SECURITRE

Reference Manual

Note: All references to the SECURITRE version in this manual are indicated by *vrs* or *v.r.s.* The current release of SECURITRE is version 4.1.2.

Comments pertaining to this document and t he SECURITRE package are encouraged. Please direct all comments to:

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Worldwide marketing of SECURITRE and other products of Treehouse Software, Inc. (TSI) is handled through the Sewickley office.

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SECTION I

INTRODUCTION

I.1   SECURITRE Documentation

The structure of the SECURITRE documentation is intended to make information about the product more convenient to locate and use.

Treehouse Software, Inc. (TSI) provides two manuals for SECURITRE. In order t o successfully install and use SECURITRE, both manuals are required.

Administrator Guide
The Administrator Guide provides detailed explanations for installing, setting up, and tailoring SECURITRE to site-specific needs.

The Administrator Guide explains how t o install and prepare S ECURITRE for use by using a simple, efficient process. It explains installation details for SECURITRE modules and adjustments necessary in RACF, ACF2, and TOP SECRET. It also explains the few primary parameters and m odules necessary to get SECURITRE running in a T EST environment, giving several comprehensive examples. Once SECURITRE is operational, it is necessary to view the SECURITRE Reference Manual for information about placing SECURITRE into PRODUCTION, fine tuning, and defining less frequently used parameters.

Reference Manual
The Reference Manual provides detailed reference material about the various SECURITRE functions and features.

The Reference Manual is intended for reference use after the product has been installed and its successful operation has been verified.   The Reference Manual lists and describes the items that are typically referenced. Parameters are listed in alphabetical order, and Error Codes are listed in numeric order. There is little introductory discussion in this manual.

The nature of security precludes giving detailed security information or describing security techniques to all except those with a n eed for the information. Therefore, there is no "User Manual" with SECURITRE. T he "users" in this case are end-us ers and app lications programmers. These personnel do not normally need to know if security is in effect or how it is employed. T hey only need to know that they should report to their management if they receive a security violation message.

Those people with a need for SECURITRE information include:

- The highest level of management to be assured their data and applications are secure
- The Security Administrator, Auditors, and the Security Staff
- The DBA and/or DBA Staff
- The NATURAL Administrator(s)
- The System Programmers and Operations Staff for installation help
- The Applications Analysts and Project Leaders to understand SECURITRE's Application Security features (STRNAT and STRASM)

Additional documentary materials of value to SECURITRE sites are available from TSI free of charge. These include:

- Product Overview
- Fact Sheet

The following sections are presented in this Reference Manual:

- SECURITRE for ADABAS Nucleus
- SECURITRE for NATURAL
- SECURITRE for ADABAS Utilities
- Real-time Monitor
- Internal Application Security Features (STRNAT and STRASM)

I.2   Introduction to SECURITRE

Most IBM (and compatible) mainframe installations rely on one of three major operating System Security Facilities (SSFs) (i.e., RACF, ACF2, or TOP SECRET) to control access to their non-ADABAS data and non-NATURAL applications. These facilities provide centralized security administration for all such applications and datasets available on the computer system.

Centralized control of the security function is essential to promoting the integrity and safety of the computerized applications. ADABAS and NATURAL do not interface directly with these centralized security systems. Instead, ADABAS and NATURAL have their own security mechanisms.

SECURITRE provides an interface that allows all ADABAS/NATURAL related security rules to reside in the SSF, enabling all security data to exist as part of a single rule base. The single rule base provides better security and makes it much easier to manage changes in the security environment.

With SECURITRE in place, the process of controlling access to ADABAS and NATURAL is simplified and centralized. The SSF controls access to ADABAS data and NATURAL environments at all levels, eliminating the need for separate ADABAS and NATURAL security control mechanisms and separate security files and application-based security logic.

A full introduction to the principle of Central Security Management and a more detailed introduction to SECURITRE are presented in the Introduction Section of the Administrator Guide.

SECTION II

SECURITRE FOR ADABAS NUCLEUS

II.1   SECURITRE for ADABAS - Parameters

SECURITRE has been designed to enable the Security Administrator to easily tailor SECURITRE to meet si te-specific requirements. Through the use of parameters, a si te customizes SECURITRE for ADABAS accordi ng to its needs. Tabl es and f ull descriptions of these parameters appear l ater in this section. T he two parameter statem ents (macros) provi ded include:

```
STRDEF          specifies SECURITRE DEFault settings
STRFNR          specifies SECURITRE file (FNR) overrides
```

STRDEF parameters make it possible for the Security Administrator to specify actions that should be taken by SECURI TRE on a gl obal basis. Many of the STRDEF paramet ers may be overridden at the file level by STRFNR parameters. In most cases, STRDEF makes it possible to define the processing rules to SECURITRE for all the files in a database with only few STRFNR statements for "special case" files.

For Example:

```
STRDEF          Defaults pertaining to site standards, and general file security for
                the database
STRFNR          Exceptions for file 10
STRFNR          Exceptions for files 20-25, 27
STRFNR          Exceptions for file 32
```

```
STRFNR END      This must always be the last STRFNR macro invocation!.
```

The specifications of STRDEF and STRFNR stat ements make up the SE CURITRE parameters, or "STRPARMS." **A set of STRPARMS must be generated for use with each database.** These are to be named STP99999, where ' 99999' refers to the database number i n the range 00001-65535. When SECURITRE is run on a particular database, SECURITRE expects to find a 'STRPARMS' module, named appropriately for the database, in the ADABAS Load Library.

II.2   **STRDEF Statement**

The purpose of the STRDEF stat ement is to speci fy default SECURITRE setti ngs. Onl y one STRDEF statement may be coded for each STRPARMS module.

The reference format for the STRDEF and STRF NR parameters i s standard macro assembl er format:

- Opcode in column 10
- One or more spaces
- Operands up to column 71, separated by commas
- Continuation symbol (x) in column 72
- Continuation lines start in column 16

In the fol lowing figure, the col umn entitled **STRFNR Override?** indicates (Yes or No) i f the STRDEF parameter can be overridden by an STRFNR parameter.

STRDEF Parameter	Function	Valid Values	Default Value	STRFNR Override?
CLASS	Dataset class name	any value defined to the SSF	DATASET	N
CMDLOG	Indicates whether to request command logging in User-Exit-4	ON or OFF	OFF	N
DELIM	Delimiter character in the DSN	any character or null (")	. (period)	Y
DSNORDR	Order to generate the DSN for File Security	any combination of up to eight of the following: CMD, DBID, FIELD, FILE, GPGM, JOB, NLIB, NODE, NPGM, TERM, TPMON, or TRAN	FILE	Y
DSNPOOL	Number of DSNs to maintain in User-Exit-1 DSN table	1 to 10000	100	N
EX1ALL	Calls STREX1 for documented and undocumented ADABAS commands	ON or OFF	OFF	N
FILEMAX	Specifies the maximum number of files to secure	OLD (255 files) NEW (65535 files)	OLD	N
FLSDEL	Literal to be included in place of FIELD in the DSNORDR during a delete command	any string up to eight characters	DELETE	Y

Figure 1 – STRDEF Parameters

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STRDEF Parameter	Function	Valid Values	Default Value	STRFNR Override?
FLSPOOL	Number of ADABAS Command-IDs for which SECURITRE may maintain information during Field Level Security processing	0 to 50, must be divisible by 10	20	N
FORCE	Hour to purge user tables	0 to 23 or 99	99 (never purge)	N
LOGVIOL	Specifies which violations (for each file) should be logged by the SSF	ALL or FIRST	ALL	Y
MODE	SECURITRE file protection mode setting	DORMANT, WARN, or FAIL	FAIL	Y
NOIDRED	Action to take when no User-ID is found for a READ command	ACCEPT or REJECT	REJECT	Y
NOIDUPD	Action to take when no User-ID is found for an UPDATE command	ACCEPT or REJECT	REJECT	Y
N2OPREF	DSN Prefix generated for N2O security	any value up to 17 characters	CONTROL.N2O	N
PREFIX	DSN prefix (first part of DSN)	any value up to 17 characters	ADABAS.STR	Y
PRINT	Assembler PRINT directive	GEN or NOGEN	NOGEN	N
PROCCL	Indicates whether USERID table entries should be processed (removed) when an ADABAS CL command is received	ON or OFF	ON	N
PROCEX2	Indicates whether SECURITRE User-Exit-2 should be invoked	ON or OFF	OFF	Y
PURINTT	Seconds user must remain inactive to be purged from internal table	any positive integer value	0	N

Figure 1 – STRDEF Parameters

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STRDEF Parameter	Function	Valid Values	Default Value	STRFNR Override?
PURINTV	Interval at which inactive users should be purged (in hours)	0, 1, 2, 3, 4, 6, 8, 12, or 24	0 (do not purge)	N
QUALIFY	DSN name qualifier (second part of DSN)	any value up to eight characters or null (")	PROD	Y
RACHECK	Type of check to be used when calling the SSF (for future use)	RACHECK	RACHECK	N
RTMORDR	Order to generate the DSN to secure the SECURITRE RTM	any combination FUNC and/or DBID	(FUNC, DBID)	N
SECURE	SSF in use at the installation	RACF, ACF2, or TSS	RACF	N
STREX1	Specifies a user-exit to SECURITRE when USERID is unknown	load module name	no default value	N
STREX2	Specifies a user-exit to SECURITRE after an ADABAS command has passed security checks	load module name	no default value	N
STREX3	Specifies a user-exit to SECURITRE when SECURITRE is in an unrecoverable ABEND situation.	load module name	no default value	N
STREX4	Reserved	N/A	N/A	N
STRRTM	DSN prefix generated for the SECURITRE RTM	any value up to 17 characters	CONTROL.STR	N
TERM	Stop or Terminate SECURITRE RTM NATURAL programs	S or T	S	N
TRACE	Specifies if diagnostic trace messages should be produced during execution	ON or OFF	OFF	N
TRACEDD	Defines the DD-name and SYSOUT class for trace messages	(ddname,c)	(STRTRC,H)	N
TRMRTM	DSN prefix generated for the TRIM RTM	any value up to 17 characters	CONTROL.TRM	N
UEXIT11	Specifies a second ADABAS User-Exit-11 to be invoked by SECURITRE	load module name	no default value	N

Figure 1 – STRDEF Parameters

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STRDEF Parameter	Function	Valid Values	Default Value	STRFNR Override?
USERID	Primary method used to find the User-ID	TSIUEX1G TRIMV4-1, TRIMV4-2, STREX1 Note: TRIMV5 , TRIMV6 and ALT-1/2 are no longer supported. TSIUEX1G should be used instead.	TSIUEX1G	N
USERID2	Alternate method used to find the User-ID	NONE TRIMV4-1 TRIMV4-2, TSIUEX1G, Note: TRIMV5 and TRIMV6 are no longer supported. TSIUEX1G should be used instead.	NONE	N
USERS	Number of users to maintain in the internal SECURITRE table	1 to 10000	100	N
USRPOOL	Number of user-to-DSN relationship segments to maintain in the internal SECURITRE table	4 to 20000, must be equally divisible by 4	400	N
UTMODE	Utility Security protection mode setting	DORMANT, WARN, or FAIL	WARN	N
UTORDER	Order to generate the DSN for Utility Security	any combination of UTIL, FUNC, and/or FILE	(UTIL, FUNC, FILE)	N
UTPREF	DSN prefix for ADABAS Utility runs	any value up to 17 characters	ADAUTIL	N

Figure 1 – STRDEF Parameters

II.3   STRDEF Parameters

CLASS
The resource cl ass to be used by SECURI TRE when request ing authorization information from the SSF.

Valid Values:	any value defined to the SSF
Default Value:	DATASET
Assigned By:	STRDEF only

CMDLOG
Indicates whether to request command l ogging in ADABAS User-Exi t-4. Since the last User-Exit-4 to be i nvoked decides whether to l og commands, the CMDLOG parameter i s useful only if STRUEX4 i s the onl y ADABAS User-Exit-4 installed. CMDLOG has no effe ct if the User-Exit-4 processing is handled by TRIM.

Valid Values:	ON or OFF
Default Value:	OFF
Assigned By:	STRDEF only

DELIM
The delimiter character to be pl aced between the PREFIX, QUALIFY, and DSNORDR parameter items when generat ing a DSN f or authorization requests to the SSF when no overri ding STRFNR DELIM parameter has been specified for a given file.

Valid Values:	any character or null ('')
Default Value:	. (period)
Assigned By:	STRDEF and STRFNR

DSNORDR
The order i n which the DSN s hould be generated after the PREFIX and QUALIFY parameters when no overri ding STRFNR DSNORDR parameter has been specified for a given file . SECURITRE will generate the DSN beginning with the PREFIX and QUALIFY parameters, and then add items to the DSN accordi ng to the order spec ified in the DSNORDR parameter. DSNORDR can onl y be used i f SECURITRE obtains the User-ID using method TSIUEX1G because thi s feature obtains information from the SECURITRE USERINFO area, which is created from the SECURITRE Link-Exit-1. It will not include items that are meaningless in the context of the call. For example, it will not try to include a CICS Transaction-ID if the call does not originate from CICS.

DSNs generated by SECURI TRE are l imited to 44 charact ers. W hen SECURITRE determines that adding an item to the DSN exceeds this limit, it will not include any of the rem aining items. Up to eight of the com ponents below may be included, in any order:

CMD   The two-character ADABAS command code for this call.

DBID   The Database-ID and the fi le number of the FUSER fi le being used when a cal l is made from a NATURAL program. If both the FUSER Database-ID and the fi le number are less than 256, this item will be formatted as DxxxFyyy, where 'xxx' is the Database-ID and 'yyy' is the FUSER file number. If either the FUSER Database-ID or the file num ber is greater than 255, this item will be formatted as Dxxxxx.Fyyyyy, where ' xxxxx' is the Database-ID and 'yyyyy' is the FUSER file number. This item will only be included for calls originating from NATURAL.

DSNORDR (continued from previous page)

<u>FIELD</u>		The field alias obtained from the FIELDS= parameter i n the STRFNR statement. FIEL D is only included in the generated DSN when Fi eld Level Security is being checked for a command.
<u>FILE</u>		The file number for the fi le being accessed. The val ue given the file number consists of the literal 'F' followed by the file number, such as F100 for a fi le number less than 256 or F00376 for a fi le number greater than 256. Otherwise, the value given to the file number consists of the file name as assi gned in the STRFNR al ias NAME parameter, such as PERSONL.
<u>GPGM</u>		The non-NATURAL program name. This item will only be included for calls NOT originating from NATURAL.
<u>JOB</u>		The MVS Jobname of the j ob being executed by the user.
<u>NLIB</u>		The NATURAL Library. Th is item will only be included for calls originating from NATURAL.
<u>NODE</u>		The SMFID of the CPU from which the call originates. If the value given as the SMFID begi ns with a numeri c value, the literal 'N' will be followed by the SMFID. F or example, if SMFID=1234 then NODE=N1234, and i f SMFID=CPU1 then NODE=CPU1.
<u>NPGM</u>		The NATURAL program name. T his item will only be included for calls originating from NATURAL.
<u>TERM</u>		The CICS Terminal-ID. This item will only be included for calls originating from CICS.
<u>TPMON</u>		The TP monitor. Possible values are TSO, STC, CICS, CMS, JOB (for batch), and COMP (COM-PLETE).
<u>TRAN</u>		The CICS Transaction-ID. T his item will only be included for calls originating from CICS.
Valid Values:		CMD, DBID, FIELD, FILE, GPGM, JOB, NLIB, NODE, NPGM, TERM, TPMON, or TRAN
Default Value:		FILE
Assigned By:		STRDEF and STRFNR

Note: The DSNORDR paramet er may be overri dden at the file level in the STRFNR parameters. Theref ore, it is possible to set up som e files for very strict security requirements, while leaving other files less stringently secured.

DSNPOOL   The maximum number of DSNs to be maintained at a given time in the SECURITRE internal DSN table in User-Exit-1. A higher value will allow more DSNs to be maintained in the DSN table, but will require more storage for User-Exit-1.

Valid Values:	1 to 10000
Default Value:	100
Assigned By:	STRDEF only

EX1ALL   Specifies whether SECURITRE should call STREX1 for every ADABAS command, including unsecured commands, or only for commands where SECURITRE needs to obtain a User-ID.

ON   SECURITRE will call STREX1 for all commands, including unsecured commands.

OFF   SECURITRE will call STREX1 only when it needs to obtain a User-ID.

Valid Values:	ON or OFF
Default Value:	OFF
Assigned By:	STRDEF only

FILEMAX   Specifies the type of parameters that should be generated when the 'STRPARMS' are assembled.

NEW   New style parameters will be generated. This allows for files 1 - 65535 to be specified in the STNFILE. If file numbers greater than 255 are accessed, NEW must be specified.

OLD   The old style parameters will be generated. It allows for files 1 - 255 to be secured. If file numbers greater than 255 are accessed, NEW must be specified.

Valid Values:	NEW or OLD
Default Value:	OLD
Assigned By:	STRDEF only

FLSDEL   The literal to be included in place of FIELD in the DSNORDR when Field Level Security is being checked and the ADABAS command code is E1 or E4 (delete).

Valid Values:	any string up to eight characters
Default Value:	DELETE
Assigned By:	STRDEF and STRFNR

FLSPOOL   The number of ADABAS Command-I Ds for which SECURITRE should maintain information during Field Level Security processing. This parameter should equal the average number of CI Ds, rounded up to a factor of 10, which will be in use at any given tim e against a file for w hich Field Level Security is in effect.

Valid Values: 0 to 50 (must be divisible by 10)
Default Value: 20
Assigned By: STRDEF only

FORCE   The hour at which SECURITRE should clear the internal tables of all access information. The value '99' indicates to SECURITRE that it should not purge its internal tables at any parti cular hour. (There are other i nstances of table purging, described later.)

Valid Values: 0 to 23 or 99
Default Value: 99 (never purge)
Assigned By: STRDEF only

LOGVIOL   The logging action to be taken when mul tiple violations are made by a user accessing a DSN and no overri ding STRFNR LOGVIOL parameter has been specified for a given file.

<u>ALL</u>   SECURITRE will cause the SSF to log all violations by a given user to a given DSN.

<u>FIRST</u>   SECURITRE will cause the SSF to log only the first violation by a given user to a given DSN.

Valid Values: ALL or FIRST
Default Value: ALL
Assigned By: STRDEF and STRFNR

MODE   The level of securi ty to be acti vated when a fi le is being accessed and no overriding STRFNR MODE parameter has been specified for a given file.

<u>DORMANT</u>   SECURITRE will not m ake any security checks and will allow all calls to be pr ocessed by ADABAS. I n effect, SECURITRE does not hing. DORMANT mode i s useful for verifying the correct installation of SECURITRE, and for phasing in SECURITRE control, one or more f iles at a time.

<u>WARN</u>   SECURITRE will m ake security checks, cause the SSF to log any violations, and w ill allow all calls to be processed by ADABAS. W ARN mode i s provided so that installations can easily migrate to SECURITRE from their existing security arrangement.

<u>FAIL</u>   SECURITRE will m ake security checks, cause the SSF to log any vi olations, and prohi bit ADABAS f rom processing unauthorized commands.

Valid Values: DORMANT, WARN, or FAIL
Default Value: FAIL
Assigned By: STRDEF and STRFNR

NOIDRED   The action SECURITRE will take when the User-ID for a READ command cannot be found when no overriding STRFNR NOIDRED parameter has been specified for the given file.

> ACCEPT   SECURITRE will allow READ commands to be processed when no User-ID is found.
>
> REJECT   SECURITRE will prevent READ commands from being processed when no User-ID is found.

> *Valid Values:*   ACCEPT or REJECT
> *Default Value:*   REJECT
> *Assigned By:*   STRDEF and STRFNR

NOIDUPD   The action SECURITRE will take when the User-ID for an UPDATE command cannot be found when no overriding STRFNR NOIDUPD parameter has been specified for the given file.

> ACCEPT   SECURITRE will allow UPDATE commands to be processed when no User-ID is found.
>
> REJECT   SECURITRE will prevent UPDATE commands from being processed when no User-ID is found.

> *Valid Values:*   ACCEPT or REJECT
> *Default Value:*   REJECT
> *Assigned By:*   STRDEF and STRFNR

N2OPREF   Specifies to SECURITRE what literal to use at the beginning of the DSN it generates when requesting authorization from the SSF for a particular user to access N_2O. This parameter is only effective at installations where TSI's N_2O is installed.

> *Valid Values:*   any string up to 17 characters
> *Default Value:*   CONTROL.N2O
> *Assigned By:*   STRDEF only

PREFIX   The first part of the DSN to use when calls are made to the SSF when no overriding STRFNR PREFIX parameter has been specified for a given file.

> *Valid Values:*   any string up to 17 characters
> *Default Value:*   ADABAS.STR
> *Assigned By:*   STRDEF and STRFNR

PRINT   Indicates whether to print the macro expansions of the STRDEF and STRFNR statements when they are assembled.

> GEN   Causes macro expansions to be printed in the listing. Using GEN will result in a significantly longer listing.
>
> NOGEN   Suppress macro expansions in the listing.

> *Valid Values:*   GEN or NOGEN
> *Default Value:*   NOGEN
> *Assigned By:*   STRDEF only

PROCCL   Indicates whether or not user t   able entries should be removed when an ADABAS CL command i s received. PROCCL shoul d be set to OFF f or databases which process a hi gh number of CL commands, such as databases that are accessed by ADASQL.

Valid Values:	ON or OFF
Default Value:	ON (remove)
Assigned By:	STRDEF only

PROCEX2   Indicates whether or not SECURITRE User-Exit-2 should be invoked after an ADABAS command passes file level and field level security checks.

Valid Values:	ON or OFF
Default Value:	OFF
Assigned By:	STRDEF and STRFNR

PURINTT   The number of seconds that a user must remain inactive before their entries are purged from the internal tables.

Valid Values:	any positive integer value
Default Value:	0
Assigned By:	STRDEF only

PURINTV   The interval, in hours, at which SECURITRE should scan i ts tables for inactive users and remove these users from its tables. If a val ue of 0 (zero) is specified, SECURITRE will not purge inactive users from the table.

Valid Values:	0, 1, 2, 3, 4, 6, 8, 12, or 24
Default Value:	0 (do not purge)
Assigned By:	STRDEF only

QUALIFY   The second l evel of the DSN t o be used by SECURI TRE when request ing authorization   from the SSF when   no overriding STRFNR QUALIFY parameter has been specified for a given file.

Valid Values:	any string up to eight characters or null (")
Default Value:	PROD
Assigned By:	STRDEF and STRFNR

RACHECK   The type of check t o be used by SECURI TRE when cal ls are made t o the SSF.

Valid Values:	RACHECK
Default Value:	RACHECK
Assigned By:	STRDEF only

RTMORDR   Specifies what order the DSN components should be included in the DSN for Real-Time Monitor (RTM) Security. Either or both of the components bel ow may be included, in any order.

DBID   The Database-ID. The DSN generated will consist of the STR RTM PREFIX, the l iteral 'D', followed by the DBID. For example, CONTROL.STR.D007 for a database l ess than 256 or CONTROL.ST R.D00456 for a database greater than 255.

FUNC   The RTM functi on accessed by the user. The DSN generated will consist of this STR RTM PREFIX followed by the FUNC, such as CONTROL. STR.PARM. The values for FUNC ar e listed in the Real-time Monitor section of this manual.

Valid Values: FUNC or DBID
Default Value: (FUNC,DBID)
Assigned By: STRDEF only

SECURE   The System Security Facility in use at the installation.

RACF   RACF is in use.

ACF2   ACF2 is in use.

TSS   TOP SECRET is in use.

Valid Values: RACF, ACF2, or TSS
Default Value: RACF
Assigned By: STRDEF only

STREX1   The SECURITRE User-Exit-1 to be i nvoked in the event that SECURITRE cannot determine the USERID issuing the command to ADABAS. The name provided must be the nam e of the load m odule for w hich SECURITRE will issue a LOAD. For more i nformation, refer to the STREX1 User-Exit section of the SECURITRE Administrator Guide.

Valid Values: a valid load module name
Default Value: no default value
Assigned By: STRDEF only

STREX2   The SECURITRE User-Exit-2 to be invoked after a command has passed file level and field level security checks fo r files with the PROCEX2 param eter set to ON. The name provi ded must be the name of the l oad module for which SECURITRE will issue a LOAD. Fo r more information, refer to the STREX2 User-Exit section of the SECURITRE Administrator Guide.

Valid Values: a valid load module name
Default Value: no default value
Assigned By: STRDEF only

STREX3   The SECURITRE User-Exit-3 to be invoked when SECURITRE is in an unrecoverable ABEND situation. The name provided must be the name for the load module for which SECURITRE will issue a LOAD. For more information, refer to the STREX3 user-exit section of the SECURITRE Administrator Guide.

Valid Values:	a valid load module name
Default Value:	no default value
Assigned By:	STRDEF only

STREX4   Reserved for future use.

STRRTM   Specifies to SECURITRE what literal to use at the beginning of the DSN it generates for SECURITRE Real-Time Monitor (RTM) Security.

Valid Values:	any string up to 17 characters
Default Value:	CONTROL.STR
Assigned By:	STRDEF only

TERM   The action to be taken by the SECURITRE RTM NATURAL programs upon their completion.

<u>S</u>	Stop SECURITRE RTM NATURAL programs.
<u>T</u>	Terminate SECURITRE RTM NATURAL programs.
Valid Values:	S or T
Default Value:	S
Assigned By:	STRDEF only

TRACE   Controls the production of diagnostic trace messages written by SECURITRE during execution. Trace messages will be written out to the STRTRC dataset (see. TRACEDD keyword below).

Valid Values:	ON or OFF
Default Value:	OFF
Assigned By:	STRDEF only

TRACEDD   Defines the DD-name and the Sysout class for the diagnostic trace messages. If DD-name is not allocated in the ADABAS start-up JCL, it will be dynamically allocated and assigned to SYSOUT=c, as specified by the second sub-parameter.

Valid Values:	(ddname,class)
Default Value:	(STRTRC,H)
Assigned By:	STRDEF only

TRMRTM   Specifies to SECURITRE what literal to use at the beginning of the DSN it generates when requesting authorization from the SSF for a particular user to access the TRIM Real-Time Monitor (RTM). This parameter is only effective at installations where TSI's TRIM RTM is installed.

Valid Values:	any string up to 17 characters
Default Value:	CONTROL.TRM
Assigned By:	STRDEF only

UEXIT11   The name of a second ADABAS UEX11 to be invoked by SECURITRE (User-Exit-11) after it completes its own processing. The name provided must be the name of the load module that SECURITRE User-Exit-11 will LOAD.

Valid Values: a valid load module name
Default Value: no default values
Assigned By: STRDEF only

USERID   The primary method SECURITRE should use to locate the correct SSF User-ID for access authorization purposes. If this method does not locate the User-ID, the method indicated by USERID2 will be used.

TSIUEX1G   The ADABAS SSF User-ID will be retrieved from the SECURITRE Link-Exit-1 generated USERINFO Area.

TRIMV4-1   The ADABAS SSF User-ID will be determined from the Additions-3 field in the ADABAS Control Block.

TRIMV4-2   The ADABAS SSF User-ID will be determined from the Additions-4 field in the ADABAS Control Block.

Note: TRIMV5/TRIMV6 are no longer supported, TSIUEX1G should be used.

ALT-1   The ADABAS SSF User-ID will be retrieved from the ADABAS 4 "Control Block Extended Area," generated through certain link routines in effect for performance monitors other than TRIM.

ALT-2   The ADABAS SSF User-ID will be retrieved from the ADABAS USERINFO area, generated through certain link routines in effect for performance monitors other than TRIM.

CQXAESI   The ADABAS SSF User-ID will be retrieved from the area pointed to by CQXAESI

STREX1   The ADABAS SSF User-ID will be obtained from STREX1.

Default Value: TSIUEX1G
Assigned By: STRDEF only

USERID2   The method SECURITRE should use to locate the correct SSF User-ID for access authorization purposes if the primary method (USERID) is unable to locate the User-ID.

> TRIMV4-1   The ADABAS 4 SSF User-ID will be determined through a patch to the ADALINK routine. The User-ID is passed in the Additions-3 field in the ADABAS Control Block.

> TRIMV4-2   The ADABAS 4 SSF User-ID will be determined through a patch to the ADALINK routine. The User-ID is passed in the Additions-4 field in the ADABAS Control Block.

> TSIUEX1G   The ADABAS SSF User-ID will be retrieved from the SECURITRE User-Exit-B generated USERINFO Area, which is only available in ADABAS.

> **Note:**   TRIMV5/TRIMV6 are no longer supported, TSIUEX1G should be used.

> ALT-1   The ADABAS SSF User-ID will be retrieved from the ADABAS 4 "Control Block Extended Area," generated through certain link routines in effect for performance monitors other than TRIM.

> ALT-2   The ADABAS SSF User-ID will be retrieved from the ADABAS USERINFO area, generated through certain link routines in effect for performance monitors other than TRIM.

> CQXAESI   The ADABAS SSF User-ID will be retrieved from the area pointed to by CQXAESI

> NONE   No alternate method will be used for obtaining the User-ID.

> *Default Value:*   NONE
> *Assigned By:*   STRDEF only

USERS   The maximum number of users to be maintained in the SECURITRE internal user table at any given time. The value assigned to USERS is dependent on site requirements. A higher value will allow more users to be maintained in the user table, but it will require more storage for User-Exit-11.

> *Valid Values:*   1 to 10000
> *Default Value:*   100
> *Assigned By:*   STRDEF only

USRPOOL　　　The maximum number of User-to-DSN re lationship segments to mai ntain in the SECURITRE internal t able in User-Exit-11.　A higher value will allow more relationships to be maintained in the User-to-DSN relationship table but will require more storage for User-Exit-11.

Valid Values:	4 to 20000 (must be divisible by 4)
Default Value:	400
Assigned By:	STRDEF only

UTMODE　　　The level of security activated when a user at tempts to run an ADABAS utility.

DORMANT　　　SECURITRE will not m ake any security checks and will allow the utility to be executed by ADABAS.

WARN　　　SECURITRE will make security checks, cause the SSF to log any violations, and will allow the utility to be executed by ADABAS.

FAIL　　　SECURITRE will make security checks, cause the SSF to log any violations, and will prevent any unauthorized utilities to be processed by ADABAS.

Valid Values:	DORMANT, WARN, or FAIL
Default Value:	WARN
Assigned By:	STRDEF only

UTORDER　　　The order i n which the DSN s hould be generated after the UTPREF parameter when a call is m ade to the SSF for U tility Security.　Any or all of the components below may be included, in any order.

FILE　　　The file number for the fi le being accessed, or the fi le name as assi gned in the STRFNR al ias NAME parameter, such as PERSONL.　The val ue given to the file number consi sts of the l iteral 'F' followed by the fi le number, such as F100.

Note:　　If the fi le number or Databas e-ID is greater than 255, t he value given to the fi le number will be formatted as 'Fnnnnn,' where 'nnnnn' is the file num ber (e.g., F00100 or F01234), and the value giv en to the D atabase-ID will be form atted as 'D xxxxx,' where 'xxxxx' is the Database-ID (e.g., D00100 or D01234).

FUNC　　　The utility function accessed by the user.

UTIL　　　The last 3 characters of the utility name, such as ULD, for ADAULD.

For more information about possible values for FUNC and UTIL, refer to the ADABAS Utility Control section of this manual.

Valid Values:	UTIL, FUNC, or FILE
Default Value:	(UTIL,FUNC,FILE)
Assigned By:	STRDEF only

UTPREF   The first part of the D SN to use w hen calls are m ade to the SSF for U tility
                Security.

                Valid Values: any string up to 17 characters
                Default Value: ADAUTIL
                Assigned By: STRDEF only

II.4   STRFNR Statement

The purpose of the STRFNR statement is to al low the Securi ty Administrator to speci fy how
SECURITRE is to process speci fic ADABAS f iles. W hen specified, the STRFNR st atement
parameters override the STRDEF defaul t values for particular files. If there i s no STRFNR
statement specified for a particular file, the STRDEF default values will be used.

Only one STRFNR statement may be coded rel ated to each file. Each STRFNR statement must
contain a FILE parameter   and at l east one other parameter t hat applies to the fi le or fi les
referenced. Unl ike STRDEF, mul tiple STRFNR statements may be coded, as l ong as no two
STRFNR statements refer ence the same fi le. STRFNR statem ents can refer to a si ngle file,
multiple files, or a range of files.

Figure 2 lists the STRFNR parameters, their uses, their valid values, and their default values.

STRFNR Parameter	Function	Valid Values	Default Value
DELIM	Delimiter character in the DSN for the specified file(s)	any character or null ("")	. (period) (from STRDEF)
DSNORDR	Order to generate the DSN for File Security for the specified file(s)	any combination of up to eight of the following: CMD, DBID, FIELD, FILE, GPGM, JOB, NLIB, NODE, NPGM, TERM, or TRAN	FILE (from STRDEF)
FIELDS	Specifies the ADABAS field names of the fields for which Field Level Security processing should be performed, as well as an alias to be included in the DSN for each of the fields	any number of pairs of 2-character ADABAS field name/8-character alias	no default value
FILE	Specifies to which file or range of files the parameters apply	0 to 65535 or a range	no default value

Figure 2 – STRFNR Parameters

(continued on next page)

(continued from previous page)

STRFNR Parameter	Function	Valid Values	Default Value
FLSDEL	Literal to be included in place of FIELD in the DSNORDR during a delete command	any string of up to eight characters	DELETE (from STRDEF)
FLSMODE	Level of Field Level Security to be activated for this file	DORMANT, WARN, or FAIL	DORMANT
LOGVIOL	Specifies which violations for the specified file(s) should be logged by the SSF	ALL or FIRST	ALL (from STRDEF)
MODE	SECURITRE protection mode setting to be used for the specified file(s)	DORMANT, WARN, or FAIL	FAIL (from STRDEF)
NAME	Specific name to be used for the specified file(s) when calling the SSF	any value up to 17 characters	'F' followed by a 3-digit file number if < 256 or 5-digit if > 255
NOIDRED	Action to take against the specified file(s) when no User-ID is found for a READ command	ACCEPT or REJECT	REJECT (from STRDEF)
NOIDUPD	Action to take against the specified file(s) when no User-ID is found for an UPDATE command	ACCEPT or REJECT	REJECT (from STRDEF)
PREFIX	DSN prefix (first part of DSN) for the specified file(s)	up to 17 characters	ADABAS. STR (from STRDEF)
PROCEX2	Indicates whether SECURITRE User-Exit-2 should be invoked	ON or OFF	OFF (from STRDEF)
QUALIFY	DSN name qualifier (second part of DSN) for the specified file(s)	any value up to eight characters or null ('')	PROD (from STRDEF)
TRACE	Specifies whether or not diagnostic trace messages should be produced during execution	ON or OFF	OFF (from STRDEF)

Figure 2 – STRFNR Parameters

Note:	The FIELDS and FLSMODE parameters rel ated to speci fic file(s), can onl y be specified as STRFNR parameters, they cannot be specified in STRDEF.

II.5   **STRFNR Parameters**

DELIM   The delimiter character to be pl aced between the PREFIX, QUALIFY, and DSNORDR parameter items when generat ing a DSN f or authorization requests to the SSF for the specified files.

Valid Values:	any character or null ('')
Default Value:	. (period)
Assigned By:	STRDEF and STRFNR

DSNORDR   The order i n which the DSN s hould be generated after the PREFIX and QUALIFY parameters for the specified file(s). S ECURITRE will stop generating the DSN when it calculates that an additi onal item will cause the DSN to be l onger than 44 characters. Up to eight of the components bel ow may be included in any order.

      CMD   The two-character ADABAS command code for this call.

      DBID   The Database-ID and the fi le number of the FUSER fi le being used when a cal l is made from a NATURAL program. If both the FUSER Database-ID and the fi le number are less than 255, this item will be formatted as DxxxFyyy, where 'xxx' is the Database-ID and 'yyy' is the FUSER file number. If either the FUSER Database-ID or the file num ber is greater than 255, this item will be formatted as Dxxxxx.Fyyyyyy, where ' xxxxx' is the Database-ID and ' yyyyy' is the FUSER fi le number. It will only be included for calls originating from NATURAL.

      FIELD   The field alias obtained from the FIELDS= parameter i n the STRFNR statement. FIEL D is only included in the generated DSN when Fi eld Level Security is being checked for a command.

      FILE   The file number for the fi le being accessed. The val ue given the fi le number consi sts of ei ther the l iteral 'F' followed by the fi le number, such as F100 for a fi le less than 256 or F00376 for a fi le number greater than 255. Otherwise, the value given to the file number consists of the file name as assi gned in the STRFNR al ias NAME parameter, such as PERSONL.

      GPGM   The non-NATURAL program name. This item will only be included for calls NOT originating from NATURAL.

      JOB   The MVS Jobname of the j ob being executed by the user.

      NLIB   The NATURAL Library. Th is item will only be included for calls originating from NATURAL.

DSNORDR (continued from previous page)

NODE	The SMFID of the CPU from which the call originates. If the value given as the SMFID begi ns with a numeri c value, the literal 'N' will be followed by the SMFID. For example, if SMFID=1234 then NODE=N1234, and i f SMFID=CPU1 then NODE=CPU1.
NPGM	The NATURAL program name. T his item will only be included for calls originating from NATURAL.
TERM	The CICS Terminal-ID. This item will only be included for calls originating from CICS.
TRAN	The CICS Transaction-ID. T his item will only be included for calls originating from CICS.

Valid Values:	CMD, DBID, FIELD, FILE, GPGM, JOB, NLIB, NODE, NPGM, TERM, or TRAN
Default Value:	FILE
Assigned By:	STRDEF and STRFNR

FIELDS   Specifies the names of the ADABAS f ields for which Field Level Security processing should be performed, as wel l as an al ias to be i ncluded in the DSN for each fi eld. The format of the FIELDS parameter i s FIELDS=(aa,alias1,bb,alias2,...,nn, aliasn), where aa, bb, ..., nn specify a 2-character ADABAS field name and alias1, alias2, ..., aliasn specify an alias of up to 8 characters to be used in the DSN.

Valid Values:	any number of pairs of 2-character ADABAS f ield name/8-character alias
Default Value:	no default value
Assigned By:	STRFNR only

FILE   The file or range of fi les to whi ch these parameters appl y. There i s no default setting for this parameter, but an STRFNR statement without a FILE parameter will take effect for all files.

> **Note:**   File numbers greater than   255 can not be speci fied unless FILEMAX=NEW is specified in the STRDEF parameters.

Valid Values:	0 to 65535 or any range within these values
Default Value:	no default value
Assigned By:	STRFNR only

FLSDEL   The literal to be i ncluded in place of FIELD i n the DSNORDR when Fi eld Level Security is being checked and t he ADABAS command code i s E1 or E4 (delete).

Valid Values:	any string up to eight characters
Default Value:	DELETE
Assigned By:	STRDEF and STRFNR

FLSMODE   The level of Field Level Security activated for this file.

    DORMANT   SECURITRE will not check Field Level Security for this file.

    WARN   SECURITRE will check Field Level Security on the fields listed in the FIELDS= parameter for the file as long as file security is allowed for that specific file. This will cause the SSF to log any violations, and will permit access to the file.

    FAIL   SECURITRE will check Field Level Security on the fields listed in the FIELDS= parameter for the file as long as file security is allowed for that specific file. This will cause the SSF to log any violations, and prohibit the command to be processed if any fields in the Format Buffer are unauthorized.

    Valid Values: DORMANT, WARN, or FAIL
    Default Value: DORMANT
    Assigned By: STRFNR only

LOGVIOL   The logging action taken when multiple violations are made by a given user accessing the specified file(s).

    ALL   SECURITRE will cause the SSF to log all violations by a given user to a given DSN.

    FIRST   SECURITRE will cause the SSF to log only the first violation by a given user to a given DSN.

    When a file is in WARN mode, the LOGVIOL is always set to "FIRST" by SECURITRE.

    Valid Values: ALL or FIRST
    Default Value: ALL
    Assigned By: STRDEF and STRFNR

MODE   The level of security, such as file protection mode, to be used for the specified file(s).

    DORMANT   SECURITRE will not make any security checks, and will allow all calls to be processed by ADABAS. In effect, SECURITRE does nothing. DORMANT mode is useful for verifying the correct installation of SECURITRE, and for phasing in SECURITRE control, one or more files at a time.

    WARN   SECURITRE will make security checks, cause the SSF to log any violations, and will allow all calls to be processed by ADABAS. WARN mode is provided so that installations can easily migrate to SECURITRE from their existing security arrangement.

MODE (continued from previous page)

<u>FAIL</u>　　　　　　SECURITRE will make security checks, cause the SSF to log any violations, and prohibit any unauthorized commands from being processed by ADABAS.

Valid Values:　　　DORMANT, WARN, or FAIL
Default Value:　　　FAIL
Assigned By:　　　STRDEF and STRFNR

The following chart shows the response code that will be returned by SECURITRE for ADABAS file security with various combinations of SSF and SECURITRE modes:

SSF Mode	SECURITRE Mode	SECURITRE Response Code
DORMANT	WARN	0
DORMANT	FAIL	0
DORMANT	DORMANT	0
WARN	WARN	0 (with warning message from the SSF)
WARN	FAIL	0 (with warning message from the SSF)
WARN	DORMANT	0 (with warning message from the SSF)
FAIL	WARN	0 (with warning message from SECURITRE)
FAIL	FAIL	200
FAIL	DORMANT	0

As shown in the table above, the only way SECURITRE will stop a user operation is to have the SSF system and SECURITRE in FAIL mode. While SECURITRE is installed in a test environment, the site may wish to set SECURITRE in warn mode. However, the SSF should always be in FAIL mode to prevent unwanted access to resources.

Note:　　Some SSF products will lockout a User-ID after a specified number of failed attempts. Since SECURITRE does not have control over this, the User-ID will be locked out even if SECURITRE is set to WARN or DORMANT mode.

NAME　　　　The file name to use when generating a DSN for the specified file(s). If a name is not provided, the literal 'F' followed by the file number will be used (e.g., F001, F072, F255, or F00300).

Valid Values:　　　any string up to 17 characters
Default Value:　　　'F' followed by the 3- or 5-digit file number
Assigned By:　　　STRFNR only

NOIDRED　　　The action SECURITRE will take when the User-ID for a READ command cannot be found for the specified file(s).

<u>ACCEPT</u>　　　　SECURITRE will allow READ commands to be processed when no User-ID is found.

<u>REJECT</u>　　　　SECURITRE will prevent READ commands from being processed when no User-ID is found.

Valid Values:　　　ACCEPT or REJECT
Default Value:　　　REJECT
Assigned By:　　　STRDEF and STRFNR

NOIDUPD   The action SECURITRE will take   when the User-ID for an UPDATE command cannot be found for the specified file(s).

      ACCEPT   SECURITRE will allow UPDATE com mands to be processed when no User-ID is found.

      REJECT   SECURITRE will prevent UPDATE commands from being processed when no User-ID is found.

Valid Values:	ACCEPT or REJECT
Default Value:	REJECT
Assigned By:	STRDEF and STRFNR

PREFIX   The first part of the DSN to use w hen calls are made to the SSF for Fi le Security for the specified file(s).

Valid Values:	any string up to 17 characters
Default Value:	ADABAS.STR
Assigned By:	STRDEF and STRFNR

PROCEX2   Indicates whether SECURITRE User-Exit-2 should be i nvoked after an ADABAS command passes file level and field level security checks.

Valid Values:	ON or OFF
Default Value:	OFF
Assigned By:	STRDEF and STRFNR

QUALIFY   The second l evel of the DSN t o be used by SECURI TRE when request ing authorization from the SSF for the specified file(s).

Valid Values:	any string up to eight characters or null ('')
Default Value:	PROD
Assigned By:	STRDEF and STRFNR

TRACE   Controls the production of diagnostic trace messages written by SECURITRE during execution. Trac e messages will be w ritten to the STR TRC dataset defined using the TRACEDD keyword of STRDEF. When tracing is specified on the fi le level, trace messages ar e written only for commands executed against the specified file.

Valid Values:	ON or OFF
Default Value:	OFF
Assigned By:	STRDEF and STRFNR

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SECTION III

SECURITRE FOR NATURAL

III.1   SECURITRE for NATURAL - Parameters

Through the use of param eters, a site may customize SECURITRE for NATURAL according to its needs. Tabl es and full descriptions of these parameters appear later in this section. The parameter statements (macros) that are provided include:

STNPARM   provides the site-specific parameters needed to customize SECURITRE for NATURAL.
STNLIB   specifies individual library parameters.
STNFILE   specifies individual database/file parameters for FDIC, FNAT, and FUSER.
STNDDM   specifies individual DDM parameters.
STNFINI   indicates the end of parameter specifications.

A set of parameters must i nclude one STNPARM statement as the first statement and one STNFINI statement as the last statement. There may be none, one, or multiples of the other statements, including STNLIB, STNFILE, and STNDDM.

For example:

```
        STNPARM        PREFIX='NATURAL',QUALIFY='PROD',...
        STNLIB         *DEFAULT,TYPE=PUB,PGMCHK=NO,...
        STNLIB         SYSTEM,TYPE=PUB,PGMCHK=NO,...
        STNLIB         SYSLIB,TYPE=PUB,PGMCHK=YES,...
        STNLIB         PAYROLL,TYPE=PRIV,PGMCHK=YES,...
        STNFILE        FDIC,DBID=100,FNR=102
        STNFILE        FNAT,DBID=100,FNR=101
        STNFILE        FUSER,DBID=100,FNR=100
        STNFILE        EMPLOYEE,DBID=101,FNR=001
        STNDDM         *DEFAULT,ALIAS=ANYDDM,TYPE=PUB
        STNDDM         SALARIES,ALIAS=SALARY,TYPE=PRIV
        STNFINI
```

STNLIB and STNDDM defaults (*DEFAULT) will be generated by SECURITRE if they are not provided.

The SECURITRE for NATURAL paramet ers must be coded i n standard macro assembl er format:

- •   Opcode in column 10
- •   One or more spaces
- •   Operands up to column 71, separated by commas
- •   Continuation symbol (x) in column 72
- •   Continuation lines beginning in column 16

These parameters must be coded, assembled, and link-edited. SECURITRE for NATURAL parameters are statically linked with the NATURAL nucleus. For Batch and TSO, the parameters may be either statically linked with the NATURAL nucleus or dynamically loaded when NATURAL is invoked. The dynamic parameter load option should be used only during SECURITRE for NATURAL testing. The benefit of dynamically loaded parameters is that the database does not need to be recycled to have the new parameters in effect. These parameters may be dynamically loaded through the Real-Time Monitor (RTM). It is recommended that the parameters be statically linked after testing has been completed so that users do not include a parameter dataset in front of the STEPLIB of the NATURAL dataset.

The SECURITRE tape is prepared with a default that forces the parameters to be statically linked. In order to change this default and enable dynamic parameter load, the following zap should be applied to a link-edited copy of module STNA:

For NATURAL 4.1 only:
```
NAME STN41A  STNA
VER  0135   00
REP  0135   FF
```

For NATURAL 4.2 only:
```
NAME STN42A  STNA
VER  0135   00
REP  0135   FF
```

If STN4nA is zapped for dynamic parameter load, SECURITRE will load the parameter module named STNPNAT. If SECURITRE is unable to load a parameter module with the name STNPNAT, NATURAL ends execution with response code 102.

There are no unusual restrictions on a parameter module name if the parameters are statically linked with the NATURAL nucleus. Additional information can be found on the following table.

III.2   **STNPARM Statement**

The purpose of the STNPARM statement is to allow the Security Administrator to specify the options in effect for securing the NATURAL environment.

The following table lists the STNPARM parameters, their uses, valid values, and their default values.

STNPARM Parameter	Function	Valid Values	Default Value
CLASS	The resource class to be used by SECURITRE for NATURAL when requesting authorization information from the SSF	any class defined to the SSF or null (")	null (")
DDMLIT	Literal used for DSNs generated for DDM Security	any value up to eight characters	DDM
DDMMODE	Setting for DDM Security protection mode	DORMANT, WARN, or FAIL	FAIL
DDMORDR	Order in which to generate the DSN for DDM Security	any combination of LIT, LIB, DDM, and/or FDIC	(LIT,LIB,DDM, FDIC)
DELIM	Delimiter character in the DSN	any character or null (")	. (period)
LGNCHK	RESERVED	N/A	N/A
LGNLIT	Literal for DSNs generated for Logon Security	any value up to eight characters	LGN
LGNMODE	Setting for LOGON Security protection mode	DORMANT, WARN, or FAIL	FAIL
LGNORDR	Order in which to generate the DSN for LOGON Security	any combination of LIT, LIB, and/or FUSER	(LIT,LIB, FUSER)
LGNPRIV	Indicates whether logons to private libraries are allowed	UID, UID+ or NONE	UID+
LGNUNDF	RESERVED	N/A	N/A
NATUEX1	Other NATURAL User-Exit-1 to be invoked by SECURITRE	valid entry point in the NATURAL module	no default value
NSIFDIC	Literal used for DSNs generated for the FDIC file	any value up to eight characters	PROD
NSIFNAT	Literal used for DSNs generated for the FNAT file	any value up to eight characters	PROD
NSIFUSR	Literal used for DSNs generated for the FUSER file	any value up to eight characters	PROD
NSIMODE	Setting for NATURAL Session Initialization Security protection mode	DORMANT, WARN, or FAIL	FAIL

Figure 3 – STNPARM Parameters

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STNPARM Parameter	Function	Valid Values	Default Value
NSIORDR	Order in which to generate the DSN for NATURAL Session Initialization Security	any combination of LIT and/or FILE	(FILE,LIT)
NULIT	Literal used for DSNs generated by NATURAL Utility security	any value up to eight characters	UTIL
NUMODE	Setting for NATURAL Utility security protection mode	DORMANT, WARN, or FAIL	DORMANT
NUORDR	Order in which to generate the DSN for NATURAL Utility security	any combination of LIT, LIB, UTIL, and/or FUSER	(LIT, LIB, UTIL, FUSER)
PGLITOR	Literal for Program Security (object read)	any value up to eight characters	EXEC
PGLITOW	Literal for Program Security (object write)	any value up to eight characters	STOW
PGLITSR	Literal for Program Security (source read)	any value up to eight characters	READ
PGLITPD	Literal for Program Security (scratch/purge)	any value up to eight characters	DELETE
PGLITSW	Literal for Program Security (source write)	any value up to eight characters	STOW
PGMORDR	Order in which to generate the DSN for Program Security	any combination of LIT, LIB, PGM, and/or FUSER	(LIT,LIB,PGM, FUSER)
PGMTBSZ	Number of program names to store in internal tables	any number between 5 and 999	20
PGWLIT	Literal for Program Write Security	any value up to eight characters	PGMWRT
PGWORDR	Order in which to generate the DSN for program write security	any combination of LIT, LIB, and/or FUSER	LIT, LIB, FUSER
PREFIX	DSN prefix (first part of DSN)	any value up to 17 characters	NAT
PRIVBUF	Reserved	USERDEF	USERDEF
QUALIFY	DSN qualifier (second part of DSN)	any value up to eight characters or null ('')	PROD
RACHECK	Module that issues security calls to the SSF	STN4RCHK STNRCHEK STRACHEK	STRACHEK
RUNLIT	Literal used for DSNs generated for RUN Security	any value up to eight characters	RUN

Figure 3 – STNPARM Parameters

(continued from previous page)

STNPARM Parameter	Function	Valid Values	Default Value
RUNORDR	Order in which to generate DSNs for RUN Security	any combination of LIT, LIB, and/or FUSER	(LIT, LIB, FUSER)
SERVER	DBID to which commands will be directed	0 to 65535	255
STEPLIB	Specifies a library besides SYSTEM where NATURAL can obtain programs	any value up to eight characters	SYSTEM
USERBUF	Reserved	N/A	N/A

Figure 3 – STNPARM Parameters

III.3   STNPARM Parameters

CLASS　　The resource class to be used by SECURITRE for NATURAL when requesting authorization information from the SSF. A null value will cause SECURITRE for NATURAL to use the CLASS assigned in the STRDEF CLASS parameter.

　　　　　　Valid Values:　　any class defined to the SSF or null (''). (Null indicates that there is no override to the STRDEF CLASS.)
　　　　　　Default Value:　　null ('')
　　　　　　Assigned By:　　STNPARM and STRDEF

DDMLIT　　The literal to include in the DSN when SECURI TRE sends an aut horization request to the SSF for access to a DDM.

　　　　　　Valid Values:　　any string up to eight characters
　　　　　　Default Value:　　DDM
　　　　　　Assigned By:　　STNPARM only

DDMMODE　The level of security to be activated when a user attempts to access a DDM.

　　　　DORMANT　　SECURITRE will not m ake any security checks and will perm it the user access to the DDM.

　　　　WARN　　　　SECURITRE will m ake security checks, cause the SSF to log any violations, and permit the user access to the DDM.

　　　　FAIL　　　　SECURITRE will m ake security checks, cause the SSF to log any violations, and prevent any unauthori   zed access to the DDM.

　　　　　　Valid Values:　　DORMANT, WARN, or FAIL
　　　　　　Default Value:　　FAIL
　　　　　　Assigned By:　　STNPARM only

DDMORDR   The order in which the DSN will be generated, after the PREFIX and QUALIFY parameters, when a call is made to the SSF for DDM Security. Any or all of the components below may be included in any order.

        <u>LIT</u>   The DDM literal defined in the DDMLIT parameter.

        <u>LIB</u>   The current library the user is logged on to when attempting to access the DDM.

        <u>DDM</u>   The DDM name or alias specified in a STNDDM statement.

        <u>FDIC</u>   The current FDIC file alias for the DDM the user is attempting to access as specified in an STNFILE statement.

        Valid Values: any combination of LIT, LIB, DDM, and/or FDIC
        Default Value: (LIT,LIB,DDM,FDIC)
        Assigned By: STNPARM only

DELIM   The delimiter character to be placed between the PREFIX, QUALIFY, and DDMORDR parameter items when generating a DSN for authorization requests to the SSF.

        Valid Values: any character or null ('')
        Default Value: . (period)
        Assigned By: STNPARM only

LGNCHK   Reserved for future use.

LGNLIT   The literal to include in the DSN when SECURITRE sends an authorization request to the SSF for LOGON Security.

        Valid Values: any string up to eight characters
        Default Value: LGN
        Assigned By: STNPARM only

LGNMODE   The level of security to be activated when the user attempts to LOGON to a library. The LGNMODE parameter may be overridden at the library level through the use of the STNLIB TYPE parameter.

        <u>DORMANT</u>   SECURITRE will not make any security checks and will permit the user to logon.

        <u>WARN</u>   SECURITRE will make security checks, cause the SSF to log any violations, and permit the user to logon.

        <u>FAIL</u>   SECURITRE will make security checks, cause the SSF to log any violations, and prevent any unauthorized logons.

        Valid Values: DORMANT, WARN, or FAIL
        Default Value: FAIL
        Assigned By: STNPARM only

LGNORDR   The order in which the DSN will be generated, after the PREFIX and QUALIFY parameters, when a call is made to the SSF for LOGON Security. Any or all of the components below may be included in any order.

> <u>LIT</u>   The literal defined by the LGNLIT parameter.
>
> <u>LIB</u>   The library the user is attempting to logon.
>
> <u>FUSER</u>   The current FUSER of the user attempting to logon.

> *Valid Values:*   any combination of LIT, LIB, and/or FUSER
> *Default Value:*   (LIT,LIB,FUSER)
> *Assigned By:*   STNPARM only

LGNPRIV   Specifies whether LOGON Security should be bypassed when a user attempts to logon to a library that matches their User-ID exactly (UID) or one that begins with their User-ID (UID+).

> <u>UID</u>   SECURITRE should bypass security checking if the library name matches the User-ID.
>
> <u>UID+</u>   SECURITRE should bypass security checking if the library name begins with the User-ID.
>
> <u>NONE</u>   LOGON Security will always   be carried out according to the LGNMODE parameter.

> *Valid Values:*   UID, UID+, or NONE
> *Default Value:*   UID+
> *Assigned By:*   STNPARM only

LGNUNDF   Reserved for future use.

NATUEX1   The name of a second NATURAL User-Exi t-1 to be invoked by SECURITRE after it completes its own NATURAL   User-Exit-1 processing. The name provided must be the name of an entry point in the NATURAL module.

> *Valid Values:*   a valid entry point in the NATURAL module
> *Default Value:*   no default value
> *Assigned By:*   STNPARM only

NSIFDIC   The literal to include in the DSN when SECURITRE generates a request to the SSF for access to NATURAL usi ng the FDIC fi le specified in the NATPARM module during NATURAL Session Initialization.

> *Valid Values:*   any string up to eight characters
> *Default Value:*   PROD
> *Assigned By:*   STNPARM only

NSIFNAT   The literal to include in the DSN when SECURITRE generates a request to the SSF for access to NATURAL usi ng the FNAT fi le specified in the NATPARM module during NATURAL Session Initialization.

> *Valid Values:*   any string up to eight characters
> *Default Value:*   PROD
> *Assigned By:*   STNPARM only

NSIFUSR   The literal to include in the DSN when SECURITRE generates a request to the SSF for access to NATURAL usi ng the FUSER file specified in the NATPARM module during NATURAL Session Initialization.

   Valid Values: any string up to eight characters
   Default Value: PROD
   Assigned By: STNPARM only

NSIMODE   The level of securi ty to be acti vated during NATURAL Sessi on Initialization time.

   DORMANT   SECURITRE will not m ake any security checks and will perm it the user to enter the NATURAL environment.

   WARN   SECURITRE will m ake security checks, cause the SSF to log any violations, and w ill permit the user to enter the N ATURAL environment.

   FAIL   SECURITRE will m ake security checks, cause the SSF to log any violations, and prevent any unauthori zed access to the NATURAL environment.

   Valid Values: DORMANT, WARN, or FAIL
   Default Value: FAIL
   Assigned By: STNPARM only

NSIORDR   The order in which the DSN will be generated, after the PREFIX and QUALIFY parameters, when a cal l is made to the SSF for NSI Securi ty. Ei ther one or both of the components below may be included, in any order.

   FILE   The STNFILE alias for the F DIC, FNAT, or FUSER fi le specified in the NATPARM modul e. If no al ias is available, SECURITRE will generate an alias in the fo   rm of D xxxFyyy, where 'xxx' indicates the Database-ID and 'yyy' indicates the file number.

   LIT   The NSI l iteral, appropriate to the access bei ng checked as specified in the NSIFDIC, NSIFNAT, and NSIFUSR parameters.

   Valid Values: any combination of FILE and/or LIT
   Default Value: (FILE,LIT)
   Assigned By: STNPARM only

NULIT   The literal to i nclude in the DS N generated by SECURITRE when a user attempts to execute a NATURAL Utility.

   Valid Values: any string up to eight characters
   Default Value: UTIL
   Assigned By: STRPARM only

NUMODE   The level of securi ty to be acti vated when the user attempts to execute a NATURAL Utility.

        DORMANT   SECURITRE will not make any security checks, but it will perm it the user to execute all NATURAL Utilities.

        WARN   SECURITRE will m ake security checks, cause the SSF to log any violations, and permi t the user to execute NATURAL Utilities.

        FAIL   SECURITRE will m ake security checks and cause the SSF to log any violations, but it w ill not permit the user to execute NATURAL Utilities.

        Valid Values: DORMANT, WARN, or FAIL
        Default Value: DORMANT
        Assigned By: STRPARM only

NUORDR   The order in w hich the DSN will be generated after the PR EFIX and QUALIFY parameters when a call is m ade to the SSF for N ATURAL Utility security. Any or all of the components below may be included, in any order.

        LIT   The literal defined by the NULIT parameter.

        LIB   The current library the user i s logged on to when attempti ng to execute the NATURAL Utility.

        UTIL   The name of the NATURAL Utility the user is a ttempting to execute.

        FUSER   The current FUSER of the us er attempting to execute the NATURAL Utility.

        Valid Values: any combination of LIT, LIB, UTIL, and/or FUSER
        Default Value: (LIT,LIB,UTIL,FUSER)
        Assigned By: STNPARM only

PGLITOR   The literal to i nclude in the DS N generated by SECURITRE when a user attempts to read a program in object form.

        Valid Values: any string up to eight characters
        Default Value: EXEC
        Assigned By: STNPARM only

PGLITOW   The literal to i nclude in the DS N generated by SECURITRE when a user attempts to store (CAT) a program in object form.

        Valid Values: any string up to eight characters
        Default Value: STOW
        Assigned By: STNPARM only

PGLITSR   The literal to i nclude in the DS N generated by SECURITRE when a user attempts to read a program in source form.

        Valid Values: any string up to eight characters
        Default Value: READ
        Assigned By: STNPARM only

PGLITPD   The literal to i nclude in the DS N generated by SECURITRE when a user attempts to delete (SCRATCH or PURGE) program source or object.

      Valid Values: any string up to eight characters
      Default Value: DELETE
      Assigned By: STNPARM only

PGLITSW   The literal to i nclude in the DS N generated by SECURITRE when a user attempts to store (SAVE) a program in source form.

      Valid Values: any character string up to eight characters
      Default Value: STOW
      Assigned By: STNPARM only

PGMORDR   The order in which the DSN will be generated, after the PR EFIX and QUALIFY parameters, when a call is made to the SSF for Program Security. Any or all of the components below may be included, in any order.

     <u>LIT</u>   The program literal, appropriate to the access being checked, as specified in the PGLITOR, PG LITSR, PGLITOW, and PGLITSW parameters.

     <u>LIB</u>   The library to which the program is being read or written.

     <u>PGM</u>   The name of the program that is being read or written.

     <u>FUSER</u>   The current FUSER for the user accessing the program.

      Valid Values: any combination of LIT, LIB, PGM, and/or FUSER
      Default Value: (LIT,LIB,PGM,FUSER)
      Assigned By: STNPARM only

PGMTBSZ   The number of program names to be   stored internally for each user. A program is added to the i nternal table after an SSF authori zation request has been accepted for an object read (execute). If a program is in the table for the user, SECURITRE will not generate another   SSF request for it. The table information for the user is cleared out when the user logs on to another library.

      Valid Values: any number between 5 and 999
      Default Value: 20
      Assigned By: STNPARM only

PGWLIT   The literal to include in the DSN when SECURITRE sends an authorization request to the SSF for writing programs in the current library.

      Valid Values: any string up to eight characters
      Default Value: PGMWRT
      Assigned By: STNPARM only

PGWORDR   The order in which the DSN will be generated, after the PREFIX and QUALIFY parameters, when a call is made to the SSF for program write security. Any or all of the components below may be included, in any order.

<u>LIT</u>   The program write literal defined in the PGWLIT parameter.

<u>LIB</u>   The library the user is logging onto.

<u>FUSER</u>   The current FUSER for the user.

Valid Values: any combination of LIT, LIB, and/or FUSER
Default Value: (LIT, LIB, FUSER)
Assigned By: STNPARM only

PREFIX   The first part of the DSN to use for all SECURITRE for NATURAL SSF calls.

Valid Values: any string up to 17 characters
Default Value: NAT
Assigned By: STNPARM only

PRIVBUF   Reserved for future use.

Valid Values: USERDEF
Default Value: USERDEF
Assigned By: STNPARM only

QUALIFY   The second level of the DSN generated by SECURITRE for NATURAL when requesting information from the SSF.

Valid Values: any string up to eight characters or null ('')
Default Value: PROD
Assigned By: STNPARM only

RACHECK   The module that issues the security check to the SSF.

Valid Values: STN4RCHK (NAT4.1, 4.2) or STRACHEK
Default Value: STRACHEK (version independent)
Assigned By: STNPARM only

RUNLIT   The literal to include in the DSN when SECURITRE sends a request to the SSF for RUN Security.

Valid Values: any string up to eight characters
Default Value: RUN
Assigned By: STNPARM only

RUNORDR   The order in which the DSN will be generated, after the PREFIX and QUALIFY parameters, when a call is made to the SSF for RUN Security. Any or all of the components below may be included, in any order.

    <u>LIT</u>   The literal specified by the RUNLIT parameter.

    <u>LIB</u>   The current library for the user issuing the RUN.

    <u>FUSER</u>   The current FUSER for the user issuing the RUN.

The name of the program in the work area is irrelevant, since users may assign it the name of a program to which they have access.

Valid Values: any combination of LIT, LIB, and/or FUSER
Default Value: (LIT,LIB,FUSER)
Assigned By: STNPARM only

SERVER   A database that is running the SECURITRE for ADABAS User-Exit-1 from an APF-authorized dataset. SECURI TRE for NATURAL sends aut horization requests to this database, whi ch in turn requests authorization from the SSF. Therefore, the NAT URAL module does not have to resi   de in an APF-authorized dataset. If the val ue 0 (z ero) is used, authori zation requests will be directed to the database specified in the ADARUN parameters.

Valid Values: 0 to 65535
Default Value: 255
Assigned By: STNPARM only

STEPLIB   The name of a l ibrary where NATURAL can attempt to l   ocate executable programs when they are not   found i n the current l ibrary when no overri ding STNLIB STEPLIB parameter has been specified for the specified library.

Valid Values: any string up to eight characters
Default Value: SYSTEM
Assigned By: STNPARM and STNLIB

USERBUF   Reserved for future use.

III.4 STNLIB Statement

The SECURITRE library parameters are used to specify unique qualities about each library. The syntax for the library parameters is:

> STNLIB library-name,[keyword-parameter=value,]...

Default sets of parameters may be specified by using *DEFAULT as the library name. *DEFAULT may be used in combination with LIBFUSR to specify defaults for specific FUSERs.

SECURITRE scans for matching library parameters starting from the top of the STNLIB list. Therefore, the following rules should be followed when writing STNLIB parameters:

- *DEFAULT libraries should appear at the top of the list.

- Matching library names should appear together for ease of maintenance.

- Blank LIBFUSR parameters must appear at the end of a group of STNLIBs for a library name. If no *DEFAULT/blank LIBFUSR combination is found, SECURITRE will generate one after other *DEFAULTs and before other library parameters.

- To reduce search time, the most commonly used libraries should appear closest to the top of the list.

STNLIB parameters should be coded in the following order:

```
1)   STNLIB *DEFAULT,LIBFUSR=non-blank-FUSERs

2)   STNLIB *DEFAULT          <-generates a blank FUSER

3)   STNLIB lib1,LIBFUSR=FUSER1,...
     STNLIB lib1,LIBFUSR=FUSER2,...
        •
        •
        •
     STNLIB lib1,LIBFUSR=FUSERn,...
     STNLIB lib1,...           <-default for lib1

4)   STNLIB lib2,LIBFUSR=FUSER1,...
     STNLIB lib2,LIBFUSR=FUSER2,...
        •
        •
        •
     STNLIB lib2,LIBFUSR=FUSERn,...
     STNLIB lib2,...           <-default for lib2
```

Separate STNLIB statements for the same library name on different FUSER files may be specified by using the LIBFUSR parameter. Since only one set of SECURITRE for NATURAL parameters may be linked with a NATURAL module, the LIBFUSR parameter allows a site to use the same NATURAL module for multiple FUSERs. However, since more processing is required to identify the correct set of parameters at LOGON time, response time may be slightly affected.

Using the LIBFUSER parameter benefits those who use the same NATURAL module for multiple FUSERs, since it specifies different library parameters for different FUSERs. The value assigned to the LIBFUSR parameter should be a file-alias from the STNFILE parameters. A blank LIBFUSR indicates that this STNLIB statement is the default for the library when a given library/FUSER combination is not found. If LIBFUSR does not appear in an STNLIB statement, it is set to blank.

SECURITRE will select STNLIB parameters based on the following priorities:

1) Match on Library Name and LIBFUSR=FUSER
2) Match on Library Name and blank FUSER
3) STNLIB library = *DEFAULT and LIBFUSR=FUSER
4) STNLIB library = *DEFAULT and LIBFUSR=blank

Note: After SECURITRE has selected the STNLIB parameters for a library, the defaults for the parameters that were not coded i n the STNLIB are taken from the sel ected parameter definitions, not from the *DEFAULT for the library/FUSER.

Information about each of the valid keyword-parameters can be found in Figure 4.

STNLIB Parameter	Function	Valid Values	Default Value
ERRORTA	Specifies *ERROR-TA for this library	a valid NATURAL program	no default value
LGNPRMS	Area passed to STRLOGON after successful LOGON request	any value up to 16 characters	null (")
LIBFUSR	Specifies the FUSER with which these parameters will be used	null (") or file alias from STNFILE	null (")
LT	Override for LT NATPARM while the user is logged on to this library	0 through 2147483647	0
MADIO	Override for MADIO NATPARM while the user is logged on to this library	0, 30 through 32767	0
MAXCL	Override for MAXCL NATPARM while the user is logged on to this library	0, 10 through 32767	0
MT	Override for MT NATPARM while the user is logged on to this library	0 through 86399	0
MODE	Specifies the NATURAL mode for the user (Structured or Reporting) while logged on to this library	STRUCT or REPORT	REPORT
PGMCHK	Specifies the mode for Program Security in this library	DORMANT, WARN, or FAIL	FAIL
PGWRTCK	Specifies the mode for Program Write Security in this library	DORMANT, WARN, or FAIL	DORMANT
PGMTYPE	Types of NATURAL objects affected by program Execution Security	ALL or any combination of PROG, HELP, SUBP, SUBR, and/or MAP	ALL

Figure 4 – STNLIB Parameters

(continued on next page)

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STNLIB Parameter	Function	Valid Values	Default Value
PGMWRT	Specifies whether NATURAL objects may be written or deleted while a user is logged on to this library	YES or NO	YES
RDONLY	Specifies whether database updating is disabled while a user is logged onto this library	YES or NO	NO
RUNCHK	Level of RUN Security in this library	DORMANT, WARN, or FAIL	DORMANT
STARTUP	Specifies a default *STARTUP for this library	A NATURAL program name	no default value
STEPLIB	Specifies a library besides SYSTEM where NATURAL can obtain programs while a user is logged on to this library	any string up to eight characters or null (")	null (")
TYPE	Specifies whether SECURITRE will check LOGON Security for this library	PRIV or PUB	PRIV
USRMODE	Specifies whether NATURAL system commands may be executed from this library	YES or NO	YES
XREF	Specifies whether the PREDICT active cross-reference feature is to be used	ON or OFF	OFF

Figure 4 – STNLIB Parameters

III.5   STNLIB Parameters

ERRORTA   The *ERROR-TA for thi s library that i s assigned when a user l ogs on to thi s library.

> *Valid Values:*   a valid NATURAL program
> *Default Value:*   no default value
> *Assigned By:*   STNLIB only

LGNPRMS   A 16-character free-form area that is passed t o STRLOGON f rom STRLGN when a request for LOGON is successful. This area may be used to customize the environment of a library at logon time.

> *Valid Values:*   any string up to 16 characters or null (")
> *Default Value:*   null (")
> *Assigned By:*   STNLIB only

LIBFUSR   The library FUSER is used when multiple NATURAL environments are invoked from the same NATURAL modul e. For example, the FUSER i s used i f the same NATURAL module is used for both the TEST and PROD envi ronments. Separate STNLIB statement s for the same l ibrary name i n different environments are distinguishable by use of the LIBFUSR parameter.

The value assigned to the LIBFUSR parameter should be a file-alias defined in an STNFILE statement.

Valid Values: a file-alias defined in an STNFILE statement or null (")
Default Value: null (")
Assigned By: STNLIB only

LT   A library-level override for the LT NATPARM (the maxi mum limit on records that may be read i n a processing loop). A value of 0 (zero) i ndicates that no override is to take pl ace, and the default from the i nstallation NATPARM settings or the dynamic NATPARM settings will be used.

Valid Values: 0 through 2147483647
Default Value: 0
Assigned By: STNLIB only

MADIO   A library-level override for the MADIO NATPARM (the limit on ADABAS calls to be made between screen I/Os). A val ue of 0 (zero) indicates that no overri de is to take place, and the default from the installation NATPARM settings or the dynamic NATPARM settings will be used.

Valid Values: 0, 30 through 32767
Default Value: 0
Assigned By: STNLIB only

MAXCL   A library-level override for the MAXCL NATPARM (the limit on program calls to be made between screen I/Os). A val ue of 0 (zero) indicates that no overri de is to take place, and the default from the installation NATPARM settings or the dynamic NATPARM settings will be used.

Valid Values: 0, 10 through 32767
Default Value: 0
Assigned By: STNLIB only

MODE   A library-level override for the SM NATPARM (structured mode/report mode).

STRUCT   The user is put in structured mode.

REPORT   The user is put in report mode.

Valid Values: STRUCT or REPORT
Default Value: REPORT
Assigned By: STNLIB only

MT   A library-level override for the MT NATPARM (the maximum CPU time limit). A value of 0 (zero) indicates that no override is to take place, and the default from the installation NATPARM settings or the dynamic NATPARM settings will be used.

Valid Values: 0 to 86399
Default Value: 0
Assigned By: STNLIB only

PGMCHK   The level of securi ty to be acti vated when a user attempts to read, save, catalog, or execute a program in this library.

DORMANT   SECURITRE will not make any security checks and will perm it the user to compl ete the acti on that tri ggered the securi ty request.

WARN   SECURITRE will make security checks, cause the SSF to log any violations, and permit the user to complete the action that triggered the security request.

FAIL   SECURITRE will make security checks, cause the SSF to log any violations, and will prevent any unauthorized access to the program in this library.

Valid Values: DORMANT, WARN, or FAIL
Default Value: FAIL
Assigned By: STNLIB only

PGMTYPE   The types of NATURAL objects to be checked for Program Execution Security.

ALL   Check all NATURAL obj ects.   ALL may not be used i   n combination with any other type.

PROG   Check all NATURAL programs.

HELP   Check all NATURAL help routines.

SUBP   Check all NATURAL subprograms.

SUBR   Check all NATURAL subroutines.

MAP   Check all NATURAL maps.

Valid Values: ALL or any combi nation of PROG, HELP, SUBP, SUBR, and/or MAP
Default Value: ALL
Assigned By: STNLIB only

PGMWRT   Sets the NATURAL paramet er SAVECD when a l ogon is accepted, which specifies whether or not NATURAL obj ects may be wri tten or del eted. Thi s parameter is ignored if PGWRTCK is FAIL for this library.

    <u>YES</u>   Sets SAVECD=ON. The user may write and delete NATURAL objects while logged on to this library.

    <u>NO</u>   Sets SAVECD=OFF. The NATURAL obj ects may not be written or deleted while a user is logged on to this library.

Note that unl ess USRMODE i s set to NO, PGMW RT may be overri dden if the user enters the UPDATE or SAVECD commands.

Valid Values: YES or NO
Default Value: YES
Assigned By: STNLIB only

PGWRTCK   The level of securi ty for checking at logon time whether the user may SAVE, CAT, STOW, or PURGE programs in this library.

    <u>DORMANT</u>   SECURITRE will not check to see whether the user is allowed to SAVE, CAT, STOW, or PURGE pr ograms while logged on to this library. However, the PGMWRT parameter will be used to determine this capability.

    <u>WARN</u>   SECURITRE will m ake a security check to see whether the user is allowed to SAVE, CAT, STOW, or PURGE pr ograms while logged on to thi s library. However, the PGMW RT parameter will be used to determine this capability.

    <u>FAIL</u>   SECURITRE will m ake a security check to see whether the user is allowed to SAVE, CAT, STOW, or PURGE pr ograms while logged on to this library. Depending on the answer from the SSF, SECURITRE may or may not allow the user to perform these acti vities. The result of thi s program wri te checking overrides the use of the PGMWRT parameter.

Valid Values: DORMANT, WARN, or FAIL
Default Value: DORMANT
Assigned by: STNLIB only

RDONLY   Specifies whether or not a user may update an ADABAS file while logged on to this library.

    <u>YES</u>   Updates may not take pl ace (equivalent to i ssuing the NATURAL UPDATE OFF command). A user w ill **not** be abl e to update ADABAS data from this library.

    <u>NO</u>   Updates may take pl ace (equivalent to i ssuing the NATURAL UPDATE ON command). A user w ill be able to update ADABAS data from this library.

Note that unl ess USRMODE i s set to NO, RDONLY may be overri dden if the user enters the NATURAL UPDATE or SAVECD commands.

Valid Values: YES or NO
Default Value: NO
Assigned By: STNLIB only

RUNCHK   The level of security to be activated for RUN Security in this library.

DORMANT   SECURITRE will not m ake any se curity checks, but it will permit the user to execute the RUN.

WARN   SECURITRE will make security checks, cause the SSF to log any violations, and permit the user to execute the RUN.

FAIL   SECURITRE will make security checks, cause the SSF to log any violations, and prevent any unauthorized executions of the RUN.

Valid Values: DORMANT, WARN, or FAIL
Default Value: DORMANT
Assigned By: STNLIB only

STARTUP   The default *STARTUP for thi s library. The STRLOGON front-end to the LOGON process must be used in order for this parameter to be processed.

Valid Values: a NATURAL program name
Default Value: no default value
Assigned By: STNLIB only

STEPLIB   The name of a l ibrary where NATURAL can attempt to l ocate executable programs when they are not found in the current library while the user is logged on to this library. When a null value is specified, the default value specified in the STNPARM STEPLIB parameter will be used.

Valid Values: any string up to eight characters or null (")
Default Value: null (")
Assigned By: STNPARM and STNLIB

	Function	Valid Values	Default Values
Step1	Specifies the first alternate library where NATURAL can obtain programs while the user is logged on to this library	any value up to 8 characters or null (")	no default value
Steps 2-8	Specify the second through the eighth alternate libraries where NATURAL can obtain programs while the user is logged on to these libraries	any value up to 8 characters or null (")	no default values

Note: All STEPLIB and STEP1/8 definitions have no effect, if LGNMODE=DORMANT is defined in the STNPARM definitions!

TYPE   Specifies whether or not SECURITRE should check security when a user l ogs on to this library.

          <u>PRIV</u>   SECURITRE will send an authoriz ation request to the SSF when anyone attempts to logon to this library.

          <u>PUB</u>   No security checking will take place. Anyone may logon to this library.

The TYPE par ameter can be used t o override the LGNMODE par ameter for particular libraries. If LGNM ODE is set to FAIL or W ARN, individual libraries that have TYPE=PUB will n<u>ot</u> cause a secur ity check f or LOGON Secur ity. However, if LGNMODE is set to DORMANT, setting a library as TYPE=PRIV will <u>not</u> cause SECURITRE to check LOGONs to that library.

      Valid Values: PRIV or PUB
      Default Value: PRIV
      Assigned By: STNLIB only

USRMODE   Specifies whether NATURAL system commands may be executed from thi s library.

          <u>YES</u>   Commands may be i ssued from this library (equivalent to the NATURAL command NC=OFF).

          <u>NO</u>   Commands may not be i ssued from thi s library (equivalent to the NATURAL command NC=ON).

      Valid Values: YES or NO
      Default Value: YES
      Assigned By: STNLIB only

XREF   Specifies whether the PREDICT XREF f eature is to be used whi le the user i s logged on to this library.

          <u>OFF</u>   No PREDICT Cross-Reference activity is performed.

          <u>ON</u>   PREDICT Cross Reference is active.

      Valid Values: OFF or ON
      Default Value: OFF
      Assigned By: STNLIB only

III.6   **STNFILE Statement**

The SECURITRE file parameters are used to specify an alias to be used when referring to a file. The syntax for the file parameter is:

STNFILE file-alias,DBID=nnnnn,FNR=nnnnn

STNFILE Parameter	Function	Valid Values	xDefault Value
ALIAS	The name to be used in the DSN that refer to specific files. For example: the NSI DSNs.	any value up to 8 characters	none
DBID	Specifies the DBID for this file	a valid DBID	no default value
FNR	Specifies the file number for this file	a valid file number for the above DBID	no default value

Figure 5 – STNFILE Parameters

III.7   **STNFILE Parameters**

ALIAS   Function.

        Valid Values: any string up to 8 characters
        Default Value: none
        Assigned By: STNFILE only

DBID   The database for this Database-ID/file number combination. Use of this parameter is meaningless without an associated FNR parameter.

        Valid Values: a valid Database-ID
        Default Value: no default value
        Assigned By: STNFILE only

FNR   The file number for this Database-ID/file number combination. Use of this parameter is meaningless without an associated DBID parameter.

        Valid Values: a valid file number
        Default Value: no default value
        Assigned By: STNFILE only

III.8   STNDDM Statement

The SECURITRE DDM paramet ers are used t o specify unique qualities about each DDM. The syntax for the DDM parameters is

> STNDDM DDM-name,[keyword-parameter=value,]...

A default set of DDM parameters may be specified by using *DEFAULT as the DDM name. If *DEFAULT is used, i t must appear as the first STNDDM. If no *DEFAULT i   s provided, SECURITRE will generate one.

The name to be included in the DSN will always   be taken from a STNDDM statement. If a STNDDM statement has not been specified for a particular DDM , SECURITRE will take the name from the STNDDM *DEFAULT statement.

Information about each of the valid keyword parameters follows.

STNDDM Parameter	Function	Valid values	Default value
ALIAS	Specifies an alternate name to be used for SSF requests for this DDM	any value up to 17 characters	no default value
DDMNAME	Indicates whether the full DDM name or the DDM alias should be used in the DSN	YES or NO	YES
TYPE	Specifies whether SECURITRE should check security for this DDM	PRIV or PUB	PRIV

Figure 6 – STNDDM Parameters

III.9   STNDDM Parameters

ALIAS   The name SECURITRE should use when aut horization requests are made t o the SSF for thi s DDM. The purpose of an alias name is to shorten the DDM name, so that SSF limitations on dataset name lengths are not exceeded.

> *Valid Values:*   any string up to 17 characters
> *Default Value:*   no default value
> *Assigned By:*   STNDDM only

DDMNAME   Indicates to SECURITRE whether or not the full DDM name or the DDM alias should be included in the DSN built for DDM security.

> YES   SECURITRE will include the full DDM   name when building the DSN for DDM security.
>
> NO   SECURITRE will use the ALIAS when building the DSN for DDM security.

> *Valid Values:*   YES or NO
> *Default Value:*   YES
> *Assigned By:*   STNDDM only

TYPE   Indicates to SECURITRE whether or not security should be checked when a user attempts to access this DDM.

>   PRIV   SECURITRE will send an authorization request to the SSF when anyone attempts to access this DDM.
>
>   PUB   No security checking will take place. Anyone may access this DDM.

The TYPE parameter can be used to override the DDMMODE parameter for particular DDMs. For example, DDMMODE can be set to FAIL or WARN, but security will <u>not</u> be checked for a DDM if the TYPE for that DDM is set to PUB. However, if DDMMODE is set to DORMANT, setting a particular DDM TYPE to PRIV will <u>not</u> cause SECURITRE to check access to that DDM.

Valid Values: PRIV or PUB
Default Value: PRIV
Assigned By: STNDDM only

III.10   SECURITRE for NATURAL - Failed Authorization

This section describes the symptoms of a fa iled authorization request from the SSF for each of the different types of security provided by SECURI TRE for NATURAL. I n most cases, SECURITRE will replace the NATURAL error   message text with the text "SECURITY VIOLATION DETECTED OR INVALID CIPHER CODE." The exceptions to this are:

- LOGON Security: the site specifies how a violation will be handled in STRLOGON.
- DDM Security: when activated within the "LIST FILE" or "LIST FILES" command the normal SYSLIS message will be returned.

NSI Security
In TSO/BATCH, the user w ill be returned to the environment in use prior to attem pt to enter NATURAL. In batch, the step receives a return code 100.

In CICS, the user w ill receive a N ATURAL response code 9987 w   ith the m essage "SECURITY VIOLATION DETECTED OR INVALID CIPHER CODE".

LOGON Security
If STRLOGON is used as the LOGON program, and the LOGON request is failed, the failure will be handled by the STRLOGON program which is modifiable at the user site, and which will have been renam ed to LOGON and put in   the SYSTEM library. The STRLOGON provided with SECURITRE displays a screen that allows the user to enter a different library to logon to.

If STRLOGON is not used, and a LOGON request is   failed, the user will be returned to the library where the LOGON r equest was i ssued with a message sayi ng the logon was successful.

PROGRAM Security
PROGRAM EXECUTE
>If a user fails in a request to execute a program, a NAT3200 error code with the message "SECURITY VIOLATION DETECTED OR INVALID CIPHER CODE" will be generated.

PROGRAM SOURCE READ
>If a user fai ls in a request to read program source, a NAT0963 error code wi   th the message "SECURITY VIOL ATION   DURING   PROGRAM   EXECUTION"   will be generated.

PROGRAM SOURCE WRITE
>If a user fai ls in a request to wri   te program source, a NAT3200 (ADABAS 200: SECURITY VIOLATION) will be generated.

PROGRAM OBJECT WRITE
>If a user fails in a request to write program object, a NAT3200 (ADABAS 200: SECURITY VIOLATION) will be generated.

RUN Security
If a user f ails in a request to RUN a NATURAL program,   a NAT0963 error code wi th the message "SECURITY VIOLATION DURING PROGRAM EXECUTION" will be generated.

DDM Security
If a user fai ls in a request to read a DDM   from a "LIST FILE" request, a SYSLIS4125 message ("REQUESTED FILE DESCRIPTION NOT AVAILABLE") will be generated.

If a user fai ls in a request to access a DDM, a NAT0002 error code wi   th the message "SECURITY VIOLATION DETECTED OR INVALID CIPHER CODE" will be generated.

PGWRTCK Security

If a user is not authorized to SAVE/CAT/STOW/PURGE programs while logged on to a library and attempts to perform one of these functi   ons, a NAT0106 error code wi   th the message "SAVE/CA TALOG/STOW/PURGE/UNCATALOG/ SCRATCH not available" will be generated.

Changing the Error Message

The error message "SECURI TY VIOLATION DETECTED OR I NVALID CIPHER CODE" i s obtained from the NATURAL system fi   le. This message may be modi fied using the NATURAL SYSERR Utility to change message number 3200. For example, if the site has no ciphered files, a more appropriate message is "SECURITRE VIOLATION."

III.11   NATURAL Utility Security

The following NATURAL Utilities will be checked for authorization if the STNPARM parameter NUMODE is WARN or FAIL:

Utility	NATURAL	version
SYSDBA	al	l
SYSDDM	al	l
SYSERR	al	l
SYSMAIN	al	l
*BUS	2.2	or above
*ROUTINES	2.2	or above
SYSBPM	2.	2 or above
*SYSFILE	2.	2 or above
SYSNCP	2.2	or above
*SYSPROD	2.	2 or above
*SYSPROF	2.	2 or above
SYSTP	2.	2 or above
TEST	2.2	or above
NATLOAD	2.2	or above
NATUNLD	2.2	or above

* Utilities are sub-functions of SYSDBA. They are included on this list since they may also be run outside of SYSDBA.

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SECTION IV

SECURITRE FOR ADABAS UTILITIES

IV.1   Introduction to Utility Security

SECURITRE ADABAS Utility Control secures ADABAS Utilities at the database, file, utility, and function levels. Before a user is allowed to execute a utility, SECURITRE generates a DSN containing a utility prefix and any or all of the following: the file alias, the utility name, and the utility function. SECURITRE then sends a request to the SSF to check if the user may access the DSN.

SECURITRE Utility Security will check all ADABAS utility functions for up to 65535 files per utility run. It will also check for ADADBS OPERCOM sub-functions. This section lists these functions and sub-functions and how they will appear in the DSN generated by SECURITRE.

Utility Security Parameters

The Utility Security parameters include UTMODE, UTORDER, and UTPREF. All of these are defined in the STRDEF statement.

IV.2   **ADABAS Utility Control**

The following list of ADABAS Utilities indicates the items that may appear as part of a SECURITRE DSN for each utility. The presence of any component listed below is dependent on whether that component was specified in the UTORDER parameter in the STRPARMS, and whether or not that value is appropriate for the requested utility.

ADABAS UTILITY		FUNCTION	FUNCTION IN DSN	FILE
ADAACK	ACCHECK	ACCHECK	OPT	
ADACMP	COMPRESS	COMPRESS	OPT	
		DECOMPRESS	DECOMPRE	OPT
ADACDC	----------	----------	NONE	
ADACNV	----------	CONVERT	CONVERT	
		REVERT	REVERT	
ADADBS	ADD	ADD	NONE	
		ALLOCATE	ALLOCATE	REQD
		CHANGE	CHANGE	REQD
		CVOLSER	CVOLSER	NONE
		DEALLOCATE	DEALLOCA	REQD
		DECREASE	DECREASE	NONE
		DELCP	DELCP	NONE
		DELETE	DELETE	REQD
		DSREUSE	DSREUSE	REQD
		INCREASE	INCREASE	NONE
		ISNREUSE	ISNREUSE	REQD
		MODFCB	MODFCB	REQD
		NEWALTS	NEWALTS	NONE
		NEWFIELD	NEWFIELD	REQD
		OPERCOM*	OPER	OPT
		PRIORITY	PRIORITY	NONE
		RECOVER	RECOVER	NONE
		REFRESH	REFRESH	REQD
		RELEASE	RELEASE	REQD
		RENAME	RENAME	OPT
		RENUMBER	RENUMBER	REQD
		RESETDIB	RESETDIB	NONE
		REUSEDS	REUSEDS	REQD
		REUSEISN	REUSEISN	REQD
		UNCOUPLE	UNCOUPLE	REQD
ADADCK	DSCHECK	DSCHECK	OPT	
ADADEF	DEFINE	DEFINE	NONE	
		NEWWORK	NEWWORK	NONE
		----------	----------	NONE
ADAFRM	ASSOFRM	ASSOFRM	NONE	
		ASSORESET	ASSORESE	NONE
		CLOGFRM	CLOGFRM	NONE
		DATAFRM	DATAFRM	NONE
		DATARESET	DATARESE	NONE
		DSIMFRM	DSIMFRM	NONE
		DSIMRESET	DSIMRESE	NONE
		PLOGFRM	PLOGFRM	NONE
		RLOGFRM	RLOGFRM	NONE
		SORTFRM	SORTFRM	NONE
		TEMPFRM	TEMPFRM	NONE
		WORKFRM	WORKFRM	NONE
		WORKRESET	WORKRESE	NONE

> **Note:** There are many sub-functions associated with OPERCOM. T he Security Administrator may want to restrict access to some of them. Therefore, at the function level, OPERCOM rules will be generated as OPER.*, where * r epresents a sub-function from Figure 8 – Sub-function Table for ADABAS V5 OPERCOM Utility.

Figure 7 – Function Table for ADABAS Utilities
(continued on next page)

(continued from previous page)

ADABAS UTILITY	FUNCTION	FUNCTION IN DSN	FILE
ADAICK ACCHECK	ACCHECK	OPT	
	ASSOPRINT	ASSOPRIN	NONE
	BATCH	BATCH	NONE
	DATAPRINT	DATAPRIN	NONE
	DSCHECK	DSCHECK	OPT
	DUMP	DUMP	NONE
	FCBPRINT	FCBPRINT	OPT
	FDTPRINT	FDTPRINT	OPT
	GCBPRINT	GCBPRINT	NONE
	ICHECK	ICHECK	OPT
	INT	INT	NONE
	NIPRINT	NIPRINT	OPT
	NOBATCH	NOBATCH	NONE
	NODUMP	NODUMP	NONE
	NOINT	NOINT	NONE
	RECORD	RECORD	NONE
	UIPRINT	UIPRINT	OPT
ADAINV COUPLE	COUPLE	REQD	
	INVERT	INVERT	REQD
	RELEASE	RELEASE	REQD
	UNCOUPLE	UNCOUPLE	REQD
ADALOD ASSODEV	ASSODEV	REQD	
	LOAD	LOAD	REQD
	UPDATE	UPDATE	REQD
ADAMER ----------	-----------	NONE	
ADANUC ----------	-----------	NONE	
ADAORD REDB	REDB	OPT	
	REF	REF	REQD
	REORASSO	REORASSO	OPT
	REORDATA	REORDATA	OPT
	REORDB	REORDB	OPT
	REORFASSO	REORFASS	REQD
	REORFDATA	REORFDAT	REQD
	REORFILE	REORFILE	REQD
	RESTRUCTUREDB**	RESTRUCT**	OPT
	RESTRUCTUREF**	RESTRUCT**	REQD
	STORE	STORE	OPT
ADAORI ----------	----------	OPT	
ADAPLP PLOGPRI	PLOGPRI	OPT	
	SPLOGPRI	SPLOGPRI	OPT
	WORKPRI	WORKPRI	OPT
ADAPRI ASSOPRI	ASSOPRI	NONE	
	CLOGPRI	CLOGPRI	NONE
	DATAPRI	DATAPRI	NONE
	DSIMPRI	DSIMPRI	NONE
	PLOGPRI	PLOGPRI	NONE
	RLOGPRI	RLOGRI	NONE
	SORTPRI	SORTPRI	NONE
	TEMPPRI	TEMPPRI	NONE
	WORKPRI	WORKPRI	NONE

Figure 7 – Function Table for ADABAS Utilities
(continued on next page)

(continued from previous page)

ADABAS UTILITY	FUNCTION	FUNCTION IN DSN	FILE
ADARAI CHKDB	CHKDB	NONE	
	DISABLE	DISABLE	NONE
	LIST	LIST	NONE
	PREPARE	PREPARE	NONE
	RECOVER	RECOVER	OPT
	REMOVE	REMOVE	NONE
ADAREF AMIRROR	AMIRROR	NONE	
	DMIRROR	DMIRROR	NONE
	DUPLICATE	DUPLICATE	NONE
	NOMIRROR	NOMIRROR	NONE
	WMIRROR	WMIRROR	NONE
	----------	----------	OPT
ADAREP REPORT	REPORT	OPT	
	----------	----------	OPT
ADARES BACKOUT	BACKOUT	OPT	
	CLCOPY	CLCOPY	NONE
	COPY	COPY	NONE
	PLCOPY	PLCOPY	NONE
	REGENERATE	REGENERA	OPT
	REPAIR	REPAIR	OPT
ADASAV DUMP	DUMP	OPT	
	MERGE	MERGE	OPT
	RESTONL	RESTONL	OPT
	RESTORE	RESTORE	OPT
	RESTPLOG	RESTPLOG	OPT
	SAVE	SAVE	OPT
ADASCR CHANGE	CHANGE	NONE	
	DELETE	DELETE	NONE
	INSERT	INSERT	REQD
	PARMDEF	PARMDEF	NONE
	PFIELDS	PFIELDS	REQD
	PFILES	PFILES	NONE
	PPW	PPW	NONE
	PROTECT	PROTECT	REQD
	REMOVE	REMOVE	NONE
	SBYVALUE	SBYVALUE	REQD
ADASEL END	END	NONE	
	SELECT	SELECT	OPT
ADAULD UNLOAD	UNLOAD	REQD	
	----------	----------	REQD
ADAVAL VALIDATE	VALIDATE	REQD	
ADAZAP ----------	----------	NONE	

Note: Since function names are s hortened to 8 c haracters, the ADAORD functions RESTRUCTUREDB and R ESTRUCTUREF will result in the same rule element (RESTRUCT). If rules are being generated to include functions for ADAORD, and it is necessary to distinguish between RESTRUCTUREDB and RESTRUCTUREF, it is recommended that the DSNs be generated for the ADABAS-supplied aliases REDB (for RESTRUCTUREDB) and R EF (for RESTRUCTUREF). SECURITRE will recognize both the functions through their aliases.

Figure 7 – Function Table for ADABAS Utilities

A sub-function may or may not be associated with a file for the OPERCOM Utility. Where a file is required, the file name from the STRDEF or STRFNR parameters will be included as part of the DSN.

SUB-FUNCTION	FILE Y/N	SUB- FUNCTION	FILE Y/N	SUB-FUNCTION	FILE Y/N
ADAEND	N	DUUQE	N	NOLOGRB	N
CANCEL	N	FEOFCL	N	NOLOGSB	N
DAUQ	N	FEOFPL	N	NOLOGVB	N
DCQ	N	HALT	N	RDUMPST	N
DDIB	N	LOCKF	Y	READONLY	N
DFILES	Y	LOCKU	Y	REVIEWHUBID**	N
DFILUSE	Y	LOCKX	Y	STOPF	Y
DHQA	N	LOGGING	N	STOPI	N
DLOCKF	N	LOGCB	N	STOPU	N
DNC	N	LOGFB	N	SYNCC	N
DNH	N	LOGIB	N	TNAA	N
DNU	N	LOGIO	N	TNAE	N
DPARM	N	LOGRB	N	TNAX	N
DRES	N	LOGSB	N	TT	N
DSTAT	N	LOGVB	N	UNLOCKF	Y
DTH	N	NOLOGGING*	N	UNLOCKU	Y
DUMP	N	NOLOGCB	N	UNLOCKX	Y
DUQ	N	NOLOGFB	N	UTIONLY	N
DUQA	N	NOLOGIB	N		
DUQE	N	NOLOGIO	N		

*   NOLOGGING will be shortened to NOLOGGIN in the DSN.
**   REVIEWHUBID will be shortened to REVIEWHU in the DSN.

Figure 8 – Sub-Function Table for ADABAS V5 OPERCOM Utility

IV.3   Utility Security Error Messages

In the event that SECURITRE abends an ADABAS Utility run, a message will be printed showing the reason for the ABEND. The messages printed by SECURITRE are listed below along with the possible cause of the ABEND.

ABEND   **ERROR MESSAGE PRINTED AND EXPLANATION**
CODE

020   **DBID REQUIRED FOR UTILITY EXECUTION**

In order to allow SECURITRE utility control functions to operate, a DBID must be specified in the start-up parameters.

035   **UNABLE TO OPEN DDKARTE**

SECURITRE utility control was unable to open the DDKARTE dataset.

040   **VALID UTILITY FUNCTION NOT FOUND**

SECURITRE utility control detected a utility function that does not appear to be valid. Check the ADARUN cards to see that all utility functions have been specified correctly.

050   **INTERNAL ERROR ON DDCARD DATA**

SECURITRE utility control detected an internal error in the DDCARD data. Check the DDCARD dataset.

055   **PARM CARD ERROR ON DDCARD**

SECURITRE detected an error in the ADARUN parameter cards that were submitted.

056   **CARD MUST START WITH ADARUN**

SECURITRE detected that a utility job card did not contain the ADARUN keyword.

060   **INVALID DATABASE SPECIFIED**

The database specified in the ADARUN cards is not a valid ADABAS database.

150   **PARM CARD ERROR ON DDKARTE**

SECURITRE detected an error in the ADARUN DDKARTE cards.

151   **CARD MUST START WITH UTILITY NAME**

SECURITRE could not find the utility name in the ADARUN card being processed. Check the ADARUN cards for errors.

155   **UTILITY NOT THE SAME AS SPECIFIED WITHIN DDCARD**

The DDKARTE and DDCARD information in the ADARUN parameters does not match. Verify that the correct utility is listed on both the DDCARD and DDKARTE.

165   **INTERNAL ERROR ON DDKARTE DATA**

SECURITRE utility control detected an internal error in the DDCARD data. Check the DDCARD dataset.

170 **NO VALID UTILITY FUNCTION DETECTED**

The ADARUN card b eing processed did not specify a val id utility function. Examine the cards for correctness.

175 **FILE NUMBER IS REQUIRED FOR THIS UTILITY FUNCTION**

The ADARUN cards di d not specify which file a ut ility is operating against. Check the cards for completeness.

180 **INVALID UTILITY FUNCTION DETECTED**

The ADARUN cards cont ained an i nvalid utility function. V erify that the cards are correct.

190 **INVALID FILE NUMBER SPECIFIED**

The ADARUN cards specified an invalid file number. Verify that the cards are correct.

300 **SECURITRE HAS EXPIRED**

SECURITRE requires a new expiration date. If the new expiration date zap has not been received, contact TSI.

301 **SECURITRE GETMAIN FAILURE OCCURRED FOR RACF, 512 MORE BYTES NEEDED**

SECURITRE was unable to GETMAIN the needed memory. Increase the region size by at least 512 bytes.

303 **SECURITRE COULD NOT LOCATE THE FILE DEFAULTS (STRPARM)**

Ensure that the STRPARM module is available and accessible to SECURITRE.

304 **SECURITRE DETECTED INVALID FILE DEFAULTS (STRPARM)**

Verify the parameters specified for SECURITRE to ensure that they are cod ed correctly.

305 **SECURITRE DETECTED INVALID FILE DEFAULTS (STRPARM). BAD COND CODE**

Verify the parameters specified for SECURITRE to ensure that they are cod ed correctly.

400 **INTERNAL ERROR DETECTED**

SECURITRE detected an internal error. Contact TSI.

913 **NOT AUTHORIZED FOR THIS UTILITY FUNCTION FOR THIS DATABASE AND FILE SECURITRE WILL ABEND THIS UTILITY**

The SSF reported to SECURITRE that the user in question could not execute the requested utility function on the selected database and file. Therefore, the utility job was ABENDed.

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SECTION V

REAL-TIME MONITOR

V.1   Introduction to the Real-Time Monitor (RTM)

The SECURITRE Real-time Monitor (RTM) provides an on-line view of the current SECURITRE status on any appl icable database. With the RTM, the Security Administrator may:

- Display and make modifications to internal SECURITRE tables to keep SECURITRE synchronized with current RACF/ACF2/TOP-SECRET rules.

- Display and modify (reload) certain SECURITRE parameters.

- Reload certain user-exits.

- Start or stop the SECURITRE Trace Facility or modify what is being traced.

V.2   RTM Screen Navigation

Real-Time Monitor (RTM) screen navi gation is accomplished through PF-Keys and wi th screen names. PF1 i s always used for the "Hel p" function. PF3 al ways means to return to the menu.

The ENTER key is used to execute the selected function on the indicated DBID.

PF12 can be configured so that it performs a NATURAL STOP or a TERMINATE through the use of the "TERM" parameter in the STRDEF statement. STOP will take the user out of the RTM, while remaining in NATURAL. T ERMINATE will take the user out of NATURAL, in effect preventing the user from performing other functions within NATURAL.

The screen name is displayed at the bottom right of most screens. The screen name can be entered on the di rect command l ine of each scr een to transfer control from one screen to another. Pressi ng ENTER causes the scr een transfer to take pl ace and the RTM immediately displays the new screen.

For example, while on the Display SECURITRE Parms "PARM" screen, one may immediately transfer control to the Reload SECURITRE Parms "RPRM" screen by ent ering "RPRM" on the direct command l ine and pressing ENTER. A list of the avai lable RTM modul es/screen names is provided on the following page.

V.3   <u>RTM Screen Names</u>

RTM programs are executable by entering the screen name in the Screen-ID field at the top of the screen. While many NATURAL modules make up the RTM, only the following modules are directly executable by entering the valid name in the Screen-ID field:

<u>SCREEN NAME</u>	<u>SCREEN FUNCTION</u>
MENU	Main Menu
FRC1	Force One User From the Tables
FRCA	Force All Users From the Tables
PARM	Display SECURITRE parms
REXT	Reload User-Exit(s)
RPRM	Reload SECURITRE parms
TRAC	SECURITRE Trace Facility
TRIM	Invoke the TRIM Real-Time Monitor (if installed)
NPRM	Display SECURITRE/NATURAL parms
TBLS	Display Current Table Sizes
STOP	Terminate the Real-time Monitor

Figure 9 – RTM Screen Names

V.4   <u>RTM Security</u>

The RTM functions are secured by SECURITRE. Some of the functions described in the next section may not be available to all users. The security administrator defines what functions each user can access via SSF rules. If a function is not available, a rule must be changed/added to the SSF before access will be granted by SECURITRE. Refer to **Section V.2 – RTM Security** in the SECURITRE Administrator Manual for more information on RTM security.

V.5   RTM Screen Functions

Although others may use the RTM, for illustration purposes assume that the Security Administrator is the user.

Standard procedures at the user's site are used to first invoke NATURAL. Then the Security Administrator logs onto "STRLIB" or whichever library the RTM was installed onto and executes the "MENU" Program.

        LOGON STRLIB

        MENU

The following screen is displayed:

```
SSSSSSS
 SS   SS  EEEEEE
  SSS     EE                                    SECURITRE IS A PRODUCT OF
    SS    EE      CCCCCCC                        TREEHOUSE SOFTWARE, INC.
    SS    EEEEEE  CC                             SEWICKLEY, PENNSYLVANIA
 SS   SS  EE      CC      UU   UU                UNITED STATES OF AMERICA
 SSSSSSS  EE      CC      UU   UU
          EEEEEE  CC      UU   UU  RRRRRR        (C) COPYRIGHT 1990-2010
                  CC      UU   UU  RR   RR
                  CCCCCCC UU   UU  RR   RR  IIIIIII
                          UU   UU  RRRRRRR    II
                          UUUUUUU  RR RR      II
                                   RR   RR    II    TTTTTTT
 Treehouse Software, Inc.          RR   RR    II      TT
 2605 NICHOLSON ROAD                          II      TT    RRRRRR
 SUITE 230                              IIIIIII      TT    RR   RR
 Sewickley, PA 15143                                 TT    RR   RR  EEEEEE
 1-724-759-7070                                      TT    RRRRRRR  EE
                                                     TT    RR RR    EE
                                                           RR   RR  EEEEEE
                                                           RR   RR  EE
                                                                    EE
 PRESS ENTER TO PROCEED                                             EEEEEE
```

The "Authorized" line on this screen may authorize use:

   •   For limited trial
   •   By licensee only
   •   By a particular licensee, by name

 If SECURITRE detects a problem communicating with its User-Exit-11, the screen below is displayed and descri bes the probabl e causes of the fai lure and the possi ble corrective actions.

```
07/01/10                    S  E  C  U  R  I  T  R  E              TSI01
11:38:00                  RTM COMMUNICATION FAILURE                STRLIB

                 DBID : 0


         The RTM was unable to establish communication with the
         DBID specified.  Probable causes:

            1.   The SECURITRE User-Exit-11 was not installed on the
                 database in question.

            2.   The database was not active.

            3.   The request contained an unrecoverable syntax error.


         The following actions are available:

            1.   Supply a new value for DBID and press ENTER.

            2.   Press PF3 to terminate RTM session.

```

To attempt to examine another database, the Security Administrator must input the new DBID number and press ENTER. To exit the SECURITRE RTM, the Security Administrator would press PF3.

In some cases, this screen w ill list a "probable cause" (e.g., "U EX11 installed, U EX4 not installed"). One common message i s "REASON UNKNOWN, usually ADABAS RESPONSE: 0" indicates that SECURITRE cannot find a User-ID for this user or t hat the user does not have RTM securi ty. If there i s no defaul t DBID specified in the modul e MENU, the defaul t DBID will be the sam e as the database w here the FU SER is located (show n by the SYSPROF command). If SECURITRE's User-Exit-11 is not installed on the default database, the user will have to enter a different DBID on the screen.

Once ENTER is pressed, the following Main Menu screen is displayed:

```
07/01/10            S E C U R I T R E  V E R S I O N   V.R.S        TSI01
11:38:00              R E A L - T I M E   M O N I T O R              STRLIB


                Code        Function
                ----        ----------------------------------
                 A          Force one user from table     (FRC1)
                 B          Force all users from table    (FRCA)
                 C          Display SECURITRE parms        (PARM)
                 D          Reload user exit(s)            (REXT)
                 E          Reload SECURITRE parms (RPRM)
                 F          SECURITRE trace facility       (TRAC)
                 G          Invoke the TRIM RTM            (TRIM)
                 H          Display SECURITRE/NAT parms    (NPRM)
                 I          Display current table sizes    (TBLS)
                 .          Exit Real-time Monitor (STOP)
                ----        ----------------------------------
         Code:  _   DBID :  1000    TEST-DB

 Direct Command: ____                                                   MENU
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
       HELP      MENU                                                   EXIT
```

The date and ti me are di splayed at the top l eft of every screen. T he User-ID and current library are displayed at the top right of every screen. The screen name appears at the bottom right of most screens.

PF1 will always display help for the current screen.

PF3 will always return to this menu screen.

On most screens, the Security Administrator may press PF12 to discontinue monitoring.

V.5.1   <u>Force One User from the Table</u>

SECURITRE provides the ability to perform synchronization with the SSF at tim ed intervals as specified in the "STRPARM" modul e. For more i nformation about FORCE, PURINTT, PURINTV parameters, refer to **Section II.3 – STRDEF Parameters**. The synchroni zation allows SECURITRE to adjust to any changes i n a user's security rules within the SSF i n a reasonable period of time. Usi ng the RTM func tion "FRC1", the Securi ty Administrator can force a user from the SECURITRE internal tables causing an i mmediate synchronization between SECURITRE and the SSF for the specified user.

To force a part icular user f rom the SECURITRE internal tables, enter the appropriate SSF User-ID on the following screen:

```
07/01/10     FRC1            FORCE ONE USER FROM TABLE                TSI01
11:38:00                                                             STRLIB
                      DBID : 1000   GENERAL-DB



                      USERID to be Purged : DAVE1234



                           GROUPID : _____


          Hit ENTER to purge the USERID within the GROUPID entered







Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----  EXIT
```

The SECURITRE table entry for User-ID "DAVE1234" will be rem oved when ENTER is pressed. The next ADABAS access by "DAVE1234" will result in SECURITRE retrieving the current access information for DAVE1234 for that file from the SSF on the user' s next call to ADABAS.

V.5.2 <u>Force All Users from the Table</u>

When changes are made to SSF rul es affecting hundreds of users, removi ng the i ndividual users from the SECURITRE internal tables might be time-consuming or error-prone. For this reason, SECURITRE makes it possible to use the RTM to remove all users from the internal tables. This ensures that any changes in SSF rules will be synchronized with SECURITRE actions.

To remove al l the users f rom the SECURITRE internal tables, enter the appropriate Database-ID on the following screen:

```
 ┌──────────────────────────────────────────────────────────────────────────────┐
 │ 07/01/10                    S  E  C  U  R  I  T  R  E                   TSI01  │
 │ 11:38:00                    FORCE ALL USERS FROM TABLE                  STRLIB │
 │                                                                                │
 │                                                                                │
 │                           DBID : 1000           TEST-DB                        │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                Hit ENTER to force all users from SECURITRE's table             │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │ Direct Command: ____                                                    FRCA   │
 │ Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12  │
 │       HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   EXIT │
 └──────────────────────────────────────────────────────────────────────────────┘
```

In the example above, all users will be forced from the tables m aintained by SECURITRE in its User-Exit-1 on DBID number 1000, the "PAYROLL-DATABASE" database.

V.5.3 Display SECURITRE Parameters

The Security Administrator may wish to determine if SECURITRE has been configured as desired.

In order to di splay the ST RDEF parameters i n effect fo r database 202, the Securi ty Administrator would enter "202" in the DBID field on the following screen:

```
07/01/10                       S  E  C  U  RI  T R  E                 TSI01
11:38:00                    DISPLAY SECURITRE PARAMETERS               STRLIB

                   DBID : 202          TEST-DB
                   FILE : 0



                       Hit ENTER to display parameters








Direct Command : ____                                                 PARM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   EXIT
```

Once ENTER is pressed, the STRDEF parameters active on database 202 are displayed as shown on the following screen:

```
07/01/10     PARM           S  E  C  U  R  I  T  R  E                  TSI01
11:38:00                     DISPLAY STRDEF PARAMETERS                 STRLIB
        DBID : 202     TEST-DB                 File : 0

      CLASS  : DATASET        PURINTT : 1         USERID  : TSIUEX1G
      CMDLOG : OFF            PURINTV : 100       USERID2 : TRIMV4-1
      DELIM  : .              QUALIFY : EDTST      USERS   : 10
      DSNORDR: FILE CMD DBID   RACHECK : RACHECK    UTMODE  : WARN
             JOB   NPGM        RTMORDR : FUNC DBID   UTPREF  : UTPREF
                              PROCCL  : OFF        UTORDER : FILE UTIL
      EX1ALL : OFF            PROCEX2 : OFF
      FLSDEL : DELETE         SECURE  : RACF
      FORCE  : 18             STREX1  :
      FORMAT : NEW            STREX2  :
      LOGVIOL: FIRST          STREX3  :
      MODE   : FAIL           STRRTM  : ADABAS.STR
      NOIDRED: ACCEPT         TERM    : S
      NOIDUPD: ACCEPT         TRACE   : ON
      N20PREF: CONTROL.N2O    TRMRTM  : ADABAS.TRM
      PREFIX : TSI.SECURTRE   UEXIT11 :
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   EXIT
```

This display includes all STRDEF parameters in effect on database 202, except for those that control table size, which may be seen using the TBLS function. For example, it can be seen that SECURITRE will purge the SECURITRE internal tables at 6:00 p.m. (18:00).

Several STRDEF parameters may be overri dden at the file level. For exampl e, file 1 may have been set to DORMANT mode in one of the STRFNR statements.

To see the STRFNR overrides, the Security Administrator would enter "1" in the FNR field on the "PARM" screen, as shown on the following screen:

```
07/01/10      PARM                DISPLAY PARMS                    11:38:00


                      DBID : 202
                      FNR : 1









Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   EXIT
```

When ENTER i s pressed, the STRFNR overri de parameters in effect for database 202, fi le number 1 will be displayed as shown on the following screen:

```
07/01/10                      S  E  C  U  R  I  T  R  E              TSI01
11:38:00                    DISPLAY STRFNR PARAMETERS               STRLIB

                    DBID  : 202         TEST-DB
                    FILE  : 1

                    DELIM : .
                   DSNORDR : FILE

                    FLSDEL : DELETE
                    FLSMODE : DORMANT
                    LOGVIOL : FIRST
                       MODE : DORMANT
                       NAME : FILE1
                    NOIDRED : REJECT
                    NOIDUPD : REJECT
         PREFIX / QUALIFIER : STR411.D202FOO1.
                    PROCEX2 : OFF
                      TRACE : ON


Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   EXIT
```

All of the di splayed STRFNR par ameters, with the exception of PREFIX / QUALIFIER, may be updated by typi ng the new val ues over the exi sting values and hitting ENTER. To avoi d updating these values, press PF 3. If updated, the new   values will be in effect until the parameters are reloaded using RPRM or until the database is brought down.

If FILEMAX=NEW is specified and the file number entered in the FILE field does not have an STRFNR definition in the 'STRPARMS', the following window will be displayed.

```
FILE  1  DOES  NOT  HAVE  AN  STRFNR  ENTRY  SPECIFIED  IN  THE  SECURITRE  ADABAS
FILE  PARAMETERS.   ANY  CHANGES  TO  THIS  INFORMATION  WILL  AFFECT  ALL  FILES  ON
THIS  DATABASE  WITHOUT  AN  STRFNR  ENTRY.

CONTINUE  EDITING?      (Y/N)
```

This indicates that the defaul t parameters defined by STRDEF are in effect for thi s file. Entering 'N' at this prompt will allow the user to view the parameters, but they may not change them. The m essage '*** BROW SE MODE *** DEFAULT PARAM ETERS DISPLAYED' is displayed at the bottom of the screen to indicate that editing is not allowed.

Entering 'Y' at this prom pt will allow the user to change all of the param eters except the NAME   and PREFIX/QUALIFIER fields.   The message '***EDIT M ODE*** DEFAULT PARAMETERS DISPLAYED' is displayed at the bottom of the screen to indicate that editing is allowed.

Note: Changes to the default param eters will affect **ALL** files that do not have an STRFNR specification in the 'STRPARMS'.

V.5.4   Reload User-Exits

When changes are made to a particular SECURITRE User-Exit or to another User-Exit-11 in effect for a particular database, the Security Administrator may reload these exits using the RTM.

Assume that TRIM's User-Exit-11 is specified in the UEXIT11 parameter of STRDEF in the "STRPARMS" (refer to Section II.3 STRDEF Parameters). If the database administrator applies a zap supplied by TSI to Securitre's User-Exit-11 parameter, the database would normally have to be bounced to load the new user edit. However, this can be done while the database is up using the SECURITRE RTM. This is accomplished by entering "REXT" or pressing "D" on the Main Menu, then entering the appropriate DBID and the letter "E" for the number of the exit to be reloaded on the following screen:

```
07/01/10                          S E C U R I T R E                  TSI01
11:38:00                          RELOAD USER EXITS                  STRLIB


                 DBID : 202    TEST-DB

                         STRDEF
                 Code    Value      Description
                 ----    ------     ------------------------
                 A       STREX1     Reload STREX1 Module
                 B       STREX2     Reload STREX2 Module
                 C       STREX3     Reload STREX3 Module
                 D       STREX4     Reload STREX4 Module (N/A)
                 E       UEXIT11    Reload UEXIT11 Module
                 .       Exit       Return to Main Menu
                 ----    ------     ------------------------

           Code :  _

Direct Command: _____                        REXT
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   ----
```

When ENTER is pressed, SECURITRE will reload the update User-Exit-11. In the example above, Securitre's User-Exit-11 with the new zap will be re-loaded. The following modules can be reloaded dynamically using the SECURITRE RTM 'REXT' function:
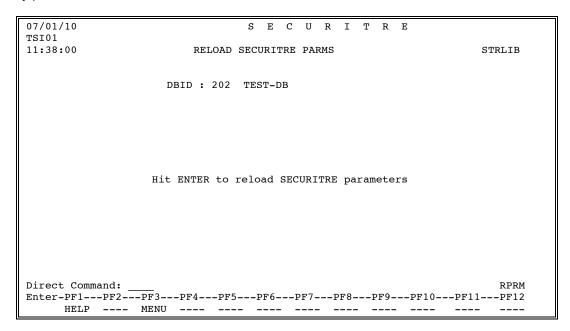
STRDEF Parameter	Description
STREX1	The module defined as SECURITRE's User-Exit-11. This is not the STRUEX11 module.
STREX2	The module defined as SECURITRE's User-Exit-2.
STREX3	The module defined as SECURITRE's User-Exit-3.
STREX4	The module defined as SECURITRE's User-Exit-4.
UEXIT11	The module defined as the second ADABAS User-Exit-11 to call after SECURITRE has finished processing the command.

For more information on the STRDEF parameters STREX1, STREX2, STREX3, STREX4, and UEXIT11, refer to **Section II.3 - STRDEF Parameters**.

V.5.5   Reload SECURITRE Parameters

To refresh the SECURITRE parameters for a part icular database without bringing the database down and up, the Securi ty Administrator would prepare a modi fied STRPARM module and reload the SECURITRE parameters by entering "RPRM" or pressing "E" on the Main Menu.

To reload the parameters, the DBID must be entered on the following screen and the ENTER key pressed.

```
07/01/10                      S   E   C   U   R   I   T   R   E
TSI01
11:38:00                 RELOAD SECURITRE PARMS                      STRLIB


                    DBID : 202   TEST-DB




                    Hit ENTER to reload SECURITRE parameters






Direct Command: ____                                                RPRM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----  ----
```

Once ENTER is pressed, SECURITRE will rel   oad its param eter settings for the specified database. This can be verified by re-displaying the parameters for that database.

After the reload param eter processing, SECURITRE will use t he new param eter settings to control access to the gi ven database. The following individual parameter setti ngs are **not** adjusted by a reload of the SECURITRE "STRPARM" module:

DSNPOOL	This parameter control s the size of the DSN tabl e to be GETMAINed by SECURI TRE. Al l GETMAIN requests are issued during startup onl y. Changes to the DSNPOOL parameter will become effective only after the database is brought down and up.
FLSPOOL	This parameter control s the size of the tabl e used to maintain CID information for Field Level Security processing. Changes to the FLSPO OL parameter will become effective only after the database is brought down and up.
USRPOOL	This parameter control s the si ze of the user / DSN relationship table to be GETMAI Ned by SECURI TRE. Al l GETMAIN requests are issued during startup only. Changes to the USRPOOL parameter will become effective only after the database is brought down and up.
USERS	This parameter control s the size of the user tabl e to be GETMAINed by SECURI TRE. Al l GETMAIN requests are issued during startup only. Changes to the USER parameter will only becom e effective after the database is brought down and up.
STREX1-4	User-Exits to SECURITRE are not re-loaded during a reload of the SECURITRE parameters. To obt ain a f resh copy of the SECURITRE user-exits, use the "REXT" function.
UEXIT11	Other ADABAS User-Exi t-11 programs are not re-loaded during a reload of the SECURITRE parameters. To obtain a fresh copy of another ADABAS User-Exi t-11 program, use the REXT function.

V.5.6   Trace Facility

If a problem should develop with SECURITRE, TSI's support pers onnel will want to help the customer solve it as rapidl y as possible. A Trace Fac ility has been im plemented within SECURITRE to produce diagnostic trace messages that will enable TSI support personnel to more easily determine the source of the customer's problem.

The Trace Facility can significantly incr ease the overhead associ ated with ADABAS. Therefore, it is recom mended that the Trace Facility should onl y be activated w hile testing SECURITRE or when a problem arises.

```
07/01/10                      S E C U R I T R E                    TSI01
11:38:00                    SECURITRE TRACE FACILITY               STRLIB

                  DBID : 202  TEST-DB

        TRACE : ___           (YES  to activate trace points marked with 'X'
                               NO   to de-activate trace)

   _ User-Exit-11 Entry (1)            _ File information obtained (2)
   _ USERID obtained (3)               _ User-Exit-11 Exit (4)
   _ User table Reorg start (5)        _ User table Reorg end (6)
   _ User Table lookup (7)             X Entity name built (8)
   X SSF interface                     _

   _

  -------------------------------------------------------------------

     TRACE USERID: _____         TRACE COMMANDS: __ __ __ __ __

     DD-NAME:      _____         SYSOUT-CLASS  : __

Direct Command: _____                                    TRAC
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----   ----
```

To activate specific trace point(s), enter "X" next to the desi red trace point(s) and enter YES in the TRACE field. To turn off all trace points, enter NO in the TRACE field.

To limit trace information to a specific User-ID, enter the User-ID in the TRACE USERID field. You may speci fy a group of User.IDs (al l same prefix) by termi nating the search argument ends with an asterisk.

To limit trace information to a specific set of ADABAS commands, enter the commands in the TRACE COMMANDS field.

Since tracing is also limited to fi les that have the TRACE parameter set to ON, i t may be necessary to use the PARM functi on to updat e the TRACE parameter. W hen using the PARM function, tracing can be turned off for only one file at a time.

When turning the TRACE off for a fi le, it is more efficient to turn i t off by usi ng the PARM function or by rel oading the parameters usi ng the RPRM function than to si mply enter NO in the TRACE field in the TRAC facility.
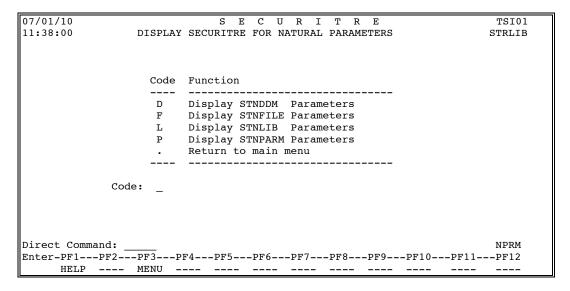
To direct the trace output data to a speci fic DD-name, enter the r equested value in the DD-NAME field. If this DD-nam e is not alloca ted in the start-up JC L of ADABAS it will be dynamically allocated and assigned to SYSOUT.
SYSOUT-CLASS has only effect if DD-name is not defined in the start-up JCL. A dynamically allocated trace output file will be closed if tracing is turned off..

Any changes to DD-NAM E and/or SYSO UT CLASS will only become effective at the next OPEN to the trace output file. You have to turn trace off (NO) and on (YES) again.

V.5.7   Display SECURITRE/NATURAL Parameters

To display the current SECURITRE for NATURAL par ameter settings, the Security Administrator should either enter "NPRM" or press "H" on   the Main Menu. Then, the following screen is displayed:

```
07/01/10                      S E C U R I T R E                      TSI01
11:38:00          DISPLAY SECURITRE FOR NATURAL PARAMETERS           STRLIB



                  Code  Function
                  ----  -------------------------------
                   D    Display STNDDM  Parameters
                   F    Display STNFILE Parameters
                   L    Display STNLIB  Parameters
                   P    Display STNPARM Parameters
                   .    Return to main menu
                  ----  -------------------------------

             Code:  _




Direct Command: _____                                                NPRM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----  ----  ----
```

By entering the appropri ate code, any of the four types   of SECURITRE for NATURAL parameters (STNPARM, STNLIB, STNDDM, or STNFILE) may be di splayed. Entering a "." or pressing PF3 returns to the Main Menu.

When item "D" i s selected to display the STNDDM paramet ers, the following screen i s displayed:

```
07/01/10                      S E C U R I T R E                      TSI01
11:38:00       DISPLAY SECURITRE FOR NATURAL PARAMETERS - STNDDM     STRLIB


         DDM                           ALIAS              PUB/PRIV

         *DEFAULT                      DEFAULT            PRIV
         PAYROLL                       PAY                PUB
         N20-ADMINISTRATION            N20                PUB
         SYSTEM-FUSER                  SYSTEM             PRIV
         SYSTEM-FDIC                   SYSTEM             PRIV
         SYSTEM-FNAT                   SYSTEM             PRIV
         TELEPHONE                     PHONE              PUB
         PARTS-INVENTORY               PARTS              PRIV
         EQUIPMENT                     EQUIPMENT          PRIV
         *** END OF DATA ***




Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----   -     +    ----  ----  ----  EXIT
```

The STNDDM parameters are displayed in the order in which they are listed in the parameter dataset. Up to 13 STNDDM statements will be displayed on each screen. PF8 m ay be used to scroll forward in the l ist if more than one page of data i s available. PF7 may be used to scroll backward.

The STNFILE parameters may be displayed by entering "F" on the NPRM menu.

```
07/01/10                    S  E  C  U  R  I  T  R  E                   TSI01
11:38:00        DISPLAY SECURITRE FOR NATURAL PARAMETERS - STNFILE      STRLIB



                    DBID     FNR     ALIAS

                     2       230     PROD
                     2       231     QA
                     2       242     TEST
                    *** END OF DATA ***









Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
       HELP  ----  MENU  ----  ----  ----   -     +    ----  ----   ----  EXIT
```

The STNFILE parameters are displayed in the order in which they are listed in the parameter dataset. Up to 13 STNFILE statements will be displayed on each screen. PF8 m ay be used to scroll forward in the list if more than one page of data i s available. PF7 may be used to scroll backward.

The STNLIB parameters may be displayed by entering "L" on the NPRM menu.

```
07/01/10                    S  E  C  U  R  I  T  R  E                   TSI01
11:38:00        DISPLAY SECURITRE FOR NATURAL PARAMETERS - STNLIB       STRLIB

                    ITEM       LIBRARY     FUSER

                     1         *DEFAULT
                     2         SYSLIB
                     3         SYSTEM
                     4         SYSDIC
                     5         STRLIB
                     6         PAY1
                     7         PAY2
                     8         PAY3
                     9         PAY4
                    10         ABC1
                    11         ABC2
                    12         ABC3
                    13         ABC4

        Enter item number to display STNLIB parameters:  6_

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
       HELP  ----  MENU  ----  ----  ----   -     +    ----  ----   ----  EXIT
```

The STNLIB parameters are di splayed in the order in which they are listed in the parameter dataset. Up to 13 STNFILE statements will be displayed on each screen. PF8 m ay be used to scroll forward in the list if more than one page of data i s available. PF7 may be used to scroll backward.

To display all the parameters for a parti cular STNLIB statement, ent er the number of the statement at the prom pt on the bottom of the screen, and press ENTER. The fol lowing screen will be displayed:

```
07/01/10                    S  E  C  U  R  I  T  R  E                    TSI01
11:38:00        DISPLAY SECURITRE FOR NATURAL PARAMETERS - STNLIB     STRLIB


            LIBRARY : SYSLIB      FUSER :

   ERRORTA  :                          STARTUP  :
   LGNPRMS  :                          STEPLIB  :
   LT       : 0                        STEP1    : PAY2
   MT       : 0                        STEP2    : PAY3
   MADIO    : 0                        STEP3    : PAY4
   MAXCL    : 0                        STEP4    :
   MODE     : REPORT                   STEP5    :
   PGMMODE  : DORM                     STEP6    :
   PGMTYPE  : ALL                      STEP7    :
   PGWRT    : YES                      STEP8    :
   PGWRTCK  : DORM                     TYPE     : PRIV
   RDONLY   : NO                       USRMODE  : YES
   RUNMODE  : DORM                     XREF     : OFF


Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----  EXIT
```

To return to the STNLIB statement l ist, press PF3. To return to the Mai n Menu from the STNLIB statement list, press PF3.

When item "P" i s selected to di splay the STNPARM parameters, the following screen i s displayed:

```
07/01/10                    S  E  C  U  R  I  T  R  E                    TSI01
11:38:00        DISPLAY SECURITRE FOR NATURAL PARAMETERS - STNPARM     STRLIB

   CLASS    :                               NULIT   : UTIL
   DDMMODE : WARN                           NUMODE  : DORM
   DDMLIT  : DDM                            NUORDR  : LIT UTIL
   DDMORDR : LIT  LIB  DDM                  PGLITPD : SCRATCH
   DELIM   : .                              PGLITOR : EXEC
   LGNLIT  : LOGON                          PGLITOW : CAT
   LGNMODE : FAIL                           PGLITSR : RD
   LGNORDR : LIT LIB                        PGLITSW : SAVE
   LGNPRIV : UID                            PGMORDR : LIT  LIB  PGM
   NATUEX1 :                                PGWLIT  : PGMWRT
   NSIFDIC : PROD                           PGWORDR : LIT  LIB  FUSR
   NSIFNAT : PROD                           RUNLIT  : RUN
   NSIFUSR : PROD                           RUNORDR : LIT  LIB
   NSIMODE : WARN                           STEPLIB : SYSTEM
   NSIORDR : FILE LIT LIB
   PREFIX/QUALIFIER : STR.NAT


Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
      HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----   ----  EXIT
```

V.5.8   Display Current Table Sizes

The Security Administrator may want to di splay the table sizes allocated by the STRDEF parameters for a database. The table size can be displayed for the User, DSN, User-to-DSN relationship, and Field Level Security tables.

In order to display the table sizes in effect for database 202, the Security Administrator would enter "202" in the DBID field on the following screen:

```
07/01/10                       S  E  C  U  R  I  T  R  E              TSI01
11:38:00                       DISPLAY CURRENT TABLE SIZES            STRLIB

                    DBID : 202    TEST-DB




                     Hit ENTER to display table sizes








Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
     HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----  ----   ----
```
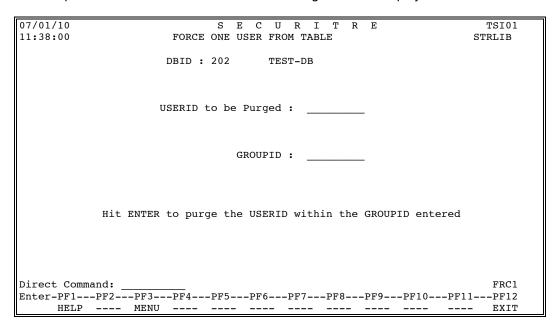
Once ENTER is pressed, the table sizes allocated for database 202 are di splayed as shown on the following screen:

```
07/01/10                       S  E  C  U  R  I  T  R  E              TSI01
11:38:00                       DISPLAY CURRENT TABLE SIZES            STRLIB

                    DBID : 202        TEST-DB


               Current number of users:       1
               Total number of users: 10

               Current number of DSNs:        0
               Total number of DSNs:         20

               Current number of user/DSN relationship segments:    1
               Total number of user/DSN relationship segments:     40

               Current number of user/FLS segments: 0
               Total number of user/FLS segments:        20


Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12
     HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----  ----   ----
```

The display includes the current and maxi mum table sizes. For i nstance, in the exampl e above, the User Table has space for 10 users, but there is currently only 1 user in the table.
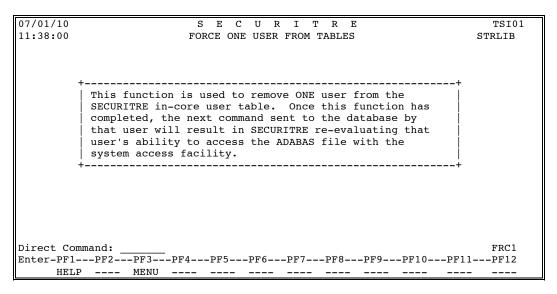
V.5.9   **Help Screens**

SECURITRE includes help screens for all RTM functions. These are viewed by navigating to
the appropriate screen and pressing the PF1 key. For i nstance, to view the help screen for
the "Force One User From the T ables" function, the Security Administrator would either enter
"FRC1" or press "A" on the Main Menu. The following screen is displayed:

```
 ┌──────────────────────────────────────────────────────────────────────────┐
 ║ 07/01/10                     S  E  C  U  R  I  T  R  E             TSI01   ║
 ║ 11:38:00                   FORCE ONE USER FROM TABLE               STRLIB  ║
 ║                                                                            ║
 ║                     DBID : 202     TEST-DB                                 ║
 ║                                                                            ║
 ║                                                                            ║
 ║                                                                            ║
 ║                     USERID to be Purged :   _____                      ║
 ║                                                                            ║
 ║                                                                            ║
 ║                            GROUPID :   _____                           ║
 ║                                                                            ║
 ║                                                                            ║
 ║                                                                            ║
 ║         Hit ENTER to purge the USERID within the GROUPID entered           ║
 ║                                                                            ║
 ║                                                                            ║
 ║                                                                            ║
 ║ Direct Command: _____                                        FRC1     ║
 ║ Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12 ║
 ║       HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----    EXIT   ║
 └──────────────────────────────────────────────────────────────────────────┘
```

If there is some question as to the meani ng of this "FRC1" function, the user may press PF1
to invoke the SECURITRE HELP screen.

To get help for this function, the Security Administrator would press PF1. The fol lowing help
screen is displayed if PF1 is pressed while on the "FRC1" screen:

```
 ┌──────────────────────────────────────────────────────────────────────────┐
 ║ 07/01/10                    S  E  C  U  R  I  T  R  E              TSI01   ║
 ║ 11:38:00                  FORCE ONE USER FROM TABLES              STRLIB   ║
 ║                                                                            ║
 ║                                                                            ║
 ║         +----------------------------------------------------------+       ║
 ║         | This function is used to remove ONE user from the        |       ║
 ║         | SECURITRE in-core user table.  Once this function has     |       ║
 ║         | completed, the next command sent to the database by       |       ║
 ║         | that user will result in SECURITRE re-evaluating that     |       ║
 ║         | user's ability to access the ADABAS file with the         |       ║
 ║         | system access facility.                                   |       ║
 ║         +----------------------------------------------------------+       ║
 ║                                                                            ║
 ║                                                                            ║
 ║                                                                            ║
 ║                                                                            ║
 ║ Direct Command: _____                                           FRC1     ║
 ║ Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12 ║
 ║       HELP  ----  MENU  ----  ----  ----  ----  ----  ----  ----    ----   ║
 └──────────────────────────────────────────────────────────────────────────┘
```

By pressing ENTER, SECURITRE will return to the previously displayed screen.

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SECTION VI

INTERNAL APPLICATION SECURITY FEATURES
(STRNAT AND STRASM)

VI.1   STRNAT Calling Parameters

A description of the function of STRNAT and an example of STRNAT usage are presented in *Section VII - Internal Application Security Features (STRNAT and STRASM)* in the *Administrator Guide*.

The calling parameters for the STRNAT interface are illustrated in the following NATURAL DEFINE DATA code:

```
DEFINE DATA
      LOCAL
      01   ENTITY                  (A44)           /* DSN TO BE CHECKED
      01   ACCESS-TYPE             (A1)            /* R=READ, U=UPDATE
      01   SSF-CLASS               (A8)            /* VALID SSF CLASS
      01   ACCESS-ALLOWED          (L)             /* ACCESS ALLOWED
      01   COMMUNICATION-OK        (L)             /* DATABASE ACTIVE
      01   OTHER                   (A50)           /* OTHER PARAMETERS
      01   REDEFINE OTHER
           02  MESSAGE             (A25)
           02  LOG-VIOL            (A1)
```

The calling sequence for STRNAT is:

```
CALLNAT 'STRNAT' USING
   ENTITY
   ACCESS-TYPE
   SSF-CLASS
   ACCESS-ALLOWED
   COMMUNICATION-OK
   OTHER
```

VI.2   STRASM Calling Parameters

A description of the function of STRASM and an example of STRASM usage are presented in ***Section VII - Internal Application Security Features (STRNAT and STRASM)*** in the ***Administrator Guide***.

The calling parameters for the STRASM interface are illustrated in the following COBOL code:

```
01   ENTITY                PIC X(44).
01   ACCESS-TYPE           PIC X.
01   SSF-CLASS             PIC X(8).
01   ACCESS-ALLOWED        PIC X.
01   COMMUNICATION-OK      PIC X.
01   OTHER.
     02  MESSAGE           PIC X(25).
     02  LOG-VIOL          PIC X.

 ENTITY                    DSN TO BE CHECKED
 ACCESS-TYPE               R=READ, U=UPDATE
 SSF-CLASS                 VALID SSF CLASS
 ACCESS-ALLOWED            ACCESS ALLOWED   ('Y' or 'N')
 COMMUNICATION-OK          DATABASE ACTIVE  ('Y' or 'N')
 OTHER                     ERROR MESSAGE, LOG VIOLATION
                           INDICATOR ('Y' OR 'N')
```

The calling sequence for STRASM is:

```
CALL 'STRASM' USING ENTITY, ACCESS-TYPE, SSF-CLASS,
     ACCESS-ALLOWED, COMMUNICATION-OK, OTHER.
```

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X

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