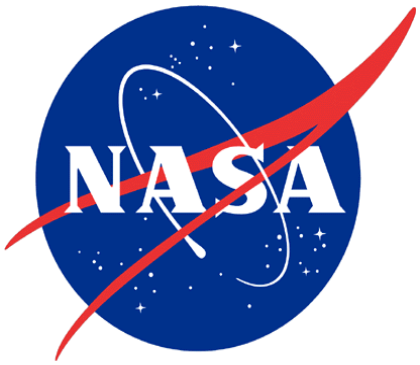
HOSC-WKBK-2090
ISS

Workbook 6: Using the Huntsville Operations Support Center (HOSC) Scripting Applications

HOSC Training Division

May 1999



National Aeronautics and
Space Administration

George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

Workbook 6:
Using the Huntsville Operations Support Center (HOSC) Scripting Applications

HOSC-WKBK-2090
ISS

May 1999

Prepared in support of:
NAS8-44000

Prepared by:
HOSC Training Team

Prepared for:
Mission Systems Division
Mission Operations Laboratory
Science and Engineering Directorate
Marshall Space Flight Center

Welcome

Welcome to Huntsville Operations Support Center (HOSC) training provided by the HOSC Training Team (HTT).

If you are interested in scheduling additional training, submit a training request form via the Internet. The homepage can be accessed at:

http://mole.msfc.nasa.gov/hosc_training/htt.html

Another option is to contact the HOSC Training Coordinator, Dawn Schell, at (256) 461-4927.

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Workbook Overview

The majority of the workbooks are designed to be self-paced requiring very little assistance from an instructor. The following table lists the workbooks and their associated course number:

Workbook Numbering System

Workbook Number	Title	Associated Course
Workbook 1	HOSC End-User Software Training	HOSC-1000 HOSC-1010 HOSC-1020 HOSC-1030
Workbook 2	Using the Databases	HOSC-2050
Workbook 3	Using the Exception Monitor Application	HOSC-2060
Workbook 4	Using the Display Generation and Operation Applications	HOSC-2070
Workbook 5	Using the Computation Generation and Operation Applications	HOSC-2080
Workbook 6	Using the Scripting Applications	HOSC-2090

Workbook Numbering System (Continued)

Workbook Number	Title	Associated Course
Workbook 7	Using the NRT Data Request Applications	HOSC-2100
Workbook 8	Using Applix	HOSC-2110
Workbook 9	Using FrameMaker	HOSC-2130
Workbook 10	Using Electronic Mail	HOSC-2140
Workbook 11	Using the Payload Information Management System (PIMS)	HOSC-2150 HOSC-2160
Workbook 12	Using the Pixmap Editor	HOSC-2170
Workbook 13	Using the Ground Support Equipment Packets Application	HOSC-2180
Workbook 14	Using the Strip Chart Recorder Applications	HOSC-2190
Workbook 15	Using the End-User Command Applications	HOSC-2120
Workbook 22	Workstation Overview and General Purpose Utilities Training	HOSC-1040
Privileged Applications		
Workbook 16	Using the Privileges within the Database Applications	HOSC-3000
Workbook 17	Using the Command System Management Application	HOSC-3010
Workbook 18	Using the User Configuration Management Application	HOSC-3020
Workbook 19	Using the System Monitor and Control Applications	HOSC-3030 HOSC-3040
Workbook 20	Using the Data Packet Generator Application	HOSC-3050
Workbook 21	Using the Database Monitor and Control Application	HOSC-3060

This workbook cover course:

HOSC-2090 - Using the Scripting Applications

This course will provide the trainee with the information necessary to develop scripts to perform a sequence of computer instructions using the Script Generation and Script Operation applications. Additional material is provided to provide the trainee with instructions on the use of the Scratchpad Line application.

Workbook Layout

The workbooks include a welcome section that details how the document is divided into modules as well as what is contained within each module. The modules include a discussion of the main topic of the module, a step-by-step "Try It..." and review questions. Modules have been included that "put it all together" and provide exercises to reinforce what you have learned.

This particular software is provided to assist you, the user, in the development and operation of scripts. Scripts are essentially text files made up of statements (directives) which are interpreted from high level, English-like statements into a sequence of computer instructions. This course will provide a thorough introduction to the purpose and structure of the software and will set you on a path toward developing your own scripts.

This workbook and the accompanying course is divided into four modules. Each of the first three modules cover a particular application in the realm of scripting and provide you with a number of exercises in which you will create and operate scripts. The fourth module serves the dual purpose of providing both an overview of the scripting language and an assortment of scripting exercises to fine-tune your skills.

Each module features an exercise which will apply the skills you acquire during the course The four modules include:

Module 1: *A First Look at Scripting*
Module 2: *Operating and Controlling Your Scripts*
Module 3: *Using the Scratchpad Line*
Module 4: *Working with the Scripting Language*

Given the extensive technical requirements, extreme effort has been taken to make the software as intuitive and user-friendly as possible. Hopefully, your experience with the software will be rewarding, and you'll find it satisfies your individual needs.

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Workbook Objectives

At the completion of this workbook, you should be able to:

- Write simple scripts
- Operate validated scripts
- Use Scratchpad Line directives to invoke operations

Module 1
A First Look at Scripting

The scripting applications provide the capability to create, edit, validate, and operate scripts. Scripts are text files containing statements (or directives) which the script parser can recognize. Scripts can initiate computations, displays, command update forms, and other scripts. Scripts can also be used to uplink files and commands.

Unlike computations, which are compiled into the computer's machine language, scripts are interpreted from high level, English-like statements into a sequence of computer instructions. Because scripts are interpreted rather than compiled, it is easier to control their operation although they do not have the power or speed of a full programming language such as C or FORTRAN.

In this module, we will discuss the Script Generation application. This application allows you to validate the script directive syntax, referenced database elements, and data type usage. You may also optionally check to determine whether User-generated Data Elements (UDEs) referenced in a script are locally available to run on the workstation.

Upon completing this module, you will be able to create a simple script.

The Script Generation main window (Figure 1-1, Script Generation main window) is a simple text editor and includes a number of menus which provide you with editing, navigation and validation functions:

Figure 1-1, Script Generation main window

The large area in the middle of the screen is the area in which you will create your script. Any messages generated by the application itself will be displayed the **Messages:** area at the bottom of the screen.

The **File** menu includes those menu items that allow you to create and save script files, open existing script files, setup the printer, print script files, and exit the application.

The **Edit** menu includes those menu items that allow you to manipulate the text of the script file in the full screen editor including cut, copy, paste, clear, and delete functions. Other items available from this menu include undo and select all as well as find and replace functions.

The **View** menu includes those menu items that allow you to configure the main window including the message area and the time reference.

The **Navigate** menu includes those menu items that allow you to move quickly from one point to another within the script file you are editing. Functions include moving to the top or bottom of the file, the cursor, a specific line number, and to the beginning or end of the current line. You may also advance one word forward or backward.

The **Validate** menu includes menu items which allow you to validate the script you develop for correct syntax and to check that all referenced User-generated Data Elements (UDEs) are present on your local platform.

The **Help** menu provides an index of help topics and provides help on the **Script Generation** main window, defined keys, and the application version.

Exercises

Instructions	The following "Try It" allows you to create your first script. Carefully read and complete each step.
Scenario	You arrive on console for a simulation and log into the workstation. You know that for every support you will be viewing the same displays. To automate this setup, you decide to write a script. This particular script will not require any user input other than to start the script itself. You will also not need to incorporate any of the Scripting Language's logic structures to complete this task.
Try It...	Let's create a simple script that functions as a "batch file" and starts a series of displays. Go through the following step-by-step exercise to create this script. This is the simplest form of a script. We will explore logic structures and telemetry sampling later in this course.

1. Before begininng this exercise, be sure you have the following files on your workstation. If you do not, ask your instructor for assistance in retrieving them. The files include:

   Displays:
   ISSTEST
   ISSOUTPUT
   ISSPRIMOBJ

2. Click the **Generation** menu on the **Launchpad** and select **Script Generation**.

3. Enter the following script. On the lines which *do not* begin with a semi-colon (;), pay careful attention to carriage returns. Whitespace is vitally important to a script, unlike the 'C' programming language.

```
BEGIN_SCRIPT batch_script

;+++++++++++++++++++++++++++++++++++++++++++++
;    This is a script that will start three
;    displays.
;+++++++++++++++++++++++++++++++++++++++++++++

DECLARATIONS
  SYSTEM_SECTION
  GLOBAL_SECTION
  LOCAL_SECTION
END_DECLARATIONS

start display ISSTEST
start display ISSOUTPUT
start display ISSPRIMOBJ

;+++++++++++++++++++++++++++++++++++++++++++++
;   Wait 45 seconds (which represents your shift)
;   and then shut everything down at the end
;+++++++++++++++++++++++++++++++++++++++++++++

wait 45
write "Stopping all displays"
stop display all
write "End of shift - End of batch file"

END_SCRIPT
```

4. Select the **File** menu from the **Script Generation** main window and click **Save As...**. In the dialog box, use the filename "script1_xxx", where *xxx* are your initials. Click **Save**.

5. Validate your script by selecting **Validate** from the **Validate** menu. On the dialog box that appears, click on **Validate**. When validation is complete and error-free, close the dialog box.

   Notice that you saved your script before *validating it. This is a feature unique to scripts. You must save your script prior to validation because the software actually validates the file on the workstation disk, not the script in memory. If you make changes and then validate without saving the changes, the previously saved version of the script will be validated. Unsaved changes are not validated. Save before you validate.*

6. Now that you've ensured that your script contains the correct syntax, it is a good idea to verify that you have all referenced UDEs on your workstation. To do this, select **Check for UDEs** from the **Validate** menu. If all of your UDEs appear in the **Found:** list, close the dialog box and get ready to operate your valid script.

   If any UDEs are missing or your script did not validate correctly, ask your instructor for assistance.

The next module will guide you through the process of operating this script. You will be introduced to more advanced scripting techniques in Module 4.

Module 2
Operating and Controlling Your Scripts

Operating scripts and exercising control over their flow of execution is accomplished using the Script Operation application. In the previous module, you created a simple script. In this module, we will first learn about the Script Operation application so that you can operate the script you have created. We will then look at more advanced script control techniques available in this application.

The Script Operation application will only work with *validated* scripts; therefore, you should always validate your script for syntax within the Script Generation application.

When you initiate the Script Operation application (Figure 2-1, Script Operation main window), the main window appears as follows:

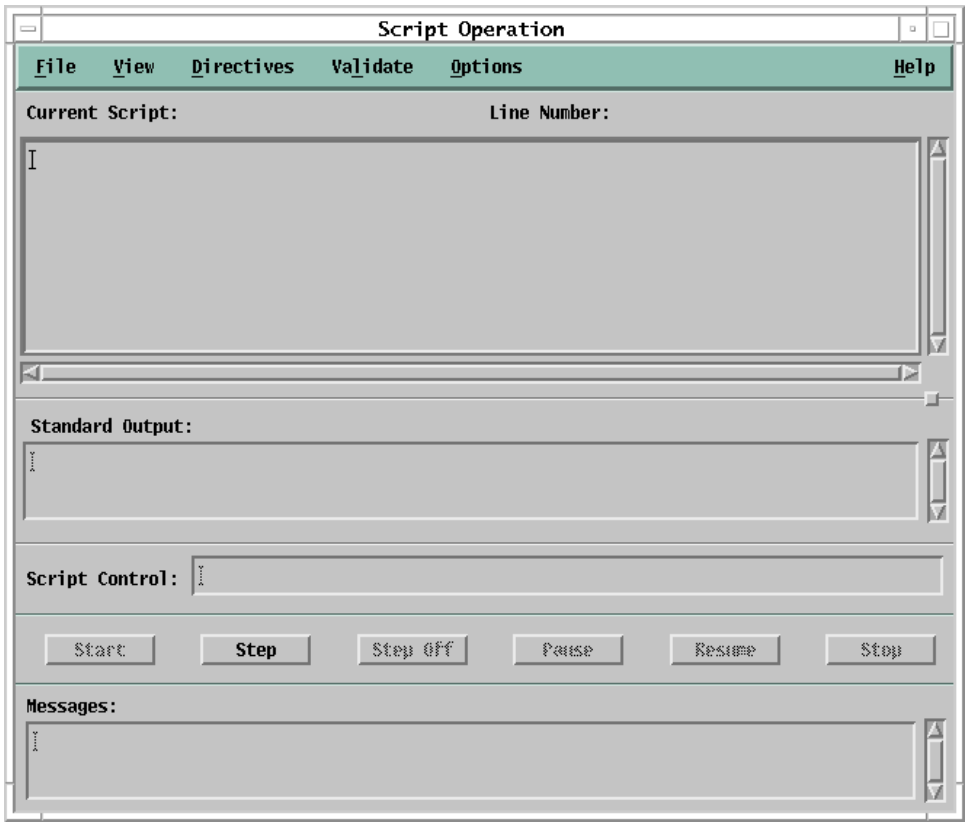

Figure 2-1, Script Operation main window

The **File** menu includes those menu items that allow you to open script files, set up the printer, print the ouput log (which appears in the **Standard Output:** area of the main window), and exit Script Operation.

The **View** menu includes those menu items that allow you to configure the main window including the message area, the time reference, and the control panel. A menu item is also provided that allows you to clear the standard output log.

The **Directives** menu contains a number of frequently used directives. Selecting one of the items from this menu places the associated directive in the **Script Control:** text input field on the main window work area where you can type in the necessary information to complete the directive before it is issued.

The **Validate** menu includes a single menu item which allows you to check that all referenced User-generated Data Elements (UDEs) are present on your local platform.

The **Options** menu includes those items which allows you to control the execution of the script as well as to choose whether the script file text field will scoll automatically or manually.

The **Help** menu provides an index of help topics and provides help on the **Script Operation** main window, defined keys, and the application version.

Exercises

Instructions

The following "Try It" allows you to execute the script you created in the previous module. Carefully read and complete each step.

Scenario

Now that you have written you script to automate your console setup, you are ready to see if it works. You have validated your script in the Script Generation application and you are ready to start you script.

Try It...

Let's open the validated script we created in the previous module and operate it:

1. Click the **Operation** menu on the **Launchpad** and select **Script Operation**.

2. Select the **File** menu from the **Script Operation** main window and click **Open...**. In the dialog box, type the filename "script1_xxx", where *xxx* are your initials. Or, you can click on the filename under which you saved the validated script you created in the previous module. Click **Open**.

3. If you did not check that all the referenced UDEs in your script are available on your workstation, Script Operation allows you to do this without leaving the application. From the **Validate** menu, select **Check for UDEs**. If all of your UDEs appear in the **Found:** list, close the dialog box and get ready to operate your valid script.

If any UDEs are missing, ask your instructor for assistance.

4. Click **Start** to begin execution of your script. The script should initiate a computation, wait 30 seconds, and then start three displays. After waiting approximately 45 seconds, the script will then shut down all displays and the computation.

   Once the computation has completed its run, put Script Operation into Step mode so that you have total control over the script:

5. Click **Start** to initiate the script.

6. Immediately click **Step** to enter Step mode.

   Also keep in mind that you can cause your script to immediately enter Step mode on its own by including the scripting directive ***Step On*** *at the beginning of your script. We will do this in the next exercise.*

7. Notice that your script pauses. Click **Resume** to execute the next statement in the script. Continue clicking **Resume** and watch as each statement executes until the computation and the two displays are operating.

8. Let's force the script to open another instance of the three displays already running by causing it to resume operation at the statement which opens the first display.

   To accomplish this, make sure the script is paused but is NOT in step mode. You can identify that this is the correct state by looking at the pushbuttons on the control panel. **Pause** and **Step Off** will be grayed out whereas **Resume** and **Step** will be active.

   From the **Directives** menu, select **Resume At...**. The directive *Resume At* appears in the **Script Control:** input text field. Enter **25** and press Enter.

   Be sure that line 25 is the statement start display training01. *Since you may have entered the script differently than another student, your line number may differ. If so, enter the line number of the statement* start display ISSTEST.

9. Now click **Step Off** to exit Step mode. The script should finish executing, eventually shutting down all six instances of displays as well as the computation.

In the next module, we will discuss the Scratchpad Line application, a sister application to the Scripting software that provides you with a command line interface for initiating displays and computations as well as updating and uplinking commands.

Module 3
Using the Scratchpad Line

The Scratchpad Line application provides a specialized command line interface that provides immediate access to initiating displays, scripts, and computations as well as updating and uplinking commands.

This application provides an interactive command line used to perform tasks such as updating and uplinking commands. Other tasks that can be accomplished using Scratchpad Line include starting User-generated Data Elements (UDEs), stopping UDEs, activating command update forms, updating external pseudo Measurement/Stimulus Identifiers (MSIDs), and updating computation constants.

None of the logic and conditional directives or looping constructs supported by the Scripting Language are available in Scratchpad Line. Thus, there are fewer directives available in Scratchpad Line than in Script Generation.

When you initiate the Scratchpad Line application (Figure 3-1, Scratchpad Line main window), the main window appears as follows:

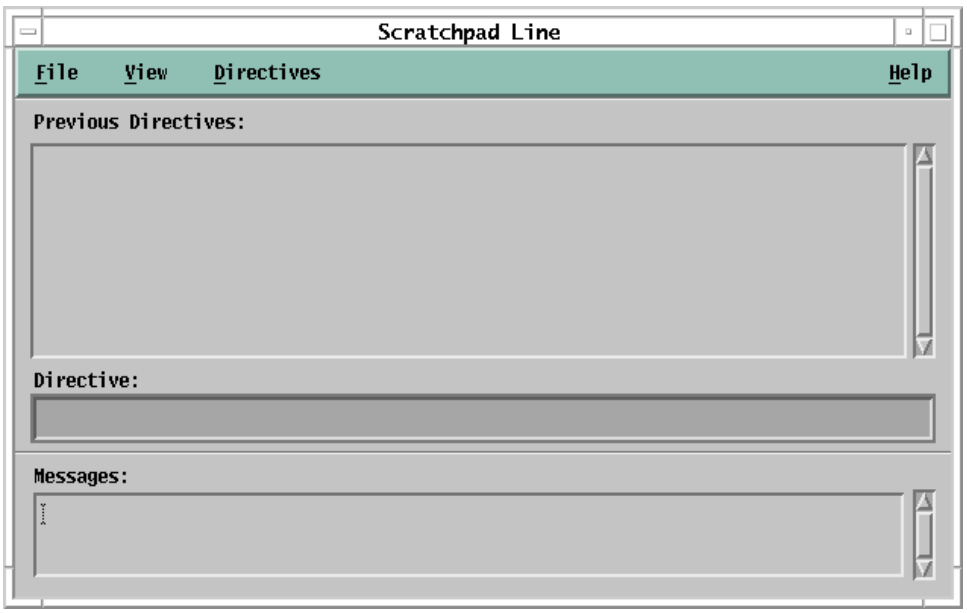

Figure 3-1, Scratchpad Line main window

The **File** menu includes a single item which allows you to exit the application.

The **View** menu includes those menu items that allow you to configure the main window including the message area and the time reference.

The **Directives** menu provides a series of cascade menus which contain the available directives. Selecting one of the items from a cascade menu clears the current text and places the associated directive

in the **Directive:** text input field on the main window work area. You then type in the necessary qualifiers to complete the directive before it is issued.

The **Help** menu provides an index of help topics and provides help on the **Scratchpad Line** main window, defined keys, and the application version.

The following directives are available for use in the Scratchpad Line application:

Buffer cascade menu

Buffer Command

Syntax
`buffer command` *`mnemonic [sub-field1=value1 sub-field2=value2,...]`*

Buffer Send

Syntax
`buffer send` *`[cmd_position_number_in_group]`*

Buffer Clear All

Syntax
`buffer clear all`

Buffer Clear Last

Syntax
`buffer clear last`

Start cascade menu

Start Comp

Syntax
`start comp` *`comp_name (datamode,tdb_version, priority,tbs_1,tbs_2[,input_file,output_file])`*

Start Display

Syntax
`start display` *`disp_name [x_pos y_pos] [datamode tdb_version]`*

Start Script

Syntax
```
start script script_name [(arg1...argN)]
[IN filename] [OUTPUT output_filename] [datamode
tdb_version]
```

Stop cascade menu

Stop Chain

Syntax
```
stop chain chain_name
```

Stop Group

Syntax
```
stop group group_name
```

Stop Comp

Syntax
```
stop comp comp_name(datamode,tdb_version,priority,
tbs_1,tbs_2[,input_file,output_file])
```

Stop Comp All

Syntax
```
stop comp all
```

Stop Display

Syntax
```
stop display disp_name [datamode tdb_version]
```

Stop Display All

Syntax
```
stop display all
```

Stop Script

Syntax
```
stop script script_name [datamode tdb_version]
```

Stop Script All

Syntax
`stop script all`

Update cascade menu

Update Command Form

Syntax
`update command form command_mnemonic`

Update Header Form

Syntax
`update header form command_header_mnemonic`

Update Constant

Syntax
`update constant comp_constant_name comp_name datamode database value`

Update Pseudo

Syntax
`update pseudo pseudo_msid with value`

Uplink cascade menu

Uplink Chain

Syntax
`uplink chain mnemonic [command_pos_num_in_chain]`

Uplink Command

Syntax
`uplink command mnemonic`

Uplink Group

Syntax
`uplink group` *`mnemonic [cmd_pos_number_in_group]`*

Uplink Timetagged Command

Syntax
`uplink timetagged command` *`mnemonic`*

For a complete description of each of these directives, see Scripting Language and Scratchpad Line Detailed Specification (HOSC-EHS-2057).

Exercises

Instructions

The following "Try It" allows you to try various Scratchpad Line Directives. Carefully read and complete each step. Please use the same displays and computation as you used in the other module.

Scenario

You need to open some displays and start a computation. To minimize the number of steps needed to complete this, you initiate the Scratchpad Line application and type in the necessary directive and press Enter.

Try It...

1. Start the Scratchpad Line application. From the Launchpad's **Operation** menu, select **Scratchpad Line**.

   In Scratchpad Line, select **Directives** and click **Start Display**. Notice that the directive you selected has appeared in the **Directive:** input text field.

2. Type the display name *ISSTEST* and press Enter. The display will appear and the directive you just issued will appear in the **Previous Directives**: list at the top of the main window.

3. Start another display. In the **Directive:** input text field, enter *start display ISSOUTPUT* and press Enter.

4. You don't need to view one of your displays any longer. From the **Directives** menu, select **Stop Display**. The directive appears in the **Directive:** input text field. Type *ISSTEST* and press Enter. The display leaves the screen.

5. You need to uplink a command. In the **Directive:** input text field, enter *uplink command UHF_POWER_HIGH*. Then press Enter.

   If an error occurs, there may be a problem with the command system, or your user ID may not be enabled for commanding. Ask your instructor for additional information.

6. You are now ready to shut down the display that has been running during your shift. Since you want to shut down every display running on your screen, you can issue the following directive: *stop display all*. Enter the directive in the **Directive:** input text field and press Enter.

   At this point all computations and displays should be shut down on your workstation and only the Scratchpad Line main window will be visible.

Module 4
Working with the Scripting Language

In the previous modules, you were guided through the process of creating a simple script and you learned about using the Scratchpad Line application. Now it is time to put your new skills to work to create a more complex set of scripts by incorporating logic structures and telemetry monitoring.

This module provides you with a number of sample scripts to enter and examine followed by a set of exercises that will allow you to develop your own scripts. To develop your script, you will need to refer to Scripting Language and Scratchpad Line Detailed Specification (HOSC-EHS-2057), a document which defines the syntax for every directive available in the scripting language.

These sample scripts and exercises use external user-generated data elements such as displays, computations, and command update forms. You will need to retrieve these from the UDE database. Refer to the worksheet provided with this workbook for a list of these UDEs. Ask an instructor for assistance in retrieving these UDEs to your workstation.

Exercises

Instructions

The following "Try It" allows you to write another script. Carefully read and complete each step.

Scenario

You need to monitor some parameters and based on the value of the parameters, UDEs will be invoked and a command will be issued.

Try It...

1. Start Script Generation by clicking on the Launchpad's **Generation** menu and then select **Script Generation**.

2. Enter the following script:

```
BEGIN_SCRIPT askme

;+++++++++++++++++++++++++++++++++++++++++++++++
;     This script demonstrates user interaction,
;     passive and active telemetry sampling,
;     logic structures, and command uplinks.
;+++++++++++++++++++++++++++++++++++++++++++++++

DECLARATIONS
   SYSTEM_SECTION
   GLOBAL_SECTION
   LOCAL_SECTION
      UNSIGNED_INT userval, checkit, telemval
   INTEGER pkt_stat, samp_stat
```

```
END_DECLARATIONS

;+++++++++++++++++++++++++++++++++++++++++
;     Prompt the user for a value
;+++++++++++++++++++++++++++++++++++++++++

ask “Enter a value (100-400):” userval

;+++++++++++++++++++++++++++++++++++++++++
;     Wait until MSID E71M0003P is greater
;     than userval or 20 seconds passes and
;     then start the display ISSPRIMOBJ.
;     This uses passive telemetry sampling
;     in the wait statement.  ‘C@’ designates
;     that we want to convert the value of
;     the MSID from hex to an integer.
;+++++++++++++++++++++++++++++++++++++++++

wait (C@E71M0003P > userval) 20
start display ISSPRIMOBJ

;+++++++++++++++++++++++++++++++++++++++++++
;     Now we will use active sampling to
;     determine the value of the MSID
;     E71X2003E is 1 (ON).  At that point
;     we will issue the command UHF_POWER_HIGH
;     Note the ‘;;’ at the end of the first
;     line of code below.  This designates
;     that the next line of code is a
;     continuation of the statement (i.e., it
;     is not to be treated as the end of
;     the statement).  This allows you to
;     split long lines of code into two physical
;     lines without causing a syntax error.
;+++++++++++++++++++++++++++++++++++++++++++

telemval = 0
while (telemval == 0) do

sample new E71X2003E conv into telemval;;
  packet_status pkt_stat sample_status samp_stat
write “Packet status: “, pkt_stat
write “Value of E71X2003E:  “,telemval
wait 1

endwhile

uplink command UHF_POWER_HIGH

write “All done...”
stop display all

END_SCRIPT
```

3. Select the **File** menu from the **Script Generation** main window and click **Save As...**. In the dialog box, use the filename "askme_xxx", where *xxx* are your initials. Click **Save**.

4. Validate your script by selecting **Validate** from the **Validate** menu. On the dialog box that appears, click on **Validate**. When validation is complete and error-free, close the dialog box.

5. Select **Check for UDEs** from the **Validate** menu. If all of your UDEs appear in the **Found:** list, close the dialog box and exit Script Generation by selecting **Exit** from the **File** menu..

   If any UDEs are missing or your script did not validate correctly, ask your instructor for assistance.

6. Click the **Operation** menu on the **Launchpad** and select **Script Operation**.

7. Select the **File** menu from the **Script Operation** main window and click **Open...**. In the dialog box, type the filename "askme_xxx", where *xxx* are your initials. Click **Open**.

8. Click **Start** to begin execution of your script. The script will prompt you for a value. The script will then wait until the MSID's value exceeds the value you provided and then start a display. After waiting approximately 45 seconds, the script will then shut down the display and print the words "All done..." in the output area.

Additional Exercises

1. Write a script which updates a command form and then uplinks the command when a certain MSID's value is greater than 300.

2. Write a script which would start a computation which uses as input the computation constant $CINPUT_TEMP. Have the script update the constant with the value of an MSID.

Course Summary

Scripts are essentially text files made up of statements (directives) which are interpreted from high level, English-like statements into a sequence of computer instructions. Script Generation allows the user to create, edit, and validate such scripts while Script Operation allows you to initiate, monitor and control their execution.

Scratchpad Line directives allow you to perform tasks at a command line level.

Questions

Instructions

Indicate an answer for each question below. The correct answers are given immediately following the questions.

Script Generation/Operation Questions

1. Name three activities that a script can accomplish?

2. True or False. A script can operate without being validated.

Scratchpad Line Questions

1. What is the purpose of the Scratchpad Line application?

2. You want to stop all of your displays simultaneously. What is the directive that you would use?

3. Describe the steps that are needed to re-execute a previous Scratchpad Line directive.

Answers

Script Generation/Operation Answers

1. Starting displays, starting computations, uplinking commands, updating pseudos, etc.

2. False

Scratchpad Line Answers

1. The Scratchpad Line application provides an interactive command line used to perform tasks such as uplinking commands, command groups, update external pseudos, update computation constants, start displays, computations, scripts, and terminate them.

2. stop display all

3. Select the directive from the **Previous Directives** area of the SPL main window and press Enter .

Abbreviations and Acronym List

A

A/G	Air-to-Ground
A/M	Automatic/Manual
ADQ	Average Data Quality
AIS	Automated Information Security
ANSI	American National Standards Institute
AOS	Acquisition of Signal
API	Application Programming Interface
APID	Application Process Identifier
	Application Process Interface Definition
APT	Active Process Table
AR	Action Request
ASCII	American Standard Code for Information Interchange
AST	Active Server Table
ATT	Attitude

B

BFS	Backup Flight System
BG	Bit-contiguous Group
BPDU	Bitstream Protocol Data Unit

C

C	Counter-dependent
C	C Programming Language
CADU	Channel Access Data Unit
CAP	Command Acceptance Pattern
CAR	Command Acceptance Response
CCBD	Configuration Control Board Directive
CCP	Central Command Processor
CCSDS	Consultative Committee for Space Data Systems
CDB	Command Database
CDD	Command Data Definition
CDQ	Current Data Quality
CLI	Command Line Interface
CM	Configuration Management
CMATS	Configuration Management Asset Tracking System
CMD	Command
CNT	Countdown Time
COTS	Commercial-Off-The-Shelf
CPU	Central Processing Unit
CRC	Circular Redundancy Check
CRR	Command Reaction Response
CSCI	Computer Software Configuration Item
CSM	Command System Management
CSS	Command System Services
CSS	Coarse Sun Sensor

CUI	Common User Interface

D

DADS	Data Acquisition and Distribution Services
DAE	Data Acquisition and Extraction
DARL	Database Access Routine Library
DB	Database
DBA	Database Administrator
DBCG	Database Coordination Group
DBCR	Database Change Request
DBD	Database Developer
DCM	Document Configuration Management
DCR	Database Change Request
DCRG	Distributed Control Room Graphics
DD AP	Data Distribution Address Processor
DD NS	Data Distribution Network Server
DDQ	Data Data Quality
DDS	Data Distribution System
DEMOS	Distributed Earth Model Orbiter Simulation
DG	Display Generation
DMC	Database Monitor and Control
DMC	Data Management Checklist
DO	Display Operation
DOSH	Database Operational Support History

DP	Distribute Packet
DPU	Data Processing Unit
DQ	Data Quality
DSID	Data Stream Identifier
DSN	Deep Space Network

E

EC	Experiment Computer
ECR	Engineering Change Request
EGSE	Experiment Ground Support Equipment
EHS	Enhanced HOSC System
ELF	Extremely Low Frequency
EM	Exception Monitor
EML	Extract MSID Library
ES	Expected State

F

FDDI	Fiber Distributed Data Interface
FEP	Front-End Processor
FEPSC	Front-End Processor Status and Control
FIFO	First-In-First-Out
FPTNM	Foot-Pounds to Newton-Meters
FSS	Fine Sun Sensor
FSV	Flight System Verifier

FTAM	File Transfer Access and Management
FTP	File Transfer Protocol

G

GB	Gigabyte
GCID	Ground Correlation Identification
GMT	Greenwich Mean Time
GPC	General Purpose Computer
GPS	Global Positioning System
GSE	Ground Support Equipment
GSFC	Goddard Space Flight Center
GUI	Graphical User Interface

H

H/W	Hardware
HAMASE	HOSC Automated Model and Screen Editor
HAPS	HOSC Advance Planning System
HASA	HOSC Administrative Software Account
HASS	HOSC Activity Scheduling System
HCR	HOSC Change Request
HLOG	HOSC Automated Logging System
HOSC	Huntsville Operations Support Center
HPR	HOSC Problem Report
HSR	HOSC Support Request

HTT	HOSC Training Team
HUA	HOSC User Assistance
HViDS	HOSC Video Distribution System
HVoDS	HOSC Voice Distribution System

I

I/O	Input/Output
ICD	Interface Control Document
ID	Identification
IDD	Interface Description Document
IDQ	Instantaneous Data Quality
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
ISS	International Space Station
IST	Integrated Support Team

J

JSC	Johnson Space Center

K

kbps	kilobits per second
KMRTS	Kennedy Marshall Redundant Transmission System
KSC	Kennedy Space Center

L

LAN	Local Area Network
LDP	Logical Destination Processor
LES	Limit/Expected State Sensing
LOS	Loss of Signal
LOV	List of Values
LPS	Launch Processing System
LTG	Local Table Generation
LTO	Local Table Operation

M

M	Multi-syllable
MB	Megabyte
MCC	Mission Control Center
MCCU	Mission Control Center Upgrade
MDM	Multiplexer/Demultiplexer
MET	Mission Elapsed Time
MF	Maintenance Fixtures
MH	Message Handler
MOC	Mission Operations Computer
MOL	Mission Operations Laboratory
MOP	Mission, Operational Support Mode, and Project
MSFC	Marshall Space Flight Center
MSID	Measurement/Stimulus Identifier

MSL	Microgravity Science Laboratory
MTBF	Mean Time Between Failure
MUPS	Momentum Unloading Propulsion System

N

N	Normal
NASA	National Aeronautics and Space Administration
NASCOM	NASA Communications
NASDA	National Space Development Agency (Japan)
NCC	Network Control Center
NDE	Non-operational Development Environment
NDL	NRT Data Log
NDL	Near Real-Time Data Logger
NEMS	NASA Equipment Management System
NG	Bit Non-contiguous Group
NGT	NASA Ground Terminal
NRT	Near Real-Time
NSOC	NASDA Space Operations Center
NSTS	National Space Transportation System
NTP	Network Time Protocol

O

OCC	Operations Control Center
OCDB	Operational Command Database

OCR	Operations Change Request
OD	Operational Downlink
OI	Operational Instrumentation
OS	Operating System
OSF	Open Software Foundation
OTE	Operational Test Equipment

P

PAP	Payload Activity Plan
PB	Playback
PC	Polynomial Coefficient
PC	Personal Computer
PCAD	Pointing Control and Aspect Determination
PCDB	Project Command Database
PCM	PIMS Configuration Management
PDI	Payload Data Interleaver
PDRF	Playback Data Request Form
PDSS	Payload Data System Services
PFS	Primary Flight System
PI	Principal Investigator
PID	Process Identifier
PIMS	Payload Information Management System
POCC	Payload Operations Control Center
POD	Payload Operations Director

POIC	Payload Operations Integration Center
PP	Point Pair
PPS	Payload Planning System
PRT	Packet Routing Table
psi	pounds per square inch
P/SS	PDSS System Support
PTC	Payload Training Complex
PTDB	Project Telemetry Database

R

R	Range-dependent
RAM	Random Access Memory
RCS	Reaction Control System
RDBMS	Relational Database Management System
RDRP	Raw Data Record Playback
RID	Review Item Discrepancy
RPM	Rounds per Minute
RR	Replanning Request
RSS	Resident Size
RT	Real-time
RTAS	Radians to Arcsecs
RTD	Radians to Degrees
RTDS	Real-time Data System
RTS	Requirements Tracking System

RUM	Remote User Machine
RW	Reaction Wheel

S

S	Super
S&E	Science and Engineering
SC	State Code
SC	Subsystem Computer
SCM	Status and Configuration Manager
SCR	Strip Chart Recorder
SDT	Shuttle Data Tape
SGI	Silicon Graphics Indy™
SGI	Silicon Graphics Incorporated
SL	Spacelab
SM	System Monitor
SMAC	System Monitor and Control
SMCM	System Monitor and Control Configuration Manager
SN	Space Network
SNMP	Simple Network Management Protocol
SOA	Science Operations Area
SPL	Scratchpad Line
SQL	Structured Query Language
SRD	Serial Receive Device
SRS	Software Requirements Specification

SS	System Services
SSCC	Space Station Control Center
SSME	Space Shuttle Main Engine
SSUP	System Services User Profile
STS	Space Transportation System

T

T	Typical
TAS	Test and Simulation
TBD	To Be Determined
TBS	To Be Supplied
TCP/IP	Transmission Control Protocol/Internet Protocol
TDB	Telemetry Database
TDM	Time Division Multiplexer
TDRSS	Tracking and Data Relay Satellite System
TDS	Time Distribution System
TNS	Telemetry and Network Services
TNSDP	Telemetry and Network Services Distribute Packet
TTY	Teletype

U

UDE	User-generated Data Element
UDSM	User Data Summary Message
UFT	Unrestricted File Transfer

UGSE	User Ground Support Equipment
UI	User Interface
UPAR	User Profile Access Routine
UPD	User Performance Data

V

VC	Virtual Channel
VCDU	Virtual Channel Data Unit
VCID	Virtual Channel Identifier
VMS	Virtual Memory System
VV	Verification and Validation

W

WCP	Workstation Command Processor
WEX	Workstation Executive
WSGT	White Sands Ground Terminal

Glossary

Accelerator	A sequence of keys that provides immediate access to application functions. For example, Ctrl + N to invoke the **New** menu item.
Activation Type	Method used within local table application to activate a group. The defined methods are Time and Control.
Active Window	The workstation window that has input focus and in which keyboard entries impact and may appear. See "Input Focus."
Analog	A mechanism in which data is represented by continuously variable physical quantities.
Application Main Window	The primary window of a software application.
Application Process Identifier (APID)	The APID is an 11-bit field that is included in Consultative Committee for Space Data Systems (CCSDS) headers. It uniquely identifies the vehicle that created the source packet.
Application Title Bar	The bar at the top of a main window that consists of the window menu button, the title area, and the minimize and maximize buttons.
Apply Pushbutton	A pushbutton that implements any changes made within its dialog box, but leaves the dialog box on the screen so that additional changes can be made. See "OK Pushbutton."
Approve	In PIMS, this action is taken by a reviewer to signify his/her approval that a document, change request, or data request be placed in the baselined state.
Archived Database	A telemetry database that no longer reflects the current real-time telemetry characteristic information. Only one archive database is available online at a time.
Attributes Defaults Bar	The area below the menu bar on the main window where application **Text:**, **Line:**, and **Fill:** default attributes are set.
Avtec™	A manufacturer of telemetry transmit and receive devices used in the Huntsville Operations Support Center (HOSC) Enhanced HOSC System (EHS) as the primary telemetry processing hardware devices.
Baselined	In PIMS, the final state of the review cycle. When a document, change request, or data request has been approved by all reviewers, the approver may place it in the baselined state.

Baselined Database	Database that reflects the current real-time telemetry or command characteristic information for a particular mission activity. Baselined databases have completed validation.
Bitstream Protocol Data Unit (BPDU)	A protocol data unit of the bitstream function having a format of a header followed by a fixed length block of contiguous bitstream data.
Block	NASA Communications (NASCOM) 4800-bit block format utilized for the transfer of data via the GSFC/MSFC Multiplexer/Demultiplexer (MDM) system.
Calibrated	Three types of calibration exist for telemetry samples: polynomial, point pair interpolation, and state code conversion. If calibration is requested, Telemetry and Network Services (TNS) automatically converts the unprocessed sample and then performs calibration on the sample for that Measurement/ Stimulus Identifier (MSID) as defined in the local table.
Cancel Pushbutton	A pushbutton that allows a user to exit a dialog box without implementing any changes.
Cascade Menu	A sub-menu or menu-within-a-menu that appears when you highlight a menu function that has an arrow to the right of its name. Cascade menus are used to group similar functions together beneath the pulldown menu.
Caution	A standard icon used throughout the user guide set to represent destructive actions which could result in loss of data.
Caution Limits	A range defined by a high and low value for an analog MSID in the Telemetry Database (TDB) and Local Table. A color code (yellow) represents values within those ranges in the application.
CCSDS Packet	A source packet comprised of a 6-octet, CCSDS defined primary header followed by an optional secondary header and source data which together may not exceed 65535 octets.
Channel Access Data Unit (CADU)	Protocol data unit used for transmission from the ISS to the PDSS. A CADU consists of a CVCDU that has been prefixed and delimited by a synchronization marker.
Click	The action of pressing and releasing a mouse button. Typically, this is a left mouse button action.
Coded Virtual Channel Data Unit (CVCDU)	A VCDU to which a block of error-correcting Reed Solomon (RS) check symbols has been attached.
Command System Manager	The position in charge of controlling the commanding system utilizing the Command System Managment software. For AXAF projects, this is known as the PAYCOM position.

Commercial-Off-The-Shelf (COTS) Software	Software applications that have been purchased from a commercial software vendor as opposed to those that were developed internally.
Computation	A FORTRAN or C program used to manipulate telemetry parameters. These programs are created by the Computation Generation application and are executed in Computation Operation.
Configuration Management (CM) Tools	Institutional applications that allow users to access and perform tasks, such as tracking requirements and equipment, scheduling resources, and logging into automated problem report systems.
Control Indicator	Used to indicate that the group will be activated for limit/ expected state (LES) sensing with either the control MSID or a control MSID plus delay time.
Control Panel	The area of a window where application pushbuttons and other graphical components are located.
Converted	The process of translating raw telemetry data into an American National Standards Institute (ANSI) standard data representation so that the sample can be properly interpreted by the machine which processes the data.
Counter-dependent	A parameter whose occurrence in telemetry is dependent on an incrementing or decrementing counter in the data.
Critical Command	A command whose initiation and execution could possibly cause damage to a payload or spacecraft and impair the mission.
Database Administrator	An individual who is primarily responsible for managing the RDBMS engine and administering database accounts. He/she also has the privilege to edit restricted database fields in any database, but is normally not recommended to edit data values that drive the telemetry and command processing for the EHS system.
Database Coordination Group	A working group which includes representatives from the appropriate project operations personnel, project source DB developers, MOL DB developers and the HOSC validation team. Review and approve/dissaprove DBCRs, resolve conflicts and evaluate any DB related issues.
Database Developer	An individual that has the privilege to edit restricted fields (e.g., decom, etc.) for both operational and non-operational databases that drive telemetry and command processing for the EHS system.
Dataset	A saved set of a command's modifiable fields used to update a command prior to being transmitted.

Data Stream Identifier (DSID)	A field within a Secondary EHS Protocol Header for PDSS Payload Data used as a unique identifier for the data stream. This bit denotes if the type of data contained therein is CCSDS packet data (0) or BPDU (1).
Delivered Database	A database must be delivered before it can become pre-released. A delivered database has not been validated for operational testing.
Delta Limit	Maximum acceptable difference between consecutive samples of a parameter.
Desktop	The computer monitor backdrop area on which all windows are opened. May also be referred to as workspace.
Development	In PIMS, the first state of the review cycle in which a document, change request or data request is still being written or is being updated.
Direction Keys	A group of computer keyboard arrow keys which allow users to move up, down, left, and right within an application or menus.
Disapprove	In PIMS, the action taken by a reviewer to signify disapproval and recommendation against moving a document, change request or data request into the baselined state.
Discrete Values	Telemetry values that have states (e.g., on or off).
Double-click	The action of pressing and releasing a mouse button twice in rapid succession.
Drag	To press and hold down a mouse button while moving the mouse on the desktop (and the pointer on the screen). Typically, dragging is used while moving and resizing windows.
Drawing Tools Palette	A group of tool buttons that is used to create graphic objects in order to display telemetry data, initiate commands, and start scripts and computations. The palette is located on its own floating dialog box or the application window.
Dump	During periods when communications with the spacecraft are unavailable, data is recorded onboard and played back during the next period when communications resume. This data, as it is being recorded onboard, is encoded with an onboard embedded time and is referred to as dump data. When a near real-time (NRT) request is written specifying that dump data is desired, the onboard embedded time is used to fulfill the request.
Dynamic Objects	Graphical objects that represent updating telemetry data.
Ellipse	A geometric shape which can be created on a display (i.e., a plane of a cone, an oval shape, etc.).

Expected State	Text state code which indicates the nominal value of a parameter.
Expert Mouse Actions	Clicks or double-clicks of mouse buttons which are non-standard and which activate special functions.
Filter	The filter function is used within a dialog box to refine and define subsets of files you want to work with using a string search and wildcard. Characters can be used to implement the filter function.
Fonts	A style of printed text characters.
Graphical User Interface (GUI)	A way of interacting with computers using graphics-oriented software and hardware.
Grayed out	A menu selection item that has been made insensitive, which is visually shown by making the menu text gray rather than black. Items that are grayed out are not currently available.
Greenwich Mean Time (GMT)	The solar time for the meridian passing through Greenwich, England. It is used as a basis for calculating time throughout most of the world. Displayed within the HOSC, it follows the format ddd:hh:mm:ss.
Grid	A pattern of horizontal and vertical lines forming squares of uniform size on a display, used as a reference for locating points.
Group Parameter Composition	Parameter composition where the bits of a parameter are contiguous and a multiple occurrence of that parameter exists as a group of samples.
Groups	MSIDs which have been grouped together, primarily for use with the Exception Monitor (EM) application.
Hazardous Command	A command whose initiation and execution could pose a threat to human life or the entire mission.
Help	A standard icon used throughout the user guide set to indicate that a cross-reference is provided to assist in solving problems or to answer questions.
Huntsville Operations Support Center (HOSC)	A facility located at the Marshall Space Flight Center (MSFC) that provides scientists and engineers the tools necessary for monitoring, commanding, and controlling various elements of space vehicle, payload, and science experiments. Support consists of real-time operations planning and analysis, inter- and intra-center ground operations coordination, facility and data system resource planning and scheduling, data systems monitor and control operations, and data flow coordination.
I-beam Insertion Bar	A graphical image used to represent the insertion point of text in a text entry area which provides a visual cue that text entry is anticipated by the system.

Icon	A graphical representation of an object on the desktop. Objects can be minimized (iconified) to clear a cluttered workspace, and restored (opened), as needed.
Input Focus	A window or window element that is activated and available for subsequent actions. Input focus is usually indicated by highlighting or changing the color of the activated element.
Input Slider	An input object that allows users to change values of pseudo parameters and computational constants assigned to objects. Pseudos can be used in other applications (i.e., scripts, computations, etc.).
Insensitive	An object or area of an application window that does not have input focus.
Integrated Support Team (IST)	Institutional groups at the HOSC responsible for configuring, monitoring, and resolving problems with computer systems and application software.
Launchpad	A floating menu bar that is used to initiate all HOSC software applications.
Legend	A table that labels parameters plotted on a chart or grid.
Limit Delta	Maximum acceptable difference between consecutive samples of a parameter.
Limit/Expected State Sensing (LES)	A configurable option in Display Operation that allows the user to select whether he wants to see limit violation status or not. The incoming data is compared against the Local Table limits.
Limits	Defined ranges for a measurement which are used to indicate off-nominal conditions: Caution High, Caution Low, Warning High, and Warning Low.
Line Plot	A plot that uses lines to represent the relationships among telemetry values.
Local Table	A subset of the TDB stored on a workstation or server used for telemetry processing.
Maximize Button	A control button that is located to the right of the application title bar. When pressed, this button enlarges the application window to its largest state.
Menu Bar	The area at the top of a window that contains the titles of pull-down menus.
Merge	The combining of data from different sources for a specific time slice. During merge, the best (cleanest) data from each source will be used to create a contiguous segment of data for the specified time slice.
Message Area	The part of the application window where system messages/ responses are shown.

Message Dialog Box	An area that provides information, gives the current status of data, asks questions, issues warnings, or draws attention to errors.
Mini-Application	A secondary main window activated from within a main window application.
Minimize button	A control button located to the right of the application title bar. When pressed, it iconifies the window.
Mission, Operational Support Mode, and Project (MOP)	A MOP is what delineates one EHS activity from another. MOP information is available in the common configuration file on every node.
Mnemonic	An underlined character on a menu item, that allows users to initiate the item by typing letters on a keyboard. A user-friendly name used to reference a command residing in the command database.
Mode Independent	Mode Independent is used to describe any process that is not dependent on a data mode.
Modifiable Commands	Commands containing at least one data field which can be updated during operational activities prior to their uplink transmission.
Mouse	A pointing device that is used along with a keyboard in point-and-click user interfaces. The mouse used with HOSC workstations contains three mouse buttons. The left mouse button is used to activate and select items on windows. The middle mouse button is used for move functions. The right mouse button is used to access popup menus.
MSID Text Field	An output object for viewing telemetry containing a label for the telemetry parameter, as well as the current value of the parameter displayed in a specified format (i.e., decimal, hex, octal, binary, American Standard Code for Information Interchange (ASCII), etc.).
Multiple Drawing Mode	A mode that allows users to draw multiple objects of the same type.
Native Data Type	Defined in the database and indicates how the MSID data will be interpreted in the HOSC.
Nominal	A color code indicating expected conditions within defined limits of parameters.
Non-Shareable	A flag has been set to prevent other users from retrieving your User-generated Data Element (UDE) from the UDE Database and using it on their local workstations.
Normal	A telemetered parameter that occurs once per packet.
Note	A standard icon used throughout the user guide set to direct your attention to specific items of concern.

OK Pushbutton	A pushbutton that implements any changes specified within a dialog box. The dialog box is dismissed after this pushbutton has been selected.
Option Menu Button	A pushbutton which, when clicked, displays a menu of related options. The selected option is shown as the pushbutton label.
Output Slider	An object that displays telemetry parameters.
Packet	A data unit comprised of octets that a source application generates.
Parameter Composition	Describes how the bits of a parameter can be arranged in a packet for a sample(s) of that parameter.
Pixmap Object	A picture that can be drawn using the pixmap editor or scanned and assigned using the pixmap editor.
Playback	Playback data can originate either internally or from some other facility. Project servers in the HOSC receive Playback telemetry streams from the HOSC Data Distribution System (DDS) and perform the same processing as would be performed on real-time telemetry streams.
Pointer	Sometimes called the mouse cursor, the pointer shows the location of the mouse on the desktop. The pointer's shape depends on its mode. (e.g., on a window frame, the pointer is an arrowhead; while you are waiting for an action to complete, the pointer becomes clock).
Point Pair Calibration	A measurement which is calibrated using a series of linear segments. The linear segments are defined by a pair of points for each segment. Each point consists of a raw count value and a corresponding engineering unit value.
Pointer Shapes	A graphical shape that a pointer assumes in the drawing mode (e.g., cross-hairs, I-beams, hour-glasses, etc.).
Polynomial Coefficient Calibration	A measurement is calibrated using the following polynomial calibration equation: where: eu - engineering units cnts - counts eu = COEF0 + (cnts1 x COEF1) + (cnts2 x COEF2) + (cnts3 x COEF3) + (cnts4 x COEF4) + (cnts5 x COEF5) + (cnts6 x COEF6) + (cnts7 x COEF7) + (cnts8 x COEF8) + (cnts9 x COEF9).
Popup Menu	A menu that is invoked when the right mouse button is clicked. Functions available are the most common and vary from application to application.
Predefined Commands	Commands completely defined prior to an operational activity. Predefined commands contain no modifiable data fields.

Pre-released Database	A database that has been validated for operational testing. It is used to validate UDEs (displays, comps, etc.) prior to the baseline release of the database.
Project Telemetry Database	Contained within the Telemetry Database, includes the telemetry definitions needed to drive HOSC telemetry processing for a specific project/mission. The source of the real-time telemetry processing tables found in the Telemetry Local Table identified by a project/mission/revision prefix. Also included are tables to contain user copy data, an error log, and an Initial Load Table.
Protocol	**1:** Provides the formulas for passing messages, specifies the details of message formats, and describes how to handle error conditions. More importantly, it allows us to discuss communication standards independent of any particular vendor's network hardware. A communication protocol allows one to specify or understand data communication without depending on detailed knowledge of a particular vendor's network hardware. **2**: A term referring to the type of source data used in the construction of an EHS packet. EHS Packet Protocols include: "C" - CCSDS packet, "P" - pseudotelemetry packet, "T" - encapsulated TDM packet, "B" - encapsulated block packet, and "D" - TDS packets.
Pseudo MSID/Parameter	A parameter identification (ID) that has been assigned to contain the output from a computation.
Pseudo Packet	A telemetry packet consisting of external pseudo MSIDs. External pseudo MSIDs are generated (either by EHS computations or scripts), packetized and multicast on the project LAN.
Pulldown Menu	A list or menu of possible options that is hidden under a general phrase and invoked by clicking the left mouse button.
Pushbutton	A control that causes an immediate action. To press a pushbutton on the screen, point to it and click the left mouse button.
Radiobuttons	A group of buttons that allows users to make only one selection at a time. Radiobuttons are small diamond-shaped buttons.
Range-dependent	A parameter whose occurrence in telemetry is dependent on the value of a range parameter.
Real-time Data	Real-time data is telemetered to the HOSC and distributed for immediate use. Real-time telemetry data, received into the HOSC system and written to the NRT log, is indexed by its time stamps and other identifying information. When an NRT request is submitted that covers a particular time slice, this indexing information is used to meet that request.

Recall Text	Area within an application that allows users to input up to 256 characters.
Release	In PIMS, an action taken by the manager of a document or request that releases it from the baselined state back into the development state for modifications.
Resize Borders	The area that surrounds the framed area of an application, and is used to change the height or width of the window.
Resize Handles	Up to eight handles surrounding an object that allows users to resize objects, displays, or windows.
Review	In PIMS, the second state of the review cycle in which the document, change request or data request has been written and submitted for review and approval.
Sample Composition	Describes how the samples of a parameter are arranged in a major frame.
Scatter Plot	A plot that uses unconnected dots to represent the relationships among telemetry values.
Scratchpad Line (SPL) Directives	Provides users with the capability to start and stop displays, computations, and scripts. A user may also uplink and modify commands and update pseudo MSIDs through the use of SPL directives.
Script	A file containing a sequence of directives that can be invoked in a single step.
Scroll Bar	A control that allows the contents of a window area to be displayed without resizing a window or list.
Select Button	The mouse button used for most operations. By default the select button is the left mouse button.
Set Pushbutton	A pushbutton that allows a user to implement changes based on selections made within a dialog box. Reacts like the OK pushbutton and closes the dialog box.
Setup Message Area	The dialog box that allows users to change the number of lines displayed within the message area of the application main window.
Shareable	A flag has been set to allow other users to retrieve your UDE from the UDE Database and use it on their local workstation.
Shotgun	Parameter composition when the bits of a parameter are scattered in multiple non-contiguous words of a major frame.
Slider Box	A graphical component of the scroll bar, which is dragged to provide a different view of the same file, list, or text area.
State Code Calibration	A measurement is converted to a text state code.
Static Object	A graphical object that is not receiving telemetry data.

Status Bar	A feature that allows the viewing of application critical configurations within the main window.
Submit	In PIMS, an action taken by the manager of a document, change request, or data request in which the document or request is placed in a state of review and approval and released from development.
Subset	A collection of measurements from the total measurement set that is bounded as an integer number of octets but does not constitute the packet itself. A mini-packet.
Super	A parameter that occurs more that once per packet.
Superseded Database	If a baselined database already exists for a project and mission, before a new baselined database can be released, the current baselined database is designated as superseded.
Switch MSID	A parameter whose value determines which limit or calibration set will be used for the specified MSID.
TDM	Time Division Multiplexed - a technique for transmitting multiple parameters within a single serial bit stream by interleaving them, one after the other.
Time Indicator	Indicates that a group will be activated based on a defined start time and deactivated based on a defined stop time.
Time Plot	A plot against time containing up to four Y-Axis parameters.
Time Reference	A time format that is represented in either GMT or Mission Elapsed Time (MET).
Time Tag	A time reference marking an event. For example, a parameter goes out-of-limits at 230:16:00:00. The time tag for the out-of-limit event is 230:16:00:00.
Tip	A standard icon used within the HOSC user guide set to indicate that suggestions or hints are provided.
Togglebuttons	Small buttons that can be switched “on” or “off.” To switch a togglebutton, point to it and click the select button. Black indicates that the desired attribute is in effect or “on.”
Tolerance	Number of times the MSID exceeds the limit value before an EM warning message is issued.
Typical	Parameter composition when the bits of a parameter are contiguous.
Unprocessed	Raw telemetry data.
User-generated Data Element (UDE)	A user-generated file. For example, a display, script, computation, pixmap, etc., is a UDE.

User Data Summary Message (UDSM)	A PDSS Data Quality packet. Information contained in the packet includes: the start/stop time of the UDSM report period, the number of unplanned LOS occurrences, the number of BPDUs or packets per DSID received, the number of VCDU sequence counter errors, and the number of packet sequence counter errors per DSID.
Virtual Channel (VC)	A CCSDS construct whereby a physical communications channel is shared among different users, each of whom uses part of the available bandwidth for a virtual channel of CCSDS CADUs incorporating predetermined CCSDS identifiers for each user.
Virtual Channel Identifier (VCID)	A binary identifier located within the VCDU header, which when concatenated with the spacecraft identifier, uniquely identifies a particular spacecraft virtual channel.
Virtual Channel Data Unit (VCDU)	A CCSDS data set of specific structure and fixed length, which includes CCSDS specified headers and into which user data is packaged for transmission over the space-to-ground link.
Warning Limits	A color code (red) representing limit violations of a parameter.
Wildcard	Placeholders for other characters in a string. Three wildcards are permitted in most HOSC applications. The "*" represents any combination of characters and the "?" represents any single character. A blank can be used to replace a single "*" to indicate "all". Database applications use Oracle as their basis; therefore, "%" is used like the "*" and an underscore character "_" is used like the "?". Blank operates the same way in database applications as in other HOSC applications and represents "all."
Window Menu	The menu that appears when you press the window menu button, which is located to the left of the application title bar on a window frame. Every window has a system menu that enables you to control the position of the window.
Workspace	The area on a terminal where the windows of a user's environment appear. The workspace is sometimes referred to as a desktop or root window.
XY Plot	A plot that contains one X-Axis and up to four Y- Axes parameters.