

Meeting: SPIRE FINDAS Development Group, meeting #2

Place: RAL

Date: 30 April 1999

Attendees: Ken King, Trevor Dimbylow, Andrew Harwood, Rodney Warren-Smith & Neal Todd.

<u>AGREEMENTS & STATEMENTS</u>	<u>ACTIONS</u>
1 The Agenda (see Annex 1) was agreed.	
2 The Minutes of the previous meeting, SPIRE-RAL-MOM-000228 were accepted.	
3 <u>The Action Items Review</u>	
1-1 Closed Trevor checked with RSI UK about the possibility of IDL having – now or in the future – a CORBA interface. Their answer was NO in both respects.	
1-2 Closed Trevor checked with Otto Bauer (PACS) as above. The answer was that RSI was interested in supplying a CORBA interface in the future and that we could supply requirements.	
1-3 Closed ESTEC (Jean-Jaques) gave us their client source code. Vega client source code would not be available until after delivery on 20 April 1999.	
1-4 Closed Vega object server source code would not be available until after delivery on 20 April 1999. After the delivery it seems as if we won't gain much by looking at their code because the servers are quite specific.	
1-5 Closed Andrew said that the only standard way available was the IDL save/restore capability and that this would not be an appropriate method for passing objects between a server and a client.	
4 <u>Debriefing from FINDAS Meetings at ESTEC</u>	
All participants – at the presentation/demo and the workshop – would send detailed comments to Trevor for editing and forwarding to Pierre Estaria.	2-1: Ken, Rodney, Andrew, Neal
The overall viewpoint was that the meetings were very useful and showed the effort that ESA and Vega had put into the prototype FINDAS development and the four days of meetings. Some more general comments were:	
<ul style="list-style-type: none">• The workshop got better as it progressed. A most useful part was getting Vega to write a simple client from scratch (it just pulled a number out of the database). It took about 6 hours and showed the complexity of this implementation process, even for experts.• There were lots of make files and many “irritating” problems	

<u>AGREEMENTS & STATEMENTS</u>	<u>ACTIONS</u>
<p>along the way. It seemed as if there were some dependencies which could not be modelled by “make” and there were examples of make files making other make files!</p> <ul style="list-style-type: none"> • There was an elaborate directory structure with lots of interface files, many of which had to be edited whenever a change was made. • There seems to be little that is, or can be made, generic – everything is specific, or so it seemed, for each object. • We don’t have access to the manuals, they are (or will be) on-line at ESTEC. There may also be licensing problems with the O₂ and ORBIX manuals. [Subsequent to this a whole wadge of documentation has been placed into DMS as PDFs]. • Vega is also updating its delivered document set. • The point was made that Vega has used some ORBIX specific aspects of its CORBA product. • It was thought that the ORBIX CORBA manuals could be bought independently of the product itself. • It may be possible to get a demo ORBIX CORBA licence – the full cost is about £5K, though an academic discount might be available. Another option is to use a freeware CORBA initially. • Accounts for the SPIRE FINDAS development group will be set up on the Sun workstation Jackal. A C++ compiler is needed. • It would have been very useful to have a client and a server which had comprehensive in-line documentation/comments. • It would be very useful to know what are the sequence of events in building a client or server and what to do whenever changes have to be made. • It was thought that getting used to the ODMG/C++ interface would be all that was needed for the moment, O₂ specifics could wait till later. There was therefore no need to go on O₂ courses yet – if ever. Andrew agreed to make his O₂ course notes generally available. 	<p>2-2: Rodney</p> <p>2-3: Trevor</p> <p>2-4: Andrew</p>
<p>5 <u>Review of Proposed SPIRE FINDAS Client</u></p> <p>During the FINDAS workshop the following approach to client development was suggested, SPIRE will follow this approach:</p> <ol style="list-style-type: none"> 1. Write a dummy object server (with a hard-coded object) and write the client to retrieve it using CORBA. 2. When this is working, expand the “dummy” server by integration with the O₂ database. 3. At the very end, fully integrate with the session manager. <p>This illustrates the point alluded to above, there is no generic object server provided by Vega. They have (only) supplied a common infrastructure library which developers can use.</p> <p>5.1 <u>Functionality</u></p> <p>The proposed SPIRE FINDAS client is an interface between the telemetry stream and IDL (Interactive Data Language).</p> <p>Discussions at the workshop show that the prototype FINDAS – and</p>	

AGREEMENTS & STATEMENTS

we suspect the full FINDAS – can deliver “historical” TLM packets from the database, but that there is a fundamental problem for real-time TLM. There is no fast notification mechanism for the arrival of the latest RT TLM packet, every packet has to be polled for somewhere in the system.

In our discussion we agreed that it seems better to hold the TLM as files – perhaps one for every 24 hours – with the database holding a catalogue to provide an efficient access to the packets and to the parameters contained within the packets. That is, we do not think holding each TLM packet as an object in the database will work.

(In passing it was noted that for SPIRE a h/k packet could be 1.5 Kbytes and a science packet could be from 2 bytes to 5 Kbytes).

5.2 Appropriateness

Notwithstanding the comments made above and made by Vega and ESTEC during the workshop, we agreed to continue with the development of the client proposed at the last meeting and detailed in SPIRE-RAL-MOM-000228.

5.3 Schedule

When the SPIRE FINDAS development group goes to ESTEC, the contact will be Jean-Jacques because he developed his client in C++ (Peter used Java).

5.4 Implementation Details

Rodney had already proposed that the way to implement our client was to write an IDL procedure which would perform the object conversion to an IDL structure and to store that procedure in the database. The client would first of all retrieve the IDL procedure from the database, then it would retrieve the object from the database and finally it would use the retrieved procedure to convert the retrieved object to an IDL structure.

The development process would progress through three phases:

1. Get IDL to read a string (a procedure) and execute it
2. Get IDL to read a string through a C++ i/f and execute it
3. Get IDL to read a string through a CORBA i/f and execute it

The plan of action breaks down into three components which have been assigned as follows:

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|--------|--|
| Rodney | Investigate CORBA, retrieving a string through it (using a freeware CORBA) |
| Andrew | Investigate the IDL/C++ i/f |
| Neal | Investigate how to get IDL to execute a string (a procedure) – and also how to convert a byte string into an IDL structure |

Some discussion took place on whether our approach should be to write a client in C++ which called IDL, or to write a client in IDL which called C++. The consensus was the latter, the aim being to provide an “easy” way for an IDL programmer – someone who is adept at

ACTIONS

AGREEMENTS & STATEMENTS

retrieving data from a file – to switch to retrieving data from a database with as much of the FINDAS system hidden away as possible.

The final thing we did was to agree on the structure of our test TLM packet:

1 byte	packet type
1 byte	sub-system id
16 bits	sequence number
1 byte	length in bytes, n, of data and checksum
n-2 bytes	data
2 bytes	checksum

6 AOB

Trevor commented that Peter Claes had promised to deliver the draft FINDAS URD next week (by 7 May 1999), we should all read it when it arrives.

7 DONM

A teleconference was set for 14th May to assess the progress on the agreed tasks.

It was further agreed that the date of the next meeting would be set during the teleconference scheduled for 14th May.

ACTIONS

ANNEX 1

SPIRE/FINDAS Meeting

RAL, 30 April 1999

Agenda

- 1 Agreement of Agenda
- 2 Minutes of previous meeting, SPIRE-RAL-MOM-000228
- 3 Action Items
- 4 Debriefing from recent FINDAS presentation and training meetings
- 5 Review of Proposed SPIRE FINDAS Client
 - 5.1 Functionality
 - 5.2 Appropriateness
 - 5.3 Schedule
- 6 AOB
- 7 DONM