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Title: SMOS L2 OS Prototype Processor Software Release Document

Doc code: SO-RN-ARG-GS-0022

Issue: 2

Revision: 5

Date: 15 March 2009

	Name	Function	Company	Signature	Date
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External Distribution

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Change Record

Issue	Revision	Date	Description	Approval
1	0	16-03-2007	First release of core V1 FAT	
1	1	04-05-2007	Release after V1 FAT RIDs	
2	0	15-02-2008	Document reused for the open prototype.	
2	1	05-05-2008	Post V3 FAT	
2	2	10-11-2008	For V4 pre-QR	
2	3	19-12-2008	Post V4 pre-QR RIDs update	
2	4	20-02-2009	For V4 TRR	
2	5	15-03-2009	For V4 FAT	

Version draft.0 to version 1.0 (SO-L2-SSS-ACR-020: OPSRD + PPSRD)		
Page #	Section #	Comments
5	1.3	Update list of reference documents
12-13	4.1	Add installation procedure.
13	4.1.4	Update installation procedure (add autoconf command)
6	1.3	Update issue and date of [A.D. 7]
6	2.2	Document file names updated
13	4.2	Remove reference to the prototype. Update installation procedure.
9	2.3	Clarify source and dev directories usage.
9	2.4	New archive file for the executable and required configuration files.
16	5	New section 5 addressing known deviations with respect to target delivery
14	4.2	Update the unit test installation procedure
	4.1	Update processor installation procedure
From version 1.0 to version 1.1 (SO-L2-SSS-ACR-020: OPSRD + PPSRD)		
	All	Processor version number is 01_01. Version of library package is 1.1. Version of XML_RW_API is 03_03_00. Version of the EE CFI is 3.6.1. See change bars.
8	2.3	Short description of source files organization added
	4.1.6	“library” remove for XML_RW_API_HOME description.
18	5.4	Item removed with CORE v1.1
	Appendix A	Lists of files updated.
	Appendix A	Add list of schema files
From version 1.1 to version 2.0 (SO-RN-ACRI-GS-4420: PPSRD)		
	All	Document reference name changed to SO-RN-ACRI-GS-4420
	All	Document is now dealing with releases of the SMOS L2 OS Open Prototype Processor. Release note of the Operational Processor is SO-RN-ACRI-GS-4413.

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From version 2.0 to version 2.1 (SO-RN-ACRI-GS-4420: 05/05/2008)		
	2.3	Source code updated.
	2.4	Binary file updated.
	2.6	Data files updated.
	2.9	Test data set updated.
	4	Installation procedure section updated.
From version 2.1 to version 2.2 (SO-RN-ARG-GS-0022: 04/11/2008)		
all	all	Reformatted header/footer & title pages for ARGANS
	all	Updated doc references/dates
	all	Minor typographical and other corrections according to JCD's email notes 28/08/2008.
From version 2.2 to version 2.3 (SO-RN-ARG-GS-0022)		
	1.3, 2.2, 2.5, 2.6, 2.7, 3.2, 4.1.4, 5.0	Added sections 1.3, 2.2, 2.5, 2.6, 2.7, 3.2, 4.1.4 (part), 5.0 from OPSRD (pre-QR RID jcd-01): 4.1.4 onwards renumbered.
	3.2	Added list of statically & dynamically linked libraries (pre-QR RID jcd-02)
	this	Added doc ID to change record (pre-QR RID jcd-03)
	2.8	Corrected name of smos_GUI_SSScore-v3.2.tar.gz (pre-QR RID jcd-06)
	4.1.3	Explained gcc & configure options (pre-QR RID jcd-07)
	3.3.5.1	Referenced PPSUM for directory listing; added reference to smos_L2OSPP_file_list-v3.2.lst (pre-QR RID jcd-02a & d)
	3.3 onwards	Corrected missing section 4 heading "Installation Procedures" – all following sections renumbered.
	1.3, 2.2	Updated reference document versions & dates
	4.1.5.1	Added reference to smos_L2OSPP_file_list-v3.2.lst (pre-QR RID jcd-02d)
From version 2.3 to version 2.4 (SO-RN-ARG-GS-0022)		
	all	processor version updated to 03_04
	1.11	Updated schema version
	1.9	Corrected HDF5 version
	1.4	Added list of acronyms (pre-QR RID jcd-04)
	1.3, 1.6	updated document versions & release dates
From version 2.4 to version 2.5 (SO-RN-ARG-GS-0022)		
	all	processor version updated to 03_05
	1.11	Updated schema version
	2.2	Added memalloc64 to list of dynamically linked libraries
	1.3.1	[RD 26] added "obsolete" & corrected version/date
	3.1	Explained where to find reference executable
	1.9	Corrected library directory names
	5	New section for Prototype & GUI SPRs
	2.2	Added paragraph (from OPSRD) describing software (gcc4 & autoconf) prerequisites
	1.3, 1.6	updated document versions & release dates

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1. Introduction

1.1. Purpose of document

This document is the Software Release Document for the SMOS Level 2 Sea Surface Salinity open prototype processor.

1.2. Scope of document

The Software Release Document provides information on the material delivered along with the SMOS L2 OS Prototype Processor.

1.3. Reference and Applicable documents

All documents referenced [R.D. n] or [A.D.n] in the tables hereunder are applicable to the distribution rather than the SRD itself. References [R.D. n] or [A.D.n] are kept because they are in use in all other documents released by ARGANS/ACRI-ST.

1.3.1. Reference documents

Reference	Title	Code	Issue	Date
[R.D. 1]	SMOS L2 OS Algorithm Theoretical Baseline Document	SO-TN-ARG-GS-0007	3.1	17-02-2009
[R.D. 2]	SMOS L2 OS Operational Processor Computation Resources Requirements	SO-TN-ARG-GS-0011	2.4	20-02-2009
[R.D. 3]	SMOS L2 OS Detailed Processing Model	SO-TN-ARG-GS-0008	2.6	17-02-2009
[R.D. 4]	SMOS Level 2 and Auxiliary Data Product Specification	SO-TN-IDR-GS-0006	4.0	20-01-2009
[R.D. 5]	SMOS L2 OS Architectural Design Document	SO-DD-ARG-GS-0017	3.2	10-11-2008
[R.D. 6]	SMOS L2 OS Detailed Design Document	SO-DD-ARG-GS-0012 ¹	2.8	14-03-2009
[R.D. 7]	SMOS L2 OS Software Verification and Validation Plan - Unit Test	SO-TP-ARG-GS-0013	2.5	19-02-2009
[R.D. 8]	SMOS L2 OS Table Generation Requirement Document	SO-TN-ARG-GS-0014	3.2	17-02-2009
[R.D. 9]	SMOS L2 OS Prototype Processor Software User Manual	SO-MA-ARG-GS-0021	2.7	07-03-2009
[R.D. 10]	SMOS L2 OS Prototype Processor Software Release Document	SO-RN-ARG-GS-0022	2.5	15-03-2009

¹ Detailed Design Document is available in electronic version only. The DDD is a web site dedicated to the documentation of the Operational Processor.

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Reference	Title	Code	Issue	Date
[R.D. 11]	SMOS Level 1 and Auxiliary Data Product Specification	SO-TN-IDR-GS-0005	5.4	05-09-2008
[R.D. 12]	XML Read/Write API Software User Manual	SO-ID-IDR-GS-0009	2.1	29-04-2008
[R.D. 13]	General Software Library User Manual	SO-MA-IDR-GS-1002	1.8	05-03-2008
[R.D. 14]	SMOS L2 OS Input / Output Data Definition	SO-TN-ARG-GS-0009	2.9	06-03-2009
[R.D. 15]	SMOS L2 OS Architectural Design Document	Same as [R.D. 6]		
[R.D. 16]	SMOS L2 OS Algorithm Validation Plan	SO-TP-ARG-GS-0015	1.5	18-12-2008
[R.D. 17]	SMOS L2 OS Algorithm Validation Test Procedure Report	SO-TR-ARG-GS-0016	1.4	21-02-2009
[R.D. 18]	SMOS L2 OS Parameter Data List	SO-TN-ARG-GS-0010	2.4	17-02-2009
[R.D. 19]	Earth Explorer Mission CFI Software Explorer_Lib Software User Manual	EE-MA-DMS-GS-0003	3.7	13-07-2007
[R.D. 20]	SMOS L2 OS Operational Processor Software User Manual	SO-MA-ARG-GS-0018	1.5	06-03-2009
[R.D. 21]	SMOS L2 OS Prototype Processor Software Release Document	Same as [R.D. 10]		
[R.D. 22]	Earth Explorer Mission CFI Software Mission Conventions document	CS-MA-DMS-GS-0001	1.3	15/07/2003
[R.D. 25]	Software Verification and Validation Plan - Acceptance Test	SO-TP-ARG-GS-0025	2.3	09-03-2009
[R.D. 26]	Software Verification and Validation Plan - System Test	SO-L2-SSS-ACR-0009 obsolete, no need to update	1.0	30/06/2006

1.3.2. Applicable documents

Reference	Title	Code	Issue	Date
[A.D. 1]	SMOS L2-OP Operational Constraints	SO-TN-GMV-GS-4402	2.4	06-02-2008
[A.D. 2]	PDPC CORE Generic IPF Interface Control Document	SO-ID-IDR-GS-1001	1.10	26-11-2007
[A.D. 3]	Earth Explorer File Format Standards	PE-TN-ESA-GS-0001	1.4	13-06-2003
[A.D. 4]	Level 2 Processor ICD and Operational Constraints	SO-ID-IDR-GS-0003	4.0	10-11-2008

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[A.D. 5]	Space Engineering, Software – Part 1: Principles and requirements	ECSS-E-40 Part 1b		28-11-2003
[A.D. 6]	Space Engineering, Software – Part 2: Documents Requirements Definition	ECSS-E-40 Part 2b	1	31-03-2005
[A.D. 9]	DPGS Master ICD	SO-ID-IDR-GS-0016	2.2	03-11-2008
[A.D. 10]	XML schema guidelines	SO-MA-IDR-GS-0004	2.0	16-11-2007
[A.D. 11]	DPGS schema versioning	SO-TN-IDR-GS-0024	1.5	26-10-2007
[A.D. 12]	SMOS DPGS acronyms	SO-TN-IDR-GS-0010	1.11	13-06-2008
[A.D. 13]	SMOS L2 Open Prototype Requirements and Architecture	SO-RS-GMV-GS-4401	2.4	06-02-2008

1.4. Acronyms

Acronym	Description
AD	Applicable Document
ADD	Architectural Design Document
ADF	Auxiliary Data File
AGDPT	Auxiliary Geophysical Data Processor Table
AlgoVal	Algorithm Validation
AR	Acceptance Review
AT	Acceptance Tests
ATBD	Algorithm Theoretical Baseline Document
AVHRR	Advance Very High Resolution Radiometer
BT	Brightness Temperature
CCN	Contract Change Notice
CNES	Centre National d'Etudes Spatiales
CEC	Calibration and Expertise Centre
CFI	Customer Furnished Item
COTS	Commercial Off-The-Shelf
CRR	Computational Resources Requirements
DAP	Data Analysis Product
DDD	Detailed Design Document
DPGS	Data Processing Ground Segment
DPM	Data Processing Model
ECMWF	European Centre for Medium-Range Weather Forecasts
ESA	European Space Agency
ESRIN	ESA Centre for Earth Observation
ESTEC	European Space Research and Technology Center
FAT	Factory Acceptance Test
FPC	Fast Processing Center
GSL	General Software Library
GUI	Graphical User Interface

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ICD	Interface Control Document
ICM	Institut de Ciències del Mar
IFREMER	Institut français de recherche pour l'exploitation de la mer
IODD	Input / Output Data Definition
IPF	Instrument Processing Facility
IPSL	Institut Pierre Simon Laplace
L1OP	SMOS Level 1 Operational Processor
L1PP	SMOS Level 1 Prototype Processor
LUT	Look Up Table
MIRAS	Microwave Imaging Radiometer using Aperture Synthesis
NRT	Near Real Time
NRTP	Near Real Time Processor
OS	Ocean Salinity
PDL	Parameter Data List
PDPC	Payload Data Processing Centre
RD	Reference Document
RPF	Reference Processing Facility
SEPS	SMOS End to end Performance Simulator
SM	Soil Moisture
SMOS	Soil Moisture and Ocean Salinity
SOW	Statement Of Work
SPR	Software Problem Report
SRD	Software Release Document
SSS	Sea Surface Salinity
SST	Sea Surface Temperature
ST	System Tests
SUM	Software User Manual
SVVP	Software Verification and Validation Plan
TBC	To Be Confirmed
TBD	To Be Defined
TDS	Test Data Set
TEC	Total Electron Count
TGRD	Table Generation Requirement Document
TN	Technical Note
TP	Test Plan
TPR	Test Procedure Report
TR	Test Report
TRR	Test Readiness Review
UDP	User Data Product
UT	Unit Tests
WEF	Weight Enumerating Function

Other SMOS related acronyms can be found in the general list in SO-TN-IDR-GS-0010.

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Content of the delivery

1.5. Introduction

This delivery of the SMOS L2 SSS open prototype processor software is available in the project web site http://www.enviport.org:8080/argans/smos/builds/op_03_05/. It contains all documents and software delivered for the operational and prototype processors.

1.6. Documentation

The delivery includes the following documents:

Title	Filename	Issue	Date
Algorithm Theoretical Baseline Document	SO-TN-ARG-GS-0007_L2OS-ATBD_v3.1_090217.pdf	3.1	17-02-2009
Table Generation Requirements Document	SO-TN-ARG-GS-0014_L2OS-TGRD_v3.2_090217.pdf	3.2	17-02-2009
Operational Processor Computation Resource Requirements	SO-TN-ARG-GS-0011_L2OS-OPCRR_v2.4_090220.pdf	2.4	20-02-2009
Data Processing Model	SO-TN-ARG-GS-0008_L2OS-DPM_v2.6_090217.pdf	2.6	17-02-2009
Parameter Data List	SO-TN-ARG-GS-0010_L2OS-PDL_v2.4_090217.pdf	2.4	17-02-2009
Input / Output Data Definition	SO-TN-ARG-GS-0009_L2OS-IODD_v2.9_090306.pdf	2.9	06-03-2009
Architecture Design Document	SO-DD-ARG-GS-0017_L2OS-ADD_v3.2_081110.pdf	3.2	10-11-2008
Detailed Design Document	SO-DD-ARG-GS-0012-L2OS-OPDDD-v2.8_090314.tar.gz	2.8	14-03-2009
Algorithm Validation Plan	SO-TP-ARG-GS-0015_L2OS-AlgoValP_v1.5_081218.pdf	1.5	18-12-2008
Operational Processor Software Release Document	SO-RN-ARG-GS-0019_L2OS-OPSRD_v2.1_090315.pdf	2.1	15-03-2009
Operational Processor Software User Manual	SO-MA-ARG-GS-0018_L2OS-OPSUM_v1.5_090306.pdf	1.5	06-03-2009
Prototype Processor Software User Manual	SO-MA-ARG-GS-0021_L2OS-PPSUM_v2.7_090307.pdf	2.7	07-03-2009
Prototype Processor Software Release Document	SO-RN-ARG-GS-0022_L2OS-PPSRD_v2.5_090315.pdf	2.5	15-03-2009
Software Verification and Validation Plan – Unit Test	SO-TP-ARG-GS-0013_L2OS-SVVP-UT_v2.5_090219.pdf	2.5	19-02-2009
Algorithm Validation Test Procedure Report	SO-TR-ARG-GS-0016_L2OS-AlgoValTPR_v1.4_090221.pdf	1.4	21-02-2009
Software Verification and Validation Plan – Acceptance Test	SO-TP-ARG-GS-0025_L2OS-SVVP-AT_v2.3_090306.pdf	2.3	06-03-2009

All documents are in Portable Document Format (pdf) but the Detailed Design Document. The DDD is available in electronic version only. It is a web site dedicated to the documentation of the

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processor source code. To open the DDD, all files need to be extracted from the archive using the gzip and tar commands in UNIX:

```
tar xvfz SO-DD-ARG-GS-0012-L2OS-OPDDD-v2.8_090314.tar.gz
```

or any popular archive tools.

All files are copied under the DDD directory. The entry point of the DDD web site is `DDD/html/index.html`

To read the DDD, open this file with any web browser tool.

1.7. Sources

Source codes are available in the archive file `sources-L2OS-core-v3.5.tar.gz`.

1.8. Binaries

Name of executable file of the L2 OS Prototype Processor is `L2OSPP_03_05.exe`. The executable file is provided for reference.

1.9. Third party software

The SMOS L2 SSS processor requires third parties software for compilation and execution. They are available (as compiled libraries & include files) in `third_party_libraries-L2OS-core-v3.5.tar.gz`, which unzips to subdirectories in the `libpackages` directory:

- XML_RW_API version 04_02_00 (or later) for handling SMOS products.

Warning

License agreement with INDRA is required for the use of the XM_RW_API. If you are not entitled to use the XM_RW_API library, you have not the right to use neither the XM_RW_API library, nor the SMOS L2 processor.

- The General Software Library version 1.6.

Warning

License agreement with INDRA is required for the use of the General Software Library. If you are not entitled to use the General Software Library, you have not the right to use neither the General Software Library, nor the SMOS L2 processor.

- Log4c log system library version 1.1: headers and compiled binaries are available under the LOG4C64 directory. See <http://log4c.sourceforge.net/> for documentation and installation instructions.

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- Hdf5 library: compiled binaries for the HDF5 library version 1.6.5 are available under the HDF564 directory, along with other libraries required by hdf5. See <http://www.hdfgroup.org/HDF5/release/obtain516.html> for installation instruction.
- hdfview utility software is needed to visualize breakpoint report files. Software installation is required before use. See the hdfview/Readme.txt file or go to <http://www.hdfgroup.org/hdf-java-html/hdfview/>.
- XML handling: the xerces library version 2.7 is required.
- Earth Explorer CFI functions are required by the processor. The library (version 3.6.1) is available under the EXPLORERCFI_3_6_1_LINUX64 directory.

Warning

License agreement is required for the use of the Earth Explorer CFI libraries. If you are not entitled to use the EE_CFI library, you have not the right to use neither the EE CFI library, nor the SMOS L2 prototype processor. See http://eop-cfi.esa.int/CFI/ee_cfi_software.html for registration procedure.

1.10. Data files

The SMOS L2 SSS processor requires many data files called products. All products and their schemas have been gathered in a single archive file `input_products-L2OS-core-v3.5.tar.gz`.

1.11. Schemas

In order to handle SMOS product, the XML_RW_API requires product definitions called schemas from Indra. Schemas are included in the `schemas-L2OS-core-v3.5.tar.gz` file. Schema version is 04_03_02.

1.12. Graphical User Interface

The Open Prototype Processor includes a Graphical User Interface that eases the use of the operational processor (configuration, processings). The GUI is coded in Java. All files are gathered in the `smos_GUI_SSScore-v3.5.tar.gz` file.

1.13. Tests

The archive file `tds_gui-L2OS-core-v3.5.tar.gz` includes three complete datasets and corresponding Folder/Job pairs:

- one L1C file in dual polarisation mode (corresponding to scenario 20);
- one L1C file in full polarisation mode (corresponding to scenario 09);

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- one L1C “MIRE” corresponding to the semi-realistic half orbit simulation scenario.

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2. Hardware and software requirements

2.1. Hardware

For operating the SMOS L2 SSS processor, the minimum hardware configuration is

- LINUX Operating System 64 bits (x86_64)
- 4 Gbytes of RAM
- At least 4Gb of disk space for installation

The processor has been tested under Red Hat 5 Enterprise linux operating system with Xeon EM64T CPUs.

2.2. Software

The only software which must be installed before proceeding to install L2 OS is autoconf 2.59 or later, and the gcc4 compiler (version 1.4 or later) the, although, since the executable is part of the delivery, these are not needed if the executable is not compiled. To check the versions, type on the UNIX command line interface (bash shell):

```
autoconf --version
gcc4 --version
```

The SMOS L2 processor uses external libraries. They are included in the software package. Some libraries need licensing, such as the Earth Explorer CFI library. Therefore, you must accept the licenses of all third party software to use the SMOS L2 prototype processor. Third party software used is:

- Earth Explorer CFI software. Contact <http://eop-cfi.esa.int/> to obtain the license.
- Schema from Indra (download is available from <ftp://193.146.123.163/smos/schemas>)
- HDF5 library
- Log4c
- XML2: XML64 is the root directory for the XML2 library, used by EXPLORERCFI_LINUX64
- Java Runtime Environment 1.6.0 (for the GUI)
- XML_RW_API from Indra Espacio (www.indra.es)
- GSL from Indra Espacio (www.indra.es)
- gcc version 4.1.2, invoked by 'export CC=gcc4' (see section 4.1.3)

These libraries are statically linked: Earth Explorer CFI, HDF5, XML2, log4c.

These libraries are dynamically linked: Xerces (lib64, used by the XML_RW_API), GSL, memalloc64.

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3. Installation procedures

3.1. Procedure to install the SMOS L2 SSS processor and its GUI

To proceed with the compilation of the processor, copy the files listed below in the directory in which the user will operate the processor:

- input_product-L2OS-core-v3.5.tar.gz
- schemas-L2OS-core-v3.5.tar.gz
- sources-L2OS-core-v3.5.tar.gz
- third_party_libraries-L2OS-core-v3.5.tar.gz
- smos_GUI_SSScore-v3.5.tar.gz
- tds_gui-L2OS-core-v3.5.tar.gz

Note that the executable file is part of the delivery (L2OSPP_03_05.exe), within the uncompressed sources-L2OS-core-v3.5.tar.gz under /dev.

The installation directory is noted *SMOS_ROOT*, i.e. with the UNIX command line interface (bash shell):

```
cd my_intallation_directory
export SMOS_ROOT=`pwd`
```

3.1.1. Installation of third party software

External libraries have been gathered in an archive file. To make them available to the processor, execute the UNIX command below:

```
cd $SMOS_ROOT
tar xvfz third_party_libraries-L2OS-core-v3.5.tar.gz
```

All libraries are copied under the \$SMOS_ROOT/libpackages directory.

3.1.2. Installation of input products and schemas

The processor needs input product and schemas to be run. These files must be extracted from the archive file:

```
tar xvfz input_product-L2OS-core-v3.5.tar.gz
tar xvfz schemas-L2OS-core-v3.5.tar.gz
```

All data files and schemas are under the \$SMOS_ROOT/smos directory.

3.1.3. Compilation of the processor

To compile the processor from source files, retrieve the source codes and compilation files from the archive:

```
tar xvfz sources-L2OS-core-v3.5.tar.gz
```

All source codes are under dev directory.

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Under the dev directory, the general rule is that the directory tree follows the processor architecture. Each component is in one source file and each module, which includes several components, is in a directory (e.g. read_inputs, forward_model). Other directories or files can be found under dev directory, e.g. dot files that define some of the figures in the DDD.

Below is a description of the directory content and use.

```
drwxrwxr-x 3 10091 10091 4096 Jan 21 09:28 A_mainprogram/
Main program.
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 aux_data_processor/
auxiliary data processor component
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 config_proto/
Configuration component
drwxrwxr-x 3 10091 10091 4096 Jan 21 09:28 data_model/
Data structure definitions
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 decision_tree/
Measurement discrimination component
drwxrwxr-x 3 10091 10091 4096 Jan 21 09:28 dotfiles/
Some figures (processing sequences) of the DDD
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 forward_model/
Forward model component
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 forward_model_support/
Forward model support component
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 logger/
Routines for log messages and breakpoint reports
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 main_processing/
Main processing (iterative scheme) component
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 read_inputs_data_selection/
Input data reading component
drwxrwxr-x 3 10091 10091 4096 Jan 21 09:28 scene_bias_correction/
Empty (component not implemented yet)
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 tools/
Various mathematical tools for the processor.
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 wrapperGsl/
Wrapping function of the GSL library
drwxrwxr-x 3 10091 10091 4096 Jan 21 16:24 write_outputs/
Write product component
```

To start the compilation, go to the directory and start the configuration script to select gcc version 4:

```
cd $SMOS_ROOT/dev
export CC=gcc4
export CPP=
autoconf
```

Create the configuration script using the ‘--with-auxlib-package’ option to specify the directory for all the libraries, and with the ‘--enable-hidden-switches=yes’ option to select compilation of the prototype processor (without this option, the operational processor is compiled):

```
./configure --with-auxlib-package=$SMOS_ROOT/libpackages --
enable-hidden-switches=yes
```

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For a list of all configure options, type './configure --help'.

With this script, a makefile is generated in all directories that include source code. Makefile(s) will be generated in dev directory and in sub-directories. Compilation can now be performed by executing:

```
make clean
make
```

This will create the executable L2OSPP_03_05 in the \$SMOS_ROOT/dev directory. This is the L2 Ocean Salinity Prototype Processor executable.

3.1.4. Processor setup

Copy mandatory configuration file into \$SMOS_ROOT directory:

```
cp $SMOS_ROOT/smos/config/xml_rw_api usr_conf.xml $SMOS_ROOT
```

3.1.5. Installation of the Graphical User Interface (GUI) components

3.1.5.1. GUI

To proceed with the installation of the GUI, follow the instructions below. Note that the GUI has to be installed in the same \$SMOS_ROOT directory as the processor.

The GUI package is delivered as a compressed archive file:
smos_GUI_SSScore-v3.5.tar.gz

To install the GUI, type the following commands:

```
cd $SMOS_ROOT
tar xvfz smos_GUI_SSScore-v3.5.tar.gz
```

A subdirectory 'smos_GUI_SSScore' is created under \$SMOS_ROOT containing all the necessary files to operate the GUI. Refer to the Prototype Processor Software User Manual [R.D.10] section 3.6 for details of the installed directories. A complete ls-lR list of all installed files can be found in smos_L2OSPP_file_list-v3.5.lst, part of the distribution.

To complete the installation, copy the processor executable by typing:

```
cp -f dev/L2OSPP_03_05.exe smos_GUI_SSScore/bin
```

3.1.5.2. Test datasets

The GUI comes with three folder/jobs for test purpose.

To install these scenario tests, the following command shall be typed:

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```
cd $SMOS_ROOT
tar xvfz tds_gui-L2OS-core-v3.5.tar.gz
```

To launch the computations refer to the Prototype Processor Software User Manual SO-MA-ARG-GS-0021.

3.1.5.3. HDFview

HDFview installation package version 2.4 is delivered along with the GUI distribution package into the 'bin' directory (hdfview_install_linux64amd_vm.bin). To download any other version, follow this link <http://hdf.ncsa.uiuc.edu/hdf-java/html/hdfview/>.

To install HDFview, go to the bin directory. At the prompt type:

```
sh ./hdfview_install_linux64amd_vm.bin
```

The installer will guide you to select the Java Virtual Machine and HDFView home directory (where you want to install the HDFView).

4. Problems with respect to the target delivery

Known problems with respect to target delivery will be identified during the FAT and reported in the minutes. Software Problem Reports will be generated whenever the problem is important (see section 6 in OPSRD for Operational Processor SPRs, and section 5 below for Prototype Processor & GUI SPRs).

With regard to scientific aspects, all algorithms defined in the ATBD [R.D. 1] SMOS L2 OS Algorithm Theoretical Baseline Document] are implemented in the processor and all auxiliary data defined in TGRD [R.D. 8] SMOS L2 OS Table Generation Requirement Document] are included in the delivery.

5. Software Problem Reports

Table below is aimed at monitoring Software Problems reported on the SMOS L2 OS Prototype Processor and GUI via the ConCalNet system operated by Indra. SMR documents describing the changes made in response to SPRs are available on ConCalNet and here: <http://www.enviport.org:8080/argans/smos/builds/smr/>. For SPRs related to the Operational Processor, refer to the OPSRD.

SPR reference	Context	Description	Status ³	Originator	Open date	Document / processor version
PR-FAT-GUI-1	pre-QR	SVVP-AT/ATR Task 7 Step 5: when editing the breakpoints directory, the default (ie Outputs) displays as 'Breakpoints_directory' when the actual value is null (ie the default). Corrected in version 03_02.	Closed 16/01/2009	Jean-Claude Debruyne	07/01/2009	
PR-FAT-GUI-2	pre-QR	SVVP-AT/ATR Task 8 Step 3: after removing AUX_CNFOSD/F, ERROR_CODE_CONFIG_PROTO_READPARAMINDICES_NOOP EN error 152 is reported – is this correct? Check OPSUM documentation for correct error codes. Checked ok – no action.	Rejected 16/01/2009	Jean-Claude Debruyne	07/01/2009	
PR-FAT-GUI-3	pre-QR	SVVP-AT/ATR Task 9 Step 3: export directory should have a leading '/' – stdout/stderr message says 'removing leading '/' from member names'. Message removed.	Open	Jean-Claude Debruyne	07/01/2009	

³ Possible status is: proposed for closure, closed, open, and rejected.