

# **SADIS COST RECOVERY ADMINISTRATIVE GROUP (SCRAG)**

## **TWELFTH MEETING**

(London, 3-4 November 2011)

### **Agenda Item 5: Amendment to Annexes to the Agreement on the Sharing of Costs of the Satellite Distribution System relating to Air Navigation**

#### **AMENDMENT TO ANNEX II, SADIS INVENTORY, TO THE SADIS AGREEMENT**

(Presented by the Secretariat)

##### **REFERENCES**

SADIS Agreement  
SCRAG/12-WP/3  
SADISOPSG/16 Executive Summary

### **1. Introduction**

1.1 This paper presents a draft amendment to Annex II, SADIS Inventory, to the SADIS Agreement as a result of conclusions of the SADISOPSG, at its Sixteenth Meeting (SADISOPSG/16, Paris, 23-25 May 2011).

### **2. Discussion**

2.1 The SADISOPSG reviewed the SADIS inventory and agreed upon some amendments to ensure that it would continued to meet the approved operational requirements. The amendments were made based on proposals by the SADIS Provider State.

2.2 The Attachment presents the revised text of Annex II, SADIS inventory, to the SADIS Agreement. Additions and deletions to the actual text of Annex II appear in outline and strikeout formats.

2.3 The proposed amendments have received the consent of the United Kingdom as the SADIS provider, in accordance with Article XVII, paragraph 5 of the SADIS Agreement.

3. **Action by the Group**

3.1 The Group is invited to review the proposed amendments to Annex II, SADIS inventory, to the SADIS Agreement.

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## SADIS INVENTORY

The inventory items identified below cover the equipment and staffing required to provide, operate and maintain the SADIS. The inventory includes: hub infrastructure (including all additions following the ~~completion of the hub enhancement project~~ implementation of Secure SADIS FTP) and communications circuits, ISCS data back-up system, procured services, and staff. It should be noted that some equipment items are under lease and form part of a wider infrastructure. Costs of individual items cannot be separated from the required infrastructure that includes a significant part of the development of the software and technical configuration. The inventory is in accordance with the SADIS User Guide.

### 1. EQUIPMENT

#### A. Key components of Hub infrastructure and communications circuits

The SADIS 2G hub infrastructure connection to the Met Office message switch (Frost) consists of a number of units developed in conjunction with ~~VADOS Systems~~ AEP Networks and other suppliers. These are installed either at Exeter or at the uplink site at Whitehill, Oxfordshire, UK.

The SADIS FTP and Secure SADIS FTP hub infrastructure connection to the Met Office message switch (Frost) consists of a number of units installed at Exeter.

##### i) Solely procured for SADIS (major components)

SADIS gateway function software (developed specifically for the gateway as part of the NATS CoreMet system; see items under “Not procured principally for SADIS”).

Dell Poweredge R900 servers to provide SADIS FTP service and Secure SADIS FTP service (see Section 1 C),

##### ii) Principally procured for SADIS

- a) At the Met Office;
  - See Section 1 C for itemized components
- b) Communications between Met Office Exeter and Whitehill uplink facility;
  - 2 Fibre Optic 64 Kbps circuits in support of SADIS 2G service
- c) At the uplink site (Whitehill);
  - 1) Units and services leased from Cable and Wireless Communications Ltd. to support SADIS 2G services:
    - 1 (70 to 140 MHz) convertor;
    - Use of 1 (140 to C band) convertor;
    - Use of satellite hub (lease represents only a very small part of this large aperture) for SADIS 2G services; and
  - 2) Units forming part of a totally integrated rack structure to provide SADIS 2G service, with back-up (see the list under Section 1 C).

- d) Dual contingent communication links (utilising WMO TCP/IP sockets protocol) between SADIS Gateway and Met Office in support of SADIS 2G service.

iii) **Not procured principally for SADIS**

- a) Met Office Message switch (FROST): Total investment £1.02M<sup>1</sup> of which ~~1.74~~ 1.48 per cent is attributable to SADIS FTP service usage: switching data to operational FTP service;

- ~~b) 1) Met Office Message switch (FROST): Total investment £1.02M<sup>1</sup> of which 0.86 per cent is attributable to SADIS usage: switching data to operational (2G) broadcast service (excluding GRIB2) and to 2G monitoring system (Corobor Comparator);~~

- ~~2) Met Office Message switch (FROST): Total investment £1.02M<sup>1</sup> of which 1.06~~ 1.02 per cent is attributable to SADIS usage: switching data to operational (2G) broadcast service (including GRIB2) and to 2G monitoring system (Corobor Comparator);

*Note. — Information regarding the cost with (2) and without (1) the WAFS GRIB2 data are provided since delivery of WAFS GRIB2 data over SADIS 2G has yet to be endorsed by the SADISOPSG, and a date of provision decided. WAFS GRIB2 data began to be transmitted operationally over SADIS 2G with effect from 18 November 2010.*

- c) Allocated bandwidth 4 Mbps bursting to 8 Mbps ~~(as of 31 January 2010)~~ between server and Internet Service Provider (ISP) in support of the SADIS FTP service;

- d) At the moment Secure SADIS FTP bandwidth is sufficient to deal with foreseen data traffic, and will be monitored. It is expected that as take up of Secure SADIS FTP increases, a “guaranteed” 4 Mbps bursting to 8 Mbps between server and Internet Service Provider (ISP) arrangement, similar to that used for existing SADIS FTP, may be needed;

- ~~e~~ e) NATS Message switch (CoreMet System);

*Note. — Some elements of the CoreMet System are exclusively for the support of the SADIS gateway function.*

- ~~e~~ f) SADIS FTP equipment running costs;

*Note. — These costs are applied to all MET Office internet facing services and primarily relate to costs associated with ensuring high levels of IT security.*

- ~~f~~ g) Met Office Service Desk equipment; and

*Note. — Equates to 3.5 per cent of the total share of Met Office IT Operations equipment.*

- ~~g~~ h) Met Office Serial Communications.

<sup>1</sup> budgeted cost for providing FROST service during the fiscal year 2010/2011.

*Note. — Equates to 20 per cent of total share of Met Office Serial Communications. Includes cost of switching serial data from FROST Message Switch to SADIS 2G, comprising staff and equipment costs of supporting serial WAN, TTL Routers, Serial Modems and TTL matrix switches.*

**B. SADIS data back-up system**

ISCS VSAT receiving system, including TCP/IP receiver and cables, on SADIS Provider (UK Met Office) premises.

*Note 1.— This hardware is not currently used in an operational environment.*

*Note 2.— The SADIS Gateway (UK NATS) has procured a dedicated SADIS data backup arrangement with the ISCS Provider State. The backup infrastructure includes an ISDN connection between the NWS Telecommunications Gateway and the SADIS Gateway, and an ISDN connection between the SADIS Gateway and Whitehill uplink facility, to provide SADIS data backup. This hardware is currently undergoing final testing of functionality and process before becoming operationally acceptable.*

**C. Hub equipment and services located at Exeter and Whitehill**

<i>Item</i>	<i>Description</i>	<i>Quantity</i>
<b>1.</b>	<b>Whitehill services (leased from Cable &amp; Wireless)</b>	
1.1	70 MHz to 140 MHz converter	1
1.2	140 MHz to C band converter	1
1.3	Satellite Hub leased bandwidth	1 slot
<b>2.</b>	<b>ISDN back-up service to Washington (NWSTG)</b>	
2.1	VadEDGE 4202	3*
2.2	ISDN 2e circuit	1
2.3	Interface cables	2

*Note. — Hardware listed under Section 2 is located at Whitehill.*

<b>3.</b>	<b>SADIS FTP service</b>	
3.1	Dell Poweredge R900 servers with 1 Gb RAM	2
3.2	26.8 Gb internal disk drives	2
3.3	VMWave Virtual Platform with Red Hat Linux 5.3 OS	2
3.4	Intel Xeon X7350, 2.93 GHz Processors	2
3.5	Licenses, misc. support and maintenance costs	1

*Note. — Hardware listed under Section 3 is located at Exeter.*

<b>4.</b>	<b>Secure SADIS FTP service</b>	
4.1	Dell Poweredge R900 servers with 1 Gb RAM	2
4.2	Dell Poweredge R900 (4 core) servers with 32 Gb RAM *	2
4.3	Shared Storage Arrays (analogous to hard disk storage,	

	but with dynamic upper limit)	2
4.4	VMWave Virtual Platform with Red Hat Linux 5.3 OS	2
4.5	Intel Xeon X7350, 2.93 GHz Processors	2
4.6	Licenses, misc. support and maintenance costs	1

*Note. — Item 4.2 relates to Digital Signing servers.*

#### **4.5. SADIS 2G Infrastructure**

4-5.1	Frost port	1
4-5.2	MegaPAC V-IX Base System Dual PSU including Chassis, 1 CP6000, and 1 switch	2*
4-5.3	CP6000 for use with MegaPAC V-IX	1*
4-5.4	VadEDGE 4202	3*
4-5.5	Uplink modem (Comtech EF Data SDM-300a)	3*
4-5.6	Communications cabinet and lease	1
4-5.7	MegaWatch including Enterprise Reports, and PC	1
4-5.8	Comtech SDM300L demodulator (NER5 downlink)	1
4-5.9	Corobor comparator software and PC	1
4-5.10	Communications rack floor space at Exeter in IT Hall 1 and IT Hall 2, and at Whitehill	3
4-5.11	Space in stores at Exeter to locate spare hardware	1
4-5.12	WAN Module	2
4-5.13	Comtech EF Data SMS 301 – redundancy switch	2*
4-5.14	BRI Module for VadEDGE 4202	2
4-5.15	Interface cabling	8

*\* Includes one unit/module stored as a cold spare.*

*Note. — Hardware listed under Section 4-5 is located at Exeter and Whitehill.*

## **2. PROCURED SERVICES**

- A. Space segment annual lease: 4-5 1.3 MHz wide frequency band of which 57 46 per cent is utilised to support SADIS 2G, with 64 Kbps data rate (less communications overhead);

*Note. — SADIS 1G was terminated on 5 January 2009. The percentage allocation of satellite space segment has, however, remained unchanged because the SADIS 1G satellite bandwidth allocation was maintained in 2009 and 2010, as called for by SADISOPSG Decision 13/26 reserved for SADIS 1G was finally relinquished on 31 December 2010.*

- B. Annual maintenance of Met Office Exeter and Whitehill uplink site equipment (SADIS 2G and SADIS FTP server); and
- C. Gateway function:
- i) Communication circuits between Met Office and NATS infrastructure site; and
  - ii) System maintenance.

### 3. ANNUAL STAFF REQUIREMENTS

#### A. United Kingdom Met Office

##### i) Service Desk

*Note.— The Service Desk acts as a first point of contact for all inquiries, including those concerning the OPMET Gateway function. Complex inquiries will be passed to a relevant expert. Experts are available either on a 24-hour rota basis, or as a daytime support with limited on-call capability.*

*24-hour Weather Desk support*

*Skill*

- |  |   |
|--|---|
| 1. Service desk (first point of contact) | <del>Scientific supervisor</del><br>Incident Management |
| 2. Additional Service Desk operator      | <del>Systems analyst</del><br>Customer Enquiries        |

*Note. — Total support for SADIS provided by the Met Office Service Desk team equates to 0.3 per cent of the total Weather Desk budget.*

*24-hour IT Operations support*

*Skill*

- |  |   |
|--|---|
| 1. Technical Team Leader (TTL)           | <del>Computer engineer</del><br>Technical Supervisor  |
| 2. Networks and Systems Supervisor (NSS) | <del>Technical supervisor</del><br>Service Continuity |

*Note. — Total support for SADIS provided by the Met Office IT Operations team equates to 3.5 per cent of the total IT Operations budget.*

*Normal working hours support*

*Skill*

- |                                     |  |
|-------------------------------------|--|
| 1. Change and problem manager (CPM) | <del>Systems analyst</del><br>Process Specialist |
|-------------------------------------|--|

##### ii) Additional support

*Day support*

*Resource*

- |  |  |
|--|--|
| 1. Systems integration team ( <del>Note 1</del> )            | 14 staff-days of network computer engineer |
| 2. Message Switching Manager                                 | 15 staff-days of MSS manager               |
| 3. Administrator   | 160 staff-days of executive officer        |
| 4. International aviation management                         | 30 staff-days of manager                   |
| 5. Data traffic  | 5 staff-days of communications engineer    |
| 6. Contract procurement and management ( <del>Note 2</del> ) | 4 staff-days of senior procurement officer |
| 7. Message switching Team ( <del>Note 3</del> )              | 15 staff-days of technical officer         |

- |                           |   |
|---------------------------|---|
| 8. Invoice Administration | 20 staff-days of invoicing officer and 15 staff-days of business accountant |
|---------------------------|---|

~~Note 1. — Due to re-organisation and rationalisation within the Met Office's IT services division, the CIDA role is now included within the Network Computer Engineer's responsibilities. Effort required also significantly reduced since decommissioning of SADIS 1G.~~

~~Note 2. — Reduced effort required since cessation of SADIS 1G.~~

~~Note 3. — Responsibility for support and maintenance to the SADIS FTP service transferred from the Web Team to the Message Switching Team during 2009.~~

**B. NATS infrastructure site – CACC (OPMET Gateway function)**

Note 1. — The CACC provides the OPMET Gateway function, which is provided from a single operational site, but with a full capability at an alternative site. Staff are available either on a 24-hour basis, or as a daytime support with on-call capability.

Note 2. — The resource demand of 610 days required to provide the SADIS Gateway service comprises 6 watches of 1 ATSA4 and 1 ATSA3 each (Operations), 1 ATCE4 (Engineering Watchkeeping) and 3 ATCE4 (Engineering Day Support).

<i>24-hour support</i>	<i>Resource</i>
1. Operational staff support	523 staff-days per annum
2. Engineering staff support	22 staff-days per annum

<i>Day Support</i>	<i>Resource</i>
3. SADIS administration support	50 staff-days per annum
4. Engineering (including on-call)	15 staff-days per annum

**C. Bought-in services**

Additional support and maintenance agreements with third parties are in place to provide third line support of the SADIS 2G service.