |
| ProcessingTask | END | NOK | <ERR_CODE> <MESSAGE> | | |
| OQC | BEGIN | | Start OQC for product <PRODUCTNAME> | `"input":{ "filename_strings": [<INPUTS>] }` | |
| OQC | END | OK | END OQC for product <PRODUCTNAME> (<OQCFLAG>) | `"input":{ "filename_strings": [<INPUTS>] }`<br><br>`"output":{ "oqc_result_string": [<INPUTS>] }` | |
| OQC | END | NOK | Error on OQC for product <PRODUCTNAME> (<OQCFLAG>) | `"input":{ "filename_strings": [<INPUTS>] }` | |

## 2.4. OBS CLIENT

| task | event | status | message | additional keys |
|------|-------|--------|---------|-----------------|
| ObsRead | BEGIN | | Start downloading from OBS | `"input":{`<br>`  "bucket_string": <bucketName>,`<br>`  "filename_string": <FILENAME>`<br>`}` |
| ObsRead | END | OK | END downloading from OBS | `"input":{`<br>`  "bucket_string": <bucketName>,`<br>`  "filename_string": <FILENAME>`<br>`}`<br>`"data_rate_mebibytes_sec":<RATE>`<br>`"data_volume_mebibytes":<SIZE>` |
| ObsRead | END | NOK | Error on downloading from OBS: <MESSAGE> | `"input":{`<br>`  "bucket_string": <bucketName>,`<br>`  "filename_string": <FILENAME>`<br>`}` |
| ObsWrite | BEGIN | | Start uploading to OBS | `"input":{`<br>`  "bucket_string": <bucketName>,`<br>`  "filename_string": <FILENAME>`<br>`}` |
| ObsWrite | END | OK | END uploading to OBS | `"input":{`<br>`  "bucket_string": <bucketName>,`<br>`  "filename_string": <FILENAME>`<br>`}`<br>`"data_rate_mebibytes_sec":<RATE>`<br>`"data_volume_mebibytes":<SIZE>` |
| ObsWrite | END | NOK | Error on uploading to OBS: <MESSAGE> | `"input":{`<br>`  "bucket_string": <bucketName>,`<br>`  "filename_string": <FILENAME>`<br>`}` |

# 3. RS ADD-ON MISSION SPECIFIC TASKS

## 3.1. SENTINEL-1 SPECIFIC

### 3.1.1. Ghost handling

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| GhostHandling | BEGIN | | Checking if <FILENAME> is a ghost candidate | `"input":{`<br>`    "filename_strings": [<INPUTS>]`<br>`}` | |
| GhostHandling | END | OK | <FILENAME> (<FAMILY>) is not a ghost candidate | `"input":{`<br>`    "filename_strings": [<INPUTS>]`<br>`}`<br>`"output":{`<br>`    "is_ghost_candidate_boolean": false`<br>`}` | |
| GhostHandling | END | OK | <FILENAME> (<FAMILY>) is a ghost candidate | `"input":{`<br>`    "filename_strings": [<INPUTS>]`<br>`}`<br>`"output":{`<br>`    "is_ghost_candidate_boolean": true`<br>`}` | |

### 3.1.2. OverpassCoverageCheck

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| OverpassCoverage Check | BEGIN | | Checking overpass coverage | `"input":{`<br>`  "filename_string":`<br>`[<FILENAME>]`<br>`}` | |
| OverpassCoverage Check | END | OK | Product <PRODUCT_NAME> is over overpass | `"input":{`<br>`  "filename_string":`<br>`[<FILENAME>]`<br>`}`<br><br>`"output": {`<br>`  "over_overpass_boolean":`<br>`true`<br>`}` | |
| OverpassCoverage Check | END | OK | Product <PRODUCT_NAME> is not over overpass | `"input":{`<br>`  "filename_string":`<br>`<FILENAME>`<br>`}`<br><br>`"output": {`<br>`  "over_overpass_boolean":`<br>`false`<br>`}` | |
| OverpassCoverage Check | END | NOK | OverpassCoverage check failed: <ERRMESS> | `"input":{`<br>`  "filename_string":`<br>`<FILENAME>`<br>`}` | |

### 3.1.3. L0EWSliceMaskCheck

| task | event | status | message | additional keys | parentOf |
|---|---|---|---|---|---|
| L0EWSliceMaskCheck | BEGIN | | Checking if L0 EW slice <PRODUCT_NAME> is intersecting mask | `"input":{`<br>  `"filename_string":[<FILENAME>]`<br>  `}` | |
| L0EWSliceMaskCheck | END | OK | L0 EW slice <PRODUCT_NAME> is intersecting mask | `"input":{`<br>  `"filename_string":[<FILENAME>]`<br>  `}`<br><br>`"output": {`<br>  `"intersects_mask_boolean": true`<br>  `}` | |
| L0EWSliceMaskCheck | END | OK | L0 EW slice <PRODUCT_NAME> is not intersecting mask | `"input":{`<br>  `"filename_string":[<FILENAME>]`<br>  `}`<br><br>`"output": {`<br>  `"intersects_mask_boolean":false`<br>  `}` | |
| L0EWSliceMaskCheck | END | NOK | L0 EW slice check failed: <ERRMESS> | `"input":{`<br>  `"filename_string":[<FILENAME>]`<br>  `}` | |

### 3.1.4. SeaCoverageCheck

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| SeaCoverageCheck | BEGIN | | Checking sea coverage for <PRODUCT_NAME> | `"input":{`<br>`"filename_string":<FILENAME>`<br>`}` | |
| SeaCoverageCheck | END | OK | Product <PRODUCT_NAME> is over sea | `"input":{`<br>`"filename_string":<FILENAME>`<br>`}`<br><br>`"output": {`<br>`"over_sea_boolean": true`<br>`}` | |
| SeaCoverageCheck | END | OK | Product <PRODUCT_NAME> is not over sea | `"input":{`<br>`"filename_string":<FILENAME>`<br>`}`<br><br>`"output": {`<br>`"over_sea_boolean": false`<br>`}` | |
| SeaCoverageCheck | END | NOK | SeaCoverage check failed: <ERRMESS> | `"input":{`<br>`"filename_string":<FILENAME>`<br>`}` | |

### 3.1.5. RfiMitigation

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| RfiMitigation | BEGIN | | Start extraction of RFI metadata from product <PRODUCT_NAME> | | |
| RfiMitigation | END | OK | END extraction of RFI metadata from product <PRODUCT_NAME> | `"output": {`<br>`"l1_product_name_string": <FILENAME>,`<br>`"rfi_mitigation_performed_string":`<br>`"Not`<br>`Supported\|Never\|BasedOnNoiseMeas\|Always`<br>`s",`<br>`"rfi_number_polarisations_detected_integer":<NUMBER_OF_DETECTED_POLARISATIONS>,`<br>`"rfi_number_polarisations_mitigated_integer":<NUMBER_OF_MITIGATED_POLARISATIONS>`<br>`}` | |
| RfiMitigation | END | NOK | <ERR_CODE> <MESSAGE> | | |

### 3.1.6. SegmentTimeliness

| | | | | | |
| --- | --- | --- | --- | --- | --- |
| SegmentTimeliness | BEGIN | | Start timeliness lookup for <PRODUCT_NAME> | `"input":{`<br>`  "datatake_id_string": <DATATAKE_ID>,`<br>`  "satellite_string": <SATELLITE>,`<br>`  "packet_store_strings":`<br>`[<PACKET_STORE_IDS>]`<br>`}` | |
| SegmentTimeliness | END | NOK | No timeliness configured for packetStoreID <PACKET_STORE_ID> with packetStoreType <PACKET_STORE_TYPE> | `"input":{`<br>`  "datatake_id_string": <DATATAKE_ID>,`<br>`  "satellite_string": <SATELLITE>,`<br>`  "packet_store_strings":`<br>`[<PACKET_STORE_IDS>]`<br>`}` | |
| SegmentTimeliness | END | OK | Timeliness for <PRODUCT_NAME> is: <TIMELINESS> | `"input":{`<br>`  "datatake_id_string": <DATATAKE_ID>,`<br>`  "satellite_string": <SATELLITE>,`<br>`  "packet_store_strings":`<br>`[<PACKET_STORE_IDS>]`<br>`}`<br>`"output":{`<br>`  "timeliness_string": <TIMELINESS>`<br>`}` | |

### 3.1.7. Disseminator

follows from: 'Processing'

| task | event | status | message | additional keys | parentOf |
| --- | --- | --- | --- | --- | --- |
| Dissemination | BEGIN | | Start dissemination of product to outbox <OUTBOX_NAME> | `"input":{`<br>`"filename_string":<FILENAME>`<br>`}` | OverpassCoverageCheck |
| Dissemination | END | OK | END dissemination of product to outbox <OUTBOX_NAME> | `"input":{`<br>`"filename_string":`<br>`[<FILENAME>]`<br>`}`<br>`"data_rate_mebibytes_sec":<RATE>`<br>`"data_volume_mebibytes":<SIZE>` | OverpassCoverageCheck |
| Dissemination | END | NOK | Error on dissemination of product to outbox <OUTBOX_NAME>: <MESSAGE> | `"input":{`<br>`"filename_string":`<br>`[<FILENAME>]`<br>`}` | OverpassCoverageCheck |

## 3.2. SENTINEL-2 SPECIFIC

N/A

## 3.3. SENTINEL-3 SPECIFIC

N/A

## 4. RS CORE TASKS
### 4.1. INGESTION TRIGGER

| task | event | status | message | additional keys |
|---|---|---|---|---|
| IngestionTrigger | BEGIN | | New file detected <FILENAME> | ```"input":{`` ``"filename_string": <FILENAME>`` ``"pickup_point_available_date":`` ``<DATE>`` ``"pickup_point_detection_date":`` ``<DATE>`` ``}``` |
| IngestionTrigger | END | OK | File <FILENAME> created IngestionJob | ```"input":{`` ``"filename_string": <FILENAME>`` ``"pickup_point_available_date":`` ``<DATE>`` ``"pickup_point_detection_date":`` ``<DATE>`` ``}`` ``"output":{`` ``"url": [<FILE_IN_INBOX_URL>]`` ``}``` |
| IngestionTrigger | END | OK | File <FILENAME> is ignored by filter | ```"input":{`` ``"filename_string": <FILENAME>`` ``"pickup_point_available_date":`` ``<DATE>`` ``"pickup_point_detection_date":`` ``<DATE>`` ``}``` |
| IngestionTrigger | END | NOK | File <FILENAME> is empty, ignored | ```"input":{`` ``"filename_string": <FILENAME>`` ``"pickup_point_available_date":`` ``<DATE>`` ``"pickup_point_detection_date":`` ``<DATE>`` ``}``` |

| task | event | status | message | additional keys |
|------|-------|--------|---------|-----------------|
| IngestionTrigger | END | NOK | File <FILENAME> could not be handled: <ERRMESS> | `"input":{`<br>`  "filename_string": <FILENAME>`<br>`  "pickup_point_available_date": <DATE>`<br>`  "pickup_point_detection_date": <DATE>`<br>`}` |

## 4.2. INGESTION WORKER

follows from: 'IngestionTrigger'

| task | event | status | message | additional keys | parentOf |
|---|---|---|---|---|---|
| IngestionWorker | BEGIN | | Start processing of <FILE> | `"input":{`<br>`    "inbox_name_string":`<br>`<FILENAME ON INBOX>`<br><br>`"inbox_relative_path_string":`<br>`<RELATIVE_PATH ON INBOX>`<br><br>`"inbox_pickup_path_string":`<br>`<PICKUP_PATH ON INBOX>`<br>`}` | ObsWrite |
| IngestionWorker | END | OK | END processing of <FILE> | `"input":{`<br>`    "inbox_name_string":`<br>`<FILENAME ON INBOX>`<br>`    "inbox_relative_path_string":`<br>`<RELATIVE_PATH ON INBOX>`<br>`    "inbox_pickup_path_string":`<br>`<PICKUP_PATH ON INBOX>`<br>`}`<br><br>`"output":{`<br>`  "filename_string": <FILENAME>`<br>`}`<br><br>`"data_rate_mebibytes_sec":<RATE>`<br>`"data_volume_mebibytes":<SIZE>` | ObsWrite |
| IngestionWorker | END | NOK | Error processing of <FILE>: <ERRMESS> | `"input":{`<br>`    "inbox_name_string": <FILENAME ON INBOX>,`<br>`    "inbox_relative_path_string":`<br>`<RELATIVE_PATH ON INBOX>,`<br>`    "inbox_pickup_path_string":`<br>`<PICKUP_PATH ON INBOX>`<br>`}` | ObsWrite |

## 4.3. METADATA CATALOG TRIGGER

follows from: 'IngestionWorker' or 'Processing'

(<EVENT> is either 'ProductionEvent' or 'IngestionEvent')

| task | event | status | message | additional keys |
|------|-------|--------|---------|-----------------|
| MetadataTrigger | BEGIN | | Received <EVENT> | `"input":{` `"filename_string":<FILENAME>` `}` |
| MetadataTrigger | END | OK | Created CatalogJob for <EVENT> | `"input":{` `"filename_string":<FILENAME>` `}` |
| MetadataTrigger | END | NOK | Error on handling <EVENT>: <ERRMESS> | `"input":{` `"filename_string":<FILENAME>` `}` |

## 4.4. METADATA CATALOG WORKER

follows from: 'MetadataTrigger'

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| MetadataExtraction | BEGIN | | Starting metadata extraction | `"input":{`<br>`   "filename_string": <FILENAME>`<br>`}` | ObsRead, SegmentTimeliness |
| MetadataExtraction | END | OK | END metadata extraction | `"input":{`<br>`   "filename_string": <FILENAME>`<br>`},`<br><br>`"output":{`<br>`"product_metadata_custom_object":`<br>`   {`<br>`    "key1" : "value1" ,`<br>`     "key2" : "value2",`<br>`    …`<br>`   },`<br>`  "end_to_end_product_boolean" : <BOOLEAN>,`<br>`  "timeliness_name_string" : "<STRING>",`<br>`  "timeliness_value_seconds_integer":<INTEGER>`<br>`},`<br>`"quality":`<br>`{`<br>`   "key1" : "value1" ,`<br>`    "key2" : "value2",`<br>`    …`<br>`}`<br><br>**The ANNEX-A provides the key/value parameters for section "product_metadata_custom_object"**<br><br>**The ANNEX-C provides the key/value parameters for section "quality"** | ObsRead, SegmentTimeliness |
| MetadataExtraction | END | NOK | Metadata extraction failed: <ERRMESS> | `"input":{`<br>`   "filename_string": <FILENAME>`<br>`}` | ObsRead, SegmentTimeliness |

## 4.5. COMPRESSION TRIGGER

follows from: 'Processing'

| task | event | status | message | additional keys |
| --- | --- | --- | --- | --- |
| CompressionTrigger | BEGIN | | Start handling of event for \<PRODUCTNAME> | `"input":{`<br><br>`"filename_string":<PRODUCTNAME>`<br>`}` |
| CompressionTrigger | END | NOK | Error on handling event for \<PRODUCTNAME> : \<ERRMESS> | `"input":{`<br>`"filename_string":<PRODUCTNAME>`<br>`}` |
| CompressionTrigger | END | OK | END handling of event for \<PRODUCTNAME> | `"input":{`<br>`"filename_string":<PRODUCTNAME>`<br>`}` |

## 4.6. COMPRESSION WORKER

follows from: 'CompressionTrigger'

| task | event | status | message | additional keys | parentOf |
| --- | --- | --- | --- | --- | --- |
| CompressionProcessing | BEGIN | | Start compression processing | `"input":{ "filename_string":<PRODUCTNAME> }` | ObsRead, ObsWrite |
| CompressionProcessing | END | OK | END compression processing | `"input":{ "filename_string": <FILENAME> }`<br><br>`"output":{ "filename_string":<FILENAME.zip> }` | ObsRead, ObsWrite |
| CompressionProcessing | END | NOK | \<ERR_CODE\> \<MESSAGE\> | `"input":{ "filename_string": <FILENAME> }` | ObsRead, ObsWrite |
| CompressionProcessing | END | NOK | Interrupted job processing" | `"input":{ "filename_string": <FILENAME> }` | ObsRead, ObsWrite |

## 4.7. PRIP FRONTEND

| task | event | status | message | additional keys |
| --- | --- | --- | --- | --- |
| PripTempDownloadUrl | BEGIN | | Creating temporary download URL for obsKey \<KEY\> for user \<USER\> | `"input":{ "filename_string": <FILENAME> "user_name_string": "not defined", }` |

| task | event | status | message | additional keys |
|------|-------|--------|---------|-----------------|
| PripTempDownloadUrl | END | OK | Temporary download URL for obsKey <KEY> for user <USER> | `"input":{`<br>`  "filename_string":`<br>`<FILENAME>,`<br>`  "user_name_string": "not`<br>`defined",`<br>`}` |
| PripTempDownloadUrl | END | NOK | Error on creating download URL for obsKey <KEY> for user <USER>: <ERRMESS> | `"input":{`<br>`    "filename_string":`<br>`<FILENAME>`<br>`  "user_name_string": "not`<br>`defined",`<br>`}`<br>`"output":{`<br>`  "download_url_string":`<br>`[<TEMP_DOWNLOAD_URL>]`<br>`}` |

## 4.8. PRIP TRIGGER

follows from: 'CompressionProcessing'

| task | event | status | message | additional keys |
| --- | --- | --- | --- | --- |
| PripTrigger | BEGIN | | Handling event for <OBS_KEY> | `"input":{`<br>`    "filename_string": <FILENAME>`<br>`    }` |
| PripTrigger | END | OK | END Handling event for <OBS_KEY> | `"input":{`<br>`    "filename_string": <FILENAME>`<br>`    }` |
| PripTrigger | END | NOK | Error on handling event for <OBS_KEY>: <ERRMESS | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |

## 4.9. PRIP WORKER

follows from: 'PripTrigger'

| task | event | status | message | additional keys |
| --- | --- | --- | --- | --- |
| PripWorker | BEGIN | | Publishing file <PRODUDCT_NAME> in PRIP | `"input":{`<br>`    "filename_string": <FILENAME>`<br>`    }` |
| PripWorker | END | OK | Publishing file <PRODUDCT_NAME> in PRIP | `"input":{`<br>`    "filename_string": <FILENAME>`<br>`    },`<br><br>`"output":{`<br>`"prip_storage_date":<STORAGE_DATE>`<br>`    }` |
| PripWorker | END | NOK | Publishing file <PRODUDCT_NAME> in PRIP | `"input":{`<br>`    "filename_string": <FILENAME>`<br>`    }` |

### 4.10. DATA LIFECYCLE TRIGGER

follows from: 'Processing', 'IngestionWorker', 'CompressionProcessing'

| task | event | status | message | additional keys |
| --- | --- | --- | --- | --- |
| DataLifecycleTrigger | BEGIN | | Handling event for <PRODUCT_NAME> | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |
| DataLifecycleTrigger | END | OK | END handling event for <PRODUCT_NAME> | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |
| DataLifecycleTrigger | END | NOK | Error handling event for <PRODUCT_NAME>: <MESSAGE> | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |

### 4.11. EVICTION MANAGEMENT WORKER

follows from: 'DataLifecycleTrigger'

| task | event | status | message | additional keys |
| --- | --- | --- | --- | --- |
| EvictionManagementWorker | BEGIN | | Starting eviction of <FILENAME> | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |
| EvictionManagementWorker | END | OK | Eviction of <FILENAME> was successful | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |
| EvictionManagementWorker | END | NOK | Error evicting <FILENAME>: <MESSAGE> | `"input":{`<br>`    "filename_string":<FILENAME>`<br>`    }` |

## 4.12. DATA REQUEST WORKER

follows from: 'DataLifecycleTrigger'

| task | event | status | message | additional keys |
|------|-------|--------|---------|-----------------|
| DataRequestWorker | BEGIN | | Starting data request of <FILENAME> | `"input":{ "filename_string":<FILENAME> }` |
| DataRequestWorker | END | OK | Data request of <FILENAME> with request type <TYPE> was successful | `"input":{ "filename_string": <FILENAME> }`  `"output":{ "data_request_type_string": <TYPE> }`  `<TYPE> can be: "UNCOMPRESS" or "ORDER"` |
| DataRequestWorker | END | NOK | Error requesting data of <FILENAME>: <MESSAGE> | `"input":{ "filename_string": <FILENAME> }` |

## 4.13. VALIDATION

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| ValidationService | BEGIN | | Starting validation | | ValidateMDC |
| ValidationService | END | OK | END validation | | ValidateMDC |
| ValidationService | END | NOK | Error occurred while performing validation: <MESSAGE> | | ValidateMDC |
| ValidateMDC | BEGIN | | Starting validation task from <DATE> to <DATE> for family <FAMILY> | | ValidateObs |
| ValidateMDC | END | OK | No discrepancies found | | ValidateObs |

| task | event | status | message | additional keys | parentOf |
|---|---|---|---|---|---|
| ValidateMDC | END | NOK | Discrepancies found for following products: <LIST_OF_PRODUCTS> | | ValidateObs |
| ValidateMDC | END | NOK | Error occurred while performing metadata catalog query task: <ERR_MESS> | | |
| ValidateObs | BEGIN | | Validating <OBS_KEY> | | |
| ValidateObs | END | OK | <OBS_KEY> is valid | | |
| ValidateObs | END | NOK | <OBS_KEY> is invalid | | |
| SyncDataLifecycleIndexFromOBS | BEGIN | | Start synchronising | | SyncFamily |
| SyncDataLifecycleIndexFromOBS | END | OK | Synchronisation was successful, stats: <STATS> | | SyncFamily |
| SyncDataLifecycleIndexFromOBS | END | NOK | END of synchronisation with errors, stats <STATS> | | SyncFamily |
| SyncFamily | BEGIN | | Start synchronising family <FAMILY> | | SyncFile |
| SyncFamily | END | OK | END synchronising family <FAMILY> | | SyncFile |
| SyncFamily | END | NOK | Error synchronising family <FAMILY>, start: <START_DATE>, END: <END_DATE>: <ERROR_MESSAGE> | | SyncFile |
| SyncFile | BEGIN | | Start synchronising file <FILE> | | |
| SyncFile | END | OK | File synchronisation was successful for <FILE> | | |
| SyncFile | END | NOK | Error synchronising file: <FILE>: <ERROR_MESSAGE> | | |
| SyncDataLifecycleIndexWithOBS | BEGIN | | Start synchronising | | SyncWithUncompressedStorage, SyncWithCompressedStorage |
| SyncDataLifecycleIndexWithOBS | END | OK | Synchronisation was successful, stats for uncompressed storage: <STATS>, stats for compressed storage: <STATS> | | SyncWithUncompressedStorage, SyncWithCompressedStorage |

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| SyncDataLifecycleIndexWithOBS | END | NOK | END of synchronisation with errors, stats for uncompressed storage: <STATS>, stats for compressed storage: <STATS> | | SyncWithUncompressedStorage, SyncWithCompressedStorage |
| SyncWithUncompressedStorage | BEGIN | | Start synchronising data lifecycle index with uncompressed storage | | SyncWithUncompressedFile |
| SyncWithUncompressedStorage | END | OK | END synchronising data lifecycle index with uncompressed storage | | SyncWithUncompressedFile |
| SyncWithUncompressedStorage | END | NOK | Error synchronising data lifecycle index with uncompressed storage, start: <START_DATE>, END: <END_DATE>: <ERROR_MESSAGE> | | SyncWithUncompressedFile |
| SyncWithCompressedStorage | BEGIN | | Start synchronising data lifecycle index with compressed storage | | SyncWithCompressedFile |
| SyncWithCompressedStorage | END | OK | END synchronising data lifecycle index with compressed storage | | SyncWithCompressedFile |
| SyncWithCompressedStorage | END | NOK | Error synchronising data lifecycle index with compressed storage, start: <START_DATE>, END: <END_DATE>: <ERROR_MESSAGE> | | SyncWithCompressedFile |
| SyncWithUncompressedFile | BEGIN | | Start synchronising data lifecycle index with uncompressed file <FILE> | | |
| SyncWithUncompressedFile | END | OK | END synchronising data lifecycle index with uncompressed file <FILE>: file exists in OBS, nothing to do | | |
| SyncWithUncompressedFile | END | OK | END synchronising data lifecycle index with uncompressed file <FILE>: file does not exist in OBS anymore, removed path from data lifecycle index | | |

| task | event | status | message | additional keys | parentOf |
|------|-------|--------|---------|-----------------|----------|
| SyncWithUncompressedFile | END | NOK | Error synchronising data lifecycle index with uncompressed file <FILE>: product family missing | | |
| SyncWithUncompressedFile | END | NOK | Error synchronising data lifecycle index with uncompressed file <FILE>: <ERROR_MESSAGE> | | |
| SyncWithCompressedFile | BEGIN | | Start synchronising data lifecycle index with compressed file <FILE> | | |
| SyncWithCompressedFile | END | OK | END synchronising data lifecycle index with compressed file <FILE>: file exists in OBS, nothing to do | | |
| SyncWithCompressedFile | END | OK | END synchronising data lifecycle index with compressed file <FILE>: file does not exist in OBS anymore, removed path from data lifecycle index | | |
| SyncWithCompressedFile | END | NOK | Error synchronising data lifecycle index with compressed file <FILE>: product family missing | | |
| SyncWithCompressedFile | END | NOK | Error synchronising data lifecycle index with compressed file <FILE>: <ERROR_MESSAGE> | | |

ANNEX A OUTPUT ELEMENTS FOR METADATAEXTRACTION TASK

This annex defines the properties to be extracted per mission when an element has been produced.

It defines the content for :

- Task : MetadataExtraction
- Event : END
- Keys : output.product_metadata_custom_object

## 1. SENTINEL-1 LEVEL-0 PROPERTIES

| Parameter name | Parameter value Sample | Format / Description |
| --- | --- | --- |
| beginning_date_time_date | "2019-04-05T17:22:06.433190Z" | <YYYY>-<MM>-<DD>T<hh>:<mm>:<ss>.<microseconds>Z |
| ending_date_time_date | "2019-04-05T17:22:06.433190Z" | <YYYY>-<MM>-<DD>T<hh>:<mm>:<ss>.<microseconds>Z |
| platform_short_name_string | "SENTINEL-1" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character<br>"A" \| "B" \| "C" |
| operational_mode_string | "SM" | String. Maximum 16 characters. |
| product_class_string | "N" | String 1 character<br>'A' \|'C'\|'N'\|'S' |
| product_consolidation_string | "FULL" | String. Maximum 16 characters.<br>"FULL" \| "PARTIAL"<br>Only available for segment |
| product_sensing_consolidation_string | "BEGIN" | String. Maximum 16 characters.<br>"BEGIN" \| "MIDDLE" \| "END"<br>Only available for segment |
| datatake_id_integer | 120437 | Integer |
| slice_product_flag_boolean | true | Boolean |
| polarisation_channels_string | "VH" | String 2 characters<br>"VH" \|"VV" \|"HH" \|"HV"\|"SH"\|"SV" |
| orbit_number_integer | 15674 | Integer |
| processing_level_integer | 0 | Set to 0. |
| instrument_short_name_string | "SAR" | String. Maximum 16 characters. |
| swath_identifier_integer | 3 | Integer |
| slice_number_integer | 4 | Integer |

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| total_slice_integer | 10 | Integer |
| packet_store_integer | 25 | Integer<br>only available for segment |
| processor_name_string | "name" | String. Maximum 64 characters. |
| processor_version_string | "version" | String. Maximum 16 characters. |
| product_type_string | "IW_RAW__0S" | String. Maximum 16 characters. |
| coordinates_object | [[-12.6754,-176.1806],[-14.5135,-176.6206],[-14.6293,-175.8987],[-12.7889,-175.4645],[-12.6754,-176.1806]] | [ [x1,y1], [x2,y2], [x3,y3] … ] |

## 2. SENTINEL-2 LEVEL-0 PROPERTIES

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| product_group_id | "GS2B_20191014T050729_013601_N02.08" | String. Maximum 64 characters. |
| beginning_date_time_date | "2019-04-05T17:22:06.433190Z" | <YYYY>-<MM>-<DD>T<hh>:<mm>:<ss>.<microseconds>Z |
| ending_date_time_date | "2019-04-05T17:22:06.433190Z" | <YYYY>-<MM>-<DD>T<hh>:<mm>:<ss>.<microseconds>Z |
| orbit_number_integer | 15674 | Integer |
| product_type_string | "MSI_L0__GR" | String. Maximum 32 characters. |
| platform_serial_identifier_string | "A" | String 1 character<br>"A" \| "B" \| "C" |
| platform_short_name_string | "SENTINEL-2" | String. Maximum 16 characters. |
| processing_level_integer | 0 | Set to 0. |
| processor_version_string | "version" | String. Maximum 16 characters. |
| quality_status_integer | 100 | Integer |
| instrument_short_name_string | "MSI" | String. Maximum 16 characters |
| coordinates_object | [[-12.6754,-176.1806],[-14.5135,-176.6206],[-14.6293,-175.8987],[-12.7889,-175.4645],[-12.6754,-176.1806]] | [ [x1,y1], [x2,y2], [x3,y3] … ] |
| product_consolidated_boolean | true | Boolean<br>Used to distinguish unconsolidated and consolidated products.<br>**Not to be used if unconsolidated products are not sent to the catalog.** |

### 3. SENTINEL-3 LEVEL-0 PROPERTIES

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| beginning_date_time_date | "2019-04-05T17:22:06.433190Z" | <YYYY>-<MM>-<DD>T<hh>:<mm>:<ss>.<microseconds>Z |
| ending_date_time_date | "2019-04-05T17:22:06.433190Z" | <YYYY>-<MM>-<DD>T<hh>:<mm>:<ss>.<microseconds>Z |
| platform_short_name_string | "SENTINEL-3" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character "A" \| "B" \| "C" |
| instrument_short_name_string | "DORIS" | String. Maximum 16 characters. |
| orbit_number_integer | 15674 | Integer |
| processing_level_integer | 0 | Set to 0. |
| product_type_string | "DO_0_NAV___" | String. Maximum 16 characters. |
| processor_name_string | "name" | String. Maximum 32 characters. |
| processor_version_string | "version" | String. Maximum 16 characters. |
| coordinates_object | [[-12.6754,-176.1806],[-14.5135,-176.6206],[-14.6293,-175.8987],[-12.7889,-175.4645],[-12.6754,-176.1806]] | [ [x1,y1], [x2,y2], [x3,y3] … ] |

### 4. ALL MISSION PROPERTIES

● For DSIB

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| platform_short_name_string | "SENTINEL-3" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character "A" \| "B" \| "C" |
| channel_identifier_integer | 1 | Integer. O or 1. |

● For chunk

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| platform_short_name_string | "SENTINEL-3" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character "A" \| "B" \| "C" |

● For auxiliary files

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| satellite_string | "A" | String 1 character<br>"A" \| "B" \| "C" |
| product_class_string | "OPER" | String. Maximum 16 characters. |
| validity_start_date | "2022-03-05T11:55:06.432190Z" | \<YYYY\>-\<MM\>-\<DD\>T\<hh\>:\<mm\>:\<ss\>.\<microseconds\>Z |
| validity_stop_date | "2022-03-07T11:59:06.442300Z" | \<YYYY\>-\<MM\>-\<DD\>T\<hh\>:\<mm\>:\<ss\>.\<microseconds\>Z |
| product_type_string | "MPL_ORBPRE" | String. Maximum 32 characters. |

## ANNEX B MISSING OUTPUT ELEMENTS FOR JOBPROCESSING TASK

This annex defines the properties to be provided to define the missing outputs.

It defines the content for :

- Task : "JobProcessing"
- Event : "END"
- Keys : "missing_output"

### 1. SENTINEL-1 LEVEL-0 MISSING OUTPUTS

- For Segment, HKTM and GPS missing product

| Parameter name | Parameter value Sample | Format / Description |
| --- | --- | --- |
| platform_short_name_string | "SENTINEL-1" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character<br>"A" \| "B" \| "C" |
| product_class_string | "N" | String 1 character<br>'A' \|'C'\|'N'\|'S' |
| slice_product_flag_boolean | true | Boolean |
| processing_level_integer | 0 | Set to 0. |
| product_type_string | "IW_RAW__0S" | String. Maximum 16 characters. |

- For Slice Level-0, Annotation, Calibration, Noise

| Parameter name | Parameter value Sample | Format / Description |
| --- | --- | --- |
| platform_short_name_string | "SENTINEL-1" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character<br>"A" \| "B" \| "C" |
| operational_mode_string | "SM" | String. Maximum 16 characters. |
| product_class_string | "N" | String 1 character<br>'A' \|'C'\|'N'\|'S' |
| datatake_id_integer | 120437 | Integer |
| slice_product_flag_boolean | true | Boolean |

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| polarisation_channels_string | "VH" | String 2 characters<br>"VH" |"VV" |"HH" |"HV"|"SH"|"SV" |
| processing_level_integer | 0 | Set to 0. |
| swath_identifier_integer | 3 | Integer |
| product_type_string | "IW_RAW__0S" | String. Maximum 16 characters. |

## 2. SENTINEL-2 LEVEL-0 MISSING OUTPUTS

- For granule Level-0

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| product_type_string | "MSI_L0__GR" | String. Maximum 32 characters. |
| platform_serial_identifier_string | "A" | String 1 character<br>"A" | "B" | "C" |
| platform_short_name_string | "SENTINEL-2" | String. Maximum 16 characters. |
| processing_level_integer | 0 | Set to 0. |
| processor_version_string | "version" | String. Maximum 16 characters. |
| product_consolidated_boolean | true | Boolean<br>Used to distinguish unconsolidated and consolidated products. |

- For DataStrip

| Parameter name | Parameter value Sample | Format / Description |
| --- | --- | --- |
| product_group_id | "GS2B_20191014T050729_013601_N02.08" | String. Maximum 64 characters. |
| product_type_string | "MSI_L0__DS" | String. Maximum 32 characters. |
| platform_serial_identifier_string | "A" | String 1 character<br>"A" \| "B" \| "C" |
| platform_short_name_string | "SENTINEL-2" | String. Maximum 16 characters. |
| processing_level_integer | 0 | Set to 0. |
| processor_version_string | "version" | String. Maximum 16 characters.<br>Version of the IPF. |
| orbit_number_integer | 15674 | Integer |
| product_consolidated_boolean | true | Boolean<br>Used to distinguish unconsolidated and consolidated products. |

## 3. SENTINEL-3 LEVEL-0 MISSING OUTPUTS

● For granules

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| platform_short_name_string | "SENTINEL-3" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character "A" \| "B" \| "C" |
| instrument_short_name_string | "DORIS" | String. Maximum 16 characters. |
| processing_level_integer | 0 | Set to 0. |
| product_type_string | "DO_0_NAV__G" | String. Maximum 16 characters. |

● For slices

| Parameter name | Parameter value Sample | Format / Description |
|---|---|---|
| platform_short_name_string | "SENTINEL-3" | String. Maximum 16 characters. |
| platform_serial_identifier_string | "B" | String 1 character "A" \| "B" \| "C" |
| instrument_short_name_string | "DORIS" | String. Maximum 16 characters. |
| processing_level_integer | 0 | Set to 0. |
| product_type_string | "DO_0_NAV___" | String. Maximum 16 characters. |
| orbit_number_integer | 15674 | Integer |

## ANNEX C QUALITY ELEMENTS FOR METADATAEXTRACTION TASK

This annex defines the properties to be extracted per mission when an element has been produced.

It defines the content for :

- Task : "MetadataExtraction"
- Event : "END"
- Keys : "quality"

### 1. SENTINEL-1 QUALITY PROPERTIES

| Parameter name | Parameter value Sample | Format / Description |
| --- | --- | --- |
| missing_elements_count_long | 12 | Long<br>To be provided if applicable to the product. |
| corrupted_elements_count_long | 12 | Long<br>To be provided if applicable to the product. |

### 2. SENTINEL-2 QUALITY PROPERTIES

N/A

### 3. SENTINEL-3 QUALITY PROPERTIES

N/A

# DISTRIBUTION LIST

| | Overall document | | Summary |
| --- | --- | --- | --- |
| | **Action** | **Information** | |
| ESA project team | | X | |
| ADS project team | X | | |
| CS-FR project team | X | | |
| Werum project team | X | | |