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Flight Operations Segment (FOS) Release B Version 2.02.00 System and Instrument Support Terminal (IST) Toolkit Release Notes for the ECS Project

White Paper

April 1998

Prepared Under Contract NAS5-60000

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Abstract

This document serves as a companion document to the Flight Operations Segment (FOS) Operations Tools Manual for the ECS Project to provide the information needed to operate the Release B FOS System and Instrument Support Terminal (IST) toolkit software. This document also provides Release B IST users with information that is unique to FOS Release B IST operations (i.e., IST-unique startup procedures, IST problem reporting) that is not covered in the FOS Operations Tools Manual.

Keywords: User's, Manual, tools, IST, FOS, Operations, EOC

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Abbreviations and Acronyms

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1. Introduction

1.1 Purpose

The purpose of the Flight Operations Segment (FOS) Release B Version 2.02.00 System and Instrument Support Terminal (IST) Toolkit Release Notes for the ECS Project is to provide FOS users with information on the EOSDIS Core System (ECS) Software and unique IST toolkit functionality.

The FOS Operations Tools Manual for the ECS Project serves as the users' guide for the entire set of FOS Software delivered to the EOS Operations Center (EOC) for Release B Version 2.02.00. The ECS IST consists of a subset of the FOS software delivered to the EOC. The FOS Release B Version 2.02.00 System and IST Toolkit Release Notes serves as a companion document to the FOS Operations Tools Manual in that it identifies the overall system and portions of the FOS Operations Tools Manual that are applicable to unique IST software functions.

This document also provides IST users with information that is unique to FOS Release B IST operations (i.e., IST-unique startup procedures, IST problem reporting) that is not covered in the FOS Operations Tools Manual.

1.2 Organization

This paper is organized as follows:

a. Section 1 provides information regarding the purpose, organization, review, and approval of this document.

b. Section 2 provides an overview of FOS Release B Version 2.02.00 System functionality, limitations, and workarounds.

c. Section 3 provides an overview of Release B Version 2.02.00 IST Unique functionality, limitations, and workarounds where applicable.

d. Section 4 describes the applicability of the FOS Operations Tools Manual to operations and tools of the Release B IST toolkit.

e. Section 5 provides instructions on IST Trouble Ticket reporting.

f. The document concludes with a list of Abbreviations and Acronyms. This is an alphabetized list of definitions for abbreviations and acronyms used in this document.

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 concepts presented here are expected to migrate into the FOS Operations Tools Manual for the ECS Project.

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2. FOS Release B System Functionality

2.1 Overview

FOS Release B Version 2.02.00 consists of the FOS software which has been delivered to support critical interface tests and to demonstrate system functionality. The document which describes the FOS functionality for FOS Release B is the Flight Operations Segment (FOS) Release Plan and Development Plan for the ECS Project. FOS Release B Version 2.02.00 consists of functional and performance enhancements which are required to support full EOS AM1 mission operations. In addition it will support Mission Systems test and simulation activities.

This section of the document provides a description of the overall functions available in the FOS Release B Version 2.02.00. The FOS Release B Version 2.02.00 software which has been delivered to the EOC is described in the FOS Release B Version 2.02.00 Version Description Document (VDD) for the ECS Project. The FOS Release B Version 2.02.00 VDD describes the contents of the latest version of the FOS Release B software, including COTS, custom FOS ECS software, and accompanying documentation.

2.2 Non Conformance Reports for FOS Release B

Open Non Conformance Reports (NCRs) related to FOS Release B Version 2.02.00 are tracked in the ECS Distributed Defect Tracking System (DDTS). Open NCRs are summarized in the FOS Monthly Tabulation of Software Errors for the ECS Project.

2.3 Release B Version 2.02.00 System Functionality, Limitations & Workarounds

Release B Version 2.02.00 System functionality, limitations and workarounds (where applicable) are summarized in Table 2.3-1. For additional details refer to the FOS Operations Tools Manual.

Table 2-1. Release B Version 2.02.00 System Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Scheduling	Activity Definer	Include commands & submnemonics	Full Functionality.		
Scheduling	Activity Definer	Include procedures & parameters	Full Functionality.	Schedule activities which include procedures are fully functional; user is able to save and modify.	
Scheduling	Activity Definer	Identify mode transitions	Full Functionality.		
Scheduling	Activity Definer	Identify power/data rate usage	Full Functionality.		
Scheduling	Activity Definer	Add, delete, modify activity definitions	Full Functionality.		
Scheduling	Timeline	Recycle activities	Full Functionality.		
Scheduling	Timeline	Control user privileges	Full Functionality.		
Scheduling	Timeline	Create & update FDF events	Full Functionality.	The user can also use a PAS tool st_fdd to create random orbital events on the timeline.	
Scheduling	Timeline	Show predicted data volume usage & conflicts	Full Functionality.		
Scheduling	Timeline	Show predicted power usage & conflicts	Full Functionality.		
Scheduling	Timeline	Schedule BAPs	Full Functionality.		
Scheduling	Timeline	Search for scheduled activity	Full Functionality.		
Scheduling	Timeline	Schedule activities by time	Full Functionality.		
Scheduling	Timeline	Schedule activities by mission event	Full Functionality.		
Scheduling	Timeline	Delete activities from schedule	Full Functionality.		
Scheduling	Timeline	Flag conflicts	Full Functionality.		
Scheduling	Timeline	Display mission events	Full Functionality.		
Scheduling	Timeline	Modify scheduled activities	Full Functionality.		
Scheduling	Timeline	Specify/modify activity parameters	Full Functionality.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Scheduling	Timeline	View/scroll schedule	Full Functionality.		
Scheduling	Uplink Scheduling	Verify existence of valid load	Full Functionality.		
Scheduling	Uplink Scheduling	Specify uplink window	Full Functionality.		
Scheduling	ASTER Filter	Handle Late Changes	Full Functionality.		
Scheduling	ASTER Filter	Send PRS, ACS & DAS	Partial Functionality.	Aster DAS Report not ftped. DAS must be provided to DMS and ISTs automatically by PAS. Resource Name, Activity ID, and Constraint Start/Stop Times should be included in PRS/ACS files.	
Scheduling	ASTER Filter	Receive Request for Schedules	Full Functionality.		
Scheduling	ASTER Filter	Receive ODS, STS	Partial Functionality.	Looping when running detfile with two ODS files simultaneously.	
Scheduling	CERES-unique	Determine the number of scans between sunrise & sunset	Partial Functionality.	Additional data required.	
Scheduling	CERES-unique	Unique CERES Events (computed from FDD)	.		
Scheduling	Constraint Definer	Define "order" constraints	Full Functionality.		
Scheduling	Constraint Definer	Flag when sun is in instrument FOV	Full Functionality.		
Scheduling	Constraint Definer	Create, modify, delete activity-level constraints	Full Functionality.		
Scheduling	Constraint Definer	Define "time spacing" constraints	Full Functionality.		
Scheduling	Detailed Activity Schedule Generation	Restrict privileges	Full Functionality.		
Scheduling	Detailed Activity Schedule Generation	Define start/end times	Full Functionality.		
Scheduling	Detailed Activity	Release DAS in 10	Partial Functionality.	Resource model dies	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
	Schedule Generation	minutes (1000 activities)		when extreme number of activities are scheduled.	
Scheduling	Detailed Activity Schedule Generation	Disallow hard constraints	Full Functionality.		
Scheduling	Detailed Activity Schedule Generation	Flag hard & soft constraints	Full Functionality.		
Scheduling	General Scheduler	Schedule activities by time	Full Functionality.		
Scheduling	General Scheduler	Control user privileges	Full Functionality.		
Scheduling	General Scheduler	Schedule activities by mission event	Full Functionality.		
Scheduling	General Scheduler	Delete activities from schedule	Partial Functionality.	CERES activities when deleted causes the RM to crash.	
Scheduling	General Scheduler	Schedule BAPs	Full Functionality.		
Scheduling	General Scheduler	Flag conflicts	Full Functionality.		
Scheduling	General Scheduler	Schedule activity in 4 seconds	Full Functionality.		
Scheduling	General Scheduler	Recycle activities	Full Functionality.		
Scheduling	General Scheduler	Modify scheduled activities	Full Functionality.		
Scheduling	General Scheduler	Specify/modify activity parameters	Full Functionality.		
Scheduling	MISR Local Mode	ASTER Filter capabilities	Partial Functionality.	MISR can use the ASTER filter but the naming convention has to follow the format in the ASTER ICD.	
Scheduling	MISR Local Mode	Generate local mode events	Full Functionality.		
Scheduling	Reports	Graphical timeline plot	Full Functionality.		
Scheduling	Reports	Hardcopy of constraint event messages	Full Functionality.		
Scheduling	Reports	Mission schedule summary report	Full Functionality.		
Scheduling	Resource Modeling	Allocate SSR data volume	Full Functionality.		
Command	BC Commanding	BC Commands	Full Functionality.		
Command	Procedure Control	Start, stop, suspend, resume procs;	Partial Functionality.	Local Procedures do not work all the time	None

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		execute multiple local procs simulaneously; one ground control proc per string; monitor/control proc execution		with Procedure Controller.	
Command	CLCW Processing	Command Receipt Verification	Full Functionality.		
Command	CLCW Processing	Display CLCW parameters	Full Functionality.		
Command	Command Archive	Archive uplinked commands	Full Functionality.		
Command	Command Control	Select, enable, disable, jump, apply bias; confirm/cancel commands	Partial Functionality.	Set jump has inconsistencies.	None
Command	Command Control	Display ground script modes/status; countdown timer; execute directives at time tag; display cmd statuses; configure ground script modes	Capability does not exist.	Ground scripts do not work with new Directive Controller.	None
Command	Command Control	Start, stop, resume, suspend, search, print, save ground scripts	Partial Functionality.	Ground Scripts do not work with new Directive Controller.	None
Command	Command Control	Search ground script for cmds, procs;			
Command	Command Control	Merge cmds & procs into ground script	Full Functionality.		
Command	Command Requests	Generate cmd request (cmds, procs, instructions); submit to ops controller for approval, notify user of status; merge into ground script; display syntax/validation status	Partial Functionality.	Merge into ground script needs to be verified. (10 Feb)	
Command	Commanding	Command retransmission	Full Functionality.		
Command	Commanding	Hazardous Commands	Full Functionality.		
Command	Commanding	View binary format	Full Functionality.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Command	Commanding	Telemetry verification notification	Partial Functionality.	Needs further verification.	
Command	Commanding	Telemetry verification timeout value	Partial Functionality.	Needs further verification.	
Command	Commanding	2 kbps uplink	Full Functionality.		
Command	Commanding	1 kbps uplink	Full Functionality.		
Command	Commanding	125 bps uplink	Full Functionality.		
Command	Commanding	Handle binary/hex cmds as Critical	Full Functionality.		
Command	Commanding	Command CTIU1/CTIU2	Full Functionality.		
Command	Commanding	Critical Commands	Full Functionality.		
Command	Commanding	Manual commanding	Full Functionality.		
Command	Commanding	Prereq State check ∞ override			
Command	Commanding	Command procedure execution	Partial Functionality.	Stability concerns with Directive Controller/Window	None
Command	Commanding	Ground script commanding	Partial Functionality.	Stability concerns with Directive Controller/Window.	None
Command	Commanding	Format CCSDS commands	Full Functionality.		
Command	Commanding	Attach EDOS Header	Full Functionality.		
Command	Commanding	Command parameters/ subfields			
Command	Commanding	Prereq State check ∞ up to 4 points			
Command	Commanding	Specify uplink rate	Full Functionality.		
Command	FOP Control	FOP control	Full Functionality.		
Command	Ground Script Generation	Verify loads are available for uplink	Full Functionality.		
Command	Ground Script Generation	Generate ground Script	Full Functionality.		
Command	Ground Script Generation	Annotate scheduled stored commands	Full Functionality.		
Command	Ground Script Generation	Identify hard & soft constraints	Full Functionality.		
Command	Ground Script Generation	Constraint check Ground Script	Partial Functionality.		
Command	Ground Script Generation	Generate Integrated Report	Needs to be tested.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Command	Ground Script Generation	Include DAS ground directives in ground script	Full Functionality.		
Command	Ground Script Display	Display list of available ground scripts; display ground script; flag critical cmds; print ground script with expanded procs	Partial Functionality.	Further verification needed.	
Command	Load Uplink	Uplink ATC load	Full Functionality.		
Command	Load Uplink	Uplink binary load	Full Functionality.		
Command	Load Uplink	Uplink RTS load	Full Functionality.		
Command	Load Uplink	Uplink Table load	Full Functionality.		
Telemetry	Alphanumeric Displays	Descriptors, labels, telemetry values (converted, decoded, raw); static flags; limits; octal, binary, hex format; select & change formats of parameters	Full Functionality. (Data Source Selector)		
Telemetry	Alphanumeric Displays	Select update rate; pause/resume display; specify data source; create temporary displays	Selecting update rate is working correctly.	User is not able to bring up dialog box to pause/resume display or specificy data source. Not able to create temporary displays.	
Telemetry	Decom	Derived parameters	Partial Functionality for Derived parameters.	Problems with Derived Parameter Test Data at EOC.	
Telemetry	Decom	EU conversion	Full Functionality.	User is able to decom EU converted parameters as well as change the conversion equation or coefficients for the parameters.	
Telemetry	Decom	1 kbps Standby tlm	Full Functionality.	Works on both the I and Q channels.	
Telemetry	Decom	16kbps HK	Full Functionality.	Works on both the I and Q channels.	
Telemetry	Decom	1 kbps H&S	Full Functionality.	Works on both the I and Q channels.	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Telemetry	Graphs	Value vs. time; value vs. value; display limits; axes; 6 parameters per graph; 2D/3D graphs	Partial Functionality.	Able to build the 2D graphs, but not able to receive updates when telemetry is received. 2-D graphs can be built and saved.	
Telemetry	Graphs	Min/max/current values; select values; zoom; specify graph display parameters	Full Functionality.	Able to get graphs to update when telemetry is being received. The user is able to check Min/max/current value for graphs	
Telemetry	Decom	Check & Report High/Low, Delta limits	Full Functionality.	Delta limit event messages and flags on alphanumeric displays are functioning. User is also able to change an existing delta limit for a parameter via ECL directive.	
Telemetry	Decom	Adjust parameter limits	Partial Functionality.	Adjustment of R/Y high/low limits for parameters via ECL directive is working correctly. Not receiving event message for parameters without RY limits.	
Telemetry	Decom	Decom non∞ contiguous bits	Full Functionality.		
Telemetry	Decom	Annotate static telemetry on displays	Full Functionality.	Occasionally the alphanumeric display leaves one or two parameters active longer than others.	
Telemetry	Decom	Receive/ display telemetry	Full Functionality.	Telemetry receipt/display works on alphanumeric display pages, but not on tables or graphs.	
Telemetry	Decom	Process RT data up to 50kbps	Full Functionality.	Processing at this rate, however, causes a decline in system	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				performance from a speed standpoint.	
Telemetry	Decom	Decom Context-Dependent Tlm	Full Functionality.	EU, raw, up to 16 ranges, limits, etc. are fully functional. Context. Dep. Parameters decommutated correctly.	
Telemetry	Decom	Exclude processing of duplicate CERES data	Duplicate CERES data is not processed.		
Telemetry	Info Window	View database info about mnemonics	Partial Functionality.	No information appears in the Info∞ window. Parameters, values, limits, etc not appearing. Info-Window appears, but is greyed out.	
Telemetry	Quick Analysis	Analysis/ display of real time telemetry	Full Functionality.		
Telemetry	Schematics	See rqmts…	Partial Functionality.	The Schematic builder does not open due to the expiration of the license for RTdraw. Spoke with system admin. And should be fixed right away. With license, schematic pages can be designed via the Schematic Display tool. Telemetry can be monitored and the update rate can changed be running rtdraw (refer to the workaround). Schematic builder does not open via tools menu.	Change to the …/scripts/setup directory and enter the following commands from an xterm window 1) setenv SCRIPT UserStation 2) source FosEnvVars 3) rtdraw. To start the schematic page updating, click Cmds and select Load View. Disregard the error message, "Current view not saved, retrieve anyway" and respond "Yes". Type the name of the page you wish to open or click Browse to open a list of available files. Click the run

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					button on the left.
Telemetry	Status Window & Wall clocks	Status window	Full Functionality.		
Telemetry	Status Window & Wall clocks	Wall clocks	Full Functionality.		
Telemetry	Tables	Up to 50 parameters; up to 300 rows of data; mnemonics/descriptors	Full Functionality.	Tables do not update when telemetry is received. It also flows Zero's when telemetry is not being received. This causes false readings for the user. Needs to be fixed.	
Data Archive	Decom	Archive Real-Time telemetry	Partial Functionality.	All types of telemetry archive in the integration area of the Mini-EOC and on the Support LAN at the EOC, but not on the OPS LAN at the EOC. Archives sporadically on the OPS LAN.	
Data Archive	Telemetry Archive	Receive/merge/archive Rate Buffered File from EDOS	Partial Functionality.	Reception of rate buffer file is good. Archive works. Archive/merge for RBD files works, but needs to work to go across hours and insert in middle of file.	
Replay	Replay	Process replay data up to 150 kbps	Capability does not exist.	Cannot replay telemetry. The replay submission request is correct, but the replay controller hangs when submit button is pushed.	
Replay	Replay	Replay telemetry from archive	Capability does not exist.	Telemetry replay control window appears, but the replay control window hangs when the user pushes the submit button to replay the telemetry.	
Replay	Replay	Specify replay rate	Capability does not	The button does exist	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
			exist.	on the replay control window, but not able to utilize it due to previous fields.	
Replay	Replay archived telemetry	Replay archived telemetry	Capability does not exist.	Not able to replay archived telemetry. The replay control window appears, and user is able to submit request, but is not able to replay data.	
Replay	Replay Controller	Specify replay parameters, pause/reset replay	Capability does not exist.	Replay control window appears, and user can submit replay request, and submit play request, but not able to actually replay the telemetry.	
Replay	Replay ground telemetry	Replay ground telemetry	Capability does not exist.	Replay request not processed. Replay controller just hangs there.	
State Check	State Check	Create expected state table	Full Functionality.		
State Check	State Check	Compare/ report differences	Full Functionality.		
State Check	State Check	Baseline state values	Full Functionality.		
Startup	IST Pool Management	Manage IST connections	Partial Functionality.	The IST Pool Management and User Roles need to be expanded to include other ISTs (i.e., Valley Forge). IST Pool Management capabilities are available. However, since the connection figures do not increment and decriment accurately, the Pool manager cannot effectively manage IST connections.	
Startup	Read-Only IST	Restrict privileges of	Partial Functionality.	Capabilities of read-	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		certain IST users to read-only		only users are properly limited to read-only. However, read-only users can perform Planning and Scheduling functions.	
Startup	User Authentication	Login screen, specify users/roles, access control	Partial Functionality.	Users are authenticated properly. Depending on the user role selected, the functionality associated with FOS tools accessible from the Control Window is properly limited, except for the Directive Control Window and the 8 Planning & Scheduling Tools, i.e., Activity Definer, Activity Recycler, BAP Definer, Constraint Definer, Contact Scheduler, General Scheduler, Load Generator, and Timeline.	At present, user authorization for the 8 Planning & Scheduling tools only, i.e., Activity Definer, Activity Recycler, BAP Definer, Constraint Definer, Contact Scheduler, General Scheduler, Load Generator, and Timeline, is determined by the "USERROLE" environment variable in the "setup.site" file in the "…/am1/scripts/setup" directory.
Startup	User Login	Authenticate IST Users	Partial Functionality.	IST users are properly authenticated. IST and EOC users can change their passwords when they log in to FOS.Passwords and user names are stored at ISTs and the EOC in encrypted files. Passwords and user names are transferred encrypted to the EOC as part of IST login to FOS. However, when transferring files between the IST and	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				EOC (via FTP), passwords are transferred unencrypted.	
System Administration	Hardware Rqmts	EOC Status	Partial Functionality.	All 36 userstations are not installed in the EOC. Real-Time Server and Data Server software runs on SUN instead of DEC.	
System Administration	Hardware Rqmts	IST Status	Partial Functionality.	IST software runs on SUN only. Ports to HP and SGI have not been completed.	
System Administration	Configuration Management	Configuration management of display pages, BAPs and other configuration controlled items.	Capability does not exist.	The FOT's Standard Operating Procedures (SOPs) for the ECS Project describe configuration management procedures for display pages, BAPs, and all other configuration controlled items. Theoretically, these items are under the FOT's configuration control and migrate to the operational environment only after being approved by FOT CCB. However, these CM procedures have not been implemented. There are currently no CM directories or accounts.	
Desktop	Data Mover	Move files among EOC and ISTs	Partial Functionality.	File transfer capabilities are not currently available between ISTs and the EOC via the Data Mover. Internal file transfer is available via the Data Mover	Use manual ftp.

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				receive function but files must be transferred to the …/am1/transfer directory.	
Desktop	User Customization	Specify & save user customization parameters	Partial Functionality.	Users can associate the function keys with ECL directives, customize application colors and fonts, change the background color of dynamic pages and associate the Control window room buttons with rooms. However, in order to successfully associate a room button with a room, a room must be selected for each of the five room keys. The user's data directory and default printer cannot be customized.	
Desktop	Display Builder	Add, delete, modify display definitions; build to local or global (CM)	Partial Functionality.	The Reset button does not revert to the unedited state. Problem with ParmDataLookup ODF that causes first few and last few parameters of an ODF to appear on Display page as unknown!. A few colors are still not working.	
Desktop	Document Reader	Input, update, delete, browse documents	Full Functionality.		
Desktop	E-Mail	Send email among EOC and ISTs	No Functionality.	E-mail cannot be received at EOC. Misleading Netscape message. Unable to bring up E-	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				Mail from the Tools menu.	
Desktop	On-line Help	Available for all FOS functions	Partial Functionality.	On-line Help is not available for all FOS functions. The On-line Help page of Event Display is not up to date.	
Desktop	Quick Message	Send quick messages	Partial Functionality.	Quick Message Generator - box needs a title.	
Desktop	Screen Management/ Manipulation	Add, delete, modify Room definitions. Manipulate Rooms			
Desktop	Screen Management/ Manipulation	Command line editting; access rooms, windows, tools, procedures; window manipulation; function keys			
Desktop	Selection Filter	See rqmts for capabilities			
Desktop	Time Selection	See rqmts for capabilities			
System Management	Hardware status monitoring	Event msgs for HW status changes	Partial functionality. Resource Monitor (RMS), but not Tivoli, monitors selected hardware resources.	Resource Monitor (RMS) generates event messages for hardware status changes associated with the Real-Time Server(s), and those user stations that have command authority and ground control.	
System Management	IST Pool Management	Report status on IST connections	Full Functionaity. The EOC can determine which IST sites are logged in to FOS.	A user can determine which IST sites are logged in to FOS by accessing the EOC database.	
System Management	Software status monitoring	Event msgs for SW status changes	Full Functionality. FOS processes, but not Tivoli, monitor their status for certain failures.	FOS processes generate event messages if they become "aware" of a status or error code that causes them to	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				fail. Resource Monitor (RMS) generates event messages suggesting failover if a string-related process on the active Real-Time Server fails. If a string-related process on the backup Real-Time Server fails, the Resource Monitor (RMS) generates an event message suggesting deletion of the backup state for the string.	
System Management	String Manager	Failover	Partial Functionality. Telemetry processing continues normally after Real-Time Server failover, but commanding doesn't always work.	When commands are sent while backup Real-Time string processing is on-line (but before failover), the first command often results in an "Invalid User ID…" event message. After Real-Time Server failover, the Directive Control window that had been used prior to failover is "refreshed" with the list of directives. However, the Directive Control window often resumes execution at a previously executed directive. Following failover, the "Send/Cancel" buttons in the Directive Control window are sometimes inactive,	As soon as backup processing is created on the backup Real-Time Server, but before any more commands are sent, switch command authority to another user station, then switch back to the primary commanding user station. If the Directive Control window "Send/Cancel" buttons are not available after failover, click on the "Kill" button. After failover, resume commanding with "FOP TERM" and

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				with the result that commanding cannot continue with this window.	"FOP INIT CHECK".
System Management	String Manager	Support 7 spacecraft	Capability does not exist.		
System Management	String Manager	Default configuration	Full Functionality.		
System Management	String Manager	Replay string	Full Functionality.		
System Management	String Manager	User station connect to string	Full Functionality.		
System Management	String Manager	IST connect to string	Full Functionality.		
System Management	String Manager	Mirrored/ tailored modes	Full Functionality.		
System Management	String Manager	Take command authority	Full Functionality.	A user and EOC userstation that are associated with the Command Activity Controller user role for a given mode can take command for the logical string associated with that mode.	
System Management	String Manager	Ops/test/training strings	Full Functionality.	Real-Time/Test and Simulation Test and Training strings don't always come up due to Activity Log Monitor. Ground Controller can create and delete shared logical strings.	Simulation string requires Database ID in ECL directive.
System Management	String Manager	Take ground control authority	Full Functionality.	A user and EOC user station that are authorized for Ground Controller user role can take ground control for the applicable logical string.	
Analysis Requests	Analysis Requests	Process up to 20 simultaneous requests/ 3 per user	Partial Functionality.	Could only process 2 requests per station.	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		station			
Analysis Requests	Analysis Requests	Maintain analysis request queue/ status	Partial Functionality.	Unable to display queue to verify that analysis can maintain up to 10 requests. Could only report the status of a request as "submitted". All other request statuses ("waiting in queue","currently being processed", and "complete") are non∞ functionable.	In Sybase: select * from fos_request_queue
Analysis Requests	Analysis Requests	Selective decom	Capability does not exist.		
Analysis Requests	Analysis Requests	Process at 12x real time rate	Capability does not exist.		
Analysis Requests	Analysis Request Window	See rqmts…	Capability does not exist.		
Analysis Requests	Analysis Results Window	See rqmts…	Capability does not exist.		
Analysis Requests	Dataset Generation	UPD parameters	Capability does not exist.		
Analysis Requests	Dataset Generation	FDF datasets	Capability does not exist.		
Analysis Requests	Dataset Generation	Specify database for analysis	Capability does not exist.		
Analysis Requests	Dataset Generation	User Algorithm datasets	Partial Functionality.	Unable to select output mnemonics ∞ window blows up.	
Analysis Requests	Dataset Generation	CODAs parameters	Capability does not exist.		
Analysis Requests	Dataset Generation	Flag errors	Full Functionality.		
Analysis Requests	Dataset Generation	Telemetry datasets∞ raw, EU	Full Functionality.	Able to create datasets using raw and EU	
Analysis Requests	Dataset Generation	MMM stats daily, monthly, orbit day/night, orbit	Capability does not exist.		
Analysis Requests	Dataset Generation	Discrete parameter change stats daily, monthly, orbit day/night, orbit	Capability does not exist.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Analysis Requests	Dataset Generation	Parameter out of limits stats daily, monthly, orbit day/night, orbit	Capability does not exist.		
Analysis Requests	Dataset Generation	Derived parameter datasets	Partial Functionality.	Able to generate datasets from derived parameters	
Analysis Requests	Dataset Generation	Carry-out Format	Partial Functionality.	Header is incorrect.	
Analysis Requests	Standing Order Browser	See rqmts…	Capability does not exist.		
Analysis Requests	Standing Order Manager	See rqmts…	Capability does not exist.		
Analysis Requests	System Statistics	Orbit, day/night, daily, monthly, mission-to∞ date for derived parameters	Capability does not exist.		
Analysis Requests	System Statistics	Orbit, day/night, daily, monthly, mission-to∞ date for analog parameters	Capability does not exist.		
Analysis Requests	System Statistics	State changes for discretes (daily, monthly, life-of∞ mission)	Capability does not exist.		
Analysis Requests	System Statistics	Elapsed time in state for discretes (daily, monthly, life-of∞ mission)	Capability does not exist.		
Analysis Requests	System Statistics	EDOS CODAs - real time contact	Capability does not exist.		
Analysis Requests	System Statistics	NCC UPDs - real time contact	Capability does not exist.		
Analysis Requests	System Statistics	FDF data	Capability does not exist.		
What-ifs	General Scheduler	What-if scheduling	Full Functionality.		
What-ifs	Timeline	What-if scheduling	Full Functionality.		
Reports	Analysis Reports	User stats report	Partial Functionality.	Could not generate User stats report for a user specified mission or a user requested time interval through FUI. See workaround. No FUI interface to generate	To create a User Stats report: Use the FaDrReaderDriver and follow the menu prompts. To create a User

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				reports.	stat: 1) open an xterm window, 2) cd to the …/am1/datasets directory, 3) confirm that the Time_Ordered dataset is in the directory, 4) cd to the …/scripts/setup directory and enter the following: setenv SCRIPT UserStation 5) enter the following: source FosEnvVars 6) Execute the FaDrReaderDriver from the bin directory 7) Follow the menu prompts to generate the report.
Reports	Analysis Reports	Parameter out of limits report	Capability does not exist.		
Reports	Analysis Reports	Time Ordered Downlink report	Partial Functionality.	Could not generate TODL report for a user specified mission or a user requested time interval through FUI. See workaround. No FUI interface at this time to generate a report	Use FaDrReaderDriver to generate a TODL report. To create a Time Ordered Downlink Report: 1) open an xterm window, 2) cd to the …/am1/datasets directory, 3) confirm that the Time_Ordered dataset is in the directory, 4) cd to the …/scripts/setup directory and enter the following: setenv SCRIPT UserStation 5)

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					enter the following: source FosEnvVars 6) Execute the FaDrReaderDriver from the bin directory 7) Follow the menu prompts to generate the report.
Reports	Custom Reports	Add, delete, modify report templates; specify fonts, margins, titles	Capability does not exist.		
Reports	Custom Reports	Generate reports using custom or routine templates; insert files, datasets, snaps, text, reports; print/cancel/browse reports	Partial Functionality.	Some users are unable to bring up the Report Generator due to a configuration problem. The Report Generator does not provide report generation capabilites for routine templates ∞ see the Workarounds.	Create a Time Ordered Downlink Report: 1) open an xterm window, 2) cd to the …/am1/datasets directory, 3) confirm that the Time_Ordered dataset is in the directory, 4) cd to the …/scripts/setup directory and enter the following: setenv SCRIPT UserStation 5) enter the following: source FosEnvVars 6) Execute the FaDrReaderDriver from the bin directory 7) Follow the menu prompts to generate the report. Create a PAS activity, schedule or constraint report: 1) cd to the

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					…/scripts/setup directory and enter "setenv SCRIPT DataServer 2) source FosEnvVars 3) In …/scripts/setup enter st_rp -{type of report to be generated} -{list the variables required by the report type}. 4) For a list of flags and switches, enter st_rp -help. Create a CMS report: The following directories contain CMS periodic reports: integrated reports ∞ am1/integrated; all other CMS periodic reports are in am1/reports. Refer to Appendix A of the FOS Operations Tools Manual for information about generating image and compare reports via ECL directives (keyword IMGCMP).
Reports	Custom Reports	Browse available templates, reports	Partial Functionality.	The Report Browser lauches Netscape to the …/reports directory. Reports can be browsed and opened but the Report Browser does not	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				function in tandem with the Report Generator.	
User Algorithms	Algorithm Registration	See rqmts…	Partial Functionality.	Dosen't go to the correct directory	Need to change reg to src in the File Selection box. Need to remove the whole path name & just have the file name in the regrestration window.
User Algorithms	Special Processing	Curve-fit	Partial Functionality.	Unable to proces through FUI. See workaround	User must perform the FaDrReaderDriver: 1. Setenv SCRIPT UserStation
User Algorithms	Special Processing	Root Mean Square	Capability does not exist.		
User Algorithms	Special Processing	FFT	Partial Functionality.	Unable to process through FUI. See workaround.	User must perform the FaDrReaderDriver: 1. setenv SCRIPT UserStation 2. source FosEnvVars 3. $BIN_DIR/FaDrReaderDriver - enter option 1 (telemetry) - enter file name - select option 8 (FFT) - enter PID
User Algorithms	Special Processing	Data Smoothing	Partial Functionality.	Unable to process through FUI. See workaround.	User must perform the FaDrReaderDriver: 1. setenv SCRIPT UserStation 2. source FosEnvVars

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					3. $BIN_DIR/FaDrReaderDriver - enter option 1 (telemetry) - enter file name - select option 9 (data smooth) - enter independent PID - enter smoothing value
User Algorithms	User Algorithms	20 input params/ 20 output params	Partial Functionality.	The output selection window blows up.	
User Algorithms	User Algorithms	Use dataset as input	Capability does not exist.		
User Algorithms	User Algorithms	Apply to archived telemetry	Partial Functionality.	Able to apply to archived telemetry Able to apply to archived telemetry	
Activity Log	Activity Log	Dump processing			
Activity Log	Activity Log	Real time monitoring	User is able to receive Activity log messages.	Activity log messages are received from the packet generator. Messages printed out are in format developer has used. Developer has never seen an actual message, so is not able to display a valid message.	
SSR Management	SSR Analysis Window	See rqmts…	Full Functionality.		
SSR Management	SSR Buffer Mgmt	Change SSR buffer order	Full Functionality.		
SSR Management	SSR Monitoring	Recommend data recovery procedures	Full Functionality.		
SSR Management	SSR Monitoring	Use CODAs & UPD to assess link status for SSR monitoring	Capability does not exist.	Capability does not exist due to EDOS CODA issues.	
SSR Management	SSR Monitoring	Monitor SSR buffer status in real-time	Full Functionality.		
DSS	DSS	Evaluate ground	Partial Functionality.	Request can be	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		telemetry	User is not able to process request on ground tlm.	submitted, but it is not processed properly. Not functioning at this time.	
DSS	DSS	Evaluate spacecraft telemetry			
Clock Correlation	Clock Correlation	USCCS Method	Partial Functionality.	Control Window needs to include CC config file. Clock Correlation directive failure. Time of Report is not in the YYYY/DDD:HH:MM:SS format. CC is dependent on the erroneous PB4/PB1 time functions.	Report Browser brings up netscape, but not all reports listed in the report directory. The unit more command must be used to view the reports due to problems with netscape. Instead of using an NCC TTM to kick off the USCCS Method, the Clock End ECL generates the telemetry within the users source code (based upon parameters set within the code).
Clock Correlation	Clock Correlation	RDD Method	Partial Functionality.	Inconsistent term or missing word in the RDD report. CC is dependent on the erroneous PB4/PB1 time functions. Control Window needs to include CC config file. Clock Correlation directive failure.	Report Browser brings up Netscape, but not all reports are listed in the reports directory. Must use the Unix commands ls and more to view the report.
EDOS IF	Command Echo	Receive Command Echo Block (CEB) from EDOS	Partial Functionality. Event msg displayed when EDOS sends CEB.	Format errors in CEB message.	
EDOS IF	Command Echo	Send Command Test Block(CTB) to EDOS	Full Functionality.	User can send CTB with timeout value. If	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				no CEB received within timeout value, event msg displayed.	
EDOS IF	SCS summary Report	SCS summary Report (new data)	Partial Functionality.	Valid data not processed. File Watcher starts SCS Summary Report process.	
EDOS IF	SCS Summary Report	SCS Summary Report (stored data)	Partial Functionality.	Cannot retrieve report using Time Window.	
EDOS IF	Send SN Schedules to EDOS	Send SN Schedules to EDOS	Capability does not exist.		
EDOS IF	Trash Buffer	Trash Buffer	Full Functionality.	Event message generated when Trash Buffer data file recognized.	
EDOS RT	CODAs	Rcv/Display/archive CODA parameters	Full Functionality.	CODA messages are received, processed, and CODA parameters can be displayed.	
NCC RT	GCMRs	Rcv/Display GCM Status Mgs	Full Functionality.	GCM status messages are received and displayed.	
NCC RT	GCMRs	Send Doppler Comp Inhibit/Enable to NCC	Full Functionality.	Doppler Comp Inhibit/Enable Request generated.	
NCC RT	GCMRs	Connect/Reconnect to NCC/NCC Test system	Full Functionality.	Connection messages generated.	
NCC RT	GCMRs	Send Expand User Freq Request to NCC	Full Functionality.	Expand user frequency request generated.	
NCC RT	GCMRs	Rcv/Display GCM Disposition Msg	Full Functionality.		
NCC RT	GCMRs	Send User Reacq Request to NCC	Full Functionality.		
NCC RT	GCMRs	Send Fwd Link EIRP Reconfig Request to NCC	Full Functionality.		
NCC RT	GCMRs	Send Fwd Link Sweep Request to NCC	Full Functionality.		
NCC RT	GCMRs	Send User Reconfig Request to NCC	Full Functionality.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
NCC RT	GCMs	Rcv/Display Acq Failure Notification Msgs	Full Functionality.		
NCC RT	GCMs	Rcv/Display Time Transfer Msgs	Full Functionality.		
NCC RT	GCMs	Send/Rcv Comm Test Msgs for each RT service	Full Functionality.		
NCC RT	Ground Telemetry Archive	Ground Telemetry Archive	Full Functionality.		
NCC RT	UPD	Receive, display, archive UPD	Full Functionality.		
NCC RT	UPD	Send UPD Request to NCC	Full Functionality.		
NCC RT	UPD	Connect/Reconnect to NCC/NCC Test system	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Re-connect to NCC Services & NCC Test Services	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Connect to NCC Test Services	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Connect to NCC Services	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Send NCC Schedules to DMS	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Receive NCC Schedules	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Format & send Schedule Add Requests to NCC	Partial Functionality.	Contact scheduler allows NCC configuration Codes to be scheduled that do not match the contact being scheduled. ie. A01(MA FWD) as a Kband return contact.	Ensure that when configuration codes are entered into the contact schedule request (NCC Schedule Add Request) the they match the service desired.
PAS NCC	Communication Contact Scheduler	Format & send Schedule Delete Requests to NCC	Full Functionality.		
PAS NCC	Communication Contact Scheduler	Add, modify, delete communciation contacts	Full Functionality.		
FDF Prod	FDF Product	FDF Product	Partial Functionality.	Not all products have	Missing entries in

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
	Distribution to Users	Distribution to Users		entries included in the fos_file_table. This will inhibit successful distribution to the designated users. The script to update the table will be redelivered in the next release. Products are not automatically ftp'd.	the fos_file_table must be manually entered via isql. Must be manually ftp'd.
FDF Prod	Ingest and Validate FDF Tables	Ingest and Validate FDF Tables	Full Functionality.		
SDPS IF	Archive data to DAAC	Archive data to DAAC	Capability does not exist.		
SDPS IF	Detailed Activity Schedule Archive to DAAC	Detailed Activity Schedule Archive to DAAC	Capability does not exist.		
SDPS IF	Detailed Activity Schedule Generation	Generate DAS Report for the DAAC	Partial Functionality.	DAS Report generated. ASTER DAS Report not FTP'd.	
SDPS IF	FDF Product Archive to DAAC	FDF Product Archive to DAAC	Capability does not exist.		
SDPS IF	FOS File Archive to DAAC	FOS File Archive to DAAC	Capability does not exist.		
SDPS IF	FOS File Archive to DAAC	FOS File Archive to DAAC	Capability does not exist.		
SDPS IF	FOS File Archive to DAAC	FOS File Archive to DAAC	Capability does not exist.		
SDPS IF	Retrieve telemetry from DAAC	Retrieve telemetry from DAAC	Capability does not exist.		
Display Builder	Off Line Graphs	Plotting dataset to graph	Partial Functionality.	On Support Lan, build to CM and local causes segmentation fault and core dump. Only plots analog mnemonics.	On support Lan: cd /home/fostest2/pages cp filename to filename. Copy new graph to an old graph that is in pages directory.
Display Builder	Off Line Tables	Plotting dataset to table	Capability does not exist.		
Loads	ATC Buffer Display	See rqmts…	Full Functionality.	The buffer report has a numbering bug.	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				Memory location #1 is missing, but all of the information is present. The Buffer display shows the correct information and updates accordingly.	
Loads	ATC Load Generation	Generate partial ATC Load	Full Functionality.		
Loads	ATC Load Generation	Check Command Level Contraints	Full Functionality.		
Loads	ATC Load Generation	Expand DAS activities into ATC commands	Full Functionality.		
Loads	ATC Load Generation	Process DAS (generate all loads) within 1 hour	Full Functionality.		
Loads	ATC Load Generation	Check Command Time Tags	Full Functionality.		
Loads	ATC Load Generation	Pre-pend Load control commands	Full Functionality.		
Loads	ATC Load Generation	Generate ATC Load Report	Full Functionality.		
Loads	ATC Load Generation	Partition ATC Load	Full Functionality.		
Loads	ATC Load Generation	Append Safing Commands	Full Functionality.		
Loads	ATC Load Generation	ATC memory map report	Full Functionality.		
Loads	ATC Load Generation	Schedule ATC Load Uplink	Full Functionality.		
Loads	ATC Load Generation	Generate ATC Load/ Restrict Privileges	Full Functionality.	IST function needs further testing.	
Loads	ATC Load Generation	Identify hard & soft constraints	Full Functionality.		
Loads	Binary Load Builder	Ingest binary load	Full Functionality.	Allowed to ingest a file in the wrong file format. Tried to generate the load and the events display gave incorrect error message.	
Loads	Binary Load Builder	Load catalog	Full Functionality.		
Loads	Binary Load Builder	Generate load/ partitition if necessary	Full Functionality.		
Loads	Binary Load Builder	Generate load report	Full Functionality.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
Loads	Binary Load Builder	Generate appropriate CRCs/checksums; use appropriate Load Initiate commands	Full Functionality.		
Loads	Binary Load Builder	Pre-pend load control commands	Full Functionality.		
Loads	Binary Load Builder	Update load catalog	Full Functionality.		
Loads	Load Catalogs	See rqmts…			
Loads	RTS Load Builder	Ingest RTS	Partial Functionality.	Error received for ingest option. Used format for the filename as listed in documentation.	
Loads	RTS Load Builder	Generate RTS	Full Functionality.	There is a seqential problem with the first two commands of an RTS. If command one is deleted, command two does not change from command two to command one like it is suppose too.	
Loads	RTS Load Builder	RTS Load Report	Full Functionality.		
Loads	RTS Load Builder	See rqmts…			
Loads	RTS Load Builder	RTS Memory Map Report	Full Functionality.		
Loads	RTS Load Builder	Use old RTS as template	Full Functionality.		
Loads	RTS Load Builder	RTS Catalog Entry	Full Functionality.		
Loads	RTS Load Builder	Update load catalog	Full Functionality.		
Loads	RTS Load Builder	Validate & contraint check RTS	Full Functionality.	Hard constraints are not working properly.	
Loads	RTS Load Builder	Pre-pend load control commands	Full Functionality.		
Loads	RTS Load Builder	Define new RTS	Full Functionality.		
Loads	Table Load Builder	Load Catalog Entry	Full Functionality.		
Loads	Table Load Builder	Update load catalog	Full Functionality.		
Loads	Table Load Builder	Define new Table	Full Functionality.		
Loads	Table Load Builder	Generate table load/ partition if necessary	Full Functionality.	When a partial load is opened, the fields are numbered incorrectly.	
Loads	Table Load Builder	Use old table content	Partial Functionality.	Certain tables cause	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		as template		Table Load Builder to disappear when trying to open them from the load catalog. Old table content was used as a template. Old table was used as a template.	
Loads	Table Load Builder	Report table memory map	Partial Functionality.	Certain tables cause Table Load Builder to disappear when trying to open them from the load catalog. Old table content was used as a template. Old table was used as a template.	
Loads	Table Load Builder	See rqmts…			
Loads	Table Load Builder	Validate table	Full Functionality.		
Loads	Table Load Builder	Create table load based on dump image	Full Functionality.		
Loads	Table Load Builder	Import table	Partial Functionality.	Further tested needed.	
Loads	Table Load Builder	Pre-pend load control commands	Full Functionality.	Pre-pend load control commands are present.	
Loads	Table Load Builder	Generate FDF tables	Full Functionality.		
Loads	Table Load Builder	Table load report	Full Functionality.	A table load report is present.	
Late changes	Detailed Activity Schedule Generation	Lock/unlock DAS	Full Functionality.	Can unlock DAS for late changes.	
Dumps	Decom	16kbps Diagnostic	Full Functionality.		
Dumps	Decom	1 kbps Diagnostic	Full Functionality.		
Dumps	Dump Image Processing	Dump compare/report	Partial Functionality.	Not all reports work in each category.	None
Dumps	Dump Image Processing	Table dump report	Partial Functionality.	Not all reports work in each category.	None
Dumps	Dump Image Processing	Compare table dump to PDB default	Partial Functionality.	Not all reports work in each category.	None
Dumps	Dump Image Processing	Update ground image	Partial Functionality.	Not all reports work in each category.	None
Dumps	Dump Image Processing	Export dump files	Partial Functionality.	Not all reports work in each category.	None.
Dumps	Dumps	Detect/collect dump	Full Functionality.		

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		data			
Dumps	SUROM Dump Report	Generate Report	Partial Functionality.	Further tested needed at EOC.	
Database	Command Level Constraints	Define, modify, delete command level constraints	Partial Functionality.	User is able to access the html web pages. Some of the html web pages are working and others aren't. Java pages are currently being developed to satisfy requirements.	Use isql instead of web pages.
Database	Ground Telemetry Definitions	Ground Telemetry Definitions	Partial Functionality.	User is able to access the html web pages. Some of the html web pages are working and others aren't. Java web pages are being developed to satisfy requirements.	Use isql for web page configuration.
Database	ODF Generation	ODF Generation	Partial Functionality. User is able to generate ODF's using UNIX commands	Web page for ODF generation works, but is pointing to the wrong executables.	Use UNIX commands to generate ODF's.
Database	PDB Backup, Restore, Compare	PDB Backup, Restore, Compare	Full Functionality.	User is able to use the web page as long as it is pointed in the correct direction.	
Database	PDB DistributionPDB Distribution	PDB Distribution	Full Functionality.		
Database	PDB Edit	PDB Edit	Partial Functionality.	EU conversion web page not functioning at this time. Java pages have been developed and are working for telemetry PDB edits (including Derived parameters). Commanding Java pages are still being developed to meet requirements. User is able to use the html web pages if they are configured properly.	Use isql for web page configuration.
Database	PDB Ingest	PDB Ingest	Full Functionality.	All FDF Products	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				ingested into PDB.	
Database	PDB Reporting	PDB Reporting	Full Functionality.		
Database	PDB Validation	PDB Validation	Full Functionality.	User is able to validate telemetry and commands as well as all FDF products.	
Events	Alarms	Alarms	Full Functionality.		
Events	Event Display	Display & filter event messages	Partial Functionality.	Cannot filter on Spacecraft Id. User can select/eliminate/search for certain events.	
Events	Event History Request	Request, filter, save results	Partial Functionality.	Cannot query database for Support LAN events or Ops test events. Cannot submit Orbit Event Database Access form successfully. Incorrect error type. Host name hard to read in event messages. Events with subsystem N/A are filtered out. FOS is not listed as a subsystem in Event History database Form. The Information Message dialog box pops up with no Lock Scroll. Event Filters are slow when telemetry is received. Event Filter slowdown. Color-coded messages should appear on ED. ED filtering option for ops, test, and training.	

Table 2-1. Release B Version 2.02.00 System Functionality Summary (cont'd.)

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				Filter in/Filter out on ED. Event History netscape does not match database. Filter S/C ID filters out all events. Filter does not filter out string Ids.	
Events	Events Archive	Events Archive	Full Functionality.	All events are being archived correctly.	
Events	Filtering	Filtering	Full Functionality.		
Events	Local/Global Events	Local/Global Events	Able to receive Global Events on Global Display	Local Events Display does not work. Not able to receive events on local display.	None Available
Events	Trigger procedures	Trigger procedures	Full Functionality.		
Procs	Command Procedure Validation	Identify hard/soft constraints	Full Functionality.		
Procs	ECL	See rqmts for a full list of capabilities	Partial Functionality.	Math functions not all working.	None.
Procs	Procedure Builder	Add, delete, edit, print procs; syntax/validation check	Partial Functionality.	Conditional statements with telemetry and passing variables into procedures does not work. Syntax/validation causes the PROC Builder to crash at times.	None
Procs		Line numbers	Partial Functionality.	Erratic line number performance when moving around within the procedure builder.	Move scroll bar to get line numbers to sync up.
Procs		Display variable values	Partial Functionality.	Inconsistent results with arguments passed in.	None

3. Release B IST Unique Toolkit Functionality

3.1 Overview

The ECS IST toolkit delivery for Release B Version 2.02.00 consists of a subset of the FOS software which was delivered to the EOC for Release B to support full operations for the EOS AM1 mission.

This section of the FOS Release B Version 2.02.00 System and IST Release Notes provides a description of the functions which are available to IST users in Release B.

Release B ISTs may be configured in a "connected" mode (i.e., connected to the EOC Data Server and/or Real Time Server). Release B IST capabilities in a standalone mode are not available.

FOS functional and performance enhancements to the IST toolkit which are required to support EOS AM1 mission operations are delivered in FOS Release B. Additional enhancements and NCR resolutions are scheduled for later delivery.

3.2 Release B Version 2.02.00 IST Unique Functionality, Limitations and Workarounds

Release B Version 2.02.00 IST functionality, limitations and workarounds (where applicable) are in Table 3-1. For additional details refer to the FOS Operations Tools Manual and Section 4 of this document.

The system functionality as described in Table 3-1 is preliminary, and will be updated with new information as testing continues.

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
IST	System Configuration and Resources				
IST	Configuration				
IST	IST Startup	User Login and Authentication ; Pool Management	Full Functionality.	Use IST_LOGIN script from …/scripts/setup directory.	
IST	User Roles	User Roles, Access Control and Authentication	Partial Functionality.	Depending on the user role selected, the functionality associated with the following tools is properly limited: Command Request window, Command Control/Command Monitor window, RTS Load Builder and Binary Load Builder. Roles are enforced to prevent ISTs from assuming command and taking ground control authority. User roles enforcement has shortcomings (Proc Builder, Room Builder). PAS does not read FUI role selected at user login. Instead, PAS reads a configuration file in the user's home directory to determine what PAS role the user currently is in. Refer to the workarounds column for additonal information.	Create a configuration file called setup.{username} where {username} is your UNIX username. In the ops/test environment the file should look like: setenv PASMODE TEST setenv USERROLE DEFINER #setenv USERROLE SCHEDULER Uncomment out the Scheduler role and comment out the Definer role when you want to assume the Scheduler role. The Definer can perform all of the functions that the Scheduler can perform, so you really don't need the Scheduler role, except for in the ops/ops environment. In the ops/ops environment, the FOT will probobly not want any users to be able to Define, so the setup.{username} file used in ops/ops should not contain the Definer role, only the Scheduler role. Note that iIf user's utilze the same accounts to log

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					into the ops/ops and ops/test environments and do not change their setup.{username} files, they will, by default, have the same privileges in ops/ops that they have in ops/test.
IST	IST Shutdown	IST Shutdown	Full Functionality.	Use FosShutDown script in …/scripts/setup directory or the BYE directive from the ECL command line on the Control or Mini-Control windows. Remember to disconnect from the real-time string before shutting down the IST.	
IST	Resource Management				
IST	String Manager	Connect To/Disconnect from Logical Strings	Full Functionality.		
IST	String Manager	Deny Command Authority For Unauthorized User Or Workstation	Full Functionality.	The IST can not take command authority.	
IST	String Manager	Deny Ground Control for Unauthorized User Or Workstation	Full Functionality.	The IST cannot take ground control	
IST	User Roles	User Authentication			
IST	User Roles	Authenticate User Login	Full Functionality.	Unauthorized users cannot log into the FOS software.	
IST	User Roles	Provide Selection Of User Role	Full Functionality.		
IST	User Roles	Users can be added or deleted by submitting HTML forms. Add, Modify and Delete Users From System	Capability does not exist.	Only the FOT DBA can add or delete IST users.	
IST	Planning And Scheduling			Users must have a "." in the path	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				environment variable included in their .cshrc files in order to access Planning and Scheduling tools.	
IST	Activity Definition				
IST	Activity Definition	Define instrument activities that include ATC commands, commands, command submnemonic parameters, mode transitions, ECL directives, & command procedures. Modify & delete existing activities.	Full Functionality.	ISTs can define Standard activities. ISTs cannot define TDRSS Contact, Ground Contact, Slew or Uplink activity types. These activity types can only be defined by the FOT.	
IST	Complex Activity Definition	Define complex instrument activities that include ATC commands, commands, command submnemonic parameters, mode transitions, ECL directives, & command procedures. Modify & delete existing complex activities.	Partial Functionality.	If a child activity is updated and the revised definition should be included in the complex activity rather than the unmodified activity, the parent must be redefined to include the child. The software does not prevent or warn the user about the potential for corrupting a complex activity by inadvertently deleting a child activity that is necessary in the parent activity.	
IST	Activity Definition	Establish Relative Time Off-sets and define Parameter values in activity definitions	Full Functionality.		
IST	Activity Definition	Create, Modify and Delete Instrument Baseline Activities Profiles. BAP definitions consist of activities, where each	Full Functionality.	ISTs can insert activities in BAPs and establish the periodicity for activities in BAPs based on events or time.	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		activity is scheduled relative to orbital events or absolute times within the scheduling period. Capability to define new BAPs, modify and delete existing BAPs. and install/uninstall BAPs.			
IST	Activity Definition	Establish Periodicity For Activities in BAPs By Events Or Time Frequency	Full Functionality.	ISTs can insert activities in BAPs and establish the periodicity for activities in BAPs based on events or time.	
IST	Constraint Definition				
IST	Constraint Definer	Create, Modify and Delete S/C and Instrument Hard and Soft Constraint Definitions	Full Functionality.	ISTs can define hard and soft constraints. When soft and hard constraints are violated, the scheduled activity that violates the constraint is highlighted in the timeline by shading (soft constraint) or cross hatching (hard constraints). The FOT cannot generate the DAS if hard constraints exist during the DAS timeframe.	
IST	Scheduling				
IST	Schedule Activities, BAPs, Commands and Procedures Against Mission Plans	BAP and Activity scheduling by absolute time or by orbit event. Modification of command submnemonic parameters. Retrieve activity information and default schedule information. Schedules are integrated across EOC/IST sites. Load	Partial Functionality.	Scheduled ASTER activities are not always displayed on the Master Plan. The FOT does not want users to be able to schedule commands on the Timeline and intends to write a DR to remove this capability.	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		uplink scheduling, BAP scheduling, and individual command/command procedure scheduling are available. User privileges for scheduling are implemented. Deleting (unscheduling) activities is available.			
IST	Support Impact, Non-Impact and Over-subscribe Modes	Scheduling modes: Impact, Non-Impact, Non-Impact with Oversubscription (refer to the FOS Operations Tools Manual).	Full Functionality.	When an activity is scheduled on the Timeline via the General Scheduler, it is scheduled in the mode you have selected on the General Scheduler window. However, if you cut that activity and paste it back onto the Timeline, it is pasted in the mode you have selected on the Timeline window, which may not be the mode that the activity or BAP was initially scheduled in.	
IST	Remove and Modify Scheduled Activities	Modify parameter values or scheduling information for scheduled activities	Full Functionality.	Scheduled activities can be deleted from the Timeline. To modify a scheduled activity: 1) Open the General Scheduler and Timeline. 2) In the Timeline window, double click on the activity you wish to modify. Notice the Schedule button on the General Scheduler window changes to a green Reschedule button. 3) In the General Scheduler	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				window, select the activity your wish to modify. To modify scheduling information, modify the start and stop times or modify the start and stop relative to an event in the General Scheduler window. To modify parameters, select Parameters from the Modify menu. The Parameters dialog box opens. Highlight the commands you wish to modify parameters for and change the parameter values in the Values box. Click OK or Apply in the Parameter dialog box to apply your changes. 4) Click the green Reschedule button in the General Scheduler window, making sure the General Scheduler window is in Impact mode if you intend to replace the previous activity with the activity containing the modified parameter values and/or scheduling information.	
IST	Timeline Management				
IST	Timeline Management	Display Activities, Modes and Events With Associated Information	Full Functionality.	Resource names are pre-defined in the database. To select multiple items on the timeline, press the <Ctrl> key, move the mouse to the item to be selected and hold	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				the mouse completely still while pressing the left mouse button. Repeat to select additional items on the timeline.	
IST	Manage Multiple Plans	Opening, saving and deleting a schedule (plan). Timeline startup via Startup script and Control Window Tools. Timeline display configuration/customization. Create What-if plans. Open and save What-if plans and the Master plan.	Full Functionality.		
IST	Timeline Management	Display Mission Consumables (Power and Data Volume)	Full Functionality.	Instrument power and data rates are modeled based on values defined in the database based on IST input.	
IST	Constraint Definition	Identify "Hard" and "Soft" Constraint Violations	Full Functionality.		
IST	CERES Unique	Manage CERES Events	Full Functionality.		
IST	Authorize Access To Plans	Using the Timeline tool, an instrument assign permissions to plans it owns. The FOT designates permissions on the Master Plan.	Full Functionality.	An instrument controls permissions on What-if Plans it creates and can schedule on itself only on the Master Plan.	
IST	PAS On Demand and Periodic Reports				
IST	Contacts	On Demand Report	Partial Functionality.		PAS report generation capabilities are not currently available via the Report Generator. However, users can access PAS on demand reports by running the st_rp script

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					from the …/scripts/setup directory. Switches are included for plan name, start and stop times, output file names, resource names, activity names, activity IDs, and status of TDRSS contacts. For a complete list of flags and switches, enter st_rp -help from the ../scripts/setup directory. To generate a Schedule report that displays all scheduled activities, including accepted TDRSS contacts on the Master Plan between day 90 at 5:00 and 17:00, enter the following from an xterm window: 1) cd to the ../scripts/setup directory. 2) setenv SCRIPT UserStation 3) source FosEnvVars 4) st_rp -schedule - "Master Plan" -start 1998:090:05:00:00 - stop 1998:090:17:00:00 - noRejected. Note that switches that include spaces must be surrounded by quotes. Once you execute the script, event messages will be generated indicating that the Report Generator has started and completed successfully. Output files are in the …/am1/reports directory. A default

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					filename is assigned to Schedule reports if an output filename is not specified. The naming convention is: schedule.fosops.1998091.nnnnnn where n is an integer between 0 and 9.
IST	Graphical Timeline Plot	On Demand Report	Capability does not exist.		
IST	Schedule	On Demand Report	Partial Functionality.		PAS report generation capabilities are not currently available via the Report Generator. However, users can access PAS on demand reports by running the st_rp script from the …/scripts/setup directory. Switches are included for plan name, start and stop times, output file names, resource names, activity names, activity IDs, and status of TDRSS contacts. For a complete list of flags and switches, enter st_rp -help from the ../scripts/setup directory. To generate a Schedule report called sched_report for the Master Plan between day 90 at 5:00 and 17:00 that displays only the activity Crosstrack_FORE.2, enter the following from an xterm window: 1) cd to the ../scripts/setup directory. 2) setenv

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					SCRIPT UserStation 3) source FosEnvVars 4) st_rp -schedule -Master Plan -start 1998:090:05:00:00 -stop 1998:090:17:00:00 -actName Crosstrack_FORE.2 -output sched_report. Note that switch variables that include spaces must be surrounded by quotes. Once you execute the script, event messages will be generated indicating that the Report Generator has started and completed successfully. Output files are in the …/am1/reports directory. A default filename is assigned to Schedule reports if an output filename is not specified. The naming convention is: schedule.fosops.1998091.nnnnnn where n is an integer between 0 and 9.
IST	Constraint Reports	Periodic Report			PAS report generation capabilities are not currently available via the Report Generator. However, users can access PAS reports by running the st_rp script from the …/scripts/setup directory. Switches are included for plan name, start and stop times, output file names, resource names, activity names,

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
					activity IDs, and status of TDRSS contacts. For a complete list of flags and switches, enter st_rp -help from the ../scripts/setup directory. To generate a Constraint report that displays constraints violations for CERES on the Master Plan between day 090 through 18:00 day. called sched_report for the Master Plan between day 90 at 5:00 through 17:00, enter the following from an xterm window: 1) cd to the ../scripts/setup directory. 2) setenv SCRIPT UserStation 3) source FosEnvVars 4) st_rp -activity -rs "AM1 CERES". Note that switch variables that include spaces must be surrounded by quotes. Once you execute the script, event messages will be generated indicating that the Report Generator has started and completed successfully. Output files are in the …/am1/reports directory. A default filename is assigned to Constraint reports if an output filename is not specified.
IST	ASTER Interface				
IST	Receive One-day and Short-term Schedule	Ingest and schedule ASTER ODSs and	Partial Functionality.	Resource schedule may contain some	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
	and Integrate Into Mission	STSs on a local and master schedule (plan). Scheduled activities are viewable via the Timeline display.		discrepancies if modified parameters are included in the schedule.	
IST	Send ASTER Preliminary Resource Schedule, Activity Schedule and DAS report	The EOC sends the IST a PRS in response to a STS;	Partial Functionality.		
IST	Support Late Changes	If an IST schedules activities during a portion of the schedule for which a command load has already been generated, the ODS is processed as a late change which is automatically scheduled on a What-if Plan. The FOT will be notified of the late change, and will determine whether the late change can be included in the Master Plan based on constraint information and operational issues. If the late Change is approved, the FOT will unlock the Master Plan and process the ODS to incorporate it in the Master Plan. Results are returned to the IST in an Activity Schedule. Instruments who schedule via the Aster Filter utilze the Aster Filter to submit a request for a late change to the schedule once an ATC load has been	Partial Functionality.	To submit a late change request, click late Change on the Load Generator window; highlight the Master Plan; enter start and stop times for the late change; select DAS from the list of completed jobs and click Submit. Modified parameters are not always correctly reflected in the schedule.	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		generated (but not uplinked).			
IST	Manage MISR Local Mode Tool	ASTER Filter capabilities	Partial Functionality.	MISR can use the ASTER filter but the naming convention for environment variables (i.e., ASTERMACHINE, ASTERDIR) and filenames (ASTER_STS_yyyy_dddnnn.txt; ASTER_STA_yyyy_dddnnn.txt; ASTER_ODS_yyyy_dddnnn.txt; and ASTER_ODA_yyyy_dddnnn.txt) has to adhere to the conventions laid out in the ASTER ICD.	
IST	Load Generation and Management				
IST	ATC Load Management				
IST	View ATC Load Reports	ATC Load Reports are available for viewing.	Partial Functionality.	Not available through Report Browser or Report Generation.	Reports are available from the …/am1/reports directory or reports may be ftp'd; also available through isql.
IST	ATC Load Management	View Memory Map Reports	Partial Functionality.	Not available through Report Browser or Report Generation.	Reports are available in the …/am1/reports directory or reports may be ftp'd; also available through isql queries.
IST	RTS Load Generation/ Management	RTS Load Generation/Management			
IST	RTS Load Generation/ Management	Generate RTS Load Contents From User Input	Full Functionality.		
IST	RTS Load Generation/ Management	Generate RTS Loads From RTS Load Contents	Full Functionality.		

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
IST	RTS Load Generation/ Management	Generate RTS Load Report For Each RTS Load	Full Functionality.		
IST	RTS Load Generation/ Management	View RTS Load Catalog Report	Partial Functionality.	Not available through Report Browser.	Reports are available in the …am1/reports directory or through isql queries.
IST	RTS Load Generation/ Management	View RTS Memory Map Report	Partial Functionality.	Not available through Report Browser.	Reports are available in the …am1/reports directory or through isql queries.
IST	Table Load Generation/ Management				
IST	Table Load Generation/ /Management	Build Table Load Contents From User Input & Table Definitions In PDB	Full Functionality.		
IST	Table Load Generation/ /Management	Generate Table Loads From Valid Table Load Contents	Full Functionality.		
IST	Table Load Generation/ Management	Generate Table Load Report For Each Table Load	Full Functionality.		
IST	Table Load Generation/ Management	View Table Catalog Report Specifying Available Loads	Partial Functionality.	Not available through Report Tools.	Reports are available in the …am1/reports directory or through isql queries.
IST	Table Load Generation/ Management	View Table Map Report Specifying Currently Loaded Contents	Partial Functionality.	Not available through Report Tools	Reports are available on the …am1/reports directory or through isql queries.
IST	Microprocessor Loads				
IST	Microprocessor Loads	Accept and Validate Microprocessor Load Contents	Full Functionality.		
IST	Microprocessor Loads	Generate Microprocessor Loads From Load Contents	Full Functionality.		
IST	Microprocessor Loads	Generate Microprocessor Load Reports	Full Functionality.		
IST	Flight Software Loads				
IST	Flight Software Loads	Accept and Validate	Full Functionality.		

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		Flight Software Load Contents			
IST	Flight Software Loads	Generate Flight Software Loads From Load Contents	Full Functionality.		
IST	Flight Software Loads	Generate Flight Software Load Reports	Full Functionality.		
IST	Memory Management				
IST	Memory Management	Perform Dump Compare	Partial Functionality.	Not available through Report Tools.	ECL Directives are used for this function; however, user must supply specific information such as file name, location, etc.
IST	Spacecraft & Instrument Loads	Table Load Builder creates table loads. RTS Load Builder generates RTS loads. Binary Load Builder creates Microprocessor and FSW loads.	Partial Functionality.	Constraint checking limitations on the Binary Load Builder.	Events log will have the correct values for mnemonics or utilize the database information using isql.
IST	Detailed Activity Schedule (DAS) and Absolute Time Command (ATC) Load Generation	Detailed Activity Schedule (DAS) and Absolute Time Command (ATC) Load Generation	Capability does not exist.	These capabilities are limited to EOC operators, as they should be.	
IST	Telemetry				
IST	Decom	Decom	Full Functionality.		
IST	Decom	Housekeeping	Full Functionality.		
IST	Decom	Health & Safety	Full Functionality.		
IST	Decom	Diagnostic	Full Functionality.		
IST	Decom	Processing Of Duplicate CERES Housekeeping Data	Full Functionality.		
IST	Decom	EU Conversions	Partial Functionality.	The IST can only display the Converted (Formatted & Scientific Notation options), Decoded (Formatted option), and Raw values. The IST can not display the Converted (Hex & Octal options) or the	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				Decoded (Scientific Notation option) values.	
IST	Decom	Red/Yellow Limits	Full Functionality.		
IST	Decom	Delta Limits	Full Functionality.		
IST	Decom	Data Dropout Detection	Full Functionality.		
IST	Telemetry Displays	Displays	Full Functionality.		
IST	Telemetry Displays	Create, Update and Save Displays	Partial Functionality.	All aspects of telemetry page generation are OK. When generating tables,however, mnemonics fail to appear on the table when selected (for telemtry monitoring, the selected mnemonics are displayed). While generating plots, selected mnemonics do not correspond to their associated symbol, hence the monmitoring of real time plots is inaccurate because there is no definite correlation to how the symbols are defined.	
IST	Telemetry Displays	View displays (Alphanumeric, Tables and Graphs)	Partial Functionality.	All generated displays (alphanumeric, table, and graphs) are readily available. Selection of Converted/Decoded values are limited. For the Converted telemetry, only data displayed as 'Formatted' and 'Scientific Notation' are supported (Hex and Octal displays are non-functional). The	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				Decoded telemetry can be viewed as 'Formatted' but not in 'Scientific Notation'. Due to the error in plot generation with defining symbols (see section 3.4.2.1), the plot is suspect to validity. Tables have full functionality.	
IST	Telemetry Replay	Telemetry Replay			
IST	Telemetry Replay	Dedicated Replay	Capability does not exist.		
IST	Telemetry Replay	Shared Replay	Capability does not exist.		
IST	Telemetry Configuration				
IST	Telemetry Configuration	Selective Decom	Full Functionality.		
IST	Telemetry Configuration	Limits Adjustments	Full Functionality.		
IST	Telemetry Configuration	EU Coefficient Adjustments	Full Functionality.		
IST	Telemetry Configuration	Maintain configuration of the Ground Controller for the ISTs in Mirrored Mode.	Full Functionality.		
IST	Spacecraft & Instrument Telemetry Monitoring	Monitor real time telemetry via dynamic display (when connected to a Real Time Logical String). Display context-dependent telemetry, multi-byte parameter PROCs, derived parameters and limited sets.	Partial Functionality.	All generated displays (alphanumeric, table, and graphs) are readily available. Selection of Converted/Decoded values are limited. For the Converted telemetry, only data displayed as 'Formatted' and 'Scientific Notation' are supported (Hex and Octal displays are non-functional). The Decoded telemetry can be viewed as 'Formatted' but not in	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				'Scientific Notation'. Due to the error in plot generation with defining symbols (see section 3.4.2.1), the plot is suspect to validity. Tables have full functionality.	
IST	Command				
IST	Create, Edit and Check Directive Syntax	Enter, modify and syntax check directives entered in the Control Window, or Mini-Control Window	Full Functionality.		
IST	Directive Processing and Execution	Enter and execute directives in the command line of the Control Window or Mini-Control Window	Full Functionality.	ISTs can execute local directives - not command directives.	
IST	ECS Command Language (ECL)	ECL directives can be entered via the Control Window, Mini-Control Window or the Procedure Builder tool.	Partial Functionality.	The following ECL commands are not supported: SH, OPEN, CLOSE, SUSPEND.	
IST	Command Control Window Capability		Full Functionality.		
IST	Control Window Capability	Directive Entry/Editing/Execution	Full Functionality.		
IST	Control Window Capability	Three Line Event Display	Full Functionality.		
IST	Control Window Capability	Tool Access	Full Functionality.		
IST	Control Window Capability	Help Access	Partial Functionality.	Help documentation is not up to date.	
IST	Command Procedures				
IST	Command Procedures	Create, Update, Delete, Save, Syntax Check and Validate local Procedures	Partial Functionality.	Minor problems entering Binary and Hex values. Minor ECL syntax problems: the OPEN, CLOSE and SUSPEND directives are not supported. Unable to validate procedures	Copy files that are included in procedures to the directory where the procedure resides. ISTs can create and syntax check procedures and then FTP them to the FOT for validation and

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				(command-level constraint check) and therefore execute them. Procedures that are validated at the EOC and FTP'd to the IST may not be executed at the IST because the *.xdr file associated with the procedure will contain the directory where it was validated. When a procedure is syntax checked, syntax errors are incorrectly identified as being in the line number above the actual line. File names may be included in procedures, but must reside in the local or system procs directory. Passing variables into command submnemonics is not supported. When using the Go To box to move to a certain line number, the procedure window does not refresh so the window does not move to the appropriate line number. Syntax checking the procedure more then once will sometimes give different results. Conditional "WAIT" with telemetry and passing "int" variables into cmd submnemonics is not supported.	execution. When using the Go To box to move to a certain line, use the slider bar at the right of the procedure window to move toward the appropriate line and refresh the window.
IST	Command Procedures	Execute and Control	Capability does not	ISTs cannot vaildate	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		Procedures	exist.	procedures. As a result, they cannot execute procedures since a procedure contains the directory path where it was validated.	
IST	Command Procedures	Build Directives via Directive Builder and Include in a procedure	Full Functionality.		
IST	Command Procedures	Command Monitor Window	Full Functionality.		
IST	Command Procedures	Ground Script Monitoring	Full Functionality.	ISTs monitor the ground script via Ground Script Monitor window.	
IST	Command Procedures	View Ground Scripts Based On Detailed Activity Schedule	Full Functionality		
IST	Command Requests		Capability does not exist.	Procedures that have been validated at the EOC can be added to command requests. If there are no validated procedures - procedures with associated *.xdr files - the filter option on the Command Request Procedure Selection Dialog box does not filter user procedures correctly; the system procedures are displayed when the user filter is selected in this scenario. ECL directives can be added to command requests. Times can be set for executing the procedure or directive. Arguments can be set for procedures. However, when the command request is submitted,	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				nothing happens; no events are received and when the Command Request window is refreshed, no command request is listed as having been submitted.	
IST	Command Request Processing		Capability does not exist.	ISTs cannot process command requests. Only the FOT Ops Controller and Command Activity Controller can process command requests.	
IST	Analysis				
IST	Analysis	Dataset Generation	Full Functionality.	Datasets are located in the …/am1/datasets directory, denoted with *.data and *.meta extensions. The *.stats.data and *.stats.meta files are the datasets' statistics files.	
IST	Analysis	Generate Datasets For Archived S/C Telemetry Data In Raw and EU Values	Full Functionality.		
IST	Analysis	Generate Datasets In Carryout Format	Full Functionality.	The carryout file resides in both the …/am1/data and …/am1/reports directories.	
IST	Analysis	Generate Datasets Utilizing Appropriate PDB For requested Time Interval	Capability does not exist.		
IST	Analysis	User Selectable Statistics	Full Functionality.	The IST can generate datasets from a statistic or sampling rate.	
IST	Analysis	Generate User Requested Data Products Of Statistical Data (MMM. Standard	Full Functionality.		

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
		Deviations and Number Of Sample data)			
IST	Analysis	Dataset Display	Capability does not exist.	The IST can not display datasets. To view a dataset, the user must employ a text editor.	Use a text editor to view datasets.
IST	Analysis	System Generated Telemetry Statistics	Capability does not exist.		
IST	Analysis	FDF Statistics			
IST	Analysis	Reports	Partial Functionality.	The System Stats and Time-Ordered Downlink reports are generated. The Parameter-Out -Of - Limits reports is not part of the 2.2.0 delivery.	
IST	Analysis	Time Ordered Downlink	Full Functionality.		
IST	Analysis	Parameter Out-of-Limits Report	Capability does not exist.	Not part of the 2.2.0 delivery.	
IST	Analysis	Access To Analysis Report	Partial Functionality.	Report Browser does not support analysis report viewing. See workaround.	Report has to be viewed through a text editor from the …/am1/reports directory.
IST	Analysis	Standing Order Browser	Capability does not exist.	Delivery 2.2.0 does not support the Standing Order Browser.	
IST	Analysis	Build and execute Offline Analysis Requests. Analyze historical data and view system statistics.	Partial Functionality.	Analysis plots support only 4 mnemonics. The User Stats and Time-Ordered Downlink reports are generated through the Report Generator tool and can be viewed from the …/am1/reports directory. System Stats are not supported.	
IST	User Interface/Tools				

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
IST	Events				
IST	Events	Event Message Display	Partial Functionality.	Events are randomly dropped from the Event Display during periods of high event traffic.	
IST	Events	Event Message Filtering	Full Functionality.		
IST	Events	Event History	Full Functionality.	The web server configuration at the EOC does not currently support all of the EOC environments. The web server may be setup for either the ops/ops environment or the ops/test environment. As a result, if the web server is configured for ops/ops, ops/test users will not be able to query the event history database for their events via Netscape. Since the database web pages are not a launch critical function, querying the database is implemented via isql.	IST users should use isql to query the database. The username and password information is available from the DBA.
IST	Events	Alarm Processing	Full Functionality.		
IST	Data Mover				
IST	Data Mover	Copy files within the same directory structure to different directories; transfer files between EOC and ISTs. Delete local files.	Partial Functionality.	File transfer capabilities are not currently available between ISTs and the EOC via the Data Mover. Internal file transfer is available via the Data Mover receive function but files must be transferred to the	Use FTP to transfer files between EOC and ISTs.

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
				…/am1/transfer directory. Local files may be deleted.	
IST	User Customization	Color schema, Function Keys, Fonts, Default DIR and Printers	Partial Functionality.	Fonts, color schema and Function keys are available. Default directory definition and printer customization are not available.	
IST	Window and Room Management		Capability does not exist.	The Room Builder causes open windows (such as the Control window and Event display) to blow up.	
IST	Report Generation	Report Generation	Partial Functionality.	Unable to generate reports utilizing the Report Generation Tool.	Reports are available in the …am1/reports directory. User may use isql queries to retrieve information.
IST	Report Generation	Database Reporting	Partial Functionality.		Database access and reporting capabilities are implemented via isql. The username and password information is available from the DBA..
IST	Report Generation	Custom Reports	Capability does not exist.		
IST	Help Access				
IST	Help Access	Access On-Line Help Documentation	Partial Functionality.	Help documentation is not up to date.	
IST	Help Access	Browse On-Line Documentation Utilizing Document Reader	Full Functionality.	Document reader capabilities are implemented through Netscape.	
IST	E-Mail	E-Mail	Full Functionality.	Users create a symbolic link called "userMail" in the .cshrc from which they access the FOS software to the directory containing the mail executable they wish to launch from the Tools button.	

Table 3-1. Release B Version 2.02.00 IST Unique Functionality Summary

Software	Function	Capability	Status And Limitations	Comments	Workarounds
IST	E-Mail	Create, Save, Send and Delete Email Messages	Full Functionality.		
IST	Quick Message	Send Messages To Events Display Utilizing Quick Message Generator	Full Functionality.		
IST	Report Browser	Report Browser	Capability does not exist.		Use vi (for text files) or Netscape (for text and .html files) to view reports.
IST	Project Data Base (PDB) Management	Command, telemetry, and table definitions pre-defined and delivered with IST Release B Version 2.01.00. These definitions can be used for activity definition, procedure definition, table creation, and dynamic page definition. Data Base reporting and edit.	Partial Functionality.	Accessing database information via Netscape is limited. Database information can be utilized through isql queries. User and password information is available from the DBA. Each user must have specific privileges to retrieve information. IST uses the fos_ist username and password to query the database. The fos_ist account prevents ISTs from making database modifications.	
IST	Trouble Tickets	Trouble Tickets	Partial Functionality.		In the short term, ISTs should work with their IPG contact person to submit problem reports.

4. Release B System Operations and IST Unique Toolkit Operations

4.1 Overview

This section of the FOS Release B Version 2.02.00 System and IST Release Notes pertain to the FOS system software as described in the FOS Operations Tool Manual, followed by the specific items that pertain to the IST.

4.2 EOC System Operations

4.2.1 Applicability of the FOS Operations Tools Manual Section 4

The EOC System Initialization procedures described in Section 4 of the FOS Operations Tools Manual are not applicable to IST operations.

4.2.2 IST Unique Operations

In order for an IST to operate in "connected" mode (i.e., connected to the EOC Data Server and/or Real Time server), the operators at the EOC must first initialize the EOC Data Server and Real Time Server as described in Section 4 of the FOS Operations Tools Manual.

4.3 User Station Operations

4.3.1 Applicability of FOS Operations Tools Manual Section 5

The User Station Startup procedures described in Section 5.2 of the FOS Operations Tools Manual are not applicable to IST operations. Refer to Section 4.3.2.1 below for a description of IST-unique startup procedures.

Window Management procedures described in Section 5.3 of the FOS Operations Tools Manual are applicable to IST operations.

Room Management procedures described in Section 5.4 of the FOS Operations Tools Manual are applicable to IST operations.

System Logout procedures described in Section 5.6 of the FOS Operations Tools Manual are applicable to IST operations.

4.3.2 IST Unique Operations

4.3.2.1 Procedures for IST Startup

To startup an IST user station, operators first login to UNIX by entering their user names and passwords. The UNIX System Administrator at the IST site maintains the user name and password list as well as associated user permissions. Once the correct user name and password is entered, the Motif window manager starts on the user station. The operator clicks the right mouse button to activate the Workspace menu and selects **xterm** to open a window for the entry of commands.

To operate in a connected mode, type the following UNIX commands at the prompt in the xterm window:

a. userstation{username}1: *cd <IST ROOT>/am1/scripts/setup*

where <IST ROOT> is specific to each IST. Ex: /fos/ist/am1/script/setup

b. userstation{username}2: *IST_LOGIN (At the IST_LOGIN screen, the user types in the*

FOS Login and password as provided by the FOS Database Administrator)

*** Note: Standalone mode is not available.**

The planning and scheduling tools are started via the Tools menu.

4.3.2.2 Control Window

The Control Window opens once the operator starts the user station in the connected mode by logging into the FOS IST Toolkit. The Control Window will provide options to initialize tools available to the user in Release B Version 2.02.00 . The Room buttons (**R1**, **R2**, …, **R5**) and Procedures menu (**Procs…**) are operational on the Control or Mini-Control Window. Context sensitive help is available through the **Help** button on the Control or Mini-Control Window.

4.3.2.3 Command Control Window/Command Monitor Window

The Command Control Window is not available.

4.4 ECS Command Language

4.4.1 Applicability of FOS Operations Tools Manual Section 6

The ECL Directive procedures described in Section 6.1 of the FOS Operations Tools Manual are applicable to IST operations; however, the execution of the ECL directive will depend on the user and the user role.

The ECL Procedures described in Section 6.2 of the FOS Operations Tools Manual are applicable to IST operations. Refer to Section 4.4.2 below for a description of limitations.

4.4.2 IST Unique Operations

IST users can only enter and execute ECL directives from the Control Window or Mini-Control Window; IST users cannot enter ECL directives from the Command Control Window.

IST users can only enter and execute ECL directives included in Release B. IST users cannot execute real time ECL command or ground directives (e.g., ECL directives preceded by CMD or /).

4.5 Common Services

4.5.1 Applicability of FOS Operations Tools Manual Section 7

The Event Message Display procedures described in Section 7.2 of the FOS Operations Tools Manual are applicable to IST operations in the connected mode.

The Display Builder procedures described in Section 7.9 of the FOS Operations Tools Manual are applicable to IST operations.

The Room Builder procedures described in Section 7.11 of the FOS Operations Tools Manual are applicable to IST operations in the connected mode.

4.5.2 IST Unique Operations

Event messages are only available to ISTs in the connected mode.

4.6 Scheduling Services

4.6.1 Applicability of FOS Operations Tools Manual Section 8

4.6.1.1 Activity Definer Tool

The Activity Definer Tool functionality is implemented at the ISTs. Capabilities described in Section 8.2 of the FOS Operations Tools Manual which apply to ISTs are outlined below.

New activities may be defined (for individual instruments). All components of an activity must be associated with a single resource for individual instruments. Existing activities may be modified and deleted from the resource model and test database by an authorized IST user. Orbit events and Resources are pre-defined in the database.

4.6.1.2 Baseline Activity Profile (BAP) Definer Tool

The BAP Definer Tool functionality is implemented at the ISTs. Capabilities described in Section 8.3 of the FOS Operations Tools Manual which apply to ISTs are outlined below.

BAPs can be locally defined (for individual instruments) and stored in accordance with the procedures described in Section 8.3. BAPs may be modified and deleted. Orbit events in BAPs are limited to those predefined in the database. BAPs can be scheduled in this Release.

4.6.1.3 Constraint Definer Tool

The Constraint Definer Tool functionality is implemented at the ISTs. The startup procedure described in Section 8.4 of the FOS Operations Tools Manual which applies to the ISTs is Section 8.4.2 of the Operations Tools Manual.

Constraint may be defined at the IST. They may also be modified or deleted. Orbit events available for defining constraints are limited to those predefined in the database.

Constraints Violations (identified on scheduled activities) may be viewed by opening a portion of a plan using the Timeline Tool, or by running an activity level constraint check from the Load Generator Tool.

4.6.1.4 General Scheduler Tool

The General Scheduler Tool is implemented at the ISTs. Capabilities described in Section 8.6 of the FOS Operations Tools Manual which apply to ISTs are outlined below.

Activities predefined in the database can be scheduled on a "what-if" or the Master Plan in accordance with the procedures outlined in Section 8.6. IST users can schedule load uplinks, but they cannot actually uplink the loads. Realtime commands can be scheduled, but not sent.

Orbit events in scheduling activities are limited to those predefined in the database. Activities can be deleted (unscheduled) if the proper permission is granted on the plan.

4.6.1.5 Activity Recycler Tool

The Activity Recycler tool functionality is implemented at the ISTs. The startup procedure described in Section 8.10 of the FOS Operations Tools Manual which applies to the ISTs is described below.

Unscheduled activities from a plan are stored in the Activity Recycler just as in the EOC. The Recycler may be emptied when activities are no longer needed**.**

4.6.1.6 Timeline Tool

The Timeline Tool capabilities described in Section 8.5 of the FOS Operations Tools Manual are applicable to IST operations. A new, "what-if" schedule (plan) can be created or an existing schedule can be opened via the Timeline Tool. Existing plans can be manipulated or deleted by authorized users. Resources displayed on the Timeline can be updated from the predefined list included in the database. Scheduling capabilities are granted to the plan creator as well as to users specified in the plan by the plan creator. IST users cannot delete the master plan. Activities and events scheduled on any plan at the EOC or other IST may be viewed.

4.6.1.7 ASTER Filter

The ASTER Filter functionality is implemented at the ISTs. Capabilities described in Section 8.9 of the FOS Operations Tools Manual which apply to ISTs are outlined below.

The ASTER Filter can receive, process and schedule One Day Schedules (ODSs) and Short Term Schedule (STSs) on a "what-if" or the Master Plan. The polling process which triggers the ASTER Filter to begin processing an incoming file is fully functional . Production of Preliminary Resource Schedules, Activity Schedules and Detailed Activity Schedules is provided.

4.6.1.8 Generating Loads

The graphical tools Binary Load Builder, RTS Load Builder and Table Load Builder, described in Section 8.8 of the FOS Operations Tools Manual are included, but there are limitations.

There are no IST capabilities for ATC Loads. The Binary Load Builder Tool is available to create Microprocessor and Flight Software Loads. There are currently limitations on constraint checking capabilities. The Table Load Builder is available to create Table Loads. These tools are selected by choosing the appropriate items under the Tools Menu. Activity and Command level constraint checks can be performed using the Load Generator Tool.

4.6.2 IST Unique Operations

4.6.2.1 Activity Definer Tool

The Activity Definer tool is started via the Tools menu of the Control or Mini-Control Window.

4.6.2.2 Baseline Activity Profile (BAP) Definer

The BAP Definer is started via the Tools menu on the Control or Mini-Control Window.

4.6.2.3 Constraint Definer

The Constraint Definer is started via the Tools menu of the Control or Mini-Control Window.

4.6.2.4 General Scheduler Tool

The General Scheduler is started via the Tools menu on the Control or Mini-Control Window.

4.6.2.5 Activity Recycler

The Activity Recycler is started via the Tools menu of the Control or Mini-Control Window.

4.6.2.6 Timeline Tool

The Timeline is started via the Tools menu on the Control or Mini-Control Window.

4.6.2.7 ASTER Filter

None.

4.7 Real Time Services

4.7.1 Applicability of FOS Operations Tools Manual Section 9

The following Real Time Services procedures described in Section 9 of the FOS Operations Tools Manual for the following functions are not applicable to IST operations:

1 Logical and Dedicated string creation

2. Failure recovery
3. User authorization (command authority and ground control authority)
4. Logical and Dedicated string deletion
5. Telemetry directives (including Tailored Mode)
6. Memory dump
7. State check
8. Ground telemetry processing
9. Command processing.

The procedures for User Connection to a logical string are applicable to IST operations. Refer to Section 4.7.2 below for a description of IST-unique clarifications.

4.7.2 IST Unique Operations

The Logical String User Connection procedures described in Section 9.6 of the FOS Operations Tools Manual are applicable to IST operations, with the following clarifications:

To Determine Which Logical Strings are Available for User Connection:

1. The IST must be connected to the EOC ("connected" mode) prior to connecting to a real time logical string.
2. The logical string that will be used for Release B connectivity testing for the ISTs is the Realtime Operational logical string. The String ID of the Realtime Operational logical string should be specified in the connection request.
3. For Release B, Mirrored and Tailored connections are permitted.

4.7.3 Command

The IST can submit Command Requests using the Command Request Tool. The Command Request can consist of commands (one command per request limitation) with ECL and command directives. The function to include procedures is not available.

After connection to a logical string, an IST user may view spacecraft and instrument telemetry parameters via pre-defined Dynamic Page displays.

4.8 Off-Line Services

4.8.1 Applicability of FOS Operations Tools Manual Section 10

The Off-Line Services procedures described in Section 10 of the FOS Operations Tools Manual are not applicable to IST operations.

4.8.2 IST Unique Operations

In order to perform offline analysis requests, the user must FTP the required telemetry archive files from the EOC to the IST. The directory that contains the telemetry archive files will be the same at the IST and the EOC: /fos/am1/tlmarchive.

4.9 EOC File Management

4.9.1 Applicability of FOS Operations Tools Manual Section 11

The EOC File Management procedures described in Section 11 of the FOS Operations Tools Manual are not applicable to IST operations.

4.9.2 IST Unique Operations

None.

4.10 ECS Command Language (ECL)

4.10.1 Applicability of FOS Operations Tools Manual Appendix A

All ECL Release B directives described in Appendix A may be utilized in the Procedure Builder Tool. Real time command directives, which are preceded by CMD or /, cannot be executed by the IST but may be utilized in the Procedure Builder tool.

4.10.2 IST Unique Operations

None.

4.11 FOS Events

4.11.1 Applicability of FOS Operations Tools Manual Appendix B

The FOS Events described in Section 10 of the FOS Operations Tools Manual are applicable to IST operations when the IST is connected to the EOC.

4.11.2 IST Unique Operations

None.

4.12 Ground Parameters

4.12.1 Applicability of FOS Operations Tools Manual Appendix C

The FOS ground parameters described in Appendix C of the FOS Operations Tools Manual may not be applicable to all IST operations.

4.12.2 IST Unique Operations

None.

4.13 Carry-Out File Format

4.13.1 Applicability of FOS Operations Tools Manual Appendix D

The FOS Analysis carry-out file format described in Appendix D of the FOS Operations Tools Manual may not be applicable to IST operations.

4.13.2 IST Unique Operations

None.

5. Trouble Ticket Reporting

5.1 Submission of Trouble Tickets

IST operators submit trouble tickets related to the Release B IST toolkit by filling in and submitting a trouble ticket form via a world wide web page. No additional software is necessary for problem reporting. The trouble ticket can be submitted from any computer with a Netscape browser and access to the World Wide Web.

To submit a trouble ticket, users start the Netscape browser and type in the address of the FOS IST Problem Reporting home page. This is available in a separate document.

IST operators should only submit problem reports related to the functionality of the Release B IST described in Sections 3 and 4. Users should be familiar with current NCRs and limitations before submitting reports.

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Abbreviations and Acronyms

ATC	Absolute Time Command
BAP	Baseline Activity Profile
COTS	Commercial Off-the-Shelf (software)
DAS	Detailed Activity Schedule
DDTS	Distributed Defect Tracking System
ECL	ECS Command Language
ECS	EOSDIS Core System
EOC	ECS Operations Center
EOS	Earth Observing System
EOSDIS	EOS Data and Information System
FOS	Flight Operations Segment
IST	Instrument Support Terminal
NCR	Non Conformance Report
ODS	One Day Schedule
PDB	Project Data Base
RTS	Relative Time Command Sequence
STS	Short Term Schedule
TDRSS	Tracking and Data Relay Satellite System
VDD	Version Description Document

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