Entire System Server

Administration

ADABAS & NATURAL

Table of Contents

1 About this Documentation

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *folder.subfolder.service*, APIs, Java classes, methods, properties.
Italic	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
`Monospace font`	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

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2 Administration

This documentation covers the following topics:

Using the Entire System Server	Explains how you can use the Entire System Server.
Startup Parameters	Describes how to customize parameter values to suit your site and how to add any parameters that are specific to add-on systems that use the Entire System Server.
Operator Commands	Describes the operator commands that can be entered on the operator console to control and display Entire System Server activities.
Common Entire System Server Features	Provides information on common diagnostic features such as command logging and how to create trace data in the Entire System Server. In addition, Write-to-Spool for Natural, providing access to sequential files through the Entire System Server, Dynamic Server Management, zap reports and ending Entire System Server are explained.
z/OS Considerations	Describes access method modules, accounting, the Common JES Interface, security considerations and the setting up of RACF Security for operator commands.

3 Using the Entire System Server

This section describes how you can use the Entire System Server.

General

When the Entire System Server is installed, the following macro statement is appended to the Natural parameter module:

```
NTDB PROCESS,148.
```

The value `148` in this statement is the target node that Natural will use to identify calls to the Entire System Server (the Entire System Server is delivered with a default target node number of 148. It can be changed during the installation process, see *Installation*). However, if you use Software GmbH products such as NSPF, NOP, NOM or NCL it is strongly recommended to use this default (`NTDB PROCESS,148`) because these products are cataloged with that value, and expect this also at customer site. All Natural statements that use DDMs with DBID 148 are handled as Entire System Server calls. This means that all Entire System Server DDMs must be cataloged with the DBID value that matches the target value used in the `NTDB` statement.

The target node specified in the `NTDB` statement is a *logical* target ID. You are not limited to using only an Entire System Server node with the *physical* target ID of `148`. You can use any available value for each Entire System Server node you install and they are all accessible from the same Natural. Natural uses the logical target node of 148 simply to recognize a particular statement as being an Entire System Server statement. The `NODE` field in each Entire System Server view is used to direct the call to the desired physical Entire System Server target. Of course, if the `NODE` field is not used in a particular call, Natural will direct the call to a node with the same physical target ID as the logical target ID.

It is recommended that users adopt the practice of always including the `NODE` field in all of their Entire System Server calls. This enables them to easily access additional nodes in future without having to modify existing programs.

The following sequence illustrates how Natural statements are directed at Entire System Server. A Natural program may contain the statement:

```
FIND DDM WITH FIELDS
```

where DDM stands for any view and `FIELDS` for any sequence of fields in that view. The Natural nucleus checks whether the specified DDM is cataloged with the Entire System Server DBID.

In the following figure, Entire System Server is abbreviated to ESY.

Natural PROGRAM: FIND <DDM> WITH...
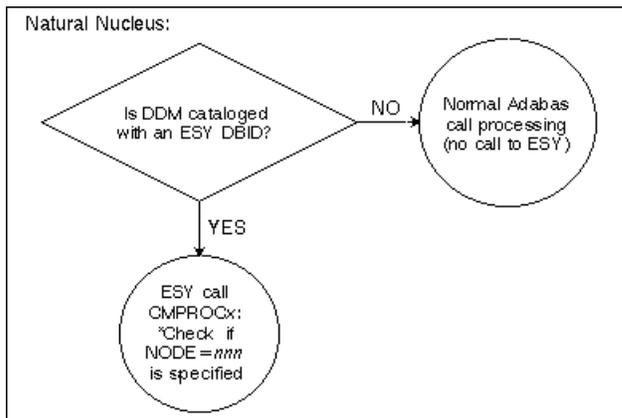
If the DDM was cataloged with the Entire System Server DBID, the Entire System Server Interface (ESX) gets control (see *Installing the Entire System Server Interface* in the Natural *Installation* documentation for mainframes). Among other things, it checks whether the `NODE` field is specified on the `FIND` statement, and issues a call to the Entire System Server with the appropriate target ID.

This is illustrated by the following figure:
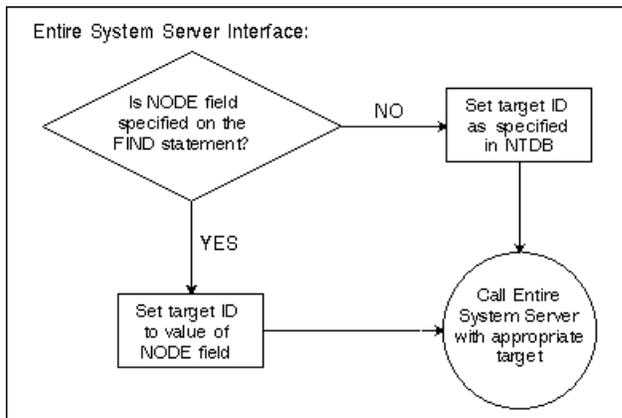
Using the Entire System Server Interface has several advantages:

- It checks the node number specified by the client and sends the request to the corresponding Entire System Server.

- When working with sequences of records, ESX performs a prefetch. This accelerates work considerably.

Multiple Entire System Server Node Support

Entire System Server is usually installed for a multi-user environment. Therefore, it must be able to run in its own partition / address space.

In a multiple-system configuration, it may be desirable to run multiple Entire System Server nodes. By using a network facility (such as Entire Net-Work), an Entire System Server request can be directed to a remote node. For example: a file can be transmitted from Node A to Node B; a job can be submitted to a remote node; and the VTOC of a disk in a remote node can be retrieved. The following figure shows the Entire System Server in a multi-system environment:
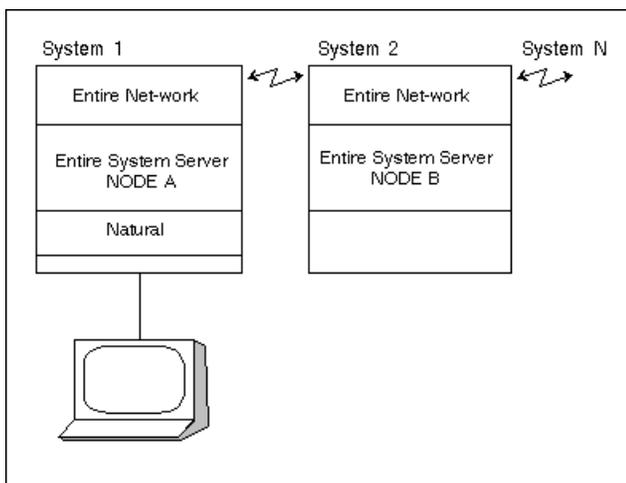
The following steps are necessary to define an Entire System Server node:

1. Assign a unique DBID (a three-digit number) to the node. (The node DBID must not conflict with any other DBID.)

2. In order to direct an Entire System Server request from a Natural program to a specific node, specify `NODE=nnn` in the appropriate `FIND` statement. For example, the following statement is executed in node `151`:

```
FIND VTOC WITH VOLSER = 'DISK01' AND NODE = 151
```

If `NODE` is not specified, the DBID as specified in the DDM is used.

> **Note:** A Natural program can access multiple nodes. (For example, the program `COPYFILE` in the online tutorial reads a file from one node, and writes it to another).

Entire System Server in Single-User Mode

Like Adabas, the Entire System Server can also run in single-user mode (for example, under TSO or TIAM or batch). All calls to the default Entire System Server node defined in the DDM are processed in the same address space, using CALL (instead of the Adabas SVC). This reduces CPU consumption and improves response time. Therefore, single-user mode is only available for single-user address-spaces like TSO, batch and TIAM.

All Entire System Server calls directed to the default target node (as defined in the `NTDB` parameter macro in the Natural parameter module) are resolved locally. However, the Entire System Server calls to other targets are still handled in the normal way (that is, using the Adabas SVC).

In order to allow single user operation, Natural must be linked as described in the section Installing the Entire System Server Interface in the Natural Installation Guide for Mainframes.

The following considerations apply when running in single-user mode. The first time a command is issued to the Entire System Server, its startup parameters are read from the dataset with the link name `PARMS` (BS2000) of the startup JCL. Default values will be used for those parameters which are not defined. It is not necessary to `LOGON`/`LOGOFF` to the Entire System Server.

4 Startup Parameters

This section explains the Entire System Server startup parameters.

Introduction to Startup Parameters	Explains how to use the startup parameters for customizing the product to suit your site.
Startup Parameters in Alphabetical Order	Descriptions of all startup parameters in alphabetical order.

5   Introduction to Startup Parameters

This section explains how to use the Entire System Server startup parameters.

Using the Startup Parameters

You must edit this member as part of the installation procedure. This includes customizing parameter values to suit your site, and/or adding any parameters that are specific to add-on systems that use the Entire System Server (for example, Entire Operations, Entire Event Management, Entire Output Management).

> **Note:** Parameters specific to an add-on system are described in that system's installation manual.

Thereafter, you can modify parameters as required for customization purposes to reflect changing conditions at your site. After each modification of the parameter member, you must restart the Entire System Server to pick up the changes.

Parameters without Default Value

Unspecified parameters take the default value. The parameters listed below have no default value and *must* be specified:

- `ADA5SVC`
- `NODE`

Example Parameter Members

Example parameter members are illustrated below according to operating system.

> **Note:** Not all possible parameters are listed. Parameters specific to any add-on system can be added (these are described in the relevant system's installation manual). Optional parameters not specified take the default value.

In the following examples, the abbreviation `NPRvrs` stands for the current version, release, system maintenance level of the product.

```
************************************************************************
*             Startup Parameters for Entire System Server             *
************************************************************************
*
*    Identification
*
NODE=148
IDENTIFIER=TEST-SYSTEM
LOCAL=NO
FORCE=NO
************************************************************************
*
*    Interface to spooling system
*
SPOOL=JES2
************************************************************************
*
*    Interface to external security system
*
SECURITY=RACF
AUTOLOG=YES
************************************************************************
*
*    Interface to Adabas
*
ADA5SVC=249
************************************************************************
*
*    Interface to VTAM
*
SPOOLACB=DNOM148S          /* see SYS1.VTAMLST(APPLNA)
VTAMACB=DNOM148V           /* see SYS1.VTAMLST(APPLNA)
VTAMQLEN=100
************************************************************************
*
*    Logging parameters
*
LOGGING=NO
LOGCB=YES
LOGFB=YES
LOGRB=YES
LOGSB=YES
LOGVB=YES
************************************************************************
*
*    Queue and time parameters
*
NCQE=30
NABS=20
CDATALEN=200
*
TIME=100
```

```
LOOP=30
NONACT=30
*********************************************************************
*
*    Miscellaneous parameters
*
TEMPUNIT=SYSDA
MSGLEVEL=2
SMFREC=0
*********************************************************************
*
*    Natural parameters
*
NATNUMSUB=6
NATMOD=NSATT05              /* Natural Monitor Module
*STRTNTP1=STACK=(LOGON SYSSAT SATMON SATMON; /* (for SAT products only)
*STRTNTP2=SATSTART ESYUSER=SATMON)          /* (for SAT products only)
*              END**END**END**END**END**END**END**END**END          *
```

6 Startup Parameters in Alphabetical Order

The startup parameter descriptions are listed in alphabetical order by their names.

> **Notes:**

1. Elements in italics (e.g. *name*) denote a variable that must be replaced by a real value, for example, a name.

This chapter covers the following startup parameters:

ADA5SVC

Type	Default
Required.	None

The Adabas SVC number to be used. The Adabas SVC is used to perform various internal functions, including communication between the Natural program and the Entire System Server nucleus in multi-user mode.

> **Note:** This parameter is also valid for all Adabas versions.

APPC-LUNAME

Type	Default	Maximum Value Length
Optional	NPRLU01	8 bytes

The name of the APPC/MVS LU to be used for the transaction program invoked by the `SYSTEM-COMMAND` view processor to execute TSO/E commands.

APPC-MODENAME

Type	Default	Maximum Value Length
Optional	APPCHOST	8 bytes

The name of the default logon mode name to be used with the APPC/MVS transaction program invoked by the `SYSTEM-COMMAND` view processor to execute TSO/E commands.

APPC-TPNAME

Type	Default	Maximum Value Length
Optional	`SAG.NPRvrs.XCOMTP46`	64 bytes

The name of the APPC/MVS transaction program to be invoked by the `SYSTEM-COMMAND` view processor to execute TSO/E commands.

AUTOLOG

Type	Default
Optional	`YES`

Specifies automatic logon to the Entire System Server at the start of the Natural session. Possible options:

Option	Explanation
`YES`	No password check is done as part of the Entire System Server logon, as long as the specified user ID matches the internal Natural user ID. An implicit logon is performed if the first user request is not a logon call.
`NO`	No logon to the Entire System Server is performed at the start of the Natural session, but note that if an external security system is installed, a logon to the Entire System Server including user ID and password is always required.

The usage of the `AUTOLOG` parameter depends on the network environment. If there is no Net-Work installed, the autolog feature should be used to avoid additional logon procedures if the password check has already been done as part of the TP or Natural logon.

In a Net-Work environment, the usage of `AUTOLOG` depends on the defined Net-Work nodes. If only mainframes are connected, we recommend using the autolog feature. In environments with PCs connected to Net-Work, Entire System Server should run without autolog (`AUTOLOG=NO`).

CDATALEN

Type	Default
Optional	0

The maximum size (in K bytes) of the common data pool. A value greater than 0 must be specified if the view COMMON-DATA is to be used.

COMPLETE

Type	Default
Optional	NO

Specifies whether Com-plete is installed on the system.

CONSNAME

Type	Default
Optional	is the string ESY*nnnnn*, where *nnnnn* is the node number of this Entire System Server.

This parameter indicates the name for your logical console in an MCS environment. If you have 2 different Entire System Servers running on the same SYSPLEX system with the same node number, you may choose your own name for your console in this case.

CONSTAB

Type	Default
Optional	1000 messages.

nnn is the number of messages to be kept. This parameter has been valid since MVS/ESA 5.1. A wraparound table for z/OS console messages is generated. The number of slots for this table can be defined here.

CONSTAB=0 will switch off the reading of console messages which is done in the background.

DEFNATSEC

Type	Default
Optional	ADDRSP

This parameter controls if a Natural subtask for an Entire System Management (ESM) product is to run in the security environment of the Entire System Server's address space or in a separate subtask security environment with a RACF protected user ID.

Possible options:

Option	Explanation
ADDRSP	Natural subtasks are run in the security environment of the address space.
TASK	Natural subtasks are run in the security environment of the task with the user ID specified in the DEFNATUSER startup parameter. This user ID must be defined in RACF as a protected user ID.

DEFNATUSER

Type	Default
Optional	None

This parameter indicates a default z/OS Natural user which can be used to run Natural in Entire System Server's address space (for example: NCL, NOM, NOP).

EDIT-TIMEOUT

Type	Default
Optional	600 (=10 hours)

An EDIT session using Natural ISPF will stay active *nnn* minutes for Entire System Server, until it erases all resources for this user. You should adjust this value to timeout values for your TP system (Com-plete, CICS, TSO, etc.).

ESYTRACE

Type	Default
Optional	NO

This parameter allows you to switch on the internal tracing facility of Entire System Server.

⚠ **Important:** It should only be used upon request of our support staff.

Option	Explanation
YES	Activate internal tracing facility.
NO	Default. Deactivate internal tracing facility.

In the JCL of Entire System Server, the following card is required:

```
//ESYTRACE DD SYSOUT=X
```

FORCE

Type	Default
Optional	NO

Allows or disallows DBID table entry overwrite. Meaning of the options:

Option	Explanation
YES	Only required when the DBID table entry is not deleted after an abnormal termination. Note that overwriting an existing entry prevents any further communication with the overwritten node. Use FORCE=YES only when you are absolutely sure that no target node with that node ID is active.
NO	Protects the node table entry from being overwritten.

HOST-CODE-PAGE

Type	Default
Optional	None

This parameter is used to define the default host codepage used for any input data in view `SEND-EMAIL`.

Possible options:

Option	Explanation
1140	Brazil, Canada, Netherlands, Portugal, U.S.
1141	Austria, Germany
1142	Denmark, Norway
1143	Finland, Sweden
1144	Italy
1145	Latin America, Spain
1146	United Kingdom
1147	France
1148	International
1149	Iceland
114A	Israel Hebrew code page 424.

IDENTIFIER

Type	Default
Optional	None

String to identify the node. Maximum length is 50 bytes. This string can be retrieved from the field `NODE-ID` in the view `SYSTEM-INFO`.

Using this identifier, you can see the machine on which this Entire System Server is running in an Entire Net-Work environment.

IMAP-HOST

Type	Default	Maximum Value Length
Optional	None	64 bytes

The name of the IMAP server, from which e-mails are received. IP notation is not supported. There is no default. If this parameter remains unspecified, view `RECEIVE-EMAIL` cannot be used.

IMAP-PORT

Type	Default	Maximum Value Length
Optional	None	5 bytes

The port number by which the `IMAP-HOST` is accessed. This is usually port `993` for a connection secured by SSL. There is no default.

IUBL

Type	Default
Optional	`32767`

Maximum length of the buffer that can be passed from the caller to the Entire System Server.

> **Note:** When using the remote PDSE program object-copying feature, we recommend not reducing this value, otherwise NAT3152 or Adabas response code 152 errors may occur.

LIST-NUM-MAILS

Type	Default	Maximum Value Length
Optional	None	3 bytes

The default number of mails to be received by function `LIST` in view `RECEIVE-EMAIL`. Default is `20`. You can specify a different value in the Natural programme. The maximum value is specified by `LIST-NUM-MAILS-MAX`.

LIST-NUM-MAILS-MAX

Type	Default	Maximum Value Length
Optional	100	3 bytes

The maximum value for field `LIST-NUM-EMAILS` in view `RECEIVE-EMAIL`. Default is `100`, maximum is `999`.

LOCAL

Type	Default
Optional	`NO`

Specifies whether the node (specified by the `NODE` parameter) is accessible in a network from remote nodes.

Option	Explanation
`YES`	Node is accessible locally only (not from remote nodes).
`NO`	Node is accessible globally.

LOCAL-HOST

Type	Default	Maximum Value Length
Optional	None	63 bytes

Specifies the domain name. In combination with the `LOGON-ID`, the parameter is used as sender address in `SEND-EMAIL` requests. It should be used only if there are difficulties in using the existing host name setting of the local machine.

LOGCB

Type	Default
Optional	NO

Specifies Adabas control block logging.

The value can be changed dynamically by using an operator command,

for example, `/F taskname,LOGCB=YES`.

see *Operator Commands*.

See also *Command Logging* in the Section *Common Entire System Server Features* of the Entire System Server *Administration* documentation.

Possible options:

Option	Explanation
YES	Adabas control block is logged.
NO	Adabas control block is not logged.

LOGFB

Type	Default
Optional	NO

Specifies format buffer logging.

The value can be changed dynamically by using an operator command,

for example, `/F taskname,LOGFB=YES`.

See the section *Operator Commands* in the Entire System Server *User's Guide*. See also *Command Logging* in the Section *Common Entire System Server Features* of the Entire System Server *Administration* documentation.

Possible options:

Option	Explanation
YES	Format buffer is logged.
NO	Format buffer is not logged.

LOGGING

Type	Default
Optional	NO

Specifies command logging.

The value can be changed dynamically by using an operator command,

for example, /F *taskname*,LOGGING=YES. See the section *Operator Commands* in the Entire System Server *User's Guide*. See also *Command Logging* in the Section *Common Entire System Server Features* of the Entire System Server *Administration* documentation.

This allows logging of data for a certain amount of time only and without restarting Entire System Server.

Possible options:

Option	Explanation
YES	Command logging is activated.
NO	No command logging.

LOGRB

Type	Default
Optional	NO

Specifies record buffer logging.

The value can be changed dynamically by using an operator command,

for example, /F *taskname*,LOGRB=YES.

See the section *Operator Commands* in the Entire System Server *User's Guide*. See also *Command Logging* in the Section *Common Entire System Server Features* of the Entire System Server *Administration* documentation.

Possible options:

Option	Explanation
YES	Record buffer is logged.
NO	Record buffer is not logged.

LOGSB

Type	Default
Optional	NO

Specifies search buffer logging.

The value can be changed dynamically by using an operator command,

for example, /F *taskname*,LOGSB=YES.

See the section *Operator Commands* in the Entire System Server *User's Guide*. See also *Command Logging* in the Section *Common Entire System Server Features* of the Entire System Server *Administration* documentation.

Possible options:

Option	Explanation
YES	Search buffer is logged.
NO	Search buffer is not logged.

LOGVB

Type	Default
Optional	NO

Specifies value buffer logging.

The value can be changed dynamically by using an operator command,

for example, /F *taskname*,LOGVB=YES.

See the section *Operator Commands* in the Entire System Server *User's Guide*. See also *Command Logging* in the Section *Common Entire System Server Features* of the Entire System Server *Administration* documentation.

Possible options:

Option	Explanation
YES	Value buffer is logged.
NO	Value buffer is not logged.

LOOP

Type	Default
Optional	0

Determines the amount of CPU time (in seconds) which can be used by Entire System Server servers. The default value of zero (0) means there is no limit and no CPU time is recorded for display using the `NATPROC-USER` view.

We recommend setting this parameter to `200` to allow CPU times to be collected without interfering with long-running programs. If you receive the 5537 time limit error, you can increase this value.

MSGLEVEL

Type	Default
Optional	I

Specifies which message is to be written to the system messages protocol. Possible options:

Option	Explanation
E | 3	Error. Available in BS2000 only. Only error messages are written. Information and warnings are suppressed.
W | 2	Warning. Suppresses the logging of startup parameters, as well as the messages indicating a user non-activity time-out.
I | 1	Info. All messages are written.

Note: The values E, W, I are currently supported under BS2000 only.

NABS

Type	Default
Optional	10

The number of attached buffers to be used. An attached buffer is an internal buffer used for inter-region communication. An attached buffer pool will be allocated of a size equal to the value specified here multiplied by 4112.

NATMOD

Type	Default
Optional	None

Name of the linked Natural used for subtasking. Refer to the Entire System Server *Installation and Customization* documentation for details on how to create this module.

If `NATMOD` was specified, it is recommended to set also parameter `SHUTDOWN-MAX-DELAY`.

NATNUMSUB

Type	Default
Optional	0

Number of Natural subtasks.

If `NATNUMSUB` was specified, it is recommended to set also parameter `SHUTDOWN-MAX-DELAY`.

NATSYSOUT

Type	Default
Optional	Z

This parameter indicates a SYSOUT class to which the output of Natural subtasks running in Entire System Server's address space can be written (for example: NCL, NOM, NOP).

If NATSYSOUT was specified, it is recommended to set also parameter SHUTDOWN-MAX-DELAY.

NCQE

Type	Default
Optional	10

The number of command queue elements to be established. This value determines the maximum number of Entire System Server commands which can be queued and/or be in progress at any one time when the Entire System Server is in use. Each Entire System Server command is assigned a command queue element. This element is released when the user has received the results of the command or when the user has been timed out. 192 bytes are required for each command queue element.

NODE

Type	Default
Required	There is no default. *n* must be a value greater than or equal to 1 and less than or equal to 65535.

The Entire System Server DBID. It must be unique for each Entire System Server node.

If you set the parameter LOCAL=YES, you can use the same node number for different installations of Entire System Server in an Entire Net-Work environment.

NONACT

Type	Default
Optional	60

The non-activity time (in minutes). If a user has not issued a request to the Entire System Server during this time interval, the user is logged off, and the resources of the user will be freed.

NONACT=0 is rejected as invalid parameter value.

PRODUCT

Type	Default
Optional	None

Name of additional library management systems. You must specify the parameter for each supported subsystem. Possible options:

Option	Explanation
L	CA-Librarian
M	LMS
P	CA-Panvalet

RECALL

Type	Default
Optional.	YES

Specifies whether migrated datasets can be recalled. Possible options:

Option	Explanation
YES	Default. Migrated datasets can be recalled automatically.
NO	Migrated datasets cannot be recalled automatically.

If you are using Natural ISPF Version 2.1.1 or above, set `RECALL=YES`.

This parameter is used for products such as IBM's DFSMShsm or FDR which uses the SVC 109 for migration, or Siemens' HSMS.

If `RECALL=NO`, you must start the recall using the view `FILE-MAINTENANCE`, `FUNCTION='RECALL'`.

REVIEW

Type	Default
Optional	NO

Specifies whether Adabas Review is to be used with Entire System Server to collect performance data in local mode for requests originating from Natural. For other required steps, see *Using Adabas Review with Entire System Server* in the Section *z/OS Considerations* of the Entire System Server *Administration* documentation.

Option	Explanation
NO	Default. Adabas Review is not to be used.
YES	Adabas Review is to be used.

SECURITY

Type	Default
Optional	None

The security system in use. The options are:

Option	Explanation
NONE	No security system is used.
RACF	RACF, ACF2 or TOP-SECRET security is used. For details, see *Setting Up RACF Security for Operator Commands on z/OS* in the Section *z/OS Considerations*.
RACX	RACF is installed but no logon is done. Normal security exits are invoked.

SHUTDOWN-MAX-DELAY

Type	Default
Optional	0

Maximum wait time after issuing ESY shutdown until a smooth stop of running Natural subtasks (in seconds) occurs. This value is considered only if Natural subtasks are running at shutdown time.

If Entire Operations (EOR) or Entire Output Management (EOM) are installed, it is recommended to set this parameter to 90.

This value must not be greater than 600 seconds.

For more information about Natural subtasks, see *Aspects of Running System Automation Tools in Entire System Server on BS2000* in the Section *BS2000 Considerations*.

SMFREC

Type	Default
Optional	0

The record type of the SMF record to be written when a user logs off. This record contains the number of I/O operations performed, and the amount of CPU consumed by the user. See also *z/OS Accounting* in the Section *z/OS Considerations*s. Possible options:

Option	Explanation
type	Record type of the SMF record to be written when a user logs off.
0	No SMF records are written.

SMFTIME

Type	Default
Optional	2

Value is in minutes. Controls the interval in which SMF records are written.

SMTP-HOST

Type	Default	Maximum Value Length
Optional	There is no default.	63 bytes

Specifies the host name used as mail gateway. This is a DNS name. `SEND-EMAIL` view cannot work without specifying a valid value for this startup parameter. Contact your mail administrator to determine this host name.

For more information about E-Mail administration, see *Run E-Mail Client* in *Common Entire System Server Features* in the Entire System Server *Administration* documentation.

SMTP-PORT

Type	Default
Optional	25

The SMTP port number used on the mail gateway. `SEND-EMAIL` view cannot work without specifying a valid value for this startup parameter. Contact your mail administrator to determine this port number.

For more information about E-Mail administration, see *Run E-Mail Client* in *Common Entire System Server Features* in the Entire System Server *Administration* documentation.

SPOOL

Type	Default
Optional	NONE

Specifies the spooling system in use. The possible values are:

Option	Explanation
NONE	No SPOOL interface (default)
JES2	z/OS JES2 all versions.
JES3	z/OS JES3 all versions. See also *Common JES Interface for z/OS* in the Section *z/OS Considerations*.

SPOOLACB

Type	Default
Optional	NONE

This parameter must be set if you are using Entire Output Management and want to print from Entire Output Management to a VTAM printer.

Possible options:

Option	Explanation
name	Name of the VTAMACB.
NONE	The Entire Output Management printing facility is not activated

STDUSER

Type	Default
Optional	There is no default.

System Server who are calling from a non-mainframe Natural (VMS, UNIX, Windows, OS/2).

SUBSYS

Type	Default
Optional	There is no default.

This parameter is used internally and specifies the name of any subsystem. For the value of *name*, see the installation instructions of the relevant subsystem.

SWAP

Type	Default
Optional	NO

Specifies whether Entire System Server address space is swappable. The default value (NO) is recommended. Possible options:

Option	Explanation
YES	Address space is swappable.
NO	Address space is marked non-swappable during initialization.

SYNCDB

Type	Default
Optional	None (no synchronization)

This parameter synchronizes the start of Entire System Server with databases. You can specify the DBIDs of databases, which *must* be ready if you want to start Entire System Server. This is important for products such as NOP, NOM, NCL . *n*, *m*, ..., *k* are DBIDs. If the database *not ready*, there is a wait of *nnn* seconds to synchronize start. See also description of startup parameter SYNCTIME, below.

SYNCTIME

Type	Default
Optional	0

If you have specified DBIDs with the parameter `SYNCDB`, the parameter `SYNCTIME` gives the time in seconds to wait between synchronization retries. If the fifth retry still does not succeed, Entire System Server comes down. If `SYNCDB=NONE`, `SYNCTIME` parameter is ignored. See also description of startup parameter *SYNCDB*, above.

SYSTEMCONS

Type	Default
Optional	NONE

This parameter indicates the system names where Entire System Server should collect console messages (for example, `SYSTEMCONS=DAEF`, `DA2F`, `ABCD`). In this case, we collect console messages from the 3 systems indicated.

The default value `NONE` means that no z/OS System limitation has been provided.

In other words, if you are running in a Sysplex environment, Entire System Server will read all messages from all z/OS consoles defined in the Sysplex. This may lead to an unwanted CPU power consumption if other products are producing much output on the related consoles.

Therefore we recommend to carefully check which console messages your programs want to see by using view `CONSOLE`. and to set this parameter to the system ID of your locals z/OS, if you only want to read the console messages from your local z/OS.

TAPES

Type	Default
Optional	NO

Specifies whether your site allows access to mounted tapes from any Natural session.

Option	Explanation
YES	Access to mounted tapes allowed.
NO	Access to mounted tapes not allowed.

TCP-STACK

Type	Default	Maximum Value Length
Optional	There is no default.	8 bytes

This parameter specifies the name of the started task or job in which the TCP/IP protocol stack is running. SEND-EMAIL view cannot work without specifying a valid value for this startup parameter. Contact your network administrator to determine this name.

Note:
If an invalid value has been specified as TCP-STACK, the SEND-EMAIL requests produce error message ESY5897 Mailer response: errno 1011 in EZASMI INITAPI as ERROR-TEXT reporting errno 1011 (EIBMBADTCPNAME).

- The parameter TCP-STACK is supported at version 4.2 or above. It is ignored in earlier versions.

- The parameter must contain the ID of the corresponding stack, that is you need to set TCP-STACK = SOCKET*nn*, where *nn* is the ID of the VSE TCP stack.

For more information about E-Mail administration, see *Run E-Mail Client* in *Common Entire System Server Features* in the Entire System Server *Administration* documentation.

TEMPUNIT

Type	Default
Optional	VIO

The unit name to be used when an Entire System Server request for allocation of a temporary data set is made (for example, SYSDA).

TIME

Type	Default
Optional	30

Timeout value for Entire System Server calls in seconds. This parameter is used to prevent a command queue element and attached buffer from being held for a long period for a user who has terminated abnormally.

This parameter is the equivalent to the Adabas `CT` parameter.

TRACE

Type	Default
Optional	PREP

Specifies how to set up the TRACE environment.

Option	Explanation
NO	TRACE environment is completely deactivated.
PREP	TRACE environment will be initialized, but not started yet.
YES	TRACE environment will be activated at ESY startup.

If the `YES` or `PREP` option is specified, the TRACE activity can be manipulated via operator command to start or stop traces dynamically.

For further information, see *Creating Trace Data in the Entire System Server* in the Section *Common Entire System Server Features*.

TRACE-LEN

Type	Default
Optional	8

Specifies the size of the trace memory pool (in Kbytes). This value is considered only if `TRACE=YES` or `TRACE=PREP` has been defined.

For further information, see *Creating Trace Data in the Entire System Server* in the Section *Common Entire System Server Features*.

TRACE-SAV

Type	Default
Optional	YES

`TRACE-SAV` controls the trace save routine at exit.

Option	Explanation
YES	Trace data buffers will be saved.
NO	Trace data buffers will not be saved.

For further information, see *Creating Trace Data in the Entire System Server* in the Section *Common Entire System Server Features*.

VTAMACB

Type	Default
Optional	NONE

The name of the VTAM application to be used for the VTAM operator interface as it appears in the `ACBNAME` parameter in the VTAM `APPL` statement.

Possible options:

Option	Explanation
name	Name of the VTAM application in the `ACBNAME` parameter.
`NONE`	The VTAM interface is not activated.

VTAMQLEN

Type	Default
Optional	`100`

The maximum size (in Kbytes) of the in-core queue for pending VTAM messages. If this queue size is exceeded, the oldest half of the queue is deleted.

Option	Explanation
`L`	CA-Librarian
`M`	LMS
`P`	CA-Panvalet

7 **Operator Commands**

This documentation describes the operator commands that can be entered on the operator console to control and display Entire System Server activities.

Command Syntax

The following command format is required to communicate with the Entire System Server via the operator console. Note that parameters in uppercase must be typed as is. Parameters in *italics* must be substituted with a valid value.

```
F taskname, command parameter
```

where:

taskname	is the name of the Entire System Server started task or job at your installation.
command	is the operator command keyword.
parameter	is a parameter that allows you to issue an operator command for selected items.

Command Descriptions

Syntax Conventions

In the syntax diagrams that follow, a parameter enclosed in curly braces {} are optional, parameters in *italics* are variables that must be substituted with a real value, for example, a name. If more than one parameter appears, only one may be specified.

In the examples, only the command and parameter keywords are described. You must supply the other command operands as appropriate to the operating system.

ADAEND

Command	Parameter
ADAEND	

No more processing takes place. Existing calls to the Entire System Server are allowed to finish, but new calls are rejected. Processing ends after the last call has finished.

If the startup parameter SHUTDOWN-MAX-DELAY is specified as non-zero, the Entire System Server tries to stop any available ESM monitor (EOM, EOR, ...) and waits for the monitors to shut down. New calls are not rejected until SHUTDOWN-MAX-DELAY time is elapsed. If all ESM monitors are

stopped in the meantime, the deferred shutdown is not needed any longer and `ADAEND` will be executed.

⚠️ **Important:** We recommend to use `ADAEND` to ensure a smooth termination of a running Entire System Server including all running calls and ESM monitors used within its address space.

CANCEL

Command	Parameter
CANCEL	USER=*userid*
	ID=*sessionid*
	JOB=*jobname*

Cancels the specified user in the Entire System Server address space.

Examples:

- To cancel the user `ITSME` from the Entire System Server subtask `XCOM148`, enter the following command in the operator console:

```
CANCEL USER=ITSME
```

cancels *all* active sessions with the Entire System Server for user `ITSME`.

- The following command cancels the one specific session for a user:

```
CANCEL ID=nnnn
```

where *nnnn* is the corresponding Entire System Server ID retrievable using the view `NATPROC-USERS`, or via the operator command:

```
USERS userid
```

- To cancel all users originating from job name `ESYSTART`, enter the following command:

```
CANCEL JOB=ESYSTART
```

EVENTS

Command	Parameter
EVENTS	

The `EVENTS` command displays the contents of the `EVENTING` view control blocks on the console. It generally is to be issued at the request of Customer support for problem determination.

LOGGING

Command	Parameter
LOGGING	YES
	NO

The operator command `LOGGING=YES` starts command logging as described in **Common Entire System Server Features**.

Command `LOGGING=NO` stops the active logging. This operator command can be used to log a specific situation without stopping and restarting Entire System Server.

SHUTDOWN

Command	Parameter
SHUTDOWN	EOR, NOM, NCL, RPC, ALL, *

The operator command `SHUTDOWN` stops the monitors of Entire System Management (ESM) products.

Using the above syntax, you can shutdown the monitors of Entire Operations (`EOR`), Entire Output Management (`NOM`), Entire Event Management (`NCL`) or all running monitors at a time (`ALL` or `*`).

START

Command	Parameter
START	ALL

`START ALL` (re)starts the initial SAT task to run ESM monitors.

Command is rejected if the SAT environment is still active.

Issue the command `SHUTDOWN ALL` to stop the SAT environment.

STATUS

Command	Parameter
STATUS	EOR, NOM, NCL, RPC

The operator command STATUS returns information about Natural subtasks related to Entire System Management (ESM) products.

TAPES

Command	Parameter
TAPES	

Display tape units allocated to the Entire System Server.

TAPEFREE

Command	Parameter
TAPEFREE	*ddname*, ALL

Free tape units allocated to the Entire System Server.

Example:

■ The following command frees the tape allocated to DDNAME MYTAPE:

```
TAPEFREE MYTAPE
```

■ The following command frees all tapes allocated to the Entire System Server session:

```
TAPEFREE ALL
```

USERS

Command	Parameter
USERS	*userid*

Displays the specified user ID as a message on the console. Without the userid parameter, a list of all users is displayed. You can also specify a prefix followed by an asterisk * to select those user IDs starting with that prefix.

Example:

- The following command displays user `ITSME`:

```
USERS ITSME
```

- The following command displays all users whose IDs begin with SAG:

```
USERS SAG*
```

VSAM

Command	Parameter
VSAM	

Display open VSAM files.

VSAMFREE

Command	Parameter
VSAMFREE	*ddname*
	ALL

Free VSAM files.

Example:

- The following command frees VSAM file allocated to DDNAME `MYFILE`:

```
VSAMFREE MYFILE
```

- The following command frees all VSAM files allocated to the Entire System Server session:

```
VSAMFREE ALL
```

XABS

Command	Parameter
XABS	

Displays the total size, the number of bytes in use, the number of free bytes and the largest free windows in the Adabas attached buffer pool on the console.

Sample Output:

```
XC00016I 00113 Operator command: XABS
XC00090I 00113 Attached buffer usage
XC00090I 00113 0000409600 bytes total = 0000000100 NABS
XC00090I 00113 0000007168 bytes used
XC00090I 00113 0000007168 bytes used HWM
XC00090I 00113 0000402176 bytes free
XC00090I 00113 0000402176 bytes current largest free windows
XC00090I 00113 0000402176 bytes minimum of all largest free windows
```

XCANCEL

Command	Parameter
XCANCEL	

Processing stops immediately and a dump is created. Existing calls to the Entire System Server are not allowed to finish.

XCQES

Command	Parameter
XCQES	

The number of Command Queue Elements currently active is displayed. The highest number of currently active CQES is also shown.

XHALT

Command	Parameter
XHALT	

New calls to the Entire System Server are temporarily rejected. Processing is resumed with the XSTART operator command (see below).

XPARM

Command	Parameter
XPARM	

A set of startup parameters such as node number, maximum number of command queue elements and attached buffers are displayed as console messages.

XSTART

Command	Parameter
XSTART	

Processing of calls to the Entire System Server, interrupted with the XHALT command, is resumed.

XSTAT

Command	Parameter
XSTAT	

Entire System Server statistics are displayed as console messages.

XSTOP

Command	Parameter
XSTOP	

Processing stops immediately. Existing calls to the Entire System Server are not allowed to finish.

⚠️ **Important:** This command is not recommended for a regular shut down of a running Entire System Server because existing calls and ESM monitors within its address space are shut down immediately and cannot terminate in a regular way. Therefore, XSTOP can be compared to an emergency brake that should only be applied to avoid an accident. For a regular shut down and to ensure a smooth termination, we strongly recommend ADAEND.

XUSER

Command	Parameter
XUSER	

The current number of users is displayed as a console message, and the highest number is displayed.

8 Common Entire System Server Features

This section describes common Entire System Server features.

Running System Automation Tools in Entire System Server

General

Entire System Server (ESY) enables the operation of System Automation Tools,for example, Entire Output Management (EOM), Entire Operations (EOR), as subtasks in the address space of Entire System Server. These System Automation Tools (SAT) are applications on the basis of Natural, which require a Batch-Natural as engine.

SAT products are started by means of ESY startup parameters.

Until now, interaction between ESY and SAT or EOM, EOR, etc. has only been possible on a rudimentary basis, as the operator command `SHUTDOWN` has been the only command to terminate part or all of the SAT environment.

The configuration of the required batch Natural task was not very flexible.

This section offers an overview of the interfaces between ESY and SAT and deals with the configuration in the overall context.

Control of SAT during Entire System Server Operation

As of Entire System Server Version 3.1.1, the `NATPROC-USERS` view contains an extension of the `LIST` function. If the field `FULL-SCAN=YES`, the view processor also lists all internal tasks in addition to the ESY users. This simplifies the control of the tasks controlled by ESY.

Activating/Deactivating NATURAL-SUBTASKS (SAT) during Operation

The operator command `SHUTDOWN` allows communication between ESY and the SAT product specified by using the operand and communicates the termination request. Communication is carried out by using the view processor `EVENTING`. By using this view, the SAT products obtain all required information, which ESY has passed by using the normal user interface.

New with Entire System Server Version 3.1.1 is the operator command `START ALL` to restart SAT. It restarts the entire SAT environment without restarting the Entire System Server. First the SAT task is restarted and subsequently all defined SAT products are restarted. `START ALL` can be used only if the entire SAT environment has been stopped on its own or by operator command `SHUTDOWN ALL`. These two commands enable the user to have a "yo-yo" or "bounce" during normal operation.

SAT configurations can be corrected and tested while Entire System Server is up and running.

Note that the operator command SHUTDOWN can address individual SAT products via parameters, but that the START command only accepts the ALL parameter.

Deactivating SAT during Entire System Server Stop

Special processing is required for the shutdown of the Entire System Server, when the SAT products have been started. The NATURAL-SUB-TASKS must be informed of the imminent termination. This is carried out by means of the view processor EVENTING. Having communicated the termination information, Entire System Server checks the status of the NATURAL-SUBTASKS over short intervals. If they have terminated on their own, shutdown handling in ESY will be continued. In the meantime, user requests are still processed, as if the shutdown command had not been issued.

The Deferred Shutdown mechanism limits the time interval between the command for termination of the Entire System Server and the actual ESY termination. It would be possible, however, that the SAT products may not have accepted the shutdown request for various reasons or that they are busy with termination for an unusual period of time.

To eliminate this problem, the startup parameter SHUTDOWN-MAX-DELAY is available starting with Entire System Server Version 3.1.1. This parameter limits the Deferred Shutdown to a specified number of seconds. If the time limit is exceeded, Entire System Server will terminate without properly closing down the SAT tasks.

If this situation occurs, why the SAT products did not stop within the defined time interval must be checked. In this case, Support should be consulted, if necessary. As the monitors implemented in EOM or EOR have wait cycles, SHUTDOWN-MAX-DELAY=180 should be used initially. If all NATURAL-SUB-TASKS are stopped, the Entire System Server termination will be continued immediately.

Common Diagnostic Features

There are two common diagnostic features:

- *Command Logging*
- *Creating Trace Data in the Entire System Server*

Command Logging

For users of Adabas and Adabas Review, Entire System Server provides the capability to optionally log commands to a sequential data set for later analysis. Command logging can be controlled by the corresponding startup parameters `LOGGING`, `LOGCB`, `LOGFB`, `LOGRB`, `LOGSB` and `LOGVB`. The log data set needs to be pre-allocated and defined in the JCL for Entire System Server as `CLOG`.

Two data sets may be used which then need to be allocated with DDNAMEs `CLOGR1` and `CLOGR2`. If one log data set gets an out-of-space condition, command logging will switch to the alternate log data set.

WTO message `ESY0038I` is reporting this as follows:

```
> ESY0038I Command logging file full, ...
> DSN=command.log.data.set.name
> logging switched to next logging file
```

Using an `MPF` exit or some other automation tool, this message can be used to initiate a backup of the full command log data set.

Although the command logging facility in Entire System Server (NPR) is similar to the facility in Adabas, there is no support for a user exit to submit the equivalent of the `ADARES CLCOPY` offload job: The command log datasets are simply overwritten or closed when they are full. However, you can code your own `MPF` exit to automatically offload, or the datasets can be manually copied.

The best example for an `MPF` exit is the sample user exit 2 source provided with Adabas.

An Entire System Server (NPR) CLOG requires the following attributes:

```
Organization . . . .:PS
Record format . . . :VB
Record length . . . :10000
Block size . . . . .:10004
```

To print the CLOG, use PRILOG utility of Adabas or batch reports with Adabas Review. Note that the ADAPRI utility does not recognize this format.

The command logs can then be analyzed using the PRILOG utility of Adabas or batch reports with Adabas Review. For details, see the corresponding Adabas and Adabas Review documentation.

Creating Trace Data in the Entire System Server

Introduction

Proper error analysis requires the logging of internal product information. Beginning with Version 3.1.1, Entire System Server is able to generate data that can supply additional diagnosis information to Support and development.

The secondary goal of implementation was that the overall behavior of the Entire System Server not be affected by trace and that only a minimal performance impact would occur. Therefore, trace data is recorded in raw format in order to save time. The data formatting itself is carried out in the diagnosis program `ESYTRACE`, designated explicitly for this purpose.

Trace data include information such as program start and end, return codes of individual functions and events during request processing. This basic level of information will be supplemented in future versions by new trace data points.

The primary function of the trace is to provide information about the operation logic in case of errors. It is not intended as a log of requests during normal operation; the Adabas Command Log provides more detailed information regarding requests and responses.

Trace Preparation

The trace environment of Entire System Server is activated by using startup parameters. This environment consists of a data buffer, in which the trace information is stored in a wrap-around method.

The data buffer size may be configured by using a startup parameter. This buffer is available externally to the `ESYTRACE` program running in `MONITOR-MODE` (please see the description of *ESYTRACE* for more information).

The following startup parameters are part of the Entire System Server trace facility:

- `TRACE` to determine

    - whether the `TRACE` is to be activated (`YES`);

    - whether the `TRACE` environment shall only be initialized without starting the `TRACE` procedure (`PREP`);

    - or whether `TRACE` is not to be activated (`NO`)

- `TRACE-LEN` to set up the `TRACE` data buffer size

- `TRACE-SAV` to determine whether the available `TRACE` data is to be saved in a file, at normal termination of ESY or in case of ABEND.

The general recommendation for the operation of Entire System Server is to define the parameter `TRACE=PREP` to reserve a trace buffer (default 8 KB) and to set `TRACE-SAV=YES`. Then `TRACE` can be switched on or off at will by way of an operator command.

For `TRACE-SAV`, definition of a disk file is required. A `TRACE` DD statement is required. The data is fixed length, 288 bytes.

The following list supplies information about the file attributes:

DCB attributes of `RECFM=FB`, `LRECL=288`

During startup of Entire System Server, the file is opened and checked for validity. If errors occur during this check or during creation of the file buffer, tracing will be deactivated and a corresponding operator message will be issued on the console.

Trace Activation/Deactivation during Operation

If Entire System Server was started by means of `TRACE=PREP` or `TRACE=YES` and the initialization was successful, tracing may be switched on or off by operator command during operation. To do this, the commands `TRACE=Y` or `TRACE=N` are available. This enables the tracing to be limited to specific circumstances. A trace stopped with `TRACE=N` can be switched on again at any time by means of `TRACE=Y`.

Trace Data Evaluation Using the Diagnosis Program ESYTRACE

As mentioned above, trace data is stored unformatted. A separate program, `ESYTRACE`, is supplied which formats the raw data. It reads these data in the trace buffer during operation or reads the file created by `TRACE-SAV=YES`, which is written at termination or ABEND of the Entire System Server and which represents a mirror image of the trace data available at the time of termination.

The prepared result data can both be written to a file and/or to `SYSPRINT`. Output is written to an optional file - `TRACEOUT DD`.

`ESYTRACE` is controlled by parmameters, which are passed to it via the `PARM` parameter of the JCL/JCS `EXEC` statement.

The following parameters are supported:

■ Position parameter 1: `NODE-ID` of the Entire System Server or `-f` or `--file`

   With Online-Trace, the numerical `NODE-ID` is specified to indicate `MONITOR-MODE`, whereas `-f` or `--file` causes the dataset assigned using the DDNAME `TRACEIN` to be processed as input (`FILE-MODE`).

■ Keyword parameters:

   ■ `-d | --displ`

      The prepared result data is transferred to `SYSPRINT`.

   ■ `-n | --ntrout`

If this parameter is specified, no output file will be generated with the prepared result data using the logical file name `TROUT`. This key is accepted only if the parameter `-d | --displ` has also been specified.

- `-p | --poll`

  This option causes `ESYTRACE` in the `MONITOR-MODE` not to terminate the program at the end of the buffer, but to wait for further data in the trace buffer. This enables a running ESY node to be monitored in real time.

For the format of the optional output file, the following file attributes are required:

`LRECL=315, RECFM=FBA`

The following parameters are recommended for the two modes:

- parameter list for `MONITOR-MODE`: `NODE-ID --displ --poll`
- parameter list for `FILE-MODE`: `--file`

The output file generated is useable only for error analysis by our support. It contains no user data whatsoever other than the user ID.

For real-time monitoring of error situations, these steps should be used:

1. Start Entire System Server

2. Start diagnosis program `ESYTRACE` in `MONITOR-MODE` with the `--poll` option.

`ESYTRACE` will format trace data as soon as it is placed in the buffer.

ESYTRACE Diagnosis Program Termination in MONITOR-MODE

When in `MONITOR-MODE`, `ESYTRACE` can only be terminated by means of the operator command `QUIT`. Issue the `QUIT` command as follows:

`F *stcname*,QUIT`

Write-to-Spool for Natural

> **Notes:**

1. This section applies to Natural 4.2 only. If you are using Natural 8.2 or higher, please refer to the corresponding installation documentation for Natural.

This section covers the following topics:

- Purpose

Purpose

The Write-to-Spool feature enables Natural users to write reports to the system spool directly. It can be used in any Natural environment (Com-plete, TSO, CICS, IMS, Batch, etc.) and uses the Entire System Server view `WRITE-SPOOL`.

The `SYSOUT` is part of the Entire System Server job stream within the JES spool, and it may be processed by any software which expects output in JES Spool. (for example, Entire Output Management).

The JES spool may be a JES2 or a JES3 spool.

Using the Write-to-Spool Feature

The Write-to-Spool feature is handled by a so called "access method", which is called ESS for Entire System Server. You may define your printer in the Natural parameter module or dynamically in your session parameter as follows:

1. Define the Natural parameter module:

   In the Natural parameter module, the `NTPRINT` macro has to be set with printer number and access method definition as follows:

   ```
   NTPRINT (n),AM=ESS
   ```

   Example:

   ```
   NTPRINT (1,3),AM=ESS ↵
   ```

   Here, printer 1 and 3 are defined for the access method "Entire System Server".

   Or:

   Define the printer during session startup with: `PRINT=((1-6),AM=ESS)`

   Here printers 1 until 6 are defined for access-method "Entire System Server".

2. Link the access-method modules to the Natural nucleus (see *Installation Considerations*) or load it dynamically using the session parameters: `RCA=(NATAM11),RCALIAS=(NATAM11,NATWSPN4)`

   `NATWSPN4` is the delivered write-to-spool module with the default parameters. If you have linked a module with adapted parameters use the name of this module instead.

3. Users must define the JES destination under the `OUTPUT` class using the `DEFINE PRINTER` statement in their programs.

Example:

```
DEFINE PRINTER (n) OUTPUT 'LOCAL' /* For printing on local JES/POWER printers
```

Or:

```
DEFINE PRINTER (n) OUTPUT 'DAEF' /* For printing to JES-spool called DAEF ↵
```

where *n* is the number in the `PRINTER` entry in the Natural parameter module as described above.

Reports can now be written to the system spool using one of the following statements:

```
DISPLAY (n)
```

or

```
WRITE (n)
```

or

```
PRINT (n)
```

where *n* is the number in the `PRINTER` entry in the Natural parameter module as described above.

Users can set the output format and number of copies using the `FORMS` and `COPIES` clauses of the `DEFINE PRINTER` statement.

Example:

```
DEFINE PRINTER (2) OUTPUT 'DEST'
                   FORMS 'FORM'
```

You can find the defaults for items such as Entire System Server node, forms and output class in the module `NATWSPDF`.

Installation Considerations

To use the Write-To-Spool feature you may either link the access method to your Natural nucleus or you may dynamically load the method (see also Natural parameters `RCA` and `RCALIAS`).

You can define the defaults for your Natural nucleus using `NATPWSDF` and assemble them before linking to nucleus. You can find the source member `NATPWSDF` in the source library of Natural.

There, you have the possibility to customize the defaults as follows:

Defaults for Factory Settings:

```
WSPDFLT NODE=148,   Entire System Server (NPR) TARGET NODE ↵

PROGRAM=,           JES WRITER (8 CHARS MAX) ↵

CLASS=A,            SYSOUT CLASS (1 CHAR) ↵

HOLD=YES,           HOLD (YES/NO) ↵

CNTL=A,             CARRIAGE CONTROL (A/M) ↵

FORM=,              FORM (4 CHARS MAX) ↵

RMT=,               JES REMOTE (8 CHARS MAX) ↵

FORMDEF=,           FORMDEF (6 CHARS MAX) ↵

PAGEDEF=            PAGEDEF (6 CHARS MAX) ↵
```

Parameter	Description
Node	The real Entire System Server node number which can contain up to 5 digits. It addresses the destination started task of Entire System Server and where the output is written.
Program	The JES Writer which can contain up to 8 characters. JES provides control to the Writer program. If JES does not find it, it is ignored. Possible Value: `*OUTPUT` means that the input from the Natural statement `DEFINE PRINTER` is used to be interpreted as JES Writer.
Class	The `SYSOUT` class within JES where the output has to be written. It can contain only one character or digit. It is a descriptor for further software (e.g. Entire Output Management) to detect the output stream for processing.
Hold = yes/no	Specifies if the output stream is to be held within the JES spool or not, in case the task previously started by Entire System Server terminates.
CNTL	Represents the control character for the `SYSOUT` dataset. `CNTL` contains one character: A ASA control character

Parameter	Description
	M machine control character
Form *RMT*	Describes the form control buffer for JES. This value is transferred to JES which handles the processing. *RMT* represents the JES remote user ID if SYSOUT has to be routed to a different JES system. You can find the name of the JES system in the destination field within the DEFINE PRINTER statement (for example, DEFINE PRINTER OUTPUT='DAEM')
Formdef *Pagedef*	They can contain up to 6 characters.

After editing the NATPWSDF member with customized values, you can assemble and link it. (If you want to use the factory settings, you may omit these steps.)

To use the Write-to-Spool feature with statically linked access method at your site, relink the Natural module as follows:

```
INCLUDE NATLIB(NATPWSPL)     The Write-to-Spool access method for Natural
INCLUDE NATLIB(NATPWSDF)     Write-to-Spool defaults (default or adapted parameter ↵
module) ↵
```

Or load it dynamically using the session parameters: RCA=(NATAM11),RCALIAS=(NATAM11,NATPWSAM)

If you have linked a module with adapted parameters, use the name of this module instead.

```
INCLUDE NATLIB(NATPWSPL)
INCLUDE USRLIB(NATPWSxx) your adapted parameter module
NAME NATWSPxx(R)         your adapted write to spool module. This name must be used ↵
in RCALIAS=(NATAM11,NATWSPxx)
```

Run E-Mail Client

General

`SEND-EMAIL` view implements a text-based mail client. See view description of `SEND-EMAIL` in the Entire System Server *User's Guide* for programming aspects and a sample program. The view processor requires additional startup parameters. See the section *Startup Parameters* in the Entire System Server *Administration* documentation for a description of the parameters *HOST-CODE-PAGE*, *JOBEMAIL*, *NUMMAIL*, *PRMEMAIL*, *SMTP-HOST*, *SMTP-PORT*, *TCP-STACK*.

Entire System Server creates a TCP/IP connection to the host that is configured as mail gateway. This connection runs in the user tasks. Therefore, a running TCP/IP stack is required and also running Domain Naming Services to resolve the own host name and the host name of the configured mail gateway. Contact your network and your mail administrator to determine if it is possible to establish a TCP/IP connection to the mail gateway.

Requirements

`SEND-EMAIL` view uses the `EZASMI` macro interface to request services from IBM's TCP stack.

The Entire System Server Started Task and all users requesting `SEND-EMAIL` view must be defined with a proper user ID for z/OS UNIX. Error message `ESY5897 Mailer response: errno 0156 in EZASMI INITAPI` reporting errno 156 (`EMVSINITIAL`) is returned as `ERROR-TEXT` if the requesting user ID is not properly defined for z/OS UNIX.. This error message is also issued if the `MAXPROCUSER` limit of z/OS Unix has been exceeded. In this case a higher value for `MAXPROCUSER` needs to be specified in the `BPXPRM`*xx* parmlib member.

Zap Reports in Entire System Server

As of Version 3.1.1, Entire System Server prints a report of all applied Zaps at ESY startup. This information is determined during startup and is written to DDNAME `SYSPRINT`.

The following sample listing illustrates the report layout. It was created during tests under BS2000.

Overview of Applied Zaps

```
XC41001 XC41002 XC41003 XC41004 XC41005 XC41006 XC41007 XC41008 XC41009
XC41010 XC41011 XC41012 XC41013 XC41014 XC41015 XC41016 XC41017
```

CSECT Mapping

```
CSECT     EP        DATE        TIME     ZAPS

 NPRINIT  01000000 2000-09-18 10:37:33 XC41001 XC41002 XC41003 XC41004 XC41005
                                       XC41006 XC41007 XC41008 XC41009 XC41010
                                       XC41011 XC41012 XC41013 XC41014 XC41015
                                       XC41016 XC41017
 CHKLINK  01000E58 2000-09-18 10:32:30 NONE
 CMDX2    010012A0 2000-09-18 10:32:38 NONE
 GETPARMS 01001878 2000-09-18 10:34:36 NONE
 LOAD2    01003330 2000-09-18 10:34:57 NONE
 NATPCMDL 010038A0 2000-09-18 10:36:15 NONE
 NATPNAT  01004180 2000-09-18 10:36:54 NONE
 NATPREP  01004A08 2000-09-18 10:37:04 NONE
 NATPSRV  010052D0 2000-09-18 10:37:12 NONE
 NATPSUBT 01005FD8 2000-09-18 10:37:21 NONE
 NATPUSR  01006780 2000-09-18 10:37:28 NONE
 NPROPHND 01006A38 2000-09-18 10:37:41 NONE
 SCANECET 010076D8 2000-09-18 10:37:56 NONE
 SYNCADA  01007F00 2000-09-18 10:38:19 NONE
 SYSINFO  01008298 2000-09-18 10:38:26 NONE
 TRACE    010086C0 2000-09-18 10:38:34 NONE
 WTO      01009438 2000-09-18 10:39:02 NONE
 XCOMINIT 01009DF0 2000-09-18 10:39:19 NONE
 XCOMMAIN 0100A3E8 2000-09-18 10:39:28 NONE
 XDBOPER  0100B1F8 2000-09-18 10:47:39 NONE
 XDBPRSTP 0100B4D0 2000-09-18 10:47:54 NONE
 XDBSTOP  0100B758 2000-09-18 10:48:03 NONE
 XDBTIME  0100BCC8 2000-09-18 10:48:14 NONE
 XCOMNUC  0100BFF0 2000-09-18 10:39:38 NONE
 XDBPROC  0100DAB8 2000-09-18 10:47:45 NONE
 ANSWER   0100EA90 2000-09-18 10:32:20 NONE
```

The first part of the report lists all installed program corrections (OVERVIEW OF APPLIED ZAPS). The second part provides detailed information about the names of the program sections (CSECT), the entry points (EP), the creation date and time (DATE and TIME), and the installed corrections (ZAPS) per program section.

This information may help to get an overview about applied zaps. It is also useful for our support.

Ending Entire System Server

For information on how to terminate Entire System Server, see *Operator Commands* in the Entire System Server *Administration* documentation.

Return Codes Issued by Entire System Server at Termination

When Entire System Server terminates due to reasons other than an ABEND, a return code is issued. A return code 0 indicates no abnormal incidents occurred during the run. A return code 4 indicates that a subtask ABENDed at some time during the run; check the JES job log for details. A return code 8 indicates that Entire System Server never started due to a bad parameter or other reason; check the JES job log for details.

9 Considerations

Access Method Modules

There are two access method modules available:

Access Method Module for CA-Librarian

If CA-Librarian is available at your site, you can install the CA-Librarian access method module as follows:

1. Set `&LIBRMOD` in source `NATPAML` to the name of the CA-Librarian batch module and set `&LIBROPT` to the default parameters of the batch module. These options can be modified dynamically in the Natural programs using the `OPTION` field in the views `LIB-UPDATE` and `WRITE-FILE`.

   Set `&SECALOC` in source `NATPAML` to the number of blocks for secondary allocation. The default of 10 blocks is normally sufficient, but this can be increased if you receive a NAT5995 error while writing CA-Librarian members.

2. Assemble the module `NATPAML` and link-edit it using the CA-Librarian load library. The link attributes `NON-REUSABLE` and `NON-REENTRANT` must be set. The module name must be `NATPAML`, no alias is necessary. The CA-Librarian `MACLIB` must precede the Entire System Server source library so that the correct `FAIR`*nn* CA-Librarian macro is used.

3. Add startup parameter `PRODUCT=L` to the Entire System Server startup parameters.

When accessing CA-Librarian using Entire System Server views, users must specify the product code `L` in the `PRODUCT` field.

Access Method Module for CA-Panvalet

Set `&SECALOC` in source `NATPAMP` to the number of blocks for secondary allocation. The default of 10 blocks is normally sufficient, but this can be increased if you receive a NAT5995 error while writing CA-Panvalet members.

Accounting

The Entire System Server can optionally collect accounting information. This information is available through the view `NATPROC-USERS` (see also the *LOOP* startup parameter in the section *Startup Parameters*).

The layout of this user SMF record is as follows:

Location		Length	Format	Contents	
Dec	Hex				
0	0	2	Binary	Length or record.	
2	2	2	-	Reserved.	
4	4	1	Binary	System indicator:	8 - z/OS
5	5	1	Binary	Record type; value is stated in `SMFRECORD` parameter.	
6	6	4	Binary	Time in 100th of a seconds, record was moved to SMF buffer.	
10	A	4	Packed	Date record was moved to SMF buffer (`00YYDDDF`).	
14	E	4	Character	`SYSID`.	
18	12	8	Character	User ID.	
26	1A	4	Binary	CPU used in hundredths of a second	
30	1E	4	Binary	Number of I/Os.	

An SMF record is written:

- if a user logs off him/herself;
- if a user is logged off due to inactivity;
- if `SMFTIME` parameter was set and this time window popped;
- if Entire System Server terminates.

In all cases, the SMF parameter must be set.

Common JES Interface for z/OS

The former JES2 and JES3 interfaces (before Release 3.1.1) have been rewritten and integrated into a Common JES Interface, exploiting the MVS subsystem interface functions 79 (`SYSOUT` API) and 80 (Extended Status).

The Common JES Interface need not be assembled during installation and therefore is distributed only as load module. It supports all JES2 and JES3 releases in service at the time of general avail-

ability of the current Entire System Server release. Support for new releases of JES2 and JES3 will be added via problem solutions.

All required security checks are done within the Common JES Interface and the SYSOUT API implementations using the SAF router interface. Therefore the former security exit JESVRACF is no longer required. However, for compatibility reasons, a dummy exit is provided that may be used to perform additional authorization functions.

z/OS JES3 Considerations

The Common JES Interface now returns spool information from JES3 in the same way as from JES2, which is slightly different from the way spool information was returned from the JES3 interface of Entire System Server Version 2.2. To ease migration in a JES3 environment, the spool-related view processors will support either a "compatibility mode" or a "consistency mode". The mode is determined from the value specified for the SPOOL startup parameter. SPOOL=JES3 will set the "compatibility mode", the "consistency mode" can be requested with "SPOOL=JESC".

The differences between the results from the Entire System Server Version 2.2.2 JES3 interface, the "compatibility mode" and the "consistency mode" for the views SPOOL-QUEUE and SPOOL-FILES can be obtained from the tables below. The "compatibility mode" will return the results like the Entire System Server Version 2.2.2 JES3 Interface whenever possible.

Applications that wish to exploit the JES3 "consistency mode" should consider the following issues:

- The current mode can be obtained from the STARTUP-PARM field of the SYSTEM-INFO view for the SPOOL keyword.

- SPOOL-QUEUE may return multiple entries for the same job, representing different sets of SYSOUT data sets with the same attributes.

- For a set of SYSOUT data sets with the same attributes there is no identifier. To identify the set of SYSOUT data sets, its common attributes must be specified.

- To select jobs by job class, its value must be specified in field JOB-CLASS of view SPOOL-QUEUE.

SPOOL-QUEUE	JES3 Interface Version 2.2.2	"compatibility mode"	"consistency mode"
CARD-COUNT	-	-	X
CLASS [2]	(X)	(X)	X
DATE-ON-READER	-	-	X
DATE-XEQ-START	-	-	X
DATE-XEQ-STOP	-	-	X
DATX-ON-READER	X	X	X
DATX-XEQ-START	-	-	X
DATX-XEQ-STOP	-	-	X
DESTINATION	-	-	X

SPOOL-QUEUE	JES3 Interface Version 2.2.2	"compatibility mode"	"consistency mode"
HOLD [1]	(X)	(X)	X
JOB-CLASS	-	-	X
JOB-ID	X	X	X
JOB-NAME	X	X	X
JOB-NUMBER	X	X	X
MESSAGE-CLASS	-	-	X
ORIGIN	X	X	X
PRIORITY	X	X	X
PROGRAMMER-NAME	-	-	X
QUEUE	X	X	X
RECORD-COUNT	-	-	X
SPOOL-UTILIZATION	X	X	X
STATUS	X	X	X
SYSTEM-ID	-	-	X
TIME-ON-READER	X	X	X
TIME-XEQ-START	-	-	X
TIME-XEQ-STOP	-	-	X
TIMX-ON-READER	X	X	X
TIMX-XEQ-START	-	-	X
TIMX-XEQ-STOP	-	-	X
TYPE [3]	(X)	(X)	X
USER	X	X	X

Notes:

1. The JES3 Interface and the "compatibility mode" return the `HOLD` status only for held jobs, not for held output.

2. The JES3 Interface and the "compatibility mode" always return the job class in field `CLASS`, there is no output class returned.

3. The JES3 Interface and the "compatibility mode" always return the value `JOB` in the `TYPE` field, even for STC's and TSU's.

The JES3 Interface and the "compatibility mode" return only one entry for a job on the output queue, even when there is output with different attributes.

SPOOL-FILES	JES3 Interface Version 2.2.2	"compatibility mode"	"consistency mode"
BURST	-	-	X
CHARS [1]	X	X	X
CLASS	X	X	X
COMPACT			
COPIES	X	X	X
DATA-SET [4]	X	X	X
DATA-SET-KEY [4]	X	X	X
DDNAME	X	X	X
DESTINATION-NODE			
DESTINATION-REMOTE			
DSNAME [2]	X	X	X
FCB [1]	X	X	X
FLASH	X	X	X
FORM [1]	X	X	X
HOLD	X	X	X
IDENTIFIER [2]	X	X	X
JOB-NAME	X	X	X
JOB-NUMBER	X	X	X
LINECT			
LRECL	X	X	X
PRINT-MODE	-	-	X
PROCNAME	X	X	X
RECFM	X	X	X
RECORD-COUNT	X	X	X
STEPNAME	X	X	X
TRC			
TYPE	X	X	X
UCS	-	-	X
WRITER [3]	X	X	X

1. The JES3 Interface and the "compatibility mode" do not return `FORM`, `CHARS` and `FCB`, if the values match the installation defaults.

2. The JES3 Interface and the "compatibility mode" return the designated ddname (`procstep-name.jobstepname.ddname`) in fields `DSNAME` and `IDENTIFIER`, not the spool data set name.

3. The JES3 Interface and the "compatibility mode" return the general type of output (`PRT/PUN`) in field `WRITER` for `SYSOUT` data sets in the Writer Queue.

4. The JES3 Interface returns values in fields `DATA-SET` and `DATA-SET-KEY` that may be different from those returned by the "compatibility mode" and "consistency mode".

APPC/MVS Definitions for the SYSTEM-COMMAND View

The `SYSTEM-COMMAND` view processor has been rewritten to invoke an APPC/MVS transaction program to execute the requested TSO/E command(s). The transaction program will then be initiated by the APPC/MVS transaction scheduler, and the output from the TSO/E command will be returned to the `SYSTEM-COMMAND` view.

The following definitions are required for the transaction program and its resources. You may need assistance from your systems programmer and from your network administrator to implement these definitions.

1. Define the logon mode table `LOGMODES` with entry `APPCHOST`, if not already present, or an equivalent logon mode entry to be used as default for the LU defined above. The source for the `LOGMODES` table can be found in the `ATBLMODE` member of `SYS1.SAMPLIB`.

   A new logon mode table needs to be activated with the VTAM command `MODIFY TABLE`.

2. Define the APPC/MVS LU as an application to VTAM. If you run Entire System Server on multiple systems, define different application names for each system. For multiple Entire System Server address spaces on one system, only one local APPC/MVS LU needs to be defined.

```
NPRLU01  APPL  ACBNAME=NPRLU01,        ACBNAME FOR APPC              C
               APPC=YES,                                             C
               AUTOSES=0,                                            C
               DDRAINL=NALLOW,                                       C
               MODETAB=LOGMODES,                                     C
               DLOGMOD=APPCHOST,                                     C
               DMINWNL=5,                                            C
               DMINWNR=5,                                            C
               DRESPL=NALLOW,                                        C
               DSESLIM=10,                                           C
               LMDENT=19,                                            C
               PARSESS=YES,                                          C
               SECACPT=ALREADYV,                                     C
               SRBEXIT=YES,                                          C
               VPACING=1                                            ↵
```

   The definition needs to be activated with the VTAM command `VARY ACT`.

3. Define the local LU in parmlib member `APPCPMxx` (APPC/MVS Configuration).

   If you run Entire System Server on multiple systems, define local LUs using different names for each system. The LU name(s) must correspond to the VTAM application definitions for APPC/MVS (see Step 2).

```
LUADD ACBNAME(NPRLU01) TPDATA(SYS1.APPCTP) TPLEVEL(USER)
```

The definition needs to be activated with the `SET APPC=xx` system command. Note that a base LU for the APPC/MVS transaction scheduler is also required in the configuration.

4. Define a class of transaction initiators in parmlib member `ASCHPMxx` (APPC/MVS Transaction Scheduler). You may also use a class that you have already defined. The minimum number of started transaction initiators should correspond to the expected number of transactions running at a time.

```
CLASSADD CLASSNAME(A) MSGLIMIT(1000) MAX(10) MIN(1) RESPGOAL(1)
```

The definition needs to be activated with the `SET ASCH=xx` system command.

5. Verify that the APPC and ASCH address spaces for APPC/MVS and the transaction scheduler are active on the system. If not, they need to be started using the commands:

```
START APPC,SUB=MSTR,APPC=xx
START ASCH,SUB=MSTR,ASCH=xx
```

To start the `APPC` and `ASCH` address spaces automatically at IPL, you can add these `START` commands to the `COMMNDxx` member of your parmlib concatenation.

6. Define the transaction program in parmlib member `IKJTSOxx` as an authorized program by adding `XCOMTP46` to the `AUTHPGM NAMES` statement:

```
AUTHPGM NAMES(..., XCOMTP46 ...)
```

The definition needs to be activated with the TSO/E command `PARMLIB UPDATE(xx)`.

7. Define the transaction program to APPC/MVS using the Administration Utility:

```
//TPADD    EXEC PGM=ATBSDFMU
//SYSPRINT DD   SYSOUT=*
//SYSSDLIB DD   DSN=SYS1.APPCTP,DISP=SHR
//SYSSDOUT DD   SYSOUT=*
//SYSIN    DD   DATA,DLM=ZZ
    TPADD
         TPNAME(SAG.NPRvrs.XCOMTP46)
         ACTIVE(YES)
         TPSCHED_DELIMITER(##)
            CLASS(A)
            TPSCHED_TYPE(STANDARD)
            JCL_DELIMITER(END_OF_JCL)
//NPRTPTSO JOB (&SYSUID),MSGCLASS=X,MSGLEVEL=(1,1),REGION=4096K
//TSOE     EXEC PGM=IKJEFT01,PARM='CALL ''NPRvrs.MVSLOAD(XCOMTP46)'''
//SYSTSPRT DD   UNIT=VIO,DISP=(,,DELETE),
//              DCB=(RECFM=FB,LRECL=133,BLKSIZE=13300,DSORG=PS)
//SYSTSIN  DD   UNIT=VIO,DISP=(,,DELETE),
//              DCB=(RECFM=FB,LRECL=80,BLKSIZE=800,DSORG=PS)
//SYSABEND DD   SYSOUT=X
```

```
//ESYTRACE DD  SYSOUT=X
END_OF_JCL
##
ZZ
//
```

The definition is active when the utility was executed successfully.

8. Define the APPC/MVS resource names to be used in the Entire System Server startup parameters `APPC-TPNAME`, `APPC-LUNAME` and `APPC-MODENAME`. To activate these definitions, Entire System Server needs to be restarted.

9. To verify the APPC/MVS definitions for the `SYSTEM-COMMAND` view transaction program, logon to Natural using library `SYSNPE`, run the sample program for the view `SYSTEM COMMAND` and enter the TSO/E command `TIME`. If all definitions are active, you will get a response like:

```
READY
TIME
IKJ56650I TIME-07:17:07 PM. CPU-00:00:01 SERVICE-9829 SESSION-00:00:02 JULY 17, ↵
2007
READY
END
```

Security Considerations

Security Logon

The Entire System Server region accesses datasets and other resources as requested by the Natural user. Therefore, if a security system is installed (identified by the `SECURITY` startup parameter), the Natural user must identify himself or herself to Entire System Server before any view can be accessed. A logon operation must be performed, specifying the user's system user ID and password. `SECURITY` will be called to validate these parameters. If validation is successful, `SECURITY` will build a control block for the user. This control block will be used for future validations.

If the user attempts to access a view before logging on, Response Code 510 (`LOGON REQUIRED`) will be returned. However, if the startup parameter `AUTOLOG` is set to `YES`, an implicit logon is performed as part of the first user request. A password is only required if the Natural user ID does not match the user ID defined in the `SECURITY` system.

If the `APPL` resource class is active in the security system, the Entire System Server address space has to be defined as an application with its `STC` or job name and the users need to be authorized to access that Entire System Server application.

When a view requests access to resources such as datasets, batch jobs, etc., `SECURITY` will be called to check whether access is allowed (see the following section). If access is not allowed, the user will receive an appropriate error message.

The Entire System Server online tutorial contains a sample logon program that uses the view `NATPROC-LOGON`.

The logon operation is not needed if Entire System Server is used in single-user mode.

If no security system interface is requested (`SECURITY=NONE`), no security check is performed: all logon attempts will be successful. In this case, each attempt to access an object which is protected by security is treated in the same way as defined for the Entire System Server started task.

If ACF2 is installed at your site, you must define Entire System Server as the multi-user address space (using the parameter `MUSASS` in ACF2).

If TOP-SECRET is installed, the following parameters must be set:

```
FAC (USERS=NAME=PROCESS)
FAC (PROCESS=ACTIVE,NOASUBM)
FAC (PROCESS=NOABEND,AUTHINIT)
FAC (PROCESS=MULTIUSER,WARNPW)
FAC (PROCESS=MODE(FAIL),PGM=NAT
FAC (PROCESS=UIDACID=8,ID=P)
```

Setting Up RACF Security for Operator Commands

Assemble the distributed source for the `OPRVRACF` and `VTMVRACF` exits with conditional assembly variable `&RACF` set to `0`, in order to generate the `RACROUTE` code for validating the `OPERCMDS` resource class. Set the `&JESC` to your JES command character. The default is the dollar sign ($).

If `&RACF` is set to `1`, the `OPERATIONS` flag in the `ACEE` control block will be examined instead of the `RACROUTE` approach.

Using Adabas Review with Entire System Server

Adabas Review (Version 4.3.2 or above) may be used with Entire System Server (Version 3.4.1 or above) to collect performance data in local mode for requests originating from Natural (Version 4.2.2 or above). To enable Adabas Review in local mode with Entire System Server, the following steps need to be taken:

- Specify your Review load library in the `STEPLIB` concatenation for Entire System Server.
- Verify that you have one of the following Zaps applied:
  - `RD432100` for Review Version 4.3.2 or
  - `RD441017` for Review Version 4.4.1

- Additional DD statements for data sets used by Review will be needed in your JCL. Please see the Adabas Review documentation to determine which `RVU...` data sets you need and add the corresponding DD statements to your JCL for Entire System Server.

- Specify `REVIEW=YES` in your startup parameters for Entire System Server.

  If you have used the startup parameter `UEX4=RAOSEXIT` with an earlier release of the Entire System Server, please remove it as it is no longer supported.

- Specify the Natural profile parameter `ADAPRM=ON` for the Natural environments that you want to collect data from.

- If you want to report calls from a Batch Natural environment running as a subtask within the Entire System Server address space (such as subtasks of ESM products), re-link your `ADALNKR` module with the required Review modules as described in the section `Implement Support for Reporting from Batch Natural` of the *Installation and Operations for z/OS* documentation for Adabas Review.

Configuring AT-TLS to Build a Secure Connection

Define a traffic descriptors:

```
Protocol: TCP
Localport all
Remoteport 993
Connection direction: either
Jobname <jobname of Entire System Server>
Userid  -
AT-TLS configuration index 0
```

Configuration associated with this AT-TLS Application:

```
AT-TLS configuration index 0
Handshake Role Client
Key ring: your kdb and sth file
Certificate label -
Application controlled off
Secondary Map off
Handshake timeout 10 seconds
```

See also *z/OS Communications Server > z/OS Communications Server:IP Configuration Guide > Server applications Application Transparent Transport Layer Security data protection > Options for configuring AT-TLS security* under **https://www.ibm.com/support/knowledgecenter/en/SSLTBW_2.2.0/com.ibm.zos.v2r2.cs3/cs3.htm**.