

SPIRE ICC Summary Level Use-cases

Draft 1

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The aim of the two meetings was to identify summary level use-cases capturing the user requirements contained in the SPIRE URDs (see SPIRE-ICS-DOC-000484 and SPIRE-RAL-PRJ-000543 to 557). These summary level use-cases are either existing HCSS use-cases identified in the common system or new SPIRE-specific use-cases.

The purpose of producing the summary level use-cases was to provide input to determining ICC work-packages and their costing in terms of resources and manpower and time. As such some use-cases are not strictly on how the system is used but on the effort required to design parts of the system.

Each user requirement has a summary level use-case or a comment as to why a summary level use-case couldn't be identified at this time (e.g. more information/clarification is needed). Additional comments are included where appropriate, including an ISSUE comment flagging areas where the IDT needs to obtain further information to go into more detail on a use-case.

Use-case numbering convention: SPIRE-specific use-cases are numbered as UC-AAAnn0, where AAA refers to the URD title in which the use-case was first identified (some use-cases may satisfy user requirements in more than one scope) and nn is a number. The 0 signifies a summary level use-case. User level use-cases within this summary will have 1-9 instead. A use case of the form UCF-nnn refers to an existing HCSS use-case.

AIV

UR3.1.1-3 **UC-AIV010 Generate Command Sequences**

Reference document: FGSSD

UR3.1.4 **UC-AIV020 Update OBS**

UC-AIV21 Produce a new image

UC-AIV22 Upload a new image

UR3.2.1-3 **UC-AIV030 Access to data storage**

ISSUE: UR3.4.2 raises the issue of whether ILT will need a separate database to the FCSS system. If so, UR3.2.3 requires the database interface to be the same.

UR3.3.1-3 UC-601 Run RTA

UC-747 Run QLA

ISSUE: UR3.3.1 raises issue of what sort of data, or, different views of same data will need to be displayed.

ISSUE: UR3.3.2-3 raises issue of details the real-time data acquisition from HCSS or EGSE in UC-601/747.

Ref doc: Technical Notes for Processing

UR3.4.1-2 UC-AIV30 Access to Data Storage

UR3.4.3 UC-ICC040 ICC/DAPSAS Computing Interface

UR3.4.4 UC-ICC050 Maintain Computing Environment of ICC/DAPSAS

UR3.5.1 **UC-AIV040 Test Script Validation**

Related UC: UCF-753 Create observation building block definition

UC-AIV050 Instrument Database Validation

Related UC: UCF-756 Ingest MIB into FCSS

UR3.5.2 UC-ICC040 ICC/DAPSAS Computing Interface

Calibration

UR3.1 A high level requirement to be satisfied by more specific calibration requirements.

- UR3.2.1-4 UCF-745 Make a calibration analysis or algorithm prototype.
 (User level: UC-746 Apply an analysis procedure)
- Need to work through the user level use-cases of this summary level, to identify where the individual user requirements of UR3.2 occur, or if extensions are required to cover them explicitly.
- UR3.3.1 **UC-CAL010 Produce a Calibration Plan**
 This is a long-term plan – includes ground based calibration.
 User level use-case of UC-CAL010: UC-741 Implement the calibration plan for the next X days.
- UR3.3.2-4 User-level use-cases of UC-CAL010
- UR3.3.5 UCF-746 Apply an analysis procedure
- UR3.4.1 UC-CAL010 (with possible extensions for post-launch)
- UR3.4.2 UCF-741 Implement the calibration plan for the next x days.
- UR3.4.3-4 UCF-746 Apply an analysis procedure.

Missing User Requirement: Must be able to search and retrieve data over a long time period - i.e. longer than an observation.
 Will need to be covered by UCF-746 and UCF-489 (Retrieve archive artifact).

Missing User Requirement:

UC-CAL020 Generate Calibration Report
 Use-case used by Other ICC and FSC scopes.
 Calibration report on properties/status of the instrument, i.e. a global calibration report.

Photometer & FTS Processing

It was concluded that the area of Interactive Analysis that forms the bulk photometer and FTS processing was sufficiently large and complex that it should be addressed at a later date when more details are to hand as to what is needed.

With regard to the current work schedule, since IA will involve man-years of effort it doesn't affect the costing of IDT work in the forthcoming year.

ISSUE: The IA/QLA requirements (UR3.2 and 3.3) should be brought up at the

IA/QLA Framework meetings currently being held to ensure that the HSC, which is responsible for producing the framework, includes them in the design.

Routine Operations

This is a high-level URD of which other URDs are lower level components.

Instrument Engineering

- UR3.1 **UC-ENG010 Simulate Instrument Performance**
- ISSUE:* The Instrument group is producing an instrument simulator. It is unclear as to whether this user requirement is a responsibility of the ICC. The ICC would want to use simulator that produces TM in order to design and implement QLA and IA.
This area needs more investigation.
- UR3.2.1 UC-CUS010 Prepare MIB for Ingestion
UC-CUS011 – Get a Command Sequence definition from Instrument group
(to ingest into MIB).
ISSUE: MIB contains commanding for support equipment during ILT. Does this remain in MIB post-ILT?
- UR3.2.2 **UCF-701 Instrument testing during ILT**
A preparation tool is part of the HCSS. It is intended to be scripted so should be quick to modify parameters and information.
- UR3.2.3-4 **UC-ENG020 Investigate external SC/Instrument effect on SPIRE instrument.**
Related use-case: UCF-601 Run RTA.
(Nb: From the user requirement we assume ‘parameters’ of other instruments = HK. RTA can look at HK of all instruments.)
- UR3.3 See AIV UR3.3.1-3
- UR3.3.1 This is a requirement on the design of IA. Deferred.
Related UC: UCF-746 Run IA
- UR3.3.2 **UC-ENG030 Store Analysis Data**
Some analysis data / analysis software may need to be made persistent for future reference. No general procedure yet for choosing to put arbitrary data into storage (somewhere).

ICC as a Whole

- UR3.1.1-5 **UC-ICC010 Create or update a software artifact (within the ICC)**
- UC-ICC080 Store an Artifact locally in ICC/DAPSAS.**
(local database or file-system rather than FCSS OODB).
Related use-case: UC-AIV030 Access to data storage.
- UCF-003 Request System Change
(comprising of many user-level use-cases)
- UR3.2.1-2 **UC-ICC020 Create or update a document**
(some user level use-cases: get template, create
template, version control/storage of document)
- UR3.3.1-2 *ISSUE:* Significant area to investigate – this will require
time and effort up front to assess. Make a use-case so
the investigation work is captured:
- UC-ICC030 ICC and DAPSAS database access.**
- UR3.3.3-4 **UC-ICC040 ICC/DAPSAS Computing Interface**
- UR3.3.5 **UC-ICC050 Maintain Computing Environment of
ICC/DAPSAS**
Includes general software and hardware and
maintenance. User level use-case dealing with database.
- UR3.4.1 **UC-ICC060 Maintain ICC Web Page**
Member details, document links, meetings, minutes, etc.
- UR3.4.2 **UC-ICC070 Out of Hours Call Out**
Low priority for detail at this time
- UR3.4.3-4 Only desirable (low priority for detail at this time).

FSC

- UR2.1.1 This is a constraint on the implementation of
UCF-741 Implement the calibration plan for the next X
days.
- UR2.1.2 Ditto the above. Non-nominal behaviour response is an
extension to UCF-741.
- UR2.1.3-7 *ISSUES:* These areas must be clarified with HSC before
the implementation of UCF-741 can be made.

- UR2.2.1 **UC-FSC010 Training in Software Tools**
 E.g. Together, Java courses.
 Not a use-case on the use of the system, but it is a significant cost and time area so is captured here.
- UR2.2.2 Part of software development procedures.
- UR2.2.3 *ISSUE:* It needs to be clarified with the HSC as to whether they will really be interpreting the output of QCP.
- UR2.2.4 UCF-371 Implement an SCR
 UCF-372 Update/Create a software artifact
 UCF-373 Supply an SCR implementation
- UR2.2.5 Part of the implementation of IA (QCP is a automated version of the IA system). Deferred.
- UR2.2.6 UC-372 Update/Create a software artifact
- UR2.2.7-8 UC-CAL020 Generate Calibration Report.
- UR2.3.1 UC-ICC050 Maintain Computing environment of ICC/DAPSAS
- UR2.4.1 UC-AIV020 Update OBS
- UR2.4.2-3 UCF-373 Supply an SCR implementation
- UR2.4.4 UCF-421 Submit an SCR
- UR2.4.5 UCF-371 Implement an SCR
- UR2.4.6 Requirement on IA framework developed by HCSS.
- UR2.4.7 UCF-372 Update/Create a software artifact
 UCF-373 Supply an SCR implementation
- UR2.5.1 **UC-FSC020 Support HSC query**
- UR2.5.2 UC-FSC020 Support HSC query

CUS

- UR3.1.1 **UC-CUS010 Prepare MIB for Ingestion**
 Includes compiling a database of CUS mnemonics (TCs) and their corresponding instrument command sequences
- UCF-756 Ingest MIB into FCSS

UR3.1.2 UC-ICC080 Store an Artifact locally in ICC/DAPSAS.

UR3.1.3 **UC-CUS020 Test and Validate Observing Modes**
I.e. instances of observing modes filled out with parameters and translated into TCs by the CUS.

UR3.2.1 UC-ICC050 Maintain Computing Environment of ICC/DAPSAS
This use-case must be expanded to include running a local version of core HCSS for testing purposes of components, e.g. CUS.

UR3.3.1 UCF-421 Submit an SCR

UR3.4.1 **UC-CUS030 View Schedules of the CUS.**
Related use-case: UCF-181 Generate a Schedule.

AOP

UR3.1.1-7 **UC-AOP010 Run Time Estimator**

UR3.2.1-3 UCF-371 Implement an SCR
UCF-372 Update/Create a software artifact
UCF-373 Supply an SCR implementation
(UR3.2.1 also UC-ICC020 Create or update a document)

UR4.1-4.3 UC-AOP010 Run Time Estimator

UR5.1-2 *ISSUE:* The status of the instrument simulator needs clarifying.

UR5.3 UC-CON030 Disseminate Knowledge

UR5.4 Requires implementation to be in Java. Part of software development procedure.

UR5.5 UC-ICC020 Create or update a document

UC-FSC020 Support HSC query

UR5.6 UC-FSC20 Support HSC query

OBS

UR3.1.1 **UC-OBS010 Instrument - OBS groups Information Interface**

OBS group cannot get information from all the various parts of the instrument group. The ICC acts as an interface between the two, receiving requests for information, getting information and supplying it in an appropriate form. Also recording these transactions.

- UR3.1.2 UC-ICC080 Store an Artifact locally in ICC/DAPSAS.
- UR3.1.3 **UC-OBS020 Test and Validate OBS**
- UR3.2.1 UC-AIV020 Update OBS
- UR3.3.1 UC-AIV020 Update OBS
- UR3.4.1 **UC-OBS030 Report an OBS problem**
Related use-case: UCF-421 Submit an SCR

Consortium

- UR2.3.1-3 **UC-CON010 Consortium Expert Knowledge Capture**
- UR2.4.1 **UC-CON020 Evaluate/Integrate ICC-External Algorithms.**
- New general UR **UC-CON030 Disseminate Knowledge**
Mechanism for general dissemination of information originating within the ICC or external sources, going to other external sources.
W.r.t. Consortium in this case but with Extensions for Other ICCs. (inspired by Other ICC UR4.6)
- New UR **UC-CON040 Supply ICC information to Consortium**
Mechanism for responding to specific requests from consortium

Other ICCs

- UR3.1 Part of the HCSS common development
- UR3.2-3 **UC-OTH10 Interface for joint-ICC areas of commonality**
- UR4.1-2 UC-CAL010 Produce a Calibration Plan
UC-CAL01n Obtain observations of common calibration sources
- UR4.3 UC-CAL010 Produce a Calibration Plan
UC-CAL01n: Produce calibration models

- UR4.4 UC-CAL010 Produce a Calibration Plan
UC-CAL01n Maintain database of calibration sources and models
- UR4.5 UC-CON030 Disseminate Knowledge
UC-CAL020 Generate Calibration Report
UC-ICC060 Maintain ICC web-page
(for display of the report)
- UR4.6 The work required to produce results of this type, such as beam profile, is part of IA. Note: thus IA should include this in its scope.
Related use-cases: UC-CON030 Disseminate Knowledge
UC-ICC060 Maintain ICC web-page
- UR4.7 UC-OTH010 Interface for joint-ICC areas of commonality

UC-CON030 Disseminate Knowledge
Specific area of knowledge: Optimal use of AOTs
- UR4.8 UC-OTH010 Interface for joint-ICC areas of commonality
UC-CON030 Disseminate Knowledge
Specific area of knowledge: Instrumental effects
- UR4.9 UC-CON010 Knowledge capture
Extension to other ICCs.
- UR4.10-11 UC-CON030 Disseminate Knowledge
Specific area of knowledge: User support to other ICCs

Public

- UR3.1.1-4 UC-FSC020 Support HSC query
- UR3.2.1 UC-CON040 Supply ICC information to Consortium
Not ICC responsibility to make press release – it's the Consortium's. ICC supplies information to Consortium at their request.
- UR3.2.2 UC-ICC060 Maintain ICC Web Page
- UR3.2.3 UC-CON040 Supply ICC information to Consortium

