



ScreenKey Consoles for the IBM 46xx

File Download Utility User's Guide

Version 3.20

Issue 1.2 March, 2006



Purpose

The purpose of this document is to provide instructions on how to install and use the SK-7510 File Download Utility (RTIFDU) on IBM 46xx Terminals.

This document is based on RTIFDU release 3.20.

www.ScreenKeys.com

SKI

SK Interfaces Ltd.

File Download Utility for SK-7510

Information in this document is subject to change without notice.

The latest revisions of the ScreenKey documents and software can be found on the ScreenKeys web site.

Web: www.ScreenKeys.com

Technical Support is available

via Email: support.products@ScreenKeys.com

via Web: www.ScreenKeys.com

© 2001-2006 SK Interfaces Ltd.

© 1996-2001 Rapid Technology Interfaces Ltd.

© 1996-2001 Feltscope Ltd.

All rights reserved.

DISCLAIMER:

SKI reserves the right to revise data file formats and functionality at any time.

Table of Contents

1	INTRODUCTION	5
2	INSTALLATION & CONFIGURATION PROCEDURE	7
2.1	RTITERMS.DAT TERMINAL LISTING FILE	8
2.2	RTISESSN.DAT SESSION NUMBER ASSIGNMENT.....	9
2.3	RTIKBNNN TERMINAL SPECIFIC PARAMETERS	10
2.4	RTIMSG.DAT - MESSAGE TEXT FILE	11
2.5	CONTROLLER SET-UP	12
2.5.1	<i>User Logical File Name Set-up</i>	13
2.5.2	<i>File Attributes Set-up</i>	13
3	THE RUNTIME PROCEDURE	15
3.1	DOWNLOAD FILES	15
3.2	TRACEOUTPUT	15
4	PROBLEM DETERMINATION	17
4.1	APPLICATION EVENT LOG	18
4.1.1	<i>Event Reference and the Application Event Log</i>	18
4.2	TRACEOUTPUT	19
4.2.1	<i>Trace to File</i>	20
4.2.2	<i>Trace to Display</i>	20
4.2.3	<i>Trace to Printer</i>	20
4.3	REQUIRED FILE ERROR HANDLING	21
4.4	DOWNLOAD PROGRESS REPORTING ON SCREENKEYS.....	22
4.4.1	<i>Download Status Reported on ScreenKeys</i>	22
5	MESSAGES SUMMARY	23
5.1	TRACELEVEL 0 MESSAGES SUMMARY	23
5.2	TRACELEVEL 1 MESSAGES SUMMARY	24
5.3	TRACELEVEL 2 MESSAGES SUMMARY	25
6	MESSAGE DESCRIPTIONS	27
APPENDIX A	DOCUMENTATION CONTROL	39
APPENDIX B	FILE DOWNLOAD UTILITY V USER EXIT INTEGRATION	41
	FILE DOWNLOAD UTILITY CHECKLIST	43

1 Introduction

The File Download Utility (RTIFDU.286) is an application for the 4690 OS written in CBASIC that downloads operational files to the non-volatile RAM of a SK-7510 ScreenKey keyboard attached to an IBM 46xx terminal. The operational files are the:

Code Update	(.CDL) keyboard firmware
Option file	(.ODL) terminal specific configurations
SAC file	(.SDL) menu navigation and key return codes

See SK-7510 Technical Reference Manual for full description of the Operational Files.

The File Download Utility (FDU) is an efficient way for System Integrators to try out the SK-7510 ScreenKey Keyboard in a Lab. As a standalone application it doesn't involve any changes to the Terminal Sales Application (TSA).

However, using the FDU is not the recommended approach when installing the SK-7510 in a pilot store or in a rollout. The recommended approach is (having proven the concept in the lab using the FDU) to integrate the SK-7510 User Exit Kernel into the Terminal Sales Application. Integration means the download feature is available anytime the TSA requires it whereas to run the FDU you must terminate the TSA, run the FDU and then restart the TSA.

Both the FDU and the User Exit Kernel use the same Configuration files (RTITERMS.DAT, RTISESSN.DAT and RTIKBnnn) and the same Support file (RTIMSG.DAT). So, if these files are set-up to suit the FDU they can be used with the User Exit Kernel. The only word of warning is in relation to the RTISESSN.DAT file. This file contains Session Numbers which may be valid when used by the FDU standalone application but may clash with TSA session numbers when the User Exit kernel is integrated into the TSA.

If the User Exit Kernel has already been installed and the Configuration files set-up then installing the FDU may simply require the RTIFDU.286 program file to be copied onto the controller. The FDU can reuse the User Exit Kernel's Configuration files. See "[APPENDIX B File Download Utility v User Exit Integration](#)" for a comparison of the FDU and User Exit Integration.

2 Installation & Configuration Procedure

Installing the File Download Utility consists of copying a number of files into the appropriate directory on the Controller. These files are...

RTIFDU.286	The File Download Utility (FDU) application
RTIMSG.DAT	The Message text used in progress and error messages

In addition a number of sample Configuration Files are also supplied. The Configuration Files are text files that can be edited using the DREDIX text editor. They are...

RTITERMS.DAT	Sample: List of terminal numbers
RTIKB000	Sample: Terminal download parameters file
RTISESSN.DAT	Sample: Session numbers

The files should be copied from the distribution diskette to a suitable directory on the 46xx controller. Note that User Logical Filenames are used within the FDU to find this directory.

- 1) Copy the RTIFDU.286 file into the chosen application directory.
Copy the RTIMSG.DAT file and the sample RTITERMS.DAT, RTIKB000 and RTISESSN.DAT files into the chosen data directory
- 2) Configure the FDU by editing the contents of the RTITERMS.DAT, RTIKB000 and RTISESSN.DAT files to suit this particular installation. Use RTIKB000 to create Terminal Specific RTIKBnnn files (where nnn is the 3 digit terminal number).
There is usually no need to edit the RTIMSG.DAT file as the default message text is usually acceptable.
- 3) Setup User Logical File Names and IPL the controller to activate
- 4) Set the File Distribution for a number of the Configuration files
- 5) Setup Serial Channel

2.1 *RTITERMS.DAT Terminal Listing File*

This file defines the terminal numbers that have a ScreenKey keyboard attached.

Individual terminal numbers may be defined or a number range may be specified. Each item must be specified on a separate line.

The following is an example:

```
" 1 "  
" 5 "  
" 22-35 "  
" 54 "  
" 63-69 "
```

The terminal number **MUST** be listed in RTITERMS.DAT for the FDU to operate on that terminal.

2.2 RTISESSN.DAT Session Number Assignment

This file defines the session numbers that may be assigned for usage by the FDU. This file is provided so that assigned session numbers may be changed dynamically. This is not so important to the FDU because as a standalone application it is free to use any Session Numbers. However, it is critical that the User Exit Kernel integrated into the Terminal Sales Application does not use any Session Numbers that are already in use by the TSA.

This is a Required File. The FDU will not run without it. The format of RTISESSN.DAT is:

<pre>"SERIAL=" , 80 "API=" , 51 "TRACE=" , 52 "MESSAGES=" , 53</pre>
--

Each line must specify a unique session number. If the associated option is not required then the session number should be set to 0.

The order of items is critical and must be as shown. The Serial IO session number is mandatory whereas all the other items are optional, i.e. may be set to zero.

<i>IO Session</i>	<i>Purpose</i>
-------------------	----------------

SERIAL Access to the terminal SIO channel serial port for downloading information to the keyboard

Do not set to 0.

API The API feature is not applicable to the FDU. However, if it is set to a non-zero value the FDU will attempt to open the ANDISPLAY3 device using this Session Number.

Set to 0 to prevent attempt to open ANDISPLAY3

TRACE The session for use with the RTITRACE.nnn file. TraceOutput is sent to this file (and/or the Display and/or the Printer) depending on the TraceOutput setting in the RTIKBnnn file.

Set to 0 to disable this feature and override the TraceOutput settings in RTIKBnnn.

MESSAGES During operation of the FDU, TraceOutput is generated and may be displayed, printed or written to a file. The descriptor text for these messages is stored in an external file. This session number must be defined in order to access this file.

Set to 0 to turn off TraceOutput. This overrides the TRACE session number setting above and the TraceOutput settings in the RTIKBnnn file.

If TraceOutput is turned off then TRACELEVEL 1 events will be recorded in the Application Event Log in addition to TRACELEVEL 0 messages.

The File Download Utility also uses a number of hard coded Session Numbers. These are...

<i>IO Session</i>	<i>Purpose</i>
-------------------	----------------

50 File access – RTISESSN.DAT, RTITERMS.DAT, RTIKBnnn, .CDL, .SDL and .ODL

30 TraceOutput to the Display Device

34 TraceOutput to the Printer Device

2.3 RTIKBnnn Terminal Specific Parameters

The RTIKBnnn file defines the files to be downloaded into the SK-7510, the level of tracing and progress reporting to be employed, the terminal serial port number to use for downloads and the time to wait for the keyboard to come back online after a code (.CDL) download.

RTIKBnnn can be used in a generic mode to define parameters applicable to all terminals by naming it RTIKB000. Unique parameters may be set for one or more specific terminal numbers by creating individual RTIKBnnn files where 'nnn' is replaced with the actual terminal number, e.g. RTIKB012 applies to terminal number 012.

The FDU searches for a RTIKBnnn file for each terminal number specified in RTITERMS.DAT. If a terminal specific RTIKBnnn file is not found it uses the parameters from RTIKB000.

This is a Required File. The FDU will not run without it.

It is advisable to always create a RTIKB000 file. Terminal specific files may then be created only as required.

The following is an example of a RTIKBnnn file. The order of the items is critical and MUST be as shown.

```
"ROMFILENAME=" , "code.cdl "  
"SACFILENAME=" , "sac.sdl "  
"OPTFILENAME=" , "options.odl "  
"SERIALPORT#" , 2  
"TRACELEVEL=" , 1  
"TRACETODISPLAY=" , 0  
"TRACETOPRINTER=" , 0  
"TRACETOFILE=" , 1  
"KBDTIMEOUT=" , 30
```

The first three parameters define the filenames to be downloaded to the keyboard. The path by which these files are accessed is created using the User Logical Filename "RTI:".

A null filename may be used to skip a particular download item, e.g. "CDLFILENAME=", "".

The FDU communicates with the ScreenKey keyboard as a serial device. This is implemented by the keyboard as a feature card emulation. The SERIALPORT# parameter defines the serial port number specified in the terminal back-office configuration (Terminal Device Group). Note that this parameter value is entered as an integer (i.e. it is not enclosed between quotes).

TRACELEVEL, TRACETODISPLAY, TRACETOPRINTER and TRACETOFILE define the level of TraceOutput information and progress reporting presented to the user. The values assigned to each of these trace parameters are entered as integers (i.e. no quotes). See the discussion of [TraceOutput](#) below for details.

After a .CDL download the SK-7510 will be offline for a short time. During this time the SK-7510 will not respond to the FDU. The value assigned to KBDTIMEOUT is the number of seconds that the FDU will continue to try to connect to the SK-7510 before timing out.

2.4 RTIMSG.DAT - Message Text File

Message text descriptors for display on ANDISPLAY, printing on the cash receipt station, or for writing to the trace file are taken from an external direct file (RTIMSG.DAT). This file is organised as fixed size records:

```
"- 38 character wide descriptor text -", "nn"
```

where *nn* is the size of usable text within the 38-wide descriptor, i.e. excludes white space at end of descriptor, for example:

```
"DOWNLOAD UTILITY IS STARTING          ", "28"
```

Each record (or line number) in this file is associated with an error or message number used by the FDU.

This file may be translated for natural language support. There are no other text messages embedded in the compiled code.

Use of the external descriptor file requires a unique session number assignment, set in RTISESSN.DAT ("MESSAGES" parameter). If the MESSAGES session number is set to zero in RTISESSN.DAT, then TRACE parameter destination settings in RTIKBnnn are ignored.

The text in the first line of RTIMSG.DAT file corresponds to message RT01, the text in the second line corresponds to message RT02 and so on. See [Messages Summary](#) for a complete list of all the RTxx messages that should be in RTIMSG.DAT.

2.5 Controller Set-up

Both the master and alternate controllers have to be configured.

- a) create and activate User Logical File Names used by the FDU
- b) create a suitable directory on both the master and alternate to hold the files used by the FDU controllers (if one doesn't already exist), copy the files onto the master controller and set the file attributes on the master controller

The FDU uses four *User Logical Filenames* to find Configuration, Support and Download files.

The file attributes must be set-up such that the Configuration and Support files are automatically managed between the master and alternate controller i.e. file attribute 4 (i.e. compound file, distribute at update). Set the distribution type on the master controller only – no need to set them on the alternate controller.

File Name	Logical File Name used by FDU to access this file	File Attribute
RTIKB000 RTIKBnnn	RTIK :	4
RTITERMS.DAT	RTITERMS	4
RTISESSN.DAT	RTISESSN	4
RTIMSG.DAT	RTI :	4

where nnn is a 3 digit terminal number e.g. 001

The file attribute does not apply to the Download files or the Trace file.

<name>.CDL <name>.SDL <name>.ODL	RTI :
RTITRACE.nnn	RTI :

where nnn is a 3 digit terminal number e.g. 001

Say we decide that we want to put all the SKI files (RTITERMS.DAT, RTISESSN.DAT, RTIKB000, RTIKBnnn and RTIMSG.DAT) into a directory called C:\RTI. We must...

- a) create a directory called C:\RTI on the master controller
- b) copy the SKI files into C:\RTI on the master controller
- c) create a directory called C:\RTI on the alternate controller (don't copy any files into it)

The corresponding User Logical File Names would then be set-up as follows...

<i>User Logical File Name</i>	<i>Value</i>
RTI :	ADXLXACN : : C : \RTI \
RTIK :	ADXLXACN : : RTI : RTIKB
RTITERMS	ADXLXACN : : RTI : RTITERMS . DAT
RTISESSN	ADXLXACN : : RTI : RTISESSN . DAT

If we decide to place the SKI files in a different directory or spread the files around among a few directories than the values assigned to the User Logical Filenames would have to be changed accordingly.

2.5.1 User Logical File Name Set-up

Create the four User Logical File Names on both the master and alternate controllers. Then activate the changes on both controllers and re-IPL both controllers.

To create a User Logical File Name:

1. From *System Main Menu*, select option 4 *Installation and Update Aids*
2. Select 1 *Change Configuration Data*, then option 2 *Controller Options*
3. Place X beside *User Logical File Names* and press ENTER
4. Select 1 *Define a Logical File Name* and type the new user logical file name to be defined and press ENTER
5. On the next screen type the expanded name (full address of the path and/or filename to use) and press ENTER
6. Press F3 until *Configuration* screen is shown, then select 4 *Activate Configuration*
7. Select 2 *Controller Configuration* and press ENTER
8. Re-IPL controller.

2.5.2 File Attributes Set-up

Set the File Attributes on the files on the master controller only.

File attributes may be set manually:

1. From *System Main Menu*, select option 3 *File Utilities*
2. Select 3 *Distributed File Utilities*
3. Select 3 *Modify File Distribute Type*
4. Type the path and filename and press ENTER
5. Specify the distribution as type 4 (compound file, distribute at update)

The same action may also be performed from the command line using:

```
ADXCSU0L 3 4 path:filename
```

Example:

```
ADXCSU0L 3 4 RTI:RTITERMS.DAT (path defined by user logical file name RTI:)
```

Note: Terminal specific RTIKBnnn files may be created (e.g. RTIKB001 for terminal number 1). Set the file attributes for these terminal-specific RTIKBnnn files to attribute 4 (i.e. compound file, distribute at update).

3 The Runtime Procedure

To execute the FDU you will have to terminate the application that is currently running on the Terminal – usually the Terminal Sales Application – and run the FDU. When the FDU terminates you must restart the TSA.

The File Download Utility communicates with the SK-7510 ScreenKey Keyboard to ascertain whether the Download files (CDL, SDL and ODL) that are currently in the SK-7510's non-volatile RAM are the same as those named in the ROMFILENAME, SACFILENAME and OPTFILENAME settings in the RTIKBnnn file and stored in the directory on the controller specified by the RTI: user logical filename.

If they are then the FDU exits without doing anything.

If not then the FDU copies one or more download files from the controller to the SK-7510 via the SIO channel serial port.

If the specified file is not present, the FDU proceeds to download the next file and an error is recorded as specified by the trace setting.

The FDU first checks the CDL file. If it needs to be downloaded then the SK-7510 will clear the current ODL and SDL files from its non-volatile RAM. This means that after a CDL download an ODL and SDL download will be required.

The FDU then checks whether an ODL download is required. If it is then the SK-7510 clears the SDL download from its non-volatile RAM. This means that after an ODL download a SDL download will be required.

The FDU then checks whether a SDL download is required.

The FDU relies on the configuration Files RTITERMS.DAT, RTISESSN.DAT and RTIKBnnn to decide not only the names of the download files but what Serial Port to use and what level of progress reporting.

3.1 Download Files

The Code Download file (.CDL) is supplied by RTI.

The SAC Download File (.SDL) is created by first using the SAC Editor to create a SAC file (.PKF) and then converting the .PKF to a .SDL using the Make Download utility – MAKEDNL.EXE.

The Options Download File (.ODL) is created using the Make Download utility – MAKEDNL.EXE.

3.2 TraceOutput

Progress messages are displayed on the Operator Display and/or sent to the printer cash receipt station and/or saved in a text file. In addition, events are recorded in the Application Event Log. See the discussion of [TraceOutput](#) for details.

4 Problem Determination

The FDU can report progress information and error messages in many different ways, configurable to suit each users particular requirement.

Information to base Problem Determination is available from the following sources

- the Application Event Log
- the TraceOutput
- the Required File Handling
- the Progress display on ScreenKeys

The recommended approach to Problem Determination is to use the Application Event Log. Set the MESSAGE Session number in the RTISESSN.DAT file to 0. This will force TRACELEVEL 1 events to be stored in the Application Event Log. TRACELEVEL 0 events are always stored in the Application Event Log. It will also mean that TraceOutput is turned off so there is no progress reporting / error reporting to the Display, Printer or Trace File (RTITRACE.nnn).

If preferred the Display, Printer or Trace File may be used to record progress and error messages.

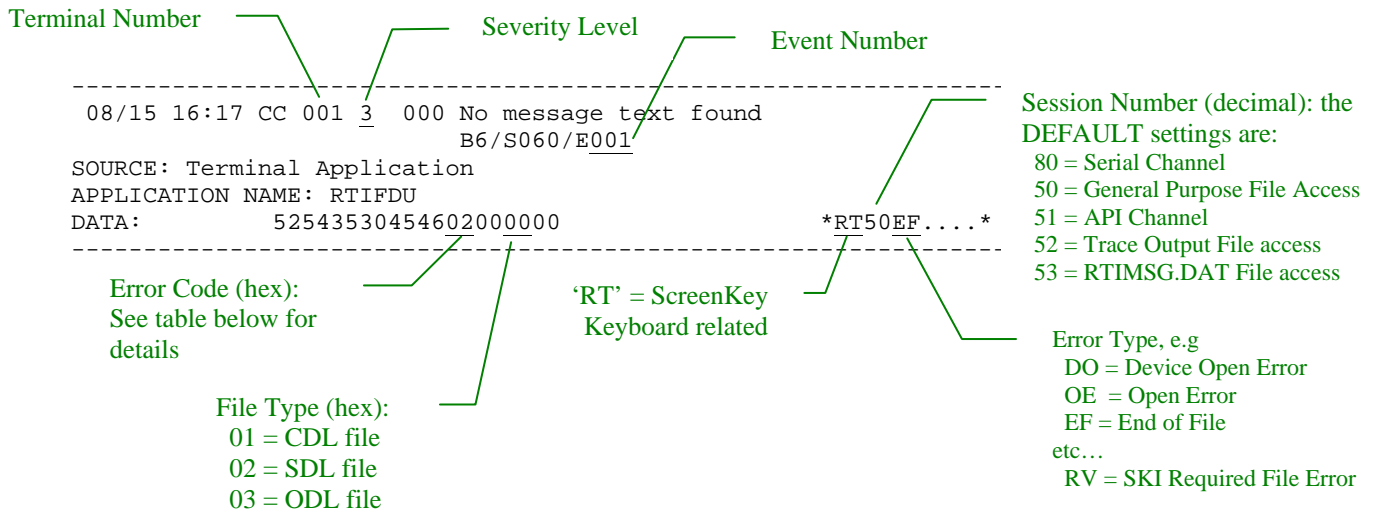
4.1 Application Event Log

All fatal errors (message numbers RT01-RT19) are always recorded in the Application Event Log.

TRACELEVEL 1 messages (message numbers RT20-RT39) may also be recorded in the Application Event Log. If TRACELEVEL flag is set to 1 or 2 but a session number is not assigned for access to the message descriptor file (i.e. "MESSAGES=",0 in RTISESSN.DAT), then all TRACELEVEL 1 messages will be recorded in the Application Event Log.

TRACELEVEL 2 messages (message numbers RT40 and greater) are never recorded in the Application Event Log.

All errors are reported in the Application Event Log with severity level 3 and event number 1.



The Error Code relates directly to the message number described below.

The Error Type reports the error type returned by the 4690 OS, otherwise it will be set to spaces. One SKI specific error code is introduced in the FDU. Error type "RV" indicates that a required file error occurred, either file could not be accessed or required information in the file was not found.

4.1.1 Event Reference and the Application Event Log

The Event Reference is in the form "RT99". It is used to lookup the explanation. To work out the Event Reference from the Application Event Log simply

- 1) take the "RT"
- 2) take the 2 hex digit Error Code and convert to a two digit decimal number

E.g. if the Application Event Log contained the following

```
DATA:      5254353045460D000000          *RT50EF....*
```

it would equate to Event Reference "RT13" because 0D hex is 13 decimal.

4.2 TraceOutput

TraceOutput may be directed to the terminal's Operator Display device, cash receipt station or to a terminal-specific trace file created on the active controller. It is possible to direct TraceOutput to any, all or none of these three destinations.

TraceOutput is controlled by

- a) the MESSAGES session number in RTISESSN.DAT
- b) access to the RTIMSG.DAT file
- c) the TRACELEVEL setting in RTIKBnnn
- d) the TRACETOFILE, TRACETOPRINTER and TRACETODISPLAY settings in RTIKBnnn
- e) the TRACE session number in RTISESSN.DAT

If the MESSAGES session number is zero or the RTIMSG.DAT file is not accessible then TraceOutput is turned off – no information will be sent to the Display, Printer or Trace File.

Messages are divided into three Levels – Level 0, 1 and 2. The TRACELEVEL flag determines what level of TraceOutput is in operation.

TRACELEVEL 0	RT01 – RT19	Serious or fatal error messages that prevent the FDU from completing successfully, e.g. RTITERMS file missing, communications error with keyboard
TRACELEVEL 1	RT20 – RT39	Messages that indicate critical steps achieved in the process, e.g. file download complete, or report non-fatal errors
TRACELEVEL 2	RT40 upwards	Additional information that may be useful in debugging situations

The TRACETODISPLAY, TRACETOPRINTER and TRACETOFILE settings in RTIKBnnn are used to control which devices TraceOutput is sent to. Setting the value to '1' turns on TraceOutput to that device.

TRACETODISPLAY	direct messages to the ANDISPLAY: device. This is typically the Operator Display
TRACETOPRINTER	direct messages to printer's Cash Receipt station
TRACETOFILE	direct messages to a trace file called RTITRACE.nnn where nnn is the 3 digit Terminal number in the path specified by the "RTI:" user logical file name using the TRACE session number from RTISESSN.DAT.

4.2.1 Trace to File

When messages are directed to a trace file, a file called RTITRACE.nnn is generated (where 'nnn' is the terminal number) on the controller in the path specified by the "RTI:" user logical file name.

This file is only created when a unique non-zero session number is allocated to the trace file in RTISESSN.DAT and when the MESSAGES session number is non zero and the RTIMSG.DAT file is accessible.

With the TRACE Session number in RTISESSN.DAT set to a valid non-zero Session Number and Trace settings in RTIKBnnn set to "TRACELEVEL=" , 0 and "TRACETOFILE=" , 1 the trace file output for a successful run will look something like this...

```
27/07/01 @ 01 @ 09:49
VER 3.20
```

With the TRACE Session number in RTISESSN.DAT set to a valid non-zero Session Number and Trace settings in RTIKBnnn set to "TRACELEVEL=" , 1 and "TRACETOFILE=" , 1 the trace file output for a successful run will look something like this...

Trace Level	Message Code	Message
		27/07/01 @ 01 @ 09:49
		VER 3.20
1	RT20	DOWNLOAD UTILITY IS STARTING
1	RT28	FILE DOWNLOAD IS NOT REQUIRED CDL
1	RT28	FILE DOWNLOAD IS NOT REQUIRED OPT
1	RT27	FILE DOWNLOAD COMPLETED SAC
1	RT31	API NOT ENABLED
1	RT22	DOWNLOAD UTILITY HAS FINISHED

With the TRACE Session number in RTISESSN.DAT set to a valid non-zero Session Number and Trace settings in RTIKBnnn set to "TRACELEVEL=" , 2 and "TRACETOFILE=" , 1 the trace file output for a successful run will look something like this...

Trace Level	Message Code	Message
		27/07/01 @ 01 @ 09:49
		VER 3.20
1	RT20	DOWNLOAD UTILITY IS STARTING
2	RT43	DOWNLOAD FILE NAME: CDL 01120000.cdl
2	RT43	DOWNLOAD FILE NAME: SAC abcdef.sdl
2	RT43	DOWNLOAD FILE NAME: OPT abcdef.odl
2	RT44	USE SERIAL PORT NUMBER 2
2	RT48	OPENING DOWNLOAD FILE 01120000.cdl
2	RT50	NUMBER OF BYTES/BLKS 93100/389
1	RT28	FILE DOWNLOAD IS NOT REQUIRED CDL
2	RT48	OPENING DOWNLOAD FILE abcdef.odl
2	RT50	NUMBER OF BYTES/BLKS 141/2
1	RT28	FILE DOWNLOAD IS NOT REQUIRED OPT
2	RT48	OPENING DOWNLOAD FILE abcdef.sdl
2	RT50	NUMBER OF BYTES/BLKS 50307/211
1	RT27	FILE DOWNLOAD COMPLETED SAC
1	RT31	API NOT ENABLED
1	RT22	DOWNLOAD UTILITY HAS FINISHED

4.2.2 Trace to Display

The messages are sent to the ANDISPLAY: device.

4.2.3 Trace to Printer

The messages are sent to the printer's Cash Receipt (CR) station

4.3 Required File Error Handling

For events RT03, RT04, RT05 and RT06 the response includes additional “Required File” handling. This is intended to follow the procedure for dealing with a B040 message.

If running the Terminal Sales Application with User Exit Integration then the system will display the message:

“B040 FILE ACCESS FAILED session number”

It will then wait for the CLEAR key to be pressed. When the CLEAR key is received the program will retry the operation. If it fails again it will report the error and wait for the CLEAR. If the problem is fixed the application will continue. The Terminal Sales Application will loop forever if the problem is not fixed.

If running the RTIFDU.286 application, instead of the B040 message we display the message

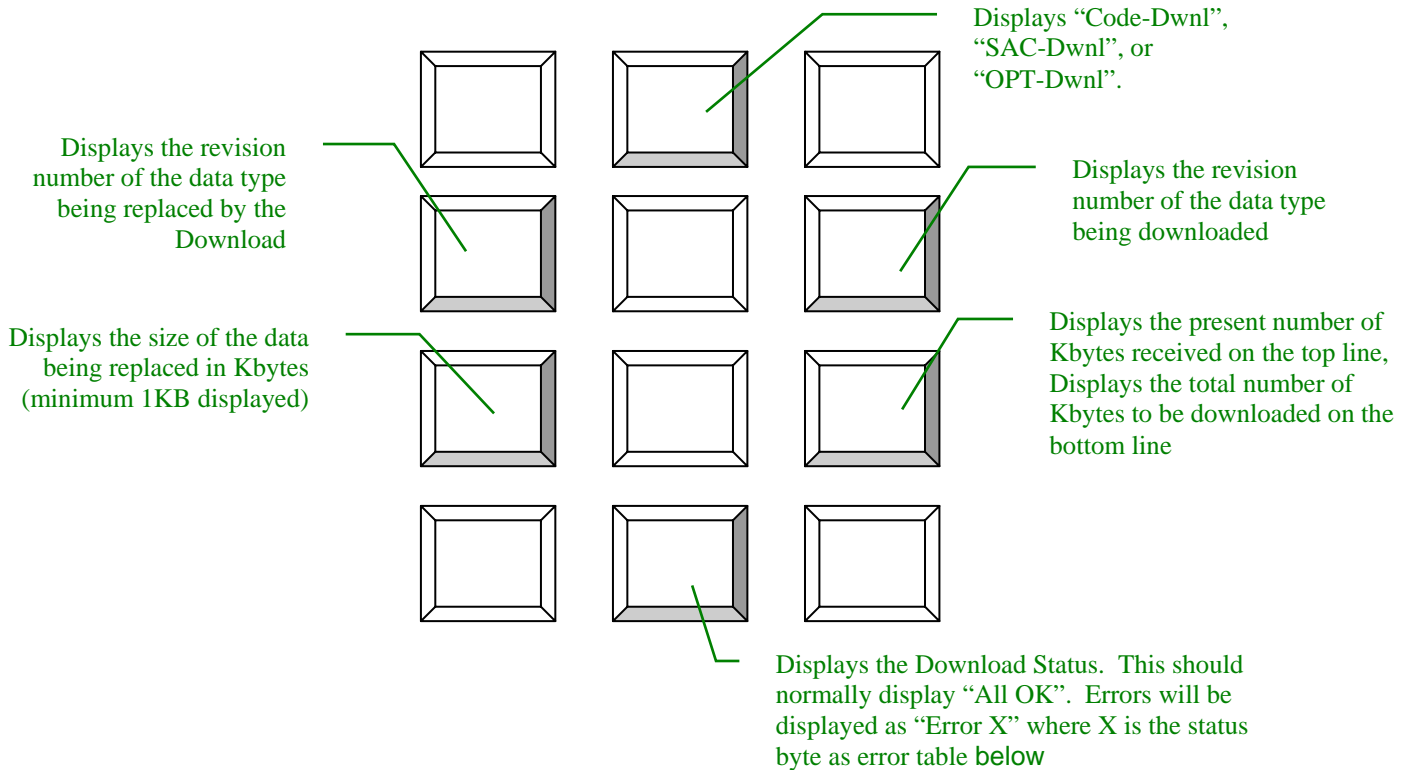
“REQD FILE ERROR session number OPERATION ABORTED”

The Application terminates immediately without attempting to retry the operation.

The required files are RTISESSN.DAT and RTIKB000 or RTIKBnnn.

4.4 Download Progress Reporting on ScreenKeys

The ScreenKey panel is used to give visual indication of the download status. The keys should be interpreted as follows:



4.4.1 Download Status Reported on ScreenKeys

This should normally display "All OK". Errors will be displayed as "Error X" where X is the status byte as error table below. If the download utility disappears the SK-7510 will timeout after sixty seconds and reset. During this period "Error No DU" will be displayed.

		Error List Equivalent
All OK	Data received without error	
Error 2	Command not applicable	5011
Error 3	Invalid data type specified (ROM update / Configuration Data file Update)	5012
Error 4	Insufficient memory	5013
Error 5	Invalid placement specifier	5014
Error 6	Data record checksum error	5015
Error 7	Unexpected number of data records received	5020
Error 8	Command ignored, I'm Busy	
Error 9	Data Synchronization error	5021
Error No DU	Lost Communications with the File Download Utility – wait for 60 seconds before resetting the ScreenKey Keyboard	n/a

The "Error List Equivalent" column lists how these error conditions are recorded in the SK-7510's Error List which is accessible via Diagnostics.

5 Messages Summary

5.1 TRACELEVEL 0 Messages Summary

TRACELEVEL 0 messages include messages from RT01 to RT19.

Serious or fatal error messages that prevent the FDU from completing successfully, e.g. communications error with keyboard. The TRACELEVEL value in the RTIKBnnn file must be set to at least 0.

		App Event Log	Trace Output
RT01	FILE MISSING - RTITERMS.DAT	4	
RT02	ERROR READING RTITERMS	4	
RT03	RTISESSN.DAT MISSING	4 ⁵	
RT04	FAILED TO GET REQD RTISESSN DATA	4 ⁵	
RT05	FAILED TO GET REQD RTIKB CONFIG DATA	4 ⁵	
RT06	FILE MISSING -- RTIKB000	4 ⁵	
RT07	KEYBOARD IS NOT RESPONDING	4	4 ²
RT08	ERROR READING FILE VERSION ID <code>FileType</code>	4	4 ²
RT09	ERROR WRITING TO SERIAL PORT	4	4 ²
RT10	ERROR READING FROM SERIAL PORT	4	4 ²
RT11	TIMEOUT READING FROM SERIAL PORT	4	4 ²
RT12	COMMUNICATIONS ERROR WITH KEYBOARD	4	4 ²
RT13	ERROR READING FILE <code>FileType</code>	4	4 ²
RT14	BYTE COUNTS DO NOT MATCH	4	4 ²

4² in order for output to be seen the RTIMSG.DAT file must be accessible.

4⁵ In addition to recording in the log the [Required File Error Handling](#) will also be used.

`FileType` is the 3 letter code that identifies the file where
“CDL” is a Code Download file (.CDL)
“OPT” is an Options download File (.ODL) and
“SAC” is a SAC download File (.SDL)

Messages shown **greyed out** are no longer used by this version of the File Download Utility and User Exit Kernel.

5.2 TRACELEVEL 1 Messages Summary

TRACELEVEL 1 messages include all the TRACELEVEL 0 messages as well as messages from RT20 to RT39.

Messages that indicate critical steps achieved in the process, e.g. file download complete, or report non-fatal errors. The TRACELEVEL value in the RTIKBnnn file must be set to at least 1.

		App Event Log	or	Trace Output
RT20	DOWNLOAD UTILITY IS STARTING	4 ¹	or	4 ¹
RT21	KEYBOARD IS NOT SKI 7510 <u>Terminal#</u>	4 ¹	or	4 ¹
RT22	DOWNLOAD UTILITY HAS FINISHED	4 ¹	or	4 ¹
RT23	ERROR READING RTIKB LAST	4 ¹	or	4 ¹
RT24	FILE NOT FOUND <u>FileType</u> <u>FileName</u>	4 ¹	or	4 ¹
RT25	WRONG FILETYPE <u>FileType</u> <u>FileName</u> <u>ByteRead</u>	4 ¹	or	4 ¹
RT26	CHECKSUM ERROR ON FILE <u>FileName</u>	4 ¹	or	4 ¹
RT27	FILE DOWNLOAD COMPLETED <u>FileType</u>	4 ¹	or	4 ¹
RT28	FILE DOWNLOAD IS NOT REQUIRED <u>FileType</u>	4 ¹	or	4 ¹
RT29	ERROR READING TEXT MESSAGES FILE	4		
RT30	DOWNLOADING <u>FileType</u> <u>% Figure</u>			4 ⁴
RT31	API NOT ENABLED	4 ¹	or	4 ¹
RT32	API ACTIVATED	4 ¹	or	4 ¹

4¹ Logged ONLY if the Messages session number in RTISESSN.DAT is zero or the RTIMSG.DAT file is otherwise inaccessible. By definition if the events are logged in the Application Event Log they cannot be sent to the TRACEOUTPUT because there is no RTIMSG.DAT file available.

4⁴ Displayed on the Output Trace display device only

5.3 TRACELEVEL 2 Messages Summary

TRACELEVEL 2 messages include all the TRACELEVEL 0 and TRACELEVEL 1 messages as well as messages from RT40 to RT59.

Additional information that may be useful in debugging situations. The TRACELEVEL value in the RTIKBnnn file must be set to 2.

		App Event Log	Trace Output
RT40	OPENING TERM. LIST FILE- RTITERMS.DAT		4 ³
RT41	TERM. NUMBER NOT IN RTITERMS.DAT		4 ³
RT42	DOWNLOAD FILE NAME: NOT SPECIFIED		4 ³
RT43	DOWNLOAD FILE NAME: <u>FileType</u> <u>FileName</u>		4 ³
RT44	USE SERIAL PORT NUMBER <u>PortNumber</u>		4 ³
RT48	OPENING DOWNLOAD FILE <u>FileName</u>		4 ³
RT49	FILE DOWNLOAD BYPASSED <u>FileType</u>		4 ³
RT50	NUMBER OF BYTES/BLKS <u>Bytes/Blocks</u>		4 ³
RT51	UNABLE TO WRITE TO SERIAL PORT		4 ³
RT52	DATA SYNCHRONIZATION ERROR		4 ³
RT53	WRITE RETRIES TO KEYBOARD FAILED		4 ³
RT54	UNABLE TO RESET KEYBOARD		4 ³
RT55	KEYBOARD RESET DUE TO WRITE ERROR		4 ³
RT56	TEXT MESSAGES FILE OPENED		4 ³

4³ There will be no TraceOutput if the RTIMSG.DAT file is unavailable.

6 Message Descriptions

RT01 "FILE MISSING -- RTITERMS.DAT"

Severity: 3

Reported to: Application Event Log only.

Explanation: The attempt to OPEN the RTITERMS.DAT file failed. The reasons for such a failure include:

- 1) the RTITERMS User Logical File name has not been set-up correctly
- 2) The RTITERMS.DAT file is not stored in the location specified by the RTITERMS User Logical File name

If this error is reported by the User Exits Integration then another reason might be

- 3) There is a clash on the Session Number used to access the RTITERMS.DAT file. The User Exits default to Session Number 50 but this can be changed by modifying RTISESSM.C86 and recompiling/linking the Terminal Sales Application.

If the error is reported by the RTIFDU.286 then the program terminates without attempting to download to the SK-7510

If the error is reported by the User Exits integrated into the Terminal Sales Application then the download function terminates without downloading to the SK-7510 and the Terminal Sales Application continues as normal.

User Response: This is an error only if the terminal has a SK-7510 attached and therefore the Download function required access to the RTITERMS.DAT file. The Download function did not happen and therefore the SK-7510 may not have the correct download files. Correct the problem and re-run the download function.

System Action: Logged in the Application Event Log.

RT02 "ERROR READING RTITERMS"

Severity: 3

Reported to: Application Event Log only.

Explanation: The RTITERMS.DAT file has been opened successfully but there was a problem reading the file or else the Terminal Number was not listed in the file.

The Download function terminates without doing the download. The SK-7510 has not been updated.

User Response: This is an error only if the terminal has a SK-7510 attached and therefore the Download function required access to the RTITERMS.DAT file. Edit the RTITERMS.DAT file to include this terminal number in the list and try again.

System Action: Recorded in the Application Event Log.

RT03 "RTISESSN.DAT MISSING"
and "B040 FILE ACCESS FAILED session number" or "REQD FILE ERROR session
number OPERATION ABORTED"

Severity: 3

Reported to: Application Event Log and System Display.

Explanation: The attempt to OPEN the RTISESSN.DAT file failed. The reasons for such a failure include:

- 1) the "RTISESSN" User Logical File name has not been setup correctly
- 2) The RTISESSN.DAT file is not stored in the location specified by the "RTISESSN" User Logical File name

If this error is reported by the User Exits Integration then another reason might be

- 3) There is a clash on the Session Number used to access the RTISESSN.DAT file. The RTIFDU.286 uses Session Number 50 for this purpose. The SK-7510 User Exits default to session Number 50 but this can be changed by modifying RTISESSM.C86.

If running the RTIFDU.286 application then the program ends. The download was unsuccessful. Fix the problem and retry.

If running the User Exit Integration then the system will display a B040 message and wait for the CLEAR key to be pressed. When the CLEAR key is received the program will retry the operation. If it fails again it will report the error and wait for the CLEAR. If the problem is fixed the application will continue. The Program will loop forever if the problem is not fixed.

The Trace output is displayed on the System Display (if the RTIKBnnn parameters are setup to allow this) and then 5 seconds later the "REQUIRED FILE NOT FOUND" message is displayed on the System Display.

User Response: Correct the problem with the RTISESSN.DAT file

System Action: Recorded in the Application Event Log. Also, if running the User Exit Integration then the "B040 FILE ACCESS FAILED session number" processing will be triggered.

RT04 "FAILED TO GET REQD RTISESSN DATA "
and "B040 FILE ACCESS FAILED session number" or "REQD FILE ERROR session
number OPERATION ABORTED"

Severity: 3

Reported to: Application Event Log and System Display.

Explanation: The RTISESSN.DAT file has been opened successfully but there was a problem reading the file.

If running the RTIFDU.286 application then the FDU will display the "REQD FILE ERROR session number OPERATION ABORTED" message on ANDISPLAY (where *session number* will be 50 - the session number used to attempt to open the RTISESSN.DAT file). The program ends. The download was unsuccessful.

If running the User Exit Integration then the system will display a B040 message and wait for the CLEAR key to be pressed. When the CLEAR key is received the program will retry the operation. If it fails again it will report the error and wait for the CLEAR. If the problem is fixed the application will continue. The Program will loop forever if the problem is not fixed.

The Trace output is displayed on the System Display (if the RTIKBnnn parameters are setup to allow this) and then 5 seconds later the "REQUIRED FILE NOT FOUND" message is displayed on the System Display.

User Response: Fix the problem and retry.

System Action: Recorded in the Application Event Log. Also, if running the User Exit Integration then the "B040 FILE ACCESS FAILED session number" processing will be triggered.

RT05 "FAILED TO GET REQD RTIKB CONFIG DATA"
and "B040 FILE ACCESS FAILED session number" or "REQD FILE ERROR session
number OPERATION ABORTED"

Severity: 3

Reported to: Application Event Log and System Display.

Explanation: The RTIKBnnn file did not contain the required data. The minimum
RTIKBnnn file must contain values for at least...

```
"ROMFILENAME=", "file_cdl.cdl"  
"SACFILENAME=", "file_sdl.sdl"  
"CFGFILENAME=", "file_old.odl"  
"SERIALPORT#=", 2
```

If running the RTIFDU.286 application then the FDU will Display the "REQD FILE
ERROR session number OPERATION ABORTED" message on ANDISPLAY (where *session
number* will be 50 - the session number used to attempt to open the RTIKBnnn
file). The program ends. The download was unsuccessful.

If running the User Exit Integration then the System will display a "B040 FILE
ACCESS FAILED session number" message (where *session number* will be 50 by
default or whatever session number has been edited into the RTISESSM.C86 User
Exit code). The Program will loop forever if the problem is not fixed.

The Trace output is displayed on the System Display (if the RTIKBnnn parameters
are setup to allow this) and then 5 seconds later the "REQUIRED FILE NOT FOUND"
message is displayed on the System Display.

User Response:

System Action: Recorded in the Application Event Log.

RT06 "FILE MISSING -- RTIKB000"
and "B040 FILE ACCESS FAILED session number" or "REQD FILE ERROR session
number OPERATION ABORTED"

Severity: 3

Reported to: Application Event Log and System Display and Trace Output.

Explanation: The attempt to OPEN the RTIKBnnn (where nnn is the 3 digit
terminal number) file failed and the attempt to open the RTIKB000 file also
failed. The reasons for such a failure include:

- 1) the "RTIK:" User Logical File name has not been setup correctly
- 2) The "RTIKB000" or RTIKBnnn" file is not stored in the location
specified by the "RTIK:" User Logical File name

If this error is reported by the User Exits Integration then another
reason might be

- 3) There is a clash on the Session Number used to access the RTIKB000
and RTIKBnnn file. The RTIFDU.286 uses Session Number 50 for this
purpose. The SK-7510 User Exits default to session Number 50 but
this can be changed by modifying RTISESSM.C86.

If running the RTIFDU.286 application then the FDU will display the "REQD FILE
ERROR session number OPERATION ABORTED" message on ANDISPLAY (where *session
number* will be 50 - the session number used to attempt to open the RTISESSN.DAT
file). The program ends. The download was unsuccessful.

If running the User Exit Integration then the system will display a B040
message and wait for the CLEAR key to be pressed. When the CLEAR key is
received the program will retry the operation. If it fails again it will report
the error and wait for the CLEAR. If the problem is fixed the application will
continue. The Program will loop forever if the problem is not fixed.

The Trace output is displayed on the System Display (if the RTIKBnnn parameters
are setup to allow this) and then 5 seconds later the "REQUIRED FILE NOT FOUND"
message is displayed on the System Display.

User Response:

System Action: Recorded in the Application Event Log.

RT07 "KEYBOARD IS NOT RESPONDING"

Severity: 3

Reported to: TraceOutput and the Application Event Log

Explanation: The Terminal communicates with the SK-7510 via the Serial Port Channel. The Serial Channel is Opened using the session number value specified in the "SERIAL=" setting in the RTISESSN.DAT file and "SERIALPORT#=" value specified in the RTIKBnnn file. If the open fails the code will continue to retry to open the Serial Channel every half second for the number of seconds specified in the "KBDTIMEOUT=" setting in the RTIKBnnn file.

The Download will terminate and not attempt to download this or any more files.

User Response: One reason the Serial channel may not be available is because the SK-7510 may be temporarily offline and not responding. For instance, the SK-7510 will be offline for between 15 and 30 seconds after a code download. So, check that the "KBDTIMEOUT=" setting in RTIKBnnn is sufficient. The maximum value allowed is 49.

There may also be a clash on the Session Number used. Check the value used for the "SERIAL=" setting in the RTISESSN.DAT file.

The serial channel may not be setup correctly in the Terminal Device Group. Either it is configured so that the device address does not match the Serial Channel device address specified in the SK-7510 EEPROM or the port number specified in the TDG configuration does not match the port number in the RTIKBnnn file.

System Action: Recorded in the Application Event Log.

RT08 "ERROR READING FILE VERSION ID *FileType*"

Severity: 3

Reported to: TraceOutput and the Application Event Log

Explanation: The attempt to read the File Type and File ID from the File Header failed. The Download terminates without attempting any remaining downloads.

User Response: Check that this is a valid download file.

System Action: Recorded in the Application Event Log.

RT09 "ERROR WRITING TO SERIAL PORT"
RT10 "ERROR READING FROM SERIAL PORT"
RT11 "TIMEOUT READING FROM SERIAL PORT"
RT12 "COMMUNICATIONS ERROR WITH KEYBOARD"

Severity: 3

Reported to: TraceOutput and the Application Event Log

Explanation: Problem with the Serial Channel. The Download terminates without attempting any remaining downloads.

User Response: Contact Tech Support

System Action: Recorded in the Application Event Log.

RT13 "ERROR READING FILE *FileType*"

Severity: 3

Reported to: TraceOutput and the Application Event Log

Explanation: There was a problem reading the File.

User Response: Contact Technical Support

System Action: Recorded in the Application Event Log.

RT14 "BYTE COUNTS DO NOT MATCH"

Severity: 3

Reported to: TraceOutput and the Application Event Log

Explanation: The number of bytes sent to the SK-7510 by the FDU does not match the number of bytes that the SK-7510 has received. The FDU terminates without completing the download that it is currently sending and does not attempt any other downloads.

User Response: Contact Technical Support

System Action: Recorded in the Application Event Log.

RT20 "DOWNLOAD UTILITY IS STARTING"

Severity: 3

Reported to: TraceOutput

Explanation: This progress message indicates that the RTITERMS.DAT, RTISESSN.DAT, RTIMSG.DAT (optional) and RTIKBnnn files have been opened successfully and the Download to the SK-7510 is about to start.

The RTIMSG.DAT file is optional so the Download Utility will run but it will not display messages - not even this one.

User Response: None

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT22 "DOWNLOAD UTILITY HAS FINISHED"

Severity: 3

Reported to: TraceOutput

Explanation: This progress message indicates that the download code is finished processing.

The RTIMSG.DAT file is optional so the Download Utility will run but it will not display messages - not even this one.

User Response: None

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT24 "FILE NOT FOUND *FileType FileName*"

Severity: 3

Reported to: TraceOutput

Explanation: The attempt to open the download file name specified in the RTIKBnnn file using the "RTI:" User Logical File Name and session number(*) failed. The error message is reported to the Trace Output devices and a one and a half second later (to give the user a chance to see the message) the program proceeds to try the next download file.

(*) the Session number is 50 in the FDU and by default in the User Exit Kernel. The User Exit Kernel may be changed by editing the RTISESSM.C86 file.

User Response: None

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT25 "WRONG FILETYPE *FileType* *FileName* *ByteValue* "

Severity: 3

Reported to: TraceOutput

Explanation: The *FileType* is part of the first block of data in the file. When we compare the File Type we are looking for (*FileType*) with the file type in the file itself (*ByteValue*) they did not match. The attempt to download this file is abandoned and the application moves on to the next download file.

FileType is the 3 letter code that identifies the file where

"CDL" is a Code Download file (.CDL)
"OPT" is an Options download File (.ODL) and
"SAC" is a SAC download File (.SDL)

ByteValue is a value read from the file. It should be 1 for .CDL files, 2 for .SAC files and 3 for .ODL files.

User Response: Correct the problem and rerun the Download

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT26 "CHECKSUM ERROR ON FILE *FileName*"

Severity: 3

Reported to: TraceOutput

Explanation: The Checksum is calculated by reading through the whole file. If it's incorrect then the attempt to download this file is abandoned and the application moves on to the next download file.

User Response: Correct the problem and rerun the Download.

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT27 "FILE DOWNLOAD COMPLETED *FileType*"

Severity: 3

Reported to: TraceOutput

Explanation: This file has been downloaded successfully.

User Response: None

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT28 "FILE DOWNLOAD IS NOT REQUIRED *FileType*"

Severity: 3

Reported to: TraceOutput

Explanation: The file that is already in the SK-7510 is the same as the file on the Controller in the location specified by the "RTI:" User Logical Filename. The File Name is taken from the RTIKBnnn settings.

User Response: None

System Action: Recorded in the Application Event Log if TraceOutput is off.

RT29 "ERROR READING TEXT MESSAGES FILE"

Severity: 3

Reported to: Application Event Log only - regardless of TRACELEVEL setting

Explanation: The RTIMSG.DAT file is opened only if the "MESSAGES=" session number taken from the RTISESSN.DAT file is not zero. An attempt is made to open the RTIMSG.DAT file using the Session number from the RTISESSN.DAT file and the "RTI:" user Logical File Name.

This is not a fatal error. The download procedure will continue. However, there will be no TraceOutput. TRACELEVEL 0 messages will continue to be logged to the Application Event Log. In Addition TRACELEVEL 1 messages will also be logged to the Application Event Log even if the TRACELEVEL setting is 0.

User Response: None

System Action: None.

RT30 " DOWNLOADING FileType %figure "

Severity: 3

Reported to: Display device only if TraceOutput is active and TRACELEVEL is greater than zero.

Explanation: Progress message showing the percentage complete figure. The progress reporting frequency for large files (>= 20 blocks) is 20 times, medium (>= 5 blocks)report 5 times small report every block - at most 4 times.

Shown on the Display device only. Never sent to the Application Event Log.

User Response: None

System Action: None.

RT31 "API NOT ENABLED"

Severity: 3

Reported to: TraceOutput if the TRACELEVEL is set to 1 or 2

Explanation: This progress message indicates that API channel is not available because the "API=" session number in RTISESSN.DAT is missing/zero OR because we tried and failed to OPEN "ANDISPLAY3:".

Opening the API Channel is a separate job from the Download and will still be attempted even if the Download fails.

User Response: No response is required if the user has chosen to disable the API. However, if the user selected to activate the API and it's reported as "NOT ENABLED" then remedial action is required. There may be a Session Number clash on session number used for the API channel. This is 51 by default but is set in the "API=" value of RTISESSN.DAT.

System Action: Recorded in the Application Even Log if TraceOutput is off.

RT32 "API ACTIVATED"

Severity: 3

Reported to: Trace Output if the TRACELEVEL is set to 1 or 2

Explanation: This progress message indicates that API channel is available because "ANDISPLAY3:" has been opened successfully.

Opening the API Channel is a separate job from the Download and will still be done even if the Download fails.

User Response: No response is required if the user has chosen to activate the API Channel by assigning a non-zero session number to the "API=" setting in the RTISESSN.DAT file. However, if the API is Active and the intention was to disable the API then edit the session numbers file - RTISESSN.DAT - and set the API session number to zero.

System Action: Recorded in the Application Even Log if TraceOutput is off.

RT42 "DOWNLOAD FILE NAME: NOT SPECIFIED"

Severity: 3

Reported to: Trace Output

Explanation: This progress message indicates that the Download File Names read from the RTIKBnnn file was specified as "" (empty) or set to all spaces so a download will not be attempted for this file.

User Response: None

System Action: None.

RT43 "DOWNLOAD FILE NAME: *FileName*"

Severity: 3

Reported to: TraceOutput

Explanation: This progress message reports the Download File Names read from the RTIKBnnn file.

User Response: None

System Action: None.

RT44 "USE SERIAL PORT NUMBER *PortNumber*"

Severity: 3

Reported to: Trace Output if the TRACELEVEL is set to 2

Explanation: This progress message shows the Serial Port Number read from the RTIKBnnn file.

User Response: None

System Action: None.

RT48 "OPENING DOWNLOAD FILE *FileName*"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This progress message shows the Download File Name before the attempt to open the file. *FileName* is the name taken from the RTIKBnnn file.

User Response: None

System Action: None.

RT49 "FILE DOWNLOAD BYPASSED *FileType*"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: See RT42.

User Response: None

System Action: None.

RT50 "NUMBER OF BYTES/BLKS *FileSize/NumBlocks*"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This progress message displays the size of the file that is about to be downloaded in bytes and also in 240 byte blocks.

User Response: n/a

System Action: None.

RT51 "UNABLE TO WRITE TO SERIAL PORT"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This message indicates a problem with the Serial Communications.

User Response: Contact Tech Support

System Action: None.

RT52 "DATA SYNCHRONIZATION ERROR"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This message corresponds to an "Error 9" message on the ScreenKey download Status display. It indicates that the number of blocks sent by the application to the SK-7510 does not match the number of Blocks received by the SK-7510.

User Response: Contact Tech Support

System Action: None.

RT53 "WRITE RETRIES TO KEYBOARD FAILED"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This message indicates a problem with the Serial Communications.

User Response: Contact Tech Support

System Action: None.

RT54 "UNABLE TO RESET KEYBOARD"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This message indicates a problem with the Serial Communications.

User Response: Contact Tech Support

System Action: None.

RT55 "KEYBOARD RESET DUE TO WRITE ERROR"

Severity: 3

Reported to: TraceOutput if TRACELEVEL is set to 2

Explanation: This message indicates a problem with the Serial Communications.

User Response: Contact Tech Support

System Action: None.

APPENDIX A Documentation Control

A.1 Change Control

This document is the responsibility of the author and is subject to formal change control after the initial approved release (i.e. issue 1.0).

A.2 Abbreviations Used/Terms of Reference

API	Applications Programming Interface
BCR	Bar Code Reader
CDA	Control Display Area, pop-up 1x20 large font display on bottom of large-panel LCD screen
CDL	Code Update – new runtime application file that can be downloaded into the keyboard to alter its mode of operation, i.e. similar to microcode update
EEPROM	Electrically Erasable Read Only Memory, a memory device that retains information indefinitely when power is disconnected
GSA	General Sales Application – sales application running on IBM 46xx sales terminals
LED	Light Emitting Diode, indicator lights on keyboard
MCR	Magnetic Card Reader
ODA	Operator Display Area, upper large text area on the SK-7510 large-panel LCD screen
ODL	Options DownLoad file.
PC	Personal Computer.
SA	Supermarket Application – sales application running on IBM 46xx sales terminals
SAC	ScreenKey Active Control, file that defines the set of drill-down menus to be implemented on the ScreenKeys
SDL	SAC DownLoad file after conversion by MakeDNL utility
Scan Code	A scan code consists of 2 bytes—usually 1 byte for the ASCII value and 1 byte for the keyboard position code.
TDA	Transaction Display Area, lower small text section on the SK-7510 large-panel LCD screen
TDG	Terminal Device Group, specifies the devices attached to the terminal and to which sockets they are attached

A.3 Historical Change Reference

Issue	Date	Author	Changes Made
1.0	08/02/01	M. McDonnell	Initial Release
1.1	01/09/01	U Carroll	Updated based on feedback from the field.
1.2	14/03/2006	J Blomquist	Removed references to discontinued SK-3510

A.4 Change Summary

- 1.1 Information reorganised and expanded. Added to the “Problem Determination” section. Added the Checklist. Added a comparison of User Exits V File Download Utility...

APPENDIX B File Download Utility v User Exit Integration

The following table compares and contrasts the SK-7510 File Download Utility and the SK-7510 User Exit Kernel.

File Download Utility	User Exit Kernel
What does it do?	
<p>The purpose of the File Download Utility (RTIFDU.286) is to ensure that the correct Code (.CDL), SAC (.SLD) and Options (.ODL) files are installed in the SK-7510 non-volatile memory.</p> <p>It compares the versions of these files stored in the SK-7510 with the version stored on the Controller. If they are different it downloads the files from the Controller to the SK-7510.</p> <p>This is the only purpose of the File Download Utility.</p>	<p>The same.</p> <p>However, this is not the only purpose of the User Exit kernel. The User Exit kernel also enables the Terminal Sales Application to control additional SK-7510 features using the API. For example, the application can display data on the SK-7510's LCD Panel. The Download is a core part of the User Exit Kernel. The API features are optional.</p>
When is it Run?	
<p>The File Download Utility is a standalone .286 program – separate from the Terminal Sales Application. If you want it to check/download to the SK-7510 you must explicitly run it on the terminal. Once it does its job it terminates. Typically the sequence of actions would be to a) stop the Terminal Sales Application, b) Start the File Download Utility, c) when the FDU terminates start the Terminal Sales application again.</p>	<p>The User Exits Kernel must be integrated into the Terminal Sales Application (TSA).</p> <p>Integration is the recommended way to handle the Downloads as it enables the Terminal Sales Application, at its discretion, to trigger a download thus ensuring that the latest files are always in the SK-7510. The code to check / download can be run every time the TSA is started and also every time it is personalised.</p> <p>The additional features, if any, which were coded at User Exit Integration time will be active as well.</p>
What Configuration Files does it use?	
<p>The File Download Utility uses the RTITERMS.DAT, RTIKBnnn, RTISESSN.DAT and RTIMSG.DAT files. These files must be available in the directory specified by the Logical File Names</p>	<p>The same.</p>
What about Session Numbers?	
<p>Since this is a standalone program it is free to use whatever session numbers it likes apart from those hardcoded numbers used in the Download Utility itself (see page 9). However, since the File Download utility is often a prelude to using the User Exits it would make sense to use session numbers that are acceptable to the User Exits.</p>	<p>RTISESSN.DAT specifies which Session Numbers the User Exit code is allowed to use. It is crucial that those chosen don't clash with Session Numbers already in use by the Terminal Sales application.</p> <p>There is also a Session Number in RTISESSM.C86 than can be changed.</p>
How should the Terminal be Configured?	
<p>The Terminal Device Group must be configured to include a Serial Port. The File Download Utility needs this serial port in order to communicate with the SK-7510 for the purpose of the download.</p>	<p>The same.</p> <p>In addition, the Terminal Device Group must be configured to include an ANDISPLAY3 device if the API features of the User Exit Kernel are to be used.</p>
How should the Controller be Configured?	
<p>The File Download Utility uses a number of Logical Files Names to locate the SKI Files.</p>	<p>The same.</p>
How should the SK-7510 be Configured?	
<p>The SK-7510 must be configured (EEPROM) to support the same serial port (a device address rather than a Port number) as specified in the Terminal Device Group</p>	<p>The same.</p> <p>Also, the Options Download (.ODL) should enable the API device so that the API channel is available if required.</p>

File Download Utility Checklist

Installation Site:

Terminal Number :

Terminal Device Group:

Date :

Use this checklist to ensure that all the items are correctly configured to enable the FILE DOWNLOAD UTILITY to be used to download the Code file (.CDL), Options File (.ODL) and ScreenKeys File (.SDL) to a terminal with a SK-7510 keyboard.

SK-7510 Keyboard Configuration

- Configure the EEPROM (Diagnostics menu) to set the Serial Port device address (Typically 64) the Keyboard device address (typically 10). Also, in the case of the SK-7510 configure the Operator Display Device address (Typically 22)

Serial Device Address
ODA device address
Keyboard device addr

Terminal Configuration

Terminal Device Group Setup

- Set the Serial device address to match that selected in EEPROM and set the Port number to match that selected in the RTIKBxxx file (see below)
- Set the Keyboard device to match that selected in EEPROM
- Set the Operator Display device to match that selected in EEPROM

Keyboard Layout Setup

- Create a Keyboard layout for a 4683 keyboard ("old 50Key"), if one doesn't already exist

Terminal Load Definition Setup

- Set the Terminal Device Group and Keyboard layout to those that were created to support the SK-7510

* Don't forget to activate the new terminal configuration

Serial Device Address
Port Number
ODA device address
Keyboard device addr

Controller Configuration

Set Logical File Names

- Set the logical File Names

Install SKI Files

- Copy the SKI files into the directories specified in the Logical File Names (RTITERMS.DAT, RTIKBxxx, RTISESSN.DAT, RTIMSG.DAT, the Code file (.CDL), the Options File (.ODL) and the ScreenKeys file (SDL))
- Copy the FILE DOWNLOAD UTILITY (RTIFDU.286) into whatever directory is convenient – probably best to put it in the same directory as the other SKI files

Configure SKI Files

- Configure the RTITERMS.DAT file (specify which terminals have SK-7510 keyboards)
- Configure the RTIKBxxx file (to specify the Serial Port Number – must match the port number assigned in the terminal device Group – the names of the .CDL, .ODL and .SDL files to download, and the level of progress reporting (Tracing) required)
- Configure the RTISESSN file (the default file should be Ok)

* Don't forget to activate the new Controller configuration (the Logical File Names)

Logical file names
Port number

Run the File Download Utility

- Repower the Terminal or run the "Load Terminal Configuration Data" command to get the new configuration into the Terminal (this is in addition to "activating" the terminal configuration)
- Run the FILE DOWNLOAD UTILITY application from the terminal commands menu

(Logical Files Names)