

THALES INFORMATION SYSTEMS

IA-MI-2100-9599-THA

Issue : 01 Date : 12/11/2002

Revision : 11 Date : 01/04/2011

MT : X Distribution Code : E

Ref. : -

TRANSFERT DOCUMENT
OPS IASI LEVEL1 TRANSFERT DOCUMENT

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INDEX SHEET

CONFIDENTIALITY :
NC**KEYWORDS :** software generation, IASI, algorithm, Image Processing**TITLE :** TRANSFERT DOCUMENT**OPS IASI LEVEL1 TRANSFERT DOCUMENT****AUTHOR(S) :** BRUNEL Samuel**THALES SERVICES****SUMMARY :** This document presents the generation environment and procedure of the OPS facility.**RELATED DOCUMENTS :** Stand alone document.**LOCALIZATION :****VOLUME :** 1**TOTAL NUMBER OF PAGES :** 15
INCLUDING PRELIMINARY PAGES : 5
NUMBER OF SUPPL. PAGES : 0**COMPOSITE DOCUMENT :** N**LANGUAGE :** EN**CONFIGURATION MANAGEMENT :** F**CM RESP. :** GOMEZ MH**CAUSE D'EVOLUTION :** IA-FT-2765 (FA-2100-OPS) - Portage IASI-OPS sous Linux 32 bits**CONTRACT :** 01/8937**HOST SYSTEM :**

Microsoft Word 11.0 (11.0.6568)

G:\Thales\prive\Projets\iasi-ops\Modèles CNES\GDOC 4.0.5\ModeleGDOCIndus_en.dot

Version GDOC : v4.0.5

Base projet : G:\Thales\prive\Projets\iasi-ops\Modèles CNES\IASI-thales01

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CHANGES

Issue	Rev.	Date	Reference, Author(s), Reasons for evolution
01	11	01/04/2011	- BRUNEL Samuel THALES SERVICES IA-FT-2765 (FA-2100-OPS) - Portage IASI-OPS sous Linux 32 bits
01	10	27/09/2010	- BRUNEL Samuel THALES SERVICES IA-FT-2705 (FA-2100-OPS) - Corrections mineures
01	09	20/11/2008	- BRUNEL Samuel THALES SERVICES DM2458 : Migration AIX 6.1 and compiler XLC v 8
01	08	13/09/2007	BRUNEL Samuel THALES SERVICES Update due to rights modification added
01	07	04/10/2006	- BRANET Pascal THALES IS update due to Environment variable setting added
01	06	10/02/2004	- BRANET Pascal THALES IS update due to precision concerning warning messages
01	05	01/10/2003	- BRANET Pascal THALES IS V2-0 update
01	04	02/06/2003	- MASSART Benjamin THALES IS IA-2100-FA-18-CN acknowledged
01	03	19/05/2003	- BRANET Pascal THALES IS OPS-V1 delivery
01	02	11/02/2003	- BRANET Pascal THALES IS OPS-V1 PKPV
01	01	29/11/2002	- BRANET Pascal THALES IS OPS-VO delivery
01	00	12/11/2002	- BRANET Pascal THALES IS Creation

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GLOSSARY AND LIST OF TBC AND TBD ITEMS

CGS	Core Ground Segment : segment-sol développé par ALCATEL sous contrat d'EUMETSAT, et dans lequel l'OPS ira s'insérer
DDC	Dossier Descriptif de Configuration
IASI	Infrared Atmospheric Sounding Interferometer : interferomètre de sondage atmosphérique dans l'infrarouge.
JDBS	JdB server
MCS	Monitoring and Control Segment
MP	Main Process
MSGs	Message Server
OPS	Logiciel Opérationnel (Operational Software) : correspond au IASI level 1 PPS dans les glossaires d'EUMETSAT. PPS=Product Processing Software
PGF	Product Generation Facility
TES	Time Event Server
WOM	Work Order Manager

List of TBC items :

page 5 § 3.1.1.

List of TBD items :

C N E S IASI Reference : -	IA-MI-2100-9599-THA Issue : 01 Date : 12/11/2002 Rev. : 11 Date : 01/04/2011 Page : 2
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1.OVERVIEW

1.1.APPLICABLE AND REFERENCE DOCUMENTS

The contractual applicable and reference documents are listed in the « Liste Unique » document IA-LD-2100-9550-THA.

1.2.OBJECTIVES

The installation procedure is divided of two parts :

- build the executable software from the source code,
- install the software on the target computer (described in [DA114] Software Installation Document).

The current document is the Software Transfert Document [DA120] which depicts the procedures to generate the OPS software and to prepare the installation kit.

The intended readers are the CGS operator who are in charge to generate the OPS software. This operator has to be familiar with the operating system AIX to be able to proceed to the generation without block.

1.3.USING DOCUMENT

Section 1 presents an overview of the document.

Section 2 presents an OPS technical overview.

Section 3 describes the OPS generation procedures.

CNES <div style="text-align: center;">IASI</div>	IA-MI-2100-9599-THA Issue : 01 Date : 12/11/2002 Rev. : 11 Date : 01/04/2011 <hr/> Page : 3
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2. TECHNICAL OVERVIEW

2.1. OPS FUNCTIONS

The main OPS function is to generate IASI L1 products from IASI L0 data under the PGF control.

The Production processus is split into 3 steps :

- processing initialisation : configuration parameters loading,
- data computing,
- products generation.

The functions outcome of monitoring and control requirements are :

- OPS sub system monitoring and control,
- work order retrieving and processing,
- log and trace event management,
- anomalies management.

2.2. ARCHITECTURE

The OPS software is compound of the following 5 permanent UNIX processus :

- the MP processus (Main Process) is in charge of monitoring and control the OPS subsystem : start/stop the facility, collect and execute the PGF commands, collect and generate the HKTM status.
- the TES processus (Time Event Server) is in charge to inform a subscriber process when a scheduled event timer occurs (periodic timer or punctual date).
- the MSGS processus (Message Server) is in charge to collect and dispatch the inter-processus messages. This processus provides a centralized and generic mechanism to exchange applicative messages between software processus.
- the JDBS processus (JDB Server) is in charge to collect log events and log traces messages generated by the OPS processus and send them to the MCS.
- the WOM processus (Work Order Manager) is in charge to manage the data processing commands (STEP/SUSPEND/RESUME/BREAK) provided by the PGF and to control the data processing executed by the SD processus.
- the SD processus (Data Server) is in charge to process IASI L0 input data in order to generate IASI L1 data according to the processing description provided by the WOM.

The following figure shows the OPS software architecture.

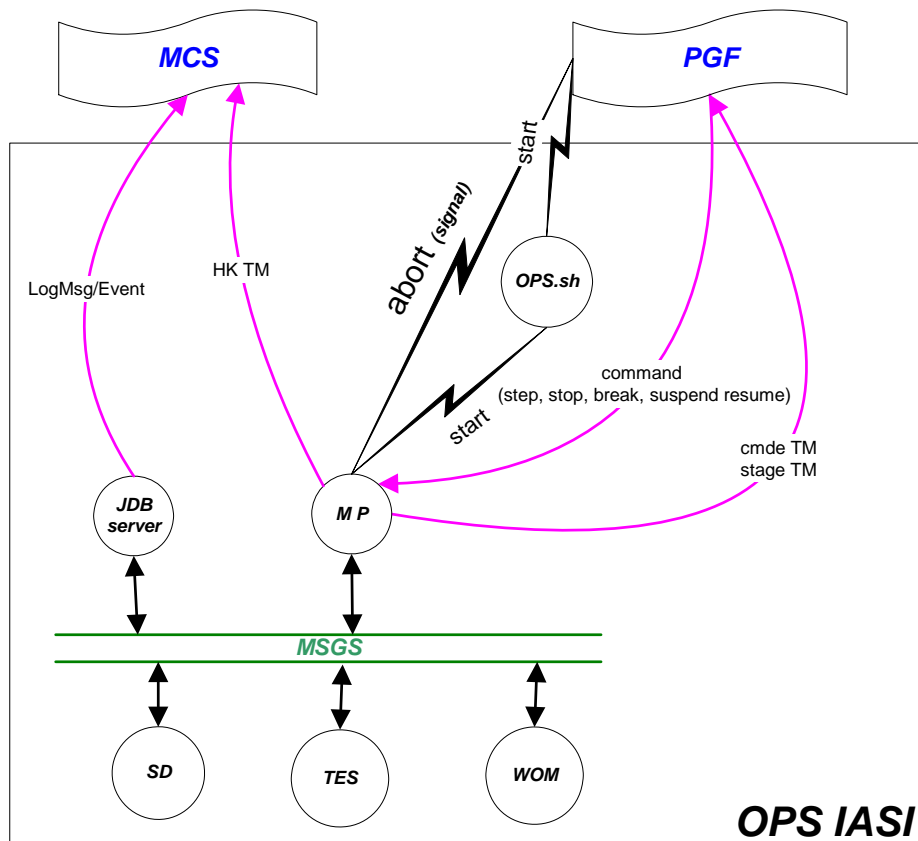


Figure 1 : OPS software architecture

3.GENERATION

3.1.HARDWARE AND SOFTWARE CONFIGURATION REQUISITE

3.1.1.IBM/AIX

The OPS-IASI nominal or standalone software versions are designed to be installed onto multi-processor IBM power PC workstation or node using AIX 6.1 operating System.

In order to achieve the generation stage, the minimum available space must be 600 Mo (for details see chapter 3.4).

In order to reach the performance requirements, the hardware configuration for generation purpose must provides as minimum the following characteristics:

CPU type	Power4
System Disks	2x9Gb
RAM	2Gb
Memory swap	2Gb

The minimum software configuration available onto the generation computer is :(AC)

- the operating system AIX 6.1

.1. No specific parameter setting of the operating system AIX is required.

- IBM XL C/C++ Enterprise Edition V8.0 for AIX compiler,
- the IBM Engineering and Scientific Subroutine Library (ESSL) version 3.3.0.0 (No change carried out on AIX 6.1),
- the IDL version 5.5 (No change carried out on AIX 6.1)

3.1.2.Red Hat Enterprise Linux Server

The OPS-IASI nominal or standalone software versions are designed to be installed onto multi-processor INTEL i686 PC workstation on Red Hat Enterprise Linux Server operating System.

In order to achieve the generation stage, the minimum available space must be 600 Mo (for details see chapter 3.4).

In order to reach the performance requirements, the hardware configuration for generation purpose must provides as minimum the following characteristics:

CPU type	Intel® Core™ i7 CPU 870 2.93GHz (4 cores/ 8 threads)
System Disks	> 10Gb
RAM	4Gb
Memory swap	8Gb

The minimum software configuration available onto the generation computer is:

- the operating system Red Hat Enterprise Linux Server 5.5

.1. No specific parameter setting of the operating system is required.

- gcc/g++ 4.1.2 compiler,
- make 3.81 ,
- lex 2.5.4 (fast lexical analyzer generator),
- yacc 1.9 (parser generator),

3.2.OPS SOURCES DELIVERY

The first operation consists in retrieving the OPS sources code from the CDROM issued from the configuration management :

- the OPS sources are delivered in a compressed tar file called **Src_OPS_<version>.tar.gz**. The <version> denotes the delivered version number of the facility. The tar file contains a single directory tree structure. Please note that TEC reads the version number starting from the 10th character.
- a text file called **DDC_OPS_<version>.tar.gz** is also delivered with the tar file. The versions of all delivered files are listed in this document.

To extract the OPS sources, execute the following commands :

```
connect as generation user on the generation computer
create anywhere in the user directory tree an OPS delivery directory [the name is free]
cd < chosen directory to store the OPS sources code >
mount the CDROM device ; example : mount /cdrom
copy the Src_OPS_<version>.tar.gz from the CDROM ; example : cp /cdrom/* .
uncompress the source code : gzip -d Src_OPS_<version>.tar.gz
tar xvf Src_OPS_<version>.tar
rm Src_OPS_<version>.tar
```

Under the current directory named OPS root directory, the directory named OPS_<version> is created. All extracted files are stored in this directory.

3.3.OPS-IASI GENERATION PROCEDURE

Under the <OPS source dir>/OPS_<version>, the directory ProdUtil/ contains an executable ksh script named **build OPS.sh**. This script has two absolute directory names as parameters. Running this script creates the first directory and generates in it the installation directory. All files generated by the building procedure and not intended to be installed on the target computer are created under the second directory.

Before starting the software generation procedure, the environment variable OPS_SRC_HOME and IDL_DIR have to be configured with the absolute directory path :

```
export OPS_SRC_HOME= <the root delivery directory/OPS_<version>>
export IDL_DIR = <idl installation directory> [for example : /usr/local/rsi/idl_5.5]
export BUILDNOMINAL=1
```

Create of the generation directory :

```
mkdir $OPS_SRC_HOME/build
```

Update rights :

```
chmod -R 775 $OPS_SRC_HOME
```

Then, execute the generation script :

```
cd $OPS_SRC_HOME/ProdUtil
build OPS.sh <target_dir> <generation_dir>
```

The steps of the generation procedure are the following ones :

- creation of the <target_dir> and <generation_dir> directories,
- production commentary writting (message : Write the production commentary (one line):),
- generation of the OPS software in nominal mode,
- generation of the OPS software in investigation mode,
- creation of the OPS binary installation kit in <target_dir> directory.

On successful generation, following information is logged :

```
OPS Binary Installation Kit in /home/iasi_lmg/build/target
```

```
File for target machine installation:
```

```
install_OPS.sh
```

```
CksumOPS_<version>
```

```
OPS_Install_<version>.tar.Z
```

```
Copy the files to target machine, and run install_OPS.sh
```

```
END
```

NB : during the generation procedure several warnings are issued:

1. *LA_Api.h", line 121.14: 1540-1125 (W) The data member "char cmd[35]" cannot have the same name as its containing class.*
2. *(W) WARNING: subprogram xxxxxxxxxxxxxxxxxxxx could not be inlined.*
3. *Id: 0711-224 WARNING: Duplicate symbol: .ErrorHandler::~ErrorHandler() See the loadmap file LoadMap for more information.*
4. *xc: 1501-218 file /usr/local/rsi/idl_5.5/external/idl.export contains an incorrect file suffix.*

These warnings are known and does not degrade the PPF processing

The following 3 files are created by the generation procedure in the <target> directory :

- **OPS_Install_<version>.tar.Z,**
- **install_OPS.sh,**
- **CksumOPS_<version>.**

in order to be exported to the target machine in any way : tape, remote command,

The **OPS_Install_<version>.tar.Z** file provides executable and configuration parameters for OPS software execution.

The **CksumOPS_<version>** file provides the **OPS_Install_<version>.tar.Z** file checksum. This checksum is used at the beginning of the OPS software installation procedure in order to verify the delivery integrity.

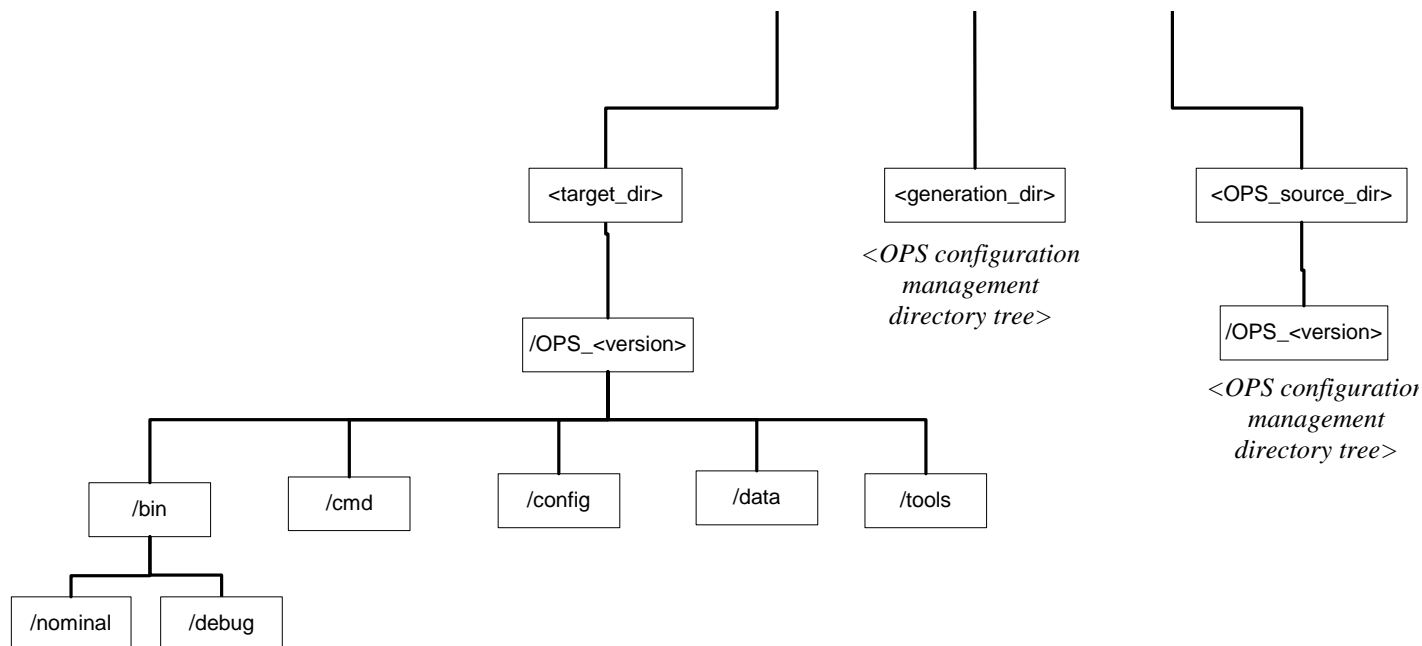
The **install_OPS.sh** file is the OPS software installation script.

To store the installation kit on a 4mm data cartridge, execute the following command :

```
tar -cvf /dev/rmt0 OPS_Install_<version>.tar.Z install_OPS.sh CksumOPS_<version>
```

3.4.GENERATION TREE

The result of the generation procedures shall be the following directory tree :



Note that after the generation procedure execution, the <OPS_source_dir>, <generation_dir> and <target_dir> directories are not deleted.

The disk space used by each generation directory is reported in the following table.

Directory	Used disk space (Mo)
delivered tar file	111Mo
<OPS_source_dir>	281Mo
<generation_dir>	214Mo
<target_dir>	28Mo