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Flight Operations Segment (FOS) Release A Instrument Support Terminal (IST) Toolkit Sun Installation Procedures ECS Project

White Paper

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Abstract

This document serves as a companion document to the Flight Operations Segment (FOS) Release A Instrument Support Terminal (IST) Toolkit Release Notes and the FOS Operations Tools Manual for the ECS Project and provides instructions and information on installation of the IST Release A toolkit software. These installation procedures describe the hardware and software configuration required to support the installation and operation of the software. This document is unique to FOS Release A IST operations and includes information not covered in the FOS Operations Tools Manual.

Keywords: Installation, IST, FOS, software, hardware.

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Abbreviations and Acronyms

1. Introduction

1.1 Purpose

This installation guide provides information and instructions necessary to install, configure and start up the FOS Release A Instrument Support Terminal (IST) toolkit software in a Sun Microsystems operating environment.

1.2 Organization

This White Paper is organized as follows:

- Section 1 defines the purpose, organization, review and approval process for this document.
- Section 2 lists related documents required for the installation or operation of the IST toolkit software.
- Section 3 describes how to install, configure, and start the IST toolkit software.
- Section 4 illustrates how to checkout the IST toolkit
- Section 5 documents the executable and data files included in the IST toolkit.

1.3 Review and Approval

This White Paper is an informal document approved at the FOS Office Manager level. It does not require formal Government review or approval; however, it is submitted with the intent that review and comments will be forthcoming.

The ideas expressed in this White Paper are valid for Release A of IST toolkit software. The concepts and information presented in this paper are not expected to migrate into a formal CDRL delivery.

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2. Related Documents

2.1 Related Documents

The following documents provide additional information required for the operation of the IST toolkit software:

343-WP-001-002	Flight Operations Segment (FOS) Release A Instrument Support Terminal (IST) Toolkit Release Notes for the ECS Project, February 28, 1997
609-CD-005-002	Flight Operations Segment (FOS) Tools Manual for the ECS Project, February 27, 1997

The Flight Operations Segment (FOS) Release A Instrument Support Terminal (IST) Toolkit Release Notes for the ECS Project identifies the subset of capabilities outlined in the FOS Operations Segment Tools Manual for the ECS Project which are applicable to Release A IST operations.

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3. IST Toolkit Installation

3.1 Introduction

The FOS IST toolkit software may be installed from a 4-mm digital audio tape (DAT) or via FTP transfer. The following steps describe a typical standalone installation in a Sun Microsystems operating environment from a 4 mm DAT.

3.2 Workstation Requirements

1. SUN Microsystems SPARC 20 (or later model).
2. 64 to 128 Megabytes of RAM, 128 Megabytes recommended.
3. 6 Gigabyte fixed disk space for executable, database and user file storage.
4. Solaris 2.5.1 operating system with vendor recommended patches.
5. 20-inch graphics monitor capable of 1280 x 1024 screen resolution.

3.3 Software Requirements

The workstation must have the following software installed:

1. X11R5
2. Motif 1.2.3 or Solaris 2.5 Common Desktop Environment (CDE)
3. Sybase Client Version 10.0.3 (Sybase Corporation)

3.4 System Changes

3.4.1 Create a New User Account

The System Administrator should create a new user account called ***fosops*** with its own home directory for installation of the FOS IST toolkit software. In these installation procedures, the fosops home directory is referred to as {fosops home}. Where {fosops home} appears in a directory name, the installer should substitute the actual fosops home directory.

3.4.2 Modify the /etc/services File

Add the following 5 lines to the /etc/services file:

```
msg-srv1    5110/tcp
msg-srv2    5111/tcp
msg-srv3    5112/tcp
msg-srv4    5113/tcp
msg-srv5    5114/tcp
```

3.4.3 Create Links to Solaris 2.5 CDE Motif Libraries

If Motif 1.2.3 is installed, it is not necessary to create these links - proceed to paragraph 3.5. If Motif 1.2.3 is not installed, create links to the Solaris 2.5 CDE Motif libraries.

1. Change the directory to /usr/dt/lib.

   cd /usr/dt/lib

2. Create a link to libXm.so.3.

   ln -s libXm.so.3 libXm.so.2

3. Create a link to libMrm.so.3.

   ln -s libMrm.so.3 libMrm.so.2

3.5 Install the IST Toolkit Software

3.5.1 Copy the IST Tape Archive (TAR) file to the home directory

1. Log on to the workstation as *fosops*.

2. Open a terminal window and change to the {fosops home} directory by entering:

   cd

3. From the fosops home directory create the subdirectories fos, fos/istproto, pages and procs by entering the following command:

   mkdir fos fos/istproto pages procs

4. Change to the {fosops home}/fos/istproto directory. Insert the 4-mm DAT IST toolkit tape into the tape drive, copy the ISTDELIVERY.tar file to the …/istproto directory, and expand the ISTDELIVERY.tar file by entering the following commands:

   cd {fosops home}/fos/istproto

   tar -xf /dev/rst4

   tar -xvf ISTDELIVERY.tar

5. In the fos/istproto subdirectory, create a symbolic link from AM1 to am1 by entering:

   ln -s am1 AM1

3.5.2 Update Files with Site Specific References

Update or create the files in Table 3.1 as described in 3.5.2.1 through 3.5.2.8.

Table 3-1. Data Files to be Updated

File Name	Function
FosEnvVars	Sets environment variables.
IST_UserStationStartup	Starts the user station in connected mode.
IST_Standalone	Starts the user station in standalone mode.
MyKill	Shuts down the user station processes.
fos_sybsetup.script	Specifies Sybase database configuration.
data.db	Specifies the Real Time server and user stations.

3.5.2.1 Update the FosEnvVars File

Change to the {fosops home}/fos/istproto/am1/scripts/setup directory and edit the FosEnvVars file.

1. Update "setenv FOS…" as follows:

   setenv FOS_ROOT {fosops home}/fos

3.5.2.2 Update the IST_UserStationStartup File

Edit the IST_UserStationStartup file.

1. Update "setenv FOS_ROOT…" as follows:

   setenv FOS_ROOT {fosops home}/fos

3.5.2.3 Update the IST_Standalone File

Edit the IST_Standalone file.

1. Update "setenv FOS_ROOT…" as follows:

   setenv FOS_ROOT {fosops home}/fos

3.5.2.4 Update the MyKill File

Edit the MyKill file.

1. Update the "set commonpath =..." statement as follows:

   set commonpath = "/fos/istproto"

3.5.2.5 Update the fos_sybsetup.script File

Edit the fos_sybsetup.script file.

1. Update “setenv SYBASE…” as follows:

   setenv SYBASE /{directory where sybase is installed}

2. Update the “switch” statement, substituting the host computer name for {host machine name}:

```
switch (`uname -n`)
        case {host machine name}*:
                setenv DSQUERY fos1_srvr
                setenv PDB_DIR /fos/istproto/am1/pdb
                breaksw
endsw
```

3.5.2.6 Create a Link to evtdis.uid

1. Remove the existing link.

   rm evtdis.uid

2. Create a new link.

   ln -s {fosops home}/fos/istproto/am1/bin/sun_sparc_5-5/evtdis.uid evtdis.uid

3.5.2.7 Update the data.db File

Change to the {fosops home}/fos/istproto/am1/config directory and update the data.db file.

1. Update the data.db file to include the following 2 lines only. Substitute the name of the host computer for {host machine name}.

```
foseoc6              1 1
{host machine name}  2 0
```

3.5.2.8 Create a fos-services File

1. Change to the {fosops home}/fos/istproto/am1/data directory and copy the example.fos-services file as follows, substituting the actual host computer name for {host machine name}:

   cp example.fos-services {host machine name}.fos-services

2. Update the first 2 lines of the new fos-services file, substituting the actual host computer name for {host machine name}:

epserver	*9995/tcp*	*{host machine name}*
evhandler	*9996/tcp*	*{host machine name}*

3.5.3 Set up FOS User Interface page*.dat Files

Set up FOS User Interface (FUI) pageSystem.dat and pageUser.dat files.

1. If this is an initial installation, go on to step (2). If this is a reinstallation and a backup of the files in the {fosops home}/pages directory exists, restore the user's page definitions by copying the backup files to the {fosops home}/pages directory. If no backup of the {fosops home}/pages directory exists, go on to step (2).

2. Set up FOS User Interface (FUI) pageSystem.dat and pageUser.dat files.

   a. Change to the {fosops home}/fos/istproto/am1/scripts/setup directory and enter:

      setenv SCRIPT UserStation

   b. Enter the following command:

      source FosEnvVars

   c. Change the directory to ../../bin/sun_sparc_5-5 and enter:

      DisplayBuilder -pageNoIPC

      The Display Builder Tool starts.

   d. Select **Open** under the File menu of the Display Builder window. The display selection dialog is displayed. In the Filter text entry box of the dialog box, type the following directory:

      {fosops home}/fos/istproto/am1/displaydefs

      Click on the **Filter** button.

      Select <u>any</u> display in the selection dialog, e.g., **ALPHA1**.

      Click on the **OK** button.

   e. Select **Save** under the File menu of the Display Builder window.

   f. Select **Build to CM** under the File menu of the Display Builder window.

      This creates a file called pageSystem.dat under the …/am1/displaydefs directory.

g. Select **Open** under the File menu of the Display Builder window. The display selection dialog is displayed. In the Filter text entry box of the dialog, type the following directory:

   {fosops home}/fos/istproto/am1/displaydefs

   Click on the **Filter** button.

   Select any display in the selection dialog, e.g., **ALPHA1**.

   Click on the **OK** button.

h. Select **Save As** under the File menu of the Display Builder window. Save the file as {fosops home}/pages/ALPHA1.

i. Select **Build to Local** under the File menu of the Display Builder window.

   This creates a file called pageUser.dat under the {fosops home}/pages directory.

3.5.4 IST Startup in the Standalone Mode

1. Change to the {fosops home}/fos/istproto/am1/scripts/setup directory and run the Standalone Startup script.

   source IST_Standalone

2. At completion of software startup, the terminal window and IST display windows may be iconified.

Error messages relating to Sybase functions are acceptable in the standalone mode when the Sybase database is not available. A message is provided to indicate that end points are being registered in a local repository.

3.5.5 IST Startup in the Connected Mode

1. Change to the {fosops home}/fos/istproto/am1/scripts/setup directory and run the User Station Startup script.

   source IST_UserStationStartup

2. At completion of software startup, the terminal window and IST display windows may be iconified.

3.5.6 IST Workstation Shutdown

1. To end the IST session, open a terminal window and enter the following command at the *{fosops home}/fos/istproto/am1/scripts/setup* directory:

   MyKill

2. To verify all FOS processes have terminated, enter:

   /usr/bin/ps -ef | grep fos

   All processes which are still running will be listed on the screen. Table 5-1 lists FOS processes initiated during User Station startup. If any of these FOS processes are still running, follow the instructions for terminating FOS processes in paragraph 3.5.7.

3.5.7 FOS Process Termination

In exceptional cases, the MyKill script will not terminate all FOS processes. If a FOS process remains active after the MyKill script is run, perform the procedure below to terminate the remaining FOS processes. This procedure should be used only when the MyKill script fails.

1. To list the remaining FOS processes enter:

   /usr/bin/ps -ef | grep fos

2. For each remaining FOS process listed on the screen, starting with the process with the highest process ID, type:

   kill -2 <processid>

3. Validate no FOS processes are running by entering:

   /usr/bin/ps -ef | grep fos

4. For any FOS process listed on the screen, starting with the process with the highest process ID, type:

   kill -9 <processid>

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4. IST Toolkit Checkout

4.1 IST Installation Checkout

The procedures described in this section verify installation and operation of the IST toolkit software. If any error messages are produced during this checkout, refer to Appendix B of the FOS Operations Tools Manual to identify the error in the table of event message definitions.

4.1.1 Connected Mode

The Control Window opens once the operator runs the IST_UserStationStartup script. The Room buttons (**R1**, **R2**, …, **R6**) and Procedures menu (**Procs…**) on the Control Window are not operational. Click on the **Mini Ctrl** button to switch to the Mini Control Window. Open and close the Procedure Builder, Display Builder and Room Builder Tools by clicking on the appropriate options under the Tools menu of the Control or Mini Control Windows. Click on the **Help** button to launch Netscape to a generic list of help topics. Click on the Event Window to validate event messages are displayed.

The planning and scheduling tools are started via the IST_UserStationStartup script. Iconify the Activity Definer, Baseline Activity Profile (BAP) Definer, General Scheduler and Timeline Tools.

4.1.2 Standalone Mode

Open and close the Procedure Builder, Display Builder and Room Builder Tools by clicking on the appropriate options under the Tools menu of the Control or Mini Control Widows.

The planning and scheduling tools are started via the IST_Standalone startup script. Iconify the Activity Definer, Baseline Activity Profile (BAP) Definer, General Scheduler and Timeline Tools.

4.2 IST Problem Reporting

Procedures for the submission of problem reports related to the functionality of the Release A toolkit will be addressed under separate correspondence.

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5. IST Deliverable File Set

5.1 IST Toolkit Executable Files

The following files are required for the installation and operation of the IST toolkit.

Table 5-1. IST Toolkit Deliverable Executable Files

Executable File Name	Executable File Name (cont.)
CmdControl	FpNsNameServer
dir.lis	FpRmResourceModel
DisplayBuilder	FpTlTimeline
DynamicPage	FrGrStringMgr
evtdis.uid	FrRpRepeater
FaAcCruncher	FtDcDecom
FaDrReaderDriver	FtDcDecomISTOrig
FaRmRequestManager	FuAnBuild
FdDbOdfTable	FuAnHandler
FdDbTableDefSrv	FuCwControlWindow
FdEvEventHandler	FuDbWriteDefs
FoNsNameServer	FuEcEnvCtrl
FoPsParameterServer	FuEvEvtdis
FoRfReflector	FuLbTableLoadBuilder
FoRfReflectorISTOrig	FuLmLoadManager
FoSwNameServerSweeper	FuPbProcBuilderWin
FpAdActivityDefiner	FuPcProcController
FpBpBapDefiner	FuRbRoomBuilder
FpEhEventHandler	RmsUpOdf
FpEsAsterFilter	sns
FpGsGeneralScheduler	TlmRetriever

5.2 IST Toolkit Data Files

Table 5-2. IST Toolkit Deliverable Data Files (1 of 2)

Data File Name	Data File Name (cont.)	Data File Name (cont.)	Data File Name (cont.)
.EclTemplate	display page definitions (in ../displaydefs directory)	opscene.htlm	st_rm
.Xdefaults {from /home/fosint2}	disposition	orb.aos.db	st_sns
act.db	disposition.pms	orb.los.db	st_tl
ActDef	etlConfig.db	orb.sunrise.db	state.db
Alarm	EUConv	orb.sunset.db	state.db_reinit
Alarm.pms	EUConv.pms	orbitEventB.dat	Status
alloc.db	event.dat	P5Test	status
alloc.db_reinit	event.db	P5Test.pms	Status.pms
ALPHA1	EventOdf_1.0	pageSystem.dat	status.pms
ALPHA1.pms	evtfilter.fdl	ParmDataOdf_1.0	STBYonly
AnalysisOdf_1.0	FixPreferences	PidsOdf_1.0	STBYonly.pms
appropriate fos-services file (Configured for the user account and unique IST host machine.)	forward.html	plan.db	subsys.dat
Aster	fos_dba_env.script	plot1	SystemOdf_1.0
Aster.pms	fos_sybsetup.script	plot1.pms	SystemPidsOdf_1.0
asteract.db	FosArch	rconn.db	test_table1
ATCLOADGEN	FosEnvVars	RealTime	test_table1.pms
back.html	FosHome.html	RealTime.graph	test12
BAP	FosNetscape	RealTime.pms	test12.pms
bap.db	FpTlXtl	RealTime.table	tlm_calcurve_005.pdb
cdm_fixdata_005.pdb	FuiCommandOdf_1.0	Replay	tlm_calcurve_006.pdb
cdm_fixdata_006.pdb	gchw.db	Replay.pms	tlm_delta_005.pdb
cfgops	GcmrOdf_1.0	ReqManState.dat	tlm_delta_006.pdb
cmd_fixdata_006.pdb	GcmrResponse	roomSystem.dat	tlm_desc_005.pdb
cfgops.pms	GcmrResponse.pms	roomUser.dat	tlm_desc_006.pdb
cfgtest	gcuser.db	rs.db	tlm_dstate_005.pdb
cfgtest.pms	GenSched	RTS	tlm_dstate_006.pdb
cfgtest1	Header	RTS.pms	tlm_lgdesc_005.pdb
cfgtest1.pms	Header.pms	sc.dat	tlm_lgdesc_006.pdb
cfgtrain1	HKonly	Sim	tlm_limsel_005.pdb
cfgtrain1.pms	HKonly.pms	Sim.pms	tlm_limsel_006.pdb
cmd_desc_005.pdb	hw.db	srs.db	tlm_parm_005.pdb
cmd_desc_006.pdb	IST_Standalone	srsconn.db	tlm_parm_006.pdb

Table 5-2. IST Toolkit Deliverable Data Files (2 of 2)

Data File Name	Data File Name	Data File Name	Data File Name
cmd_lgdesc_005.pdb	IST_UserStationStartup	st_ad	tlm_polyconv_005.pdb
cmd_lgdesc_006.pdb	jonspage	st_bd	tlm_polyconv_006.pdb
cmd_parm_005.pdb	jonspage.pms	st_cmdActs	tlm_rylim_005.pdb
cmd_parm_006.pdb	MachArch	st_cmds	tlm_rylim_006.pdb
cmd_vardata_005.pdb	mode.db	st_eh	Tlm16kDiagOdf_1.0
cmd_vardata_006.pdb	MyKill	st_fs	Tlm1kDiagOdf_1.0
cmd_verify_005.pdb	myRealTime.table	st_fs2	TlmCmdFilterKeys.odf
cmd_verify_006.pdb	myRealTime.table.pms	st_fs3	TlmCtiuOdf_1.0
cmdproc.db	Myrequest2.data	st_fs4	TLMDecom
CmdSelectFilterOdf_1.0	Myrequest2.meta	st_fs5	TlmDecom
CMS	Myrequest2.out	st_fs6	TLMDecom.pms
command.db	ncc_com	st_fs7	TlmDecom.pms
CommandOdf_1.0	ncc_com.pms	st_fs9	TlmHealthOdf_1.0
config.dat	ncc_test	st_gs	TlmHouseOdf_1.0
data.db	ncc_test.pms	st_lg	TlmSelectFilterOdf_1.0
DirKeywords.dat	NccConfig.data	st_lq	toolSystem.dat
		st_ns	user.db

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Abbreviations and Acronyms

BAP	Baseline Activity Profile
CM	configuration management
DAT	digital audio tape
ECS	EOSDIS Core System
EOSDIS	Earth Observing System Data and Information System
FOS	Flight Operations Segment
FTP	File Transfer Protocol
FUI	FOS User Interface
IST	Instrument Support Terminal
RAM	random access memory
TAR	tape archive

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