

# iWay

iWay Server Configuration for VM  
Version 5 Release 2.0

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## Preface

This manual describes how to configure the iWay Server Configuration for VM. It is intended for those who configure and operate the server. This manual is part of the iWay Release 5.2.0 documentation set.

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## How This Manual Is Organized

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This manual includes the following chapters:

Chapter/Appendix		Contents
<b>1</b>	Configuring TCP/IP Communications for the VM Server	Describes the configuration process. It includes a Configuration Worksheet and provides instructions for configuring the Attach Manager and the VM Server.
<b>2</b>	Installing Data Adapters	Provides prerequisites and installation procedures for installing data adapters.
<b>3</b>	Configuring National Language Support (NLS)	Describes how to configure National Language Support (NLS) for your server.
<b>4</b>	Completing the Resource Analyzer/Resource Governor Configuration	Describes how to complete the Resource Analyzer/Resource Governor configuration.

# Documentation Conventions

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The following conventions apply throughout this manual:

Convention	Description
<code>THIS TYPEFACE</code> or <code>this typeface</code>	Denotes syntax that you must enter exactly as shown.
<code>this typeface</code>	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
<u>underscore</u>	Indicates a default setting.
<i>this typeface</i>	Represents a placeholder (or variable) in a text paragraph, a cross-reference, or an important term.
<b>this typeface</b>	Highlights a file name or command in a text paragraph that must be lowercase.
<i>this typeface</i>	Indicates a button, menu item, or dialog box option you can click or select.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices; type one of them, not the braces.
[ ]	Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis points (...).
. . . . . .	Indicates that there are (or could be) intervening or additional commands.

## Related Publications

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## Information You Should Have

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To help our consultants answer your questions most effectively, be ready to provide the following information when you call:

- Your six-digit site code number (xxxx.xx).
- Your iWay Software configuration:
  - The iWay Software version and release.
  - The communications protocol (for example, TCP/IP or LU6.2), including vendor and release.
- The stored procedure (preferably with line numbers) or SQL statements being used in server access.
- The database server release level.
- The database name and release level.
- The Master File and Access File.

- The exact nature of the problem:
  - Are the results or the format incorrect? Are the text or calculations missing or misplaced?
  - The error message and return code, if applicable.
  - Is this related to any other problem?
- Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?
- What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?
- Is this problem reproducible? If so, how?
- Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?
- Do you have a trace file?
- How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

## **User Feedback**

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In an effort to produce effective documentation, the Documentation Services staff welcomes any opinion you can offer regarding this manual. Please use the Reader Comments form at the end of this manual to relay suggestions for improving the publication or to alert us to corrections. You can also use the Documentation Feedback form on our Web site, <http://www.iwaysoftware.com>.

Thank you, in advance, for your comments.

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## CHAPTER 1

# Configuring TCP/IP Communications for the VM Server

### Topics:

- Managing the Server Connection
- TCP/IP Configuration Process for VM
- Configuration Worksheet for VM
- Configuring the Attach Manager
- Configuring the Server for VM
- Verifying Attach Manager and Server Installation
- Next Steps

To complete the server configuration process you will need to configure the following components:

- The Attach Manager, which establishes the connection between a client application and the server using the TCP/IP communications protocol. See *Configuring the Attach Manager* on page 1-7.
- The VM server. See *Configuring the Server for VM* on page 1-16.
- The client application. See your connector documentation.
- Data adapters required by your site. See Chapter 2, *Installing Data Adapters*.
- National Language Support (optional). See Chapter 3, *Configuring National Language Support (NLS)*.
- Resource Analyzer and Resource Governor (optional). See Chapter 4, *Completing the Resource Analyzer/Resource Governor Configuration*.

## Managing the Server Connection

---

The Attach Manager (ATM) is a virtual machine deployed at your site to:

- Listen for client applications requesting a new connection to a VM Server.
- Start a server instance, if appropriate.
- Pass the connection directly to the server.

Once a connection is made, the client request speaks directly to the server, and the ATM is free to listen for a new connection request. For a process overview and illustration, see *How Attach Manager Works* on page 1-2.

For related information, see *Prerequisites for Attach Manager and Server Configuration* on page 1-4 and *Prerequisites for TCP/IP Configuration on VM* on page 1-4.

### How Attach Manager Works

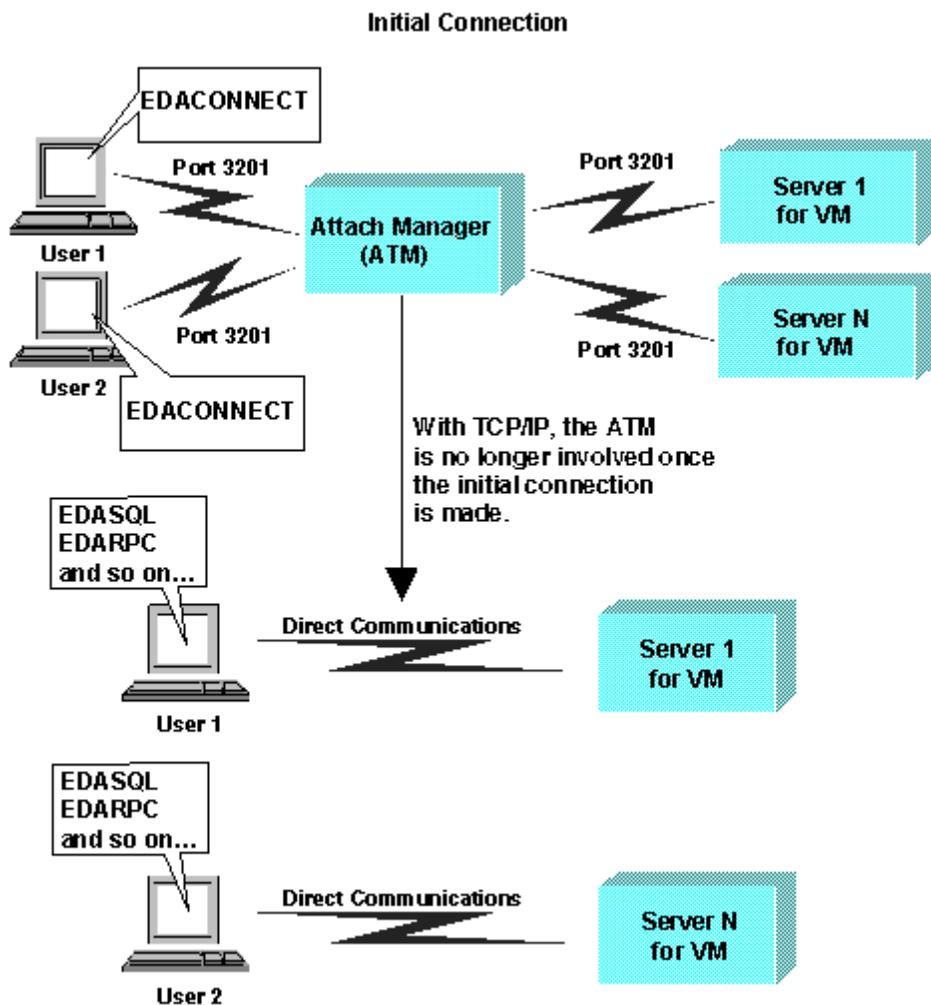
Using Attach Manager (ATM) default behavior, the following steps take place when a client application attempts to connect to a VM Server instance using the API function call EDACONNECT:

1. EDACONNECT directs the client's request for a connection to the ATM.
2. The ATM autologs a server ID and passes the name of an EXEC (EDASERV, by default) that it can use to start a server instance. It also passes the ID of the ATM to the server.
3. The server runs the PROFILE EXEC and the server EXEC (default EDASERV) that resides on the server.

From this point on, the client speaks directly to the server. The ATM listens for a request for a new connection from a different client.

4. When the client application disconnects from the server (by issuing the API function call EDAXCONNECT), the ATM logs off the server ID.

The role of the Attach Manager in the server environment is illustrated in the following diagram:



To accomplish the communication described in the previous diagram, you need to configure the following separate components of the server environment:

- Attach Manager. For details, see *Configuring the Attach Manager* on page 1-7.
- VM Server. For details, see *How to Modify the CP Directories* on page 1-4.
- Client application (connector). For instructions on configuring the client, see the appropriate connector documentation.

For related information, see *Prerequisites for Attach Manager and Server Configuration* on page 1-4 and *Prerequisites for TCP/IP Configuration on VM* on page 1-4.

## **Reference Prerequisites for Attach Manager and Server Configuration**

Before you configure an Attach Manager and server, the system administrator at your site must define the required system resources, such as a port number for TCP/IP. Once these resources are defined, you can fill out the Configuration Worksheet, which contains all the information needed for the configuration procedure. Keep it handy as you perform the configuration steps described in this section. See *Configuration Worksheet for VM* on page 1-6.

## **Reference Prerequisites for TCP/IP Configuration on VM**

In addition to the TCP/IP hardware and software prerequisites described in the installation manual, you *must* perform the following tasks before initializing your server:

- Modify the CP directories.

Use the Inter-User Communications Vehicle (IUCV) interface to transmit messages between the server and the Attach Manager. For details, see *How to Modify the CP Directories* on page 1-4.

- Define the service port in your IBM-supplied TCP/IP configuration file.

The IP address is programmed into your TCP/IP communications processor. The service designation should be defined by your mainframe TCP/IP System Administrator. This service designation should be unique to your VM Server and entered through the SERVICE keyword in the TCP/IP communications file used by the server.

Each server ID needs IUCV ALLOW privileges, as described in *How to Modify the CP Directories* on page 1-4.

In addition, if your site uses VMSECURE and you wish to customize security so that the server will authenticate the user ID and password, be sure to perform the zap step during installation. Otherwise, the user ID and password are not authenticated on connection to the server.

## **Syntax How to Modify the CP Directories**

To enable the IUCV interface, add the following statements to the CP directory of each virtual machine defined as a VM Server, ATM, or VM client ID:

```
IUCV ALLOW  
OPTION MAXCONN nnn ACCT
```

where:

```
IUCV ALLOW
```

Enables communications between the ATM and its servers.



The diagram above is based on a single client application. However, if your site supports multiple client applications, you may wish to start multiple ATMs. Each ATM executes its own server EXEC, which is a modified, renamed version of the default (EDASERV). The customized EXEC contains the same information found in EDASERV, plus the necessary links to disks for the given application.

Before starting the configuration process, fill out the Configuration Worksheet. See *Configuration Worksheet for VM* on page 1-6.

## Configuration Worksheet for VM

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Your Configuration Worksheet contains important information required during the configuration procedure. We urge you to complete the Worksheet in advance, supplying the values defined by your System Administrator, to facilitate the configuration procedure.

Sample values are supplied for you. These values are intended to familiarize you with the required information.

1. What are the user IDs assigned to the virtual machines that will be deployed as servers at your site?

<b>Sample Value</b>	<b>Your Site's Value</b>
<u>IWYSRV1</u>	_____
<u>IWYSRV2</u>	_____
<u>IWYSRV3</u>	_____
<u>IWYSRV4</u>	_____
<u>IWYSRV5</u>	_____

2. What are the user IDs assigned to the virtual machines that will be deployed as Attach Managers (ATMs) at your site?

<b>Sample Value</b>	<b>Your Site's Value</b>
<u>IWYATM1</u> _____	_____ _____

3. The following should be noted for the TCP/IP protocol:

	Sample Value	Your Site's Value
IP Address	<u>123.45.67.89</u>	_____
Port Number	<u>4424</u>	_____

## Configuring the Attach Manager

---

To configure the Attach Manager (ATM), you must set up an EXEC and two configuration files:

- **EDATCP EXEC** has three functions:
  - With the ddname EDACS3, it identifies the ATM's communications configuration file.
  - With the ddname EDANAMES, it identifies the configuration file that lists the VM IDs to be used as servers and identifies the EXEC that will be executed on the server's ID to initiate the server.
  - It initiates the ATM by running the program OPVINIT.

For an illustration, see *Sample EDATCP EXEC* on page 1-8.

- **EDATCP CONFIG** identifies an ID to the server as an ATM and indicates the port number to use for communications.
- **EDANAMES CONFIG** identifies a list of server IDs to the ATM. For details, see *EDANAMES CONFIG File* on page 1-9.

To review the relationships among these files, see *TCP/IP Configuration Process for VM* on page 1-5.

### **Example**    **Sample EDATCP EXEC**

The EDATCP EXEC supplied on your distribution tape is shown below.

```

/*****
/**          EXEC to Start the TCP/IP Attach Manager (ATM)          **/
*****/

Address 'COMMAND'
Trace '0'
Arg parms
If parms /= ' '
Then parms = '(' parms

'FILEDEF EDACS3   DISK EDATCP   CONFIG *'
'FILEDEF EDANAMES DISK EDANAMES CONFIG *'
'FILEDEF IBITROUT TERM ( RECFM F LRECL 80'
'FILEDEF STDOUT  TERM ( RECFM F LRECL 80'

'ERASE * FOCTEMP *'
'STATE IBITEST LOADLIB *'

If rc = 0
Then ibitest = 'IBITEST'
Else ibitest = ' '

'GLOBAL LOADLIB' ibitest 'FOCLIB FOCINT FUSELIB'

'EXEC EDASTART ATM' parms
'ERASE * FOCTEMP *'
Exit rc

```

### **Procedure**    **How to Edit the EDATCP CONFIG File**

The EDATCP CONFIG file identifies this ID to the server as an ATM and indicates the port number to use for communications. The EDATCP CONFIG file supplied on your distribution tape is shown below.

```

NAME                = iWay VM 5.x ATMTCP Using the Communication Subsystem
;TRACE              = 3

NODE                = EDASERVE
BEGIN
  PROTOCOL          = TCP
  CLASS             = MANAGER
  SERVICE           = nnnn
;TRACE              = 3
END

```

Edit the file as follows:

Change From...	To...	Copy From Your Worksheet	Value From Sample Worksheet
<i>nnnn</i>	The port number the client will use to communicate with both the ATM and the server. Enter any valid port number. A number greater than 3000 is recommended.	Item 3.	4424

### **Example** Editing EDATCP CONFIG With Values From the Configuration Worksheet

With the value from the sample *Configuration Worksheet for VM* on page 1-6, EDATCP CONFIG now looks like the following:

```

NAME                = iWAY VM 5.x ATMTCP Using the Communication Subsystem
;TRACE              = 3

NODE                = EDASERVE
BEGIN
  PROTOCOL           = TCP
  CLASS              = MANAGER
  SERVICE            = 4424
;TRACE              = 3
END

```

### **EDANAMES CONFIG File**

The EDANAMES CONFIG file identifies a list of server IDs to the Attach Manager.

Two key parameters in the EDANAME CONFIG file are ANYSERVER and WAKEUP:

- The ANYSERVER parameter enables a group of server agents to be defined in a pool. When a client requests to connect, the ATM connects with the next available server agent in the pool. This eliminates the definition of a user-specific server for every potential user connecting to the server, based on the ID used when connecting. See *How to Activate the ANYSERVER Feature* on page 1-10.

The server has both global and user-level profiles:

- The global profile (EDASPROF EDAPROF) is executed every time a client connects to a server.

- User-level profiles are executed, if they exist. User-level profiles require that the file name be the same as the user ID and the file type to be EDAPROF. For example, user ID EDAUSER1 would have a user profile of EDAUSER1 EDAPROF.

The settings in the user profile override any settings in the global profile. When using the ANYSERVER feature, the user IDs defined as server agents should all be defined with the same security specifications since every client that is connecting connects to the next available server agent.

It is important to note that the server agents do not assume any of the security features associated with the user ID specified when connecting. For example, pooled server agents are started with the user IDs EDAPOOL1, EDAPOOL2, and so on. User EDAUSERA is connected to server agent EDAPOOL1. EDAPOOL1 is the user ID used for any security authentication when accessing data. This is a feature that will be changed in the future release of the product.

- The WAKEUP parameter causes the ATM to check every *nn* minutes to verify that all servers in the list are autologged. If any are not, it causes the ATM to autolog the missing user ID. See *How to Specify a Wakeup Interval* on page 1-11.

For detailed syntax, see *How to Edit the EDANAMES CONFIG File* on page 1-11.

## **Syntax**    **How to Activate the ANYSERVER Feature**

To activate the ANYSERVER feature, specify the following in the EDANAME CONFIG file

```
ANYSERVER = {YES|NO}
```

where:

**YES**

Activates the ANYSERVER parameter.

**NO**

Deactivates the ANYSERVER parameter. This value is set by default.

The ANYSERVER parameter allows the Attach Manager (ATM) to find the first available server in its list to connect a given client to. The ATM will assign the next available server agent in the list defined to the AUTOLOG parameters. This eliminates the need for a unique server ID for each client. Typically, each server would have all the same characteristics (for example, EDAPROF, security, and any other settings). This is in line with the public pooled environment.

It is important to note that although the ATM may validate security information for a connecting client application, once connected to one of the servers in the pool, any reference to that user ID within the server instance is not available.

The WAKEUP parameter causes the ATM to check every *nn* minutes to verify that all servers in the list are autologged. If any are not, it causes the ATM to autolog the missing user ID.

**Syntax**    **How to Specify a Wakeup Interval**

To specify a wakeup interval, define a value for the WAKEUP parameter in the EDANAME CONFIG file

```
WAKEUP = nn
```

where:

```
nn
```

Is the value in minutes.

The values for this parameter are 1 through 60, with 1 being the default.

**Procedure**    **How to Edit the EDANAMES CONFIG File**

The EDANAMES CONFIG file supplied on your distribution tape is shown below.

The numbers on the left refer to the explanations that follow the sample.

```
; This file is pointed to by the DDNAME EDANAMES in the EDATCP EXEC.
; The purpose of this file is to inform the attach manager (ATM) of
; its DDNAME for its configuration file along with the list of servers.
;
```

1. PROTOCOL = TCP
2. CFGFILE = EDACSG ; DDNAME in the EDATCP EXEC

```
; SERVERS line has to precede the AUTOLOG list.
; The number of server can be larger than the number of ids to be
; autologged.
```

```
SERVERS = nn ; Maximum number of concurrent servers allowed
```

3. ;PREAUTOLOG = YES ; pre-autolog servers

```
AUTOLOG id1
AUTOLOG id2
AUTOLOG id3
AUTOLOG id4
AUTOLOG id5
```

4. ;WAKEUP = 1 ; SERVER does HOST maintenance every NN minutes

5. ;ANYSERVER = NO ; Allows user to specify any valid SERVER and
; the first available server is accepted

```
; LOGONATTEMPT = nn ; maximum number of times a logon may be
; attempted before SERVER is placed on HOLD
```

6. EXEC EDASERV ; Exec to run on server when autologged

The following values are supplied in the file:

1. The value for PROTOCOL is TCP, for TCP/IP communications.
2. The value for CFGFILE is EDACSG, the ddname in the EDATCP EXEC that points to the EDATCP CONFIG file. You can use an alternate name (for example, ATM1). However, if you do so, you must edit the EDATCP EXEC to change EDACSG to the alternate name (ATM1).
3. PREAUTOLOG pre-autologs servers and also, needs to be active (set to YES), if using the WAKEUP parameter.
4. WAKEUP causes the ATM to check every *nn* minutes to verify that all servers in the list are autologged.
5. The ANYSERVER setting allows a group of server agents defined in a pool.
6. The default name of the EXEC that will run on the server is EDASERV.

To execute a different EXEC to start the server, change EDASERV to the name of that EXEC. The EXEC that starts the server must be available to the server.

**Note:**  Once the ATM is running and a client attempts to connect to a server, the ATM autologs the server and passes it two parameters: the ID of the ATM and the name of the EXEC to start the server. Running the EXEC is the responsibility of the server.

Edit the other values in the file as follows:

Change From...	To...	Copy From Your Worksheet	Value From Sample Worksheet
<i>nn</i>	The maximum number of servers that will be started for this Attach Manager.  The value for <i>nn</i> can exceed the number of actual IDs to be autologged.	Item 1.	5 (derived from the number of values supplied)
<i>id1...id5</i>	The ID for a server that will be started by the ATM when a client issues an EDACONNECT.	Item 1.	IWYSRV1 IWYSRV2 IWYSRV3 IWYSRV4 IWYSRV5

**Example Editing EDANAMES CONFIG With Sample Values**

With the values from the sample Configuration Worksheet in *Configuration Worksheet for VM* on page 1-6, EDANAMES CONFIG now looks like the following:

```

; This file is pointed to by the DDNAME EDANAMES in the EDATCP EXEC.
; The purpose of this file is to inform the attach manager (ATM) of
; its DDNAME for its configuration file along with the list of servers.
;

        PROTOCOL = TCP
        CFGFILE   = EDACSG      ; DDNAME in the EDATCP EXEC

; SERVERS line has to precede the AUTOLOG list.
; The number of server can be larger than the number of ids to be
; autologged.

        SERVERS   = 5          ; Maximum number of concurrent servers allowed

;   PREAUTOLOG = YES          ; pre-autolog servers

AUTOLOG IWYSRV1
AUTOLOG IWYSRV2
AUTOLOG IWYSRV3
AUTOLOG IWYSRV4
AUTOLOG IWYSRV5

;   WAKEUP      = 1           ; SERVER does HOST maintenance every NN minutes

;   ANYSERVER   = NO          ; Allows user to specify any valid SERVER and
;                               the first available server is accepted

;   LOGONATTEMPT = nn         ; maximum number of times a logon may be
;                               attempted before SERVER is placed on HOLD

        EXEC EDASERV          ; Exec to run on server when autologged

```

**Starting and Stopping the Attach Manager**

Before you start the ATM, ensure that the following requirements are met:

- The server production disk is linked and accessed.
- The TCP/IP production disk is linked and accessed.
- The EDATCP EXEC is configured and available.
- The file EDATCP CONFIG is configured and available.
- The file EDANAMES CONFIG is configured and available.

- A minimum of 12 MB of virtual storage is available if the Server Named Shared Segments (NSSs) were installed. A minimum of 24 MB of storage is required if the segments were not installed.
- The A disk has read/write access, with a minimum of three free cylinders.

For instructions, see *How to Start the ATM* on page 1-14 and *How to Stop the ATM* on page 1-14.

For an illustration of ATM connection and disconnection, see *Console Spool: Starting and Stopping Attach Manager* on page 1-14.

**Syntax**      **How to Start the ATM**

Run the EDATCP EXEC at the CMS Ready prompt:

`EDATCP`

**Syntax**      **How to Stop the ATM**

Enter the following command at the CMS Ready prompt:

`HX`

**Example**      **Console Spool: Starting and Stopping Attach Manager**

This example illustrates default ATM console spool behavior. The ATM starts, then connects the client application to the server for processing on the server. The client application disconnects and the ATM stops.

```

Ready;
1. edatcp
   + Reading EDANAMES File
   ; This file is pointed to be the DDNAME EDANAMES in the EDATCP EXEC.
   ; The purpose of this file is to inform the attach manager (ATM) of
   ; its DDNAME for its configuration file along with the list of
   ; servers.
   ;

   PROTOCOL = TCP
   CFGFILE = EDACSG ; DDNAME in the EDATCP EXEC

   ; SERVERS line has to precede the AUTOLOG list.
   ; The number of server can be larger than the number of ids to be
   ; autologged.

   SERVERS = 1 ; Maximum number of concurrent servers
allowed
   ; PREAUTOLOG = YES ; pre-autolog servers
   AUTOLOG EDASRV1

   EXEC EDASERV ; Exec to run on server when autologged
   + End Of EDANAMES File
   ATM table starts at hex location 4C5080
+SETTING INTERRUPT HANDLER...
+TCP/IP ATM Enter KX to Kill ...
2. Command accepted
   AUTO LOGON *** EDASRV1 USERS = 396
   HCPCLS6056I XAUTOLOG information for EDASRV1: The IPL command is
   verified
   by the IPL command processor.
   18:32:52 * MSG FROM EDASRV1 : Hello EDAATM1
   +CONNECT COMPLETE ...EDASRV1
   18:32:58 * MSG FROM EDAATM1 : +SERVER ENDED ON EDASRV1 ....
   18:32:58 * MSG FROM EDAATM1: +SEVER IUCV CONNECTION WITH EDASRV1 ...
   USER DSC LOGOFF AS EDASRV1 USERS = 395
3. HX
   +CLEARING INTERRUPT HANDLER...
   Attach Manager Terminating
   Ready;

```

The console spool shows the following:

1. The Server Administrator starts the Attach Manager.
2. A client application connects, processes its work, and disconnects from a server.
3. The Server Administrator stops the Attach Manager.

## Configuring the Server for VM

---

For each server ID to be accessed, you must edit the following files:

- PROFILE EXEC to append the supplied EDAPROF EXEC.

When the Attach Manager (ATM) autologs the server, it passes two arguments to the server: the Attach Manager ID and the name of the EXEC that will be used to start the server. The server must run the EDAPROF EXEC to use these two arguments. See *How to Append the EDAPROF EXEC to the PROFILE EXEC for the Server* on page 1-16.

- EDASPROF EDAPROF profile (optional).

EDAPROF is a startup file containing the commands that set the server environment. See *How to Edit EDASPROF EDAPROF (optional)* on page 1-18.

- CS3TCPI CONFIG file.

The CS3TCPI CONFIG file provides the “handshake” between the ATM and the server. See *How to Edit CS3TCPI CONFIG* on page 1-18.

- EDASERV EXEC.

EDASERV EXEC starts a server instance. When the ATM autologs the server, it passes to the server the following two parameters:

- The ID of the ATM, used to initiate the server.
- The name of the EXEC that starts the server instance. The EXEC name comes from the ATM’s EDANAMES CONFIG file; the default EXEC name is EDASERV. See *How to Edit EDASERV EXEC* on page 1-19.

For related information, see *Requirements for Autologging the Server* on page 1-21.

These files need not reside on the server’s A disk. However, they must be in the server’s search path.

**Note:** Although all servers can point to the same configuration files, each client must connect to a separate server.



### **Procedure** How to Append the EDAPROF EXEC to the PROFILE EXEC for the Server

Append the EDAPROF EXEC, supplied on your distribution tape, to the PROFILE EXEC for the server.

When the Attach Manager (ATM) autologs the server, it passes two arguments to the server: the ID of the ATM and the name of the EXEC to run in order to start the server. The server must run the EDAPROF EXEC to use these two arguments.

The EDAPROF EXEC supplied on your distribution tape is shown below.

```

/*****
/**
/**          iWAY Server for VM/CMS          **
/**          **                               **
/** This EXEC needs to be added to the PROFILE EXEC of each **
/** of the EDA Servers supporting TCP/IP.          **
*****/

Address 'COMMAND'

disc = 0

If Linesize() = 0      /* AM I REAL REAL OR DISC */
Then Do
    DISC = 1
    Pull atmparms
    Parse VALUE atmparms WITH atmexec atm .
End

'SET RDYMSG SMSG'
'SET SERVER ON'
'SET FULLSCREEN OFF'
'SET AUTOREAD OFF'

If disc = 1 & atmparms /= ' ' /* TCPIP OR LU6 */
Then Do
    'CP QUERY USER' atm /* SEE If THE atm USERID LOGGED ON */
    If Rc = 0 /* OK */
    Then Do
        'CP SET SECUSER' atm
        'EXEC' atmparms /* PASS THE WHOLE THING */
    End
    Else Do
        Say 'EDA Server instance is not starting'
    End

    'CP LOGOFF'
End

Exit 0

```

If your site does not permit the command SET FULLSCREEN OFF, remove it from the EDAPROF EXEC.

### **Procedure** How to Edit EDASPROF EDAPROF (optional)

EDASPROF EDAPROF is a startup file containing the server commands that set the server environment. It is executed automatically when the server is initialized and remains in effect throughout a server session.

This file is used in conjunction with the other configuration files to enable the server to process client requests. Users may add server settings to this file as required.

The following is an example of a typical command that may be included in EDASPROF EDAPROF:

```
SQL EDA SET JOINTYPE SORTMERGE
```

**Note:** EDASPROF EDAPROF does not need to reside on the server's A disk.



### **Procedure** How to Edit CS3TCPI CONFIG

The CS3TCPI CONFIG file provides the handshake between the Attach Manager and the server. This file is identified by the ddname EDACS3 in the FILEDEF command in the EDASERV EXEC.

The CS3TCPI CONFIG file supplied on your distribution tape is shown below.

```
NAME                = iWAY VM 5.x Server Using the Communication
Subsystem TCP/IP
;TRACE              = 3
NODE                = EDASERVE
BEGIN
  PROTOCOL          = TCP
  CLASS             = AGENT
  ATTACH MANAGER    = atmtcp
  SERVICE           = nnnn
;TRACE              = 3
END
```

Edit the values in the file as follows:

Change From...	To...	Copy From Your Worksheet	Value From Sample Worksheet
<i>atmtcp</i>	The VM ID used as the Attach Manager (ATM).	Item 2.	<i>IWYATM1</i>
<i>nnnn</i>	The same value for SERVICE supplied in the EDATCP CONFIG file on the ATM (the port number used by the client to communicate with the ATM and server).	Item 3.	<i>4424</i>

Also, notice that the NODE name in the CS3TCPI CONFIG file on the server is the same as the NODE name in the EDATCP CONFIG file on the ATM.

### **Example** Editing CS3TCPI CONFIG With Values From the Configuration Worksheet

With the values from the sample Configuration Worksheet in *Configuration Worksheet for VM* on page 1-6, CS3TCPI CONFIG now looks like the following:

```

NAME                = iWAY VM 5.x Server Using the Communication
Subsystem TCP/IP
;TRACE              = 3
NODE                = EDASERVE
  BEGIN
    PROTOCOL         = TCP
    CLASS            = AGENT
    ATTACH MANAGER   = EDAATM1
    SERVICE          = 4424
    ;TRACE           = 3
  END

```

### **Procedure** How to Edit EDASERV EXEC

The following EDASERV EXEC starts a server instance. When the Attach Manager (ATM) autologs the server, it passes to the server the following two parameters:

- The ID of the ATM, used to initiate the server.
- The name of the EXEC to run in order to start the server instance. The EXEC name comes from the ATM's EDANAMES CONFIG file; the default EXEC name is EDASERV.

The following is the EDASERV EXEC supplied on your distribution tape:

## Configuring the Server for VM

```

/*****
/*****
/**
/**          EDA VM/CMS Server EXEC for TCP/IP
/** When the attach manager (ATM) Autologs the SERVER/AGENT the ATM
/** passes the name of this exec, which is defined in EDANAMES
/** CONFIG file, to the SERVER/AGENT. The SERVER/AGENT then executes
/** this exec to initialize the EDA VM environment. The USERID of the
**/
/** ATM is passed to the EDASTART EXEC after the keyword PARM.
/**
/*****
/*****
Address 'COMMAND'
Trace '0'

Arg atm .

/**
/** EDACS3 is the DDNAME that points to the server's
/** configuration file.
/**
/**

'FILEDEF EDACS3 DISK CS3TCPI CONFIG *'

'ERASE * FOCTEMP *'

/**
/** If the NSS segment is installed use the following statement.
/**
/**
      'EXEC EDASTART AGENT ( PARM' atm

/**
/** If the NSS segment is not installed then comment out the
/** above statement and uncomment the following EXEC statement.
/**
/**
/* 'EXEC EDASTART AGENT ( NOLLSEG PARM' atm
'ERASE * FOCTEMP *'

Exit rc
```

Note the following:

1. In the EDASERV EXEC, EDACS3 is the ddname that points to the server's configuration file (CS3TCPI CONFIG).

2. If NSS (Named Shared Segment) is installed, use the following line, as shown in the sample EDASERV EXEC where DLLSEGXA is the segment name used in the EDADFSEG EXEC at install time.

```
'EXEC EDASTART AGENT ( PARM' atm
```

3. If NSS is *not* installed, use these two lines. Comment the first line, and uncomment the second line, as shown below:

```
/* 'EXEC EDASTART AGENT ( NOLLSEG PARM' atm
*/
```

## Reference Requirements for Autologging the Server

This section describes server run-time requirements and how the server is autologged.

Ensure that the following requirements are met before the server is autologged:

- EDASERV EXEC is available on the server.
- The server production disk is linked and accessed.
- The TCP/IP production disk is linked and accessed.
- The ddname EDACS3 points to the server's configuration file (CS3TCPI CONFIG).
- A minimum of 12 MB of virtual storage is available if the EDA NSSs (Named Shared Segments) were installed. Otherwise, 24 MB is required.
- The server's A disk has read/write access, with a minimum of three free cylinders.

**Note:** The Attach Manager ID must be able to autolog the server ID and must not require a password. The following sample VMSECURE rule defines the security privilege of the ATM for the server:



```
ACCEPT IWYATM1 XAUTOLOG (NOPASS
```

## Procedure How to Autolog the VM Server

When a client application needs to connect to a server, it issues the API function call, EDACONNECT. EDACONNECT directs the client's request for a connection to the ATM.

Attach Manager autologs the server, passing the server its ID as one of two arguments (the other is the name of the EXEC that starts the server instance).

- Note:**
- The server checks for the Attach Manager ID, then executes the program that starts the server (by default, EDASERV EXEC). This permits you to use the ID for other purposes, such as logging on as a user, when you are not using the ID as a server ID.
  - You cannot be logged on to the ID and use it as a server at the same time. When not in use, the server ID must be logged off, not disconnected.



### **Example Console Spool: Initializing and Terminating a Server Instance**

The following example shows a console spool of a server instance initialization and termination:

```
DMSACP723I G (121) R/O
EDP321 0192 accessed RR as G(0121).
EDASERV EDAATM1
EDAATM1 - T38DT08
+EDAVM TSCOM3 OS Loaded...
+EDAVM EDATCP OS Loaded...
+EDAVM Segment Available at Address 02800000
+EDAVM Server at Address 80ADED00
+EDAVM Enter KX to Kill Server...
OCISVC V028 >> SETTING SVC HANDLER FOR SVC 13
+EDATCP SERVER ... ATM = EDAATM1
+EDATCP Starting EDA Server..
+EDATCP Server Ending...
+EDAVM Server Ending...
CONNECT= 00:00:06 VIRTCPU= 000:00.87 TOTCPU= 000:01.11
LOGOFF AT 18:32:58 EDT TUESDAY 10/01/96
```

## **Verifying Attach Manager and Server Installation**

---

Although verifying the installation is an optional task, we strongly recommend ensuring that your Attach Manager and server installation and configuration procedures have been successful before you configure any other components.

If you choose *not* to verify the installation and configuration, you are ready to configure your data adapters, then install, configure, and run your client application. See the appropriate connector documentation for instructions that apply to your site.

To help ensure that both the Attach Manager and the server are configured properly, an Installation Verification Program (IVP) named RDAAPP is provided. RDAAPP is an interactive tool that allows a client to execute a stored procedure on a server, or issue an SQL SELECT, EDA DESCRIBE, EDA PREPARE, or EDA EXECUTE statement.

**Note:** RDAAPP is not intended for use as a production client/server application.



To run RDAAPP, configure a VM client that communicates with the VM Server you have just configured. Then, perform the following steps on a separate ID (that is, while logged on to VM with an ID that is different from the one used as the server or the ATM):

1. Set up the VM client file CS3TCPO CONFIG. See *How to Set Up the VM Client File CS3TCPO CONFIG* on page 1-23.
2. Edit the RDAAPP EXEC. See *How to Edit the RDAAPP EXEC* on page 1-25.

3. Run RDAAPP. See *How to Run the Installation Verification Program (RDAAPP)* on page 1-26.

**Procedure How to Set Up the VM Client File CS3TCPO CONFIG**

The sample VM client file CS3TCPO CONFIG, supplied on your distribution tape, is shown below.

```

NAME          = iWAY VM 5.x Client Using the Communication Subsystem TCP/IP
;TRACE       = 3

NODE          = EDASERVE
BEGIN
  PROTOCOL = TCP
  CLASS    = CLIENT
  HOST     = ip_address ;IP address of host server
  SERVICE  = nnnn      ;Port # server is listening on
  ;TRACE   = 3
END
    
```

Edit the values in the file as follows:

Change From...	To...	Copy From Your Worksheet	Value From Sample Worksheet
<i>ip_address</i>	The IP address for the VM machine.	Item 3.	123.45.67.89
<i>nnnn</i>	The port number used by the Attach Manager.	Item 3.	4424

**Example Editing CS3TCPO CONFIG With Values From the Configuration Worksheet**

With the values from the sample Configuration Worksheet in *Configuration Worksheet for VM* on page 1-6, CS3TCPO CONFIG now looks like the following:

```

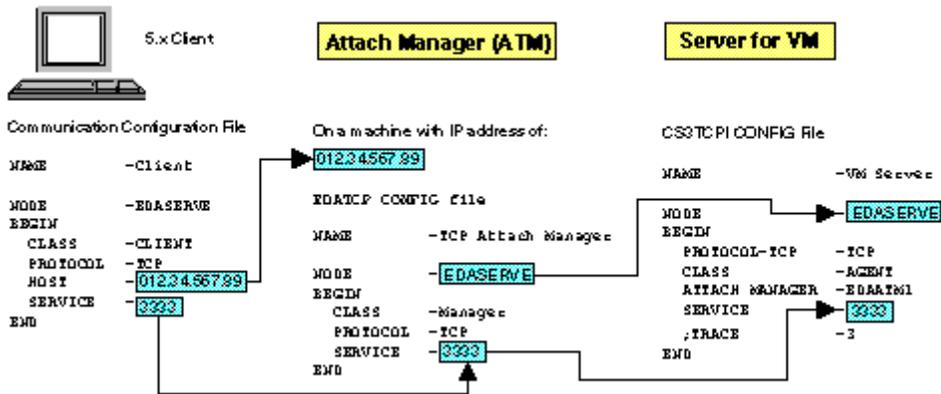
NAME          = iWAY VM 5.x Client Using the Communication Subsystem TCP/IP
;TRACE       = 3

NODE          = EDASERVE
BEGIN
  PROTOCOL = TCP
  CLASS    = CLIENT
  HOST     = 123.45.67.89 ;IP address of host server
  SERVICE  = 4424      ;Port # server is listening on
  ;TRACE   = 3
END
    
```

## Reference Sample Client and Server Configuration Files

The client does not connect directly to the server, but instead connects to the Attach Manager. The Attach Manager connects to the server and then removes itself from the conversation, enabling the client and server to communicate directly.

The following diagram illustrates the client and server configuration files:



In order for the client to connect to the server, the following values must match:

Client	Attach Manager	Server CS3TCPI CONFIG File
Value for HOST.	IP address of machine where Attach Manager is installed.	
Value for SERVICE.	Value for SERVICE in EDATCP CONFIG file.	Value for SERVICE.
	Value for NODE in EDATCP CONFIG file.	Value for NODE.

**Procedure How to Edit the RDAAPP EXEC**

You can find the RDAAPP EXEC on the production disk. It is shown below.

```

/*****/
/*                                     */
/*           RDAAPP EXEC               */
/*                                     */
/* Installation Verification Procedure (IVP) */
/*                                     */
/*****/
'FILEDEF STDIN  TERMINAL (RECFM F LRECL 80'
'FILEDEF STDOUT TERMINAL (RECFM F LRECL 80'
'FILEDEF EDACS3 DISK client CONFIG *'
'GLOBAL  LOADLIB FOCLIB FOCINT'

'OSRUN RDAAPP'
    
```

Edit the value in the file as follows, and then save the file:

Change From...	To...	Sample Value
<i>Client</i>	The name of the client configuration file pointed to by the ddname EDACS3.	CS3TCPO CONFIG

An example of the file, using the sample value, is:

```

/*****/
/*                                     */
/*           RDAAPP EXEC               */
/*                                     */
/* Installation Verification Procedure (IVP) */
/*                                     */
/*****/
'FILEDEF STDIN  TERMINAL (RECFM F LRECL 80'
'FILEDEF STDOUT TERMINAL (RECFM F LRECL 80'
'FILEDEF EDACS3 DISK CS3TCPO CONFIG *'
'GLOBAL  LOADLIB FOCLIB FOCINT'

'OSRUN RDAAPP'
    
```

**Procedure** **How to Run the Installation Verification Program (RDAAPP)**

Follow these instructions to run RDAAPP.

1. Type the following command at the CMS Ready prompt:

RDAAPP

**Note:**



The client ID must be linked to the server production disk.

2. Respond to the prompts as follows:

Prompt	Enter
Trace Level	No value. Press <i>Enter</i> . This prompt is for internal use only.
User Name	A valid user ID for the server.
Password	A valid password for the server. It is not displayed on the screen as you enter it, for security.
Server Name	The node name of the server to connect to. The default value is the first node in the client’s communications configuration file.
RDAAPP Options List	<p>One of the following options:</p> <ul style="list-style-type: none"> <li>• S, to enter an SQL SELECT statement. Type the statement after you enter the value S.</li> <li>• P, to enter an SQL PREPARE statement. Type the statement after you enter the value P.</li> <li>• X, to execute a stored procedure. Type the name of the stored procedure and its parameters after you enter the value X.</li> <li>• D, to execute a DESCRIBE, which retrieves a list of valid column names for a given table. Type the name of the table after you enter the value D.</li> <li>• E, to execute a prepared statement by supplying the ID. Type the ID after you enter the value E.</li> </ul> <p><b>Note:</b> To quit RDAAPP, type the command Q at the RDAAPP options list.</p>

Prompt	Enter
Select Engine	The code for the database you are querying. Press <i>Enter</i> for the default (EDA). This prompt is not issued if you entered X as described above.
Read Limit	The number of successful reads to be issued. Press <i>Enter</i> for the default (entire database is read). This prompt is not issued if you entered X as described above.
Record Limit	The number of rows to retrieve. Press <i>Enter</i> for the default (all rows are retrieved). This prompt is not issued if you entered X as described above.
Output Format	The output format for the data. Press <i>Enter</i> for the default (ALPHA), which returns the data to the screen in alphanumeric format. This prompt is not issued if you entered X as described above.

- When the option list prompt displays, type the command Q to quit RDAAPP.

### **Example Using the RDAAPP Installation Verification Program**

The following screen output shows a sample RDAAPP test. The user password does not display when it is entered.

An explanation of the example follows the screen output.

```
<<< RDAAPP : INITIALIZING EDA, VERSION 3, RELEASE 2 >>>

<<< INITIALIZATION SUCCESSFUL >>>

TRACE LEVEL ?

ENTER USER NAME :
EDASRV1
ENTER PASSWORD :
===>

ENTER SERVER NAME (HIT RETURN FOR 'EDASERVE') :

<<< SUCCESSFULLY CONNECTED TO SERVER >>>

ENTER (S/P <SQL STMT;> / X <RPC> <PARMS> / D <TBL> / E <PREP ID> / C/
R):
S SELECT NAME FROM SYSTABLE;
SELECT ENGINE (0/ENTER - EDA, 1 - DB2, 2 - ORACLE, 3 - TERADATA, ETC.):
```

## Verifying Attach Manager and Server Installation

```
READLIMIT (HIT ENTER FOR ALL RECORDS) :
1
RECORDLIMIT (HIT ENTER FOR ALL RECORDS) :
1
OUTPUT FORMAT (0/ENTER - ALPHA, 1 - DIF, 2 - LOTUS, 3 - SYLK, 4 - IXF):

PLEASE WAIT.

ACCOUNT

<<< 1 RECORD(S) PROCESSED. >>>

ENTER (S/P <SQL STMT;> / X <RPC> <PARMS> / D <TBL> / E <PREP ID> / C/
R):
Q
<<< RDAAPP : EXITING... >>>
```

In the example:

- The user presses Return when prompted for the SERVER NAME to accept the default, EDASERVE. EDASERVE is the first configured server in the client's configuration file, pointed to by the ddname EDACS3.
- The user issues a SELECT statement to test communications. The statement queries the catalog table SYSTABLE:

```
S SELECT NAME FROM SYSTABLE;
```

- The user enters a read limit and a record limit of 1.
- The message

```
<<< 1 RECORD(S) PROCESSED >>>
```

indicates that the client successfully talked to the server and received *n* number of rows. No further action is required.

## Creating Synonyms

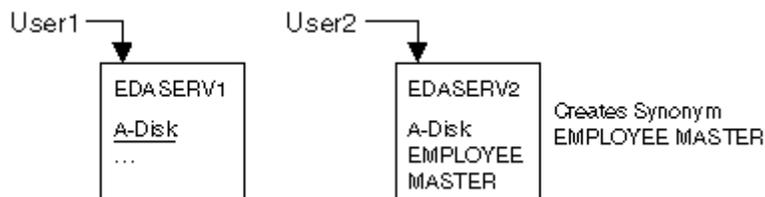
All requests to generate a synonym result in a Master File created on the A disk of the specific server's user ID. Currently, there is no facility to have synonyms automatically placed on any other mini-disk other than the A disk of a given server's user ID.

To create synonyms on the VM Server, add the following lines to the PROFILE EXEC:

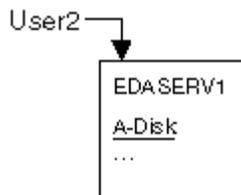
```
GLOBALV SELECT EDAVARS SET EDASYNM A
GLOBALV SELECT EDAVARS SET EDASYNA A
```

This is especially important when using pooled deployment with the ANYSERVER feature. For example, if there is a pool of 5 servers, using the user IDs EDASERV1, EDASERV2, ... EDASERV5, and all are available for connection, the first connect goes to the EDASERV1 ID. Another user connects to the pool and is assigned the EDASERV2 ID. The user on the EDASERV2 ID creates a synonym for a DB2 table and then disconnects. The first user also disconnects from the EDASERV1 ID. Now the second user connects again, but for this instance, is connected to the EDASERV1 ID because it is the first one in the pool that is available. The synonym that was previously created by this user is not available because it is on the A disk of the EDASERV2 ID, and not the EDASERV1 ID. For related information about the ANYSERVER feature, see *EDANAMES CONFIG File* on page 1-9.

This problem will be corrected as a PTF subsequent to the release of this version.



Both users disconnect, then User2 reconnects and is assigned the EDASERV1 server because it is the first one available in the pool.



## Next Steps

---

After you have configured the Attach Manager and the VM Server, you are ready to perform one of the following:

- If you are implementing NLS at your site, proceed to Chapter 3, *Configuring National Language Support (NLS)*, for configuration instructions.
- If you are implementing Resource Analyzer/Resource Governor at your site, proceed to Chapter 4, *Completing the Resource Analyzer/Resource Governor Configuration*, for configuration instructions.
- If you are not implementing either of the above optional features, you can install your data adapters (see Chapter 2, *Installing Data Adapters*), then configure and run your client application. See the appropriate connector documentation.

---

---

## CHAPTER 2

# Installing Data Adapters

### Topics:

- Installing the ADABAS Data Adapter
- Installing the FOCUS Data Adapter
- Installing the NOMAD Data Adapter
- Installing the SQL/DS Data Adapter
- Installing the VSAM Data Adapter
- Installing the MODEL 204 Data Adapter

You must complete a series of installation procedures for each of the following data adapters to ensure that your server will be able to access the associated data sources:

- ADABAS® Data Adapter.
- NOMAD Data Adapter.
- SQL/DS Data Adapter.
- MODEL 204 Data Adapter.

No installation steps are required for the FOCUS Data Adapter or the VSAM Data Adapter.

## **Reference** Before You Install a Data Adapter: Maintenance Procedures

Although there are no procedures that you must perform regularly to ensure proper functioning of the data adapters, the following situations require maintenance for the ADABAS, NOMAD, SQL/DS, and MODEL 204 Data Adapters:

- If you install a new release of the server (including maintenance releases), you must reinstall the data adapter from the same release.
- If you receive a Program Temporary Fix (PTF) that affects the data adapter, it will be accompanied by a cover letter containing installation instructions. If, after reading the cover letter, you still have installation questions, contact Customer Support Service (CSS) in New York at (800) 736-6130, or (212) 736-6130.

## **Installing the ADABAS Data Adapter**

---

Before installing the ADABAS Data Adapter, make sure that ADABAS is installed and fully operational. If it is not, contact your ADABAS Database Administrator. Also contact your database administrator for site-specific information. See *Specifying Site Defaults for the ADABAS Data Adapter* on page 2-4.

Before installing, you should also be aware of maintenance procedures that may affect the installation process. See *Before You Install a Data Adapter: Maintenance Procedures* on page 2-2.

The ADABAS Data Adapter is distributed in ready-to-execute form. Installation requires only a tape-to-disk load and a copy step to move the components to appropriate libraries.

**To install the ADABAS Data Adapter**, you must complete these steps:

1. Prepare load libraries.
2. Create the ADAUSER TEXT file.
3. Access the ADABAS nucleus.
4. Test the data adapter installation.

Note that the instructions are written for users with a working knowledge of VM.

## **Procedure** How to Prepare Load Libraries (Step 1 of 4)

The ADABAS Data Adapter is distributed on the same tape/cartridge as the standard server product. The necessary data adapter load libraries, error message files, and AUTOADBS files are copied to the server production disk when the server is installed.

If you have not completed the first three installation steps (unloading the distribution tape, modifying the EDADSFEG EXEC, generating the server) described in the *Server Installation* manual, do so now, before you continue.

**Procedure How to Create the ADAUSER TEXT File (Step 2 of 4)**

To establish communications with the ADABAS nucleus, the server requires an ADABAS file called ADAUSER TEXT. To create ADAUSER TEXT, you need the following files and libraries:

- The Software AG source file ADAUSER ASSEMBLE. This file usually resides on the ID disk of the ADABAS Database Administrator.
- Macro libraries (for example, DMSGPI MACLIB, HCPGPI MACLIB, and OSPSI MACLIB). If you do not know which macro libraries are required at your site, ask your VM systems staff.
- The Software AG macro library. The naming convention is usually

`ADAVXXX MACLIB`

where:

`XXX`

Is the ADABAS version number (for example, ADAV524 MACLIB for ADABAS Version 5.2.4).

Perform the following steps to create the ADAUSER TEXT file and copy it to the server production disk:

1. At the CMS Ready prompt, specify the search order of the macro libraries with the CMS GLOBAL command:

`GLOBAL MACLIB DMSGPI ADAVXXX HCPGPI OSPSI`

2. Assemble the ADAUSER TEXT file:

`ASSEMBLE ADAUSER`

This command creates the ADAUSER TEXT file on the A disk. Consult your VM systems staff if any errors occur.

3. Copy the ADAUSER TEXT file to the server production disk. If an ADAUSER TEXT file already exists, replace it with the newly created one.

**Procedure How to Access the ADABAS Nucleus (Step 3 of 4)**

To establish a link between a VM Server and the ADABAS nucleus, execute the NUCXTNTS EXEC by entering the following command at the CMS Ready prompt:

`EX NUCXTNTS`

This EXEC usually resides on the ID disk of the ADABAS Database Administrator.

The EXEC needs to be executed once per VM session. You may wish to include it in a PROFILE, or in the EXEC used to call the server. For global access, you can also copy the NUCXTNTS EXEC to the server production disk.

## **Procedure** How to Test the ADABAS Data Adapter Installation (Step 4 of 4)

After you copy the ADABAS Data Adapter load libraries and the ADAUSER TEXT file to the server production disk and execute the NUCXTNTS EXEC from CMS (steps 1-3), test the success of the data adapter installation procedure.

Create an EDADEBUG script that contains the following simple report request:

```
SQL
SELECT FILE_ELEMENT FROM PREddb;
TABLE
IF READLIMIT EQ 10
END
```

If the data adapter is properly installed, the result is a report that displays data from the first ten records in your Predict dictionary.

**Note:** If you customized the AUTOADBS procedure to run with multiple copies of the Predict dictionary, append the suffix for the identifier to PREddb in the preceding request. For example, if you chose A or B as a suffix, specify:



```
SELECT ... FROM PREddbA
```

or

```
SELECT ... FROM PREddbB
```

If you did not receive a report (0 records), make sure that the Predict dictionary is populated with data. The Predict dictionary is identified by the DBNO and FILENO keywords in PREddb FOCADBS.

If you receive any data adapter error messages or ADABAS response codes, check your installation procedure against these instructions. You can also contact Customer Support Service (CSS) for assistance in New York at (800) 736-6130, or (212) 736-6130.

## **Reference** Specifying Site Defaults for the ADABAS Data Adapter

ADABAS supports the use of the ddname DDCARD to specify site or session defaults, including default database number, mode (multiple versus single server), and other parameters.

If you have chosen a Supervisor Call (SVC) number or database number other than the default, you must allocate the ddname DDCARD to the ADARUN parameter file. Your ADABAS Database Administrator will provide the name of the ADARUN parameter file for your site.

Examples in the ADABAS Data Adapter documentation refer to the ADARUN parameter file as:

```
SOFTWARE.AG.ADARUN.parmfile
```

The data adapter recognizes this ddname and, if allocated, respects the specified defaults.

**Note:**  If the database number is specified with the DBNO attribute in an Access File, the data adapter uses the specified number for the ADABAS call. If an Access File does not contain a value for the DBNO attribute, the data adapter uses the default specified in ddname DDCARD. If DDCARD is not allocated, the data adapter uses the default DBNO of 0.

## Installing the FOCUS Data Adapter

---

No steps are required to install the FOCUS Data Adapter. If you need to access a FOCUS data source on a disk other than the server's A disk, you must issue the USE command.

Issue the USE command in the server's profile or a stored procedure.

For more information on the FOCUS Data Adapter, see the *Server Administration* manual.

## Installing the NOMAD Data Adapter

---

Before installing the NOMAD Data Adapter, make sure that NOMAD is installed and fully operational. If it is not, contact your NOMAD Database Administrator. If you install a new version of NOMAD, you must reinstall the NOMAD Data Adapter.

Before installing, you should also be aware of maintenance procedures that may affect the installation process. See *Before You Install a Data Adapter: Maintenance Procedures* on page 2-2.

To install the NOMAD Data Adapter, you must complete two steps:

1. Link to the Server Maintenance and Production Disks.
2. Execute GENFNMD EXEC.

### **Procedure** How to Link to the Server Maintenance and Production Disks (Step 1 of 2)

Link to the server maintenance disk with read/write privileges, and access it as your A disk.

Then, link to the server production disk with read/write privileges, and access it as your C disk.

### **Procedure** How to Execute GENFNMD EXEC (Step 2 of 2)

Execute the GENFNMD EXEC, which generates the passthru module to NOMAD for the data adapter.

There is an unresolved reference to NPI2, which must be linked at your site. GENFNMD EXEC will relink NMDPAS2 in FOCINT LOADLIB.

This module resides on the maintenance disk.

Once this step is completed, the NOMAD Data Adapter is operational.

## Installing the SQL/DS Data Adapter

---

Before installing the SQL/DS Data Adapter, you should be aware of installation prerequisites and maintenance procedures that may affect the installation process. See *Before You Install a Data Adapter: Maintenance Procedures* on page 2-2.

You can install the SQL/DS Data Adapter for use with:

- A single SQL/DS database for a single SQL/DS release. For installation instructions, see *Data Adapter Installation Steps: Single SQL/DS Database* on page 2-6.
- More than one SQL/DS database for a single SQL/DS release. For installation instructions, see *Data Adapter Installation Steps: Multiple SQL/DS Databases* on page 2-15.
- More than one SQL/DS database for multiple SQL/DS releases. For installation instructions, see *Data Adapter Installation Steps: Multiple SQL/DS Databases and Releases* on page 2-18.

All instructions are written for users with a working knowledge of VM.

Your Database Administrator will need to provide site-specific information.

### **Reference SQL/DS Disk Identification**

You will need to know which disks are your SQL/DS production disks and which disks are your server maintenance and production disks, so you can link to and access them.

### **Reference Native SQL Command Requirement**

GRANT is a native SQL command that authorizes users to access SQL/DS objects such as tables or SQL/DS access modules. As a run-time requirement, this command must be issued after the data adapter is installed. It is also issued as a run-time requirement for the AUTOSQL facilities to allow access to the RDBMS catalog tables.

You need to know the command syntax and have authorization for the tables (or views) and plans or modules in question. If you are unfamiliar with the GRANT command, contact your RDBMS database administrator for assistance.

### **Data Adapter Installation Steps: Single SQL/DS Database**

To install the SQL/DS Data Adapter for use with a single SQL/DS database, you must:

1. Log on with an authorized VM user ID that has the appropriate CONNECT authority.
2. Link to the server maintenance and production disks.
3. Link to the SQL/DS production disk.
4. Run the SQLINIT EXEC.

**5.** Run the GENFSQL EXEC.

As you configure your data adapter, refer to the following topics for related information:

- *Describing AUTOSQL Catalog Tables to the Server* on page 2-11.
- *Meeting Run-Time Requirements for the SQL/DS Data Adapter* on page 2-12.
- *Providing Access for SQL/DS End Users* on page 2-12.
- *Providing SQL/DS CONNECT Authority* on page 2-13
- *Testing the SQL/DS Data Adapter Installation and Connection* on page 2-14.

**Note:** All files required for the SQL/DS Data Adapter were copied to the server maintenance disk when the server was installed. Space allocated during the installation of the server will accommodate the data adapter. As a result, no additional disk space is required.



**Procedure** **How to Log On With a VM User ID and SQL/DS CONNECT Authority (Step 1 of 5)**

When you log on, you must use an authorized VM user ID. It must have CONNECT authority in the target SQL/DS database, or you must know an SQL/DS user ID and password combination which does have SQL/DS CONNECT authority. The user ID may already have implicit CONNECT authority. Contact your SQL/DS Database Administrator to verify this.

After you log on, spool your console for a record of the installation procedure, using the command:

```
CP SP CON START TO *
```

**Procedure** **How to Link to the Server Maintenance and Production Disks (Step 2 of 5)**

Link to the server maintenance disk with read/write privileges, and access it as your A disk.

Then, link to the server production disk with read/write privileges, and access it as your C disk.

**Procedure** **How to Link to the SQL/DS Production Disk (Step 3 of 5)**

Link to the SQL/DS production disk (normally SQLDBA 195) with read-only privileges, and access it as any available file mode. Your SQL/DS Database Administrator can supply the exact link instructions for this minidisk.

**Procedure** **How to Run the SQLINIT EXEC (Step 4 of 5)**

Execute the IBM-supplied SQLINIT EXEC to access the target SQL/DS database for the installation. The SQLINIT EXEC resides on the SQL/DS production disk.

## **Procedure** How to Run the GENFSQL EXEC (Step 5 of 5)

The SQL/DS Data Adapter installation procedure, GENFSQL EXEC, is supplied on the server maintenance disk. The GENFSQL EXEC performs the following basic tasks:

- It pre-compiles and assembles the data adapter.
- It generates the data adapter load library called FOCINT LOADLIB.
- It copies the source files required by the SQL/DS Data Adapter and its AUTOSQL utilities from the server maintenance disk to the server production disk. For related information, see *Describing AUTOSQL Catalog Tables to the Server* on page 2-11.

The GENFSQL EXEC uses input parameters for execution, or the parameters are set to default values within the EXEC. For a list of acceptable values, see *GENFSQL EXEC Keywords* on page 2-9.

To change the defaults, provide the overriding values on the CMS command line in the form of KEYWORD=value. The syntax is:

```
EX GENFSQL [ (keyword1=value1 keyword2=value2 ... )
```

where:

*keyword*

Is any parameter listed in the chart.

*value*

Is the acceptable value for the parameter.

For example:

```
EX GENFSQL (DBSPC=PUBLIC.EDA NCRS=35
```

The EX command options (or parameters) should be separated with blanks. No spaces are allowed on either side of the equal sign. Do not specify a closing parenthesis.

**Tip:**  You may also change parameter values by directly editing the default settings in the GENFSQL EXEC. If you choose to edit the EXEC, make sure the total number of spaces allotted to each parameter value remains the same (pad your values on the right with blanks, if necessary).

The GENFSQL EXEC pre-compiles the data adapter programs with a default date display format of ISO. Editing the GENFSQL EXEC to remove the DATE(ISO) specification or altering the display format will interfere with the proper display of columns described to the server as ACTUAL=DATE.

After you execute the GENFSQL EXEC, review the resulting file to ensure that the pre-compilation was successful. The GENFSQL EXEC generates the file RSQL LISTPREP as output from the SQL/DS pre-compiler. If it was not successful, make any necessary changes and rerun the GENFSQL EXEC.

### Reference **GENFSQL EXEC Keywords**

The following table lists the parameter keywords, character lengths, and default and acceptable values. An underscore indicates the default value.

Keyword	Length	Value	Comments
FUNCT	2	{ <u>RW</u>  RO}	SQL/DS Data Adapter functionality. May be read/write or read-only.  <b>Note:</b> If the data adapter is intended for read-only use, you may also wish to consider disabling native SQL commands. See the IM parameter in this chart.
SQLUID	8	{ <u>blank</u>  userid}	SQL/DS user ID that acts as the creator name for the data adapter access modules. A default of blank indicates that your VM logon ID will be the creator, provided it possesses CONNECT authority to the database.  This parameter allows more than one version of the data adapter to be installed in a single SQL/DS database. It establishes unique access module names for each version. Each access module is known to SQL/DS and the data adapter as creator.RSQL.
SQLPSWD	8	{ <u>blank</u>  pass}	The SQL/DS authorization password for the SQLPREP EXEC. This parameter is the same as in prior releases of the server. If SQLUID is specified, SQLPSWD must also be specified.

Keyword	Length	Value	Comments
COLLID	1-8	{blank pass}	<p>The collection user ID that acts as the qualifier for the SQL/DS application package that is produced by the SQLPREP EXEC.</p> <p>If COLLID is not specified, the default is the value of SQLUID. If SQLUID is not specified, the value is the current VM user ID.</p>
DBSPC	36	{blank pass}	<p>Name of the SQL/DS DBSPACE target for server operations involving dynamic table creation using CREATE FILE and HOLD FORMAT SQL. Specify the DBSPACE name in the form owner.dbspacename (for example, PUBLIC.IWAY).</p> <p>This parameter establishes one target DBSPACE for all data adapter users. Individual users may override this setting with the data adapter SET DBSPACE command.</p>
IM	1	{2 0}	<p>Data adapter support for native SQL statements. The data adapter passes SQL statements directly to SQL/DS (for example, CMS SQL CREATE TABLE or SQL SQLDS CREATE TABLE). Support may be enabled (2) or disabled (0).</p>
NCRS	2	{80 n}	<p>Maximum number of concurrently allocatable SELECT cursors. <i>N</i> is an integer between 01 and 99.</p> <p>The values for NCRS and NSTMTS (below) have defaults that are appropriate for most reasonably sized applications. Increasing these values will allow applications to perform more simultaneous actions against more tables, with the cost of increasing the size of the data adapter load module.</p>

Keyword	Length	Value	Comments
NSTMTS	2	{16 n}	Maximum number of concurrently allocatable INSERT, UPDATE, and DELETE statements. The value <i>n</i> is an integer between 01 and 99.
OS	3	{CMS DOS}	Operating system in which the SQL/DS database runs.
GRANT	3	{YES NO}	Controls access to the module created by the data adapter. The access module is named creator.RSQL.  YES assigns the privilege to all users (GRANT RUN TO PUBLIC).  NO requires that you distribute the RUN privilege on the module to data adapter users (see <i>Meeting Run-Time Requirements for the SQL/DS Data Adapter</i> on page 2-12).

## Describing AUTOSQL Catalog Tables to the Server

The SQL/DS Data Adapter is distributed with an automated procedure designed to simplify the process of describing SQL/DS tables to the server. This program is a full-screen Dialogue Manager procedure named AUTOSQL. It produces Master and Access Files for specified SQL/DS tables.

The AUTOSQL facility is copied from the server maintenance disk to the server production disk by the GENFSQL EXEC. For more information, see *How to Run the GENFSQL EXEC (Step 5 of 5)* on page 2-8.

You must assign GRANT SELECT privileges to all AUTOSQL users. These privileges grant access to the SQL/DS catalog tables SYSTEM.SYSCOLUMNS and SYSTEM.SYSINDEXES. See *How to Grant Access to AUTOSQL Catalog Tables* on page 2-11.

### **Syntax** How to Grant Access to AUTOSQL Catalog Tables

To distribute the privileges to specific users or to all users, issue both of the following SQL commands:

```
GRANT SELECT ON SYSTEM.SYSCOLUMNS TO {sqluser1,sqluser2...|PUBLIC} ;
GRANT SELECT ON SYSTEM.SYSINDEXES TO {sqluser1,sqluser2...|PUBLIC} ;
```

where:

`sqluser1,sqluser2`

Are authorized user IDs for individual users.

`PUBLIC`

Allows all users to access the catalog table.

## Meeting Run-Time Requirements for the SQL/DS Data Adapter

After you have completed the required installation steps, the SQL/DS Data Adapter resides on your system. Before you invoke it, you must satisfy the following run-time requirements:

- Allow data adapter users access to the access module, tables, and views. You or your SQL/DS Database Administrator need to authorize users by issuing the native SQL GRANT command.
- Provide data adapter users with CONNECT authority to access the SQL/DS RDBMS. You or your SQL/DS Database Administrator need to authorize users by issuing the native SQL/DS CONNECT command.
- Provide data adapter users access to the server production disk and the SQL/DS production disk. A sample initialization EXEC is provided.
- Invoke the server to test the data adapter installation with the data adapter SQL ? query command.

## Providing Access for SQL/DS End Users

In order for data adapter users to invoke the SQL/DS Data Adapter, they must have access to the RSQL access module, to their tables, to the SQL/DS RDBMS, and to the server and SQL/DS production disks. For details, see *How to Grant Access to the RSQL Access Module* on page 2-12 and *How to Grant Access to User Tables* on page 2-13.

### **Syntax** How to Grant Access to the RSQL Access Module

If the GENFSQL EXEC was executed with the default of GRANT=YES in *How to Run the GENFSQL EXEC (Step 5 of 5)* on page 2-8, proceed directly to *How to Grant Access to User Tables* on page 2-13.

If you executed the GENFSQL EXEC with GRANT=NO, you now must issue the SQL GRANT RUN command to permit user access to the data adapter RSQL module.

The GRANT RUN command can be executed from any SQL processor facility, such as IBM's ISQL or DBSU. You may assign RUN privileges to individual users or all users (PUBLIC).

To distribute RUN privileges, issue

```
GRANT RUN ON creator.RSQL TO {sqluserid1,sqluserid2...|PUBLIC} ;
```

where:

*creator*

Is the same name used for the GENFSQL SQLUID parameter. Leave it blank if you specified the default (blank) SQLUID value.

*sqluserid1,sqluserid2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the specified access module.

## **Syntax**    **How to Grant Access to User Tables**

You must authorize data adapter users to access their tables and views with the GRANT SELECT command. If you are unfamiliar with the GRANT command or if you do not have SELECT authorization for the tables (or views), contact your SQL/DS Database Administrator to assist you.

To distribute SELECT privileges, issue

```
GRANT SELECT ON object_name TO {sqluserid1,sqluserid2... |PUBLIC} ;
```

where:

*object\_name*

Is the name of the table or view.

*sqluserid1,sqluserid2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the specified table or view.

**Note:** Additional privileges, including CREATE TABLE and CREATE INDEX, may be required to use two data adapter features, CREATE FILE and ON TABLE HOLD FORMAT SQL, which dynamically create tables with indices.



## **Providing SQL/DS CONNECT Authority**

You must authorize data adapter users to access the SQL/DS RDBMS with the SQL/DS GRANT CONNECT command. Your SQL/DS Database Administrator may have established implicit privileges for individual users or for all users. See *How to Access the Server and SQL/DS Production Disks* on page 2-14.

## **Procedure** How to Access the Server and SQL/DS Production Disks

In order for data adapter users to invoke the data adapter, they must be linked to the Server and SQL/DS production disks. Choose one of the following methods to link data adapter users to both the server and SQL/DS production disks:

- Include the CMS LINK and ACCESS commands in each server's EDASPROF or EDAPROF profile.
- Include the CMS LINK and ACCESS commands in the EDA EXEC procedure residing on the server production disk.

The link to the SQL/DS production disk should allow read-only privileges. It may be accessed as any available file mode. For an illustration of the CMS LINK and ACCESS commands, see *Running the Initialization EXEC to Address a Target SQL/DS Database* on page 2-14.

## **Example** Running the Initialization EXEC to Address a Target SQL/DS Database

Each server must run the IBM SQLINIT EXEC at least once to create bootstrap modules that point to the target SQL/DS database. As long as these modules (ARISRMBT MODULE and ARISISBT MODULE) remain on the user's A disk, the SQLINIT EXEC does not need to be executed again unless the target database changes. For site-specific information about the SQLINIT EXEC, check with your SQL/DS Database Administrator.

The following is an annotated EXEC, which includes the LINK and ACCESS commands and executes the IBM SQLINIT EXEC. Make any appropriate changes for your site's standards.

1. CP LINK EDP321 191 491 RR  
ACCESS 491 F
2. CP LINK SQLDBA 195 485 RR  
ACCESS 485 Q
3. EX SQLINIT DB(dbname)

The EXEC statements are as follows:

1. LINK and ACCESS commands for the server production disk.
2. LINK and ACCESS commands for the SQL/DS production disk.
3. EXECUTE command to run the IBM SQLINIT EXEC.

## **Testing the SQL/DS Data Adapter Installation and Connection**

After linking to the production disks, test the data adapter installation and connection. To check the installation, issue the data adapter SQL ? query command in an EDADEBUG script, as described in *How to Test the SQL/DS Data Adapter Installation* on page 2-15.

## **Procedure** How to Test the SQL/DS Data Adapter Installation

Test the data adapter installation with the data adapter SQL ? query command.

Enter the SQL ? query command in an EDADEBUG script.

If the data adapter is properly installed, a list of the data adapter defaults and current settings is returned.

If there is an installation error, the following data adapter error message is displayed:

```
(FOC1488) SQL INTERFACE IS NOT INSTALLED:
```

If you get an error message, check your installation procedure against the instructions in this section, or call Customer Support Services (CSS) at (800) 736-6130 or (212) 736-6130 for assistance.

## **Data Adapter Installation Steps: Multiple SQL/DS Databases**

If your site is planning to use the data adapter with more than one SQL/DS database for one SQL/DS release, follow these seven steps:

1. Link to the server maintenance and production disks.
2. Link to the SQL/DS production disk.
3. Run the SQLINIT EXEC.
4. Run the GENFSQL EXEC.
5. Grant access to the RSQL access module.
6. Grant access to AUTOSQL catalog tables.
7. Grant access to user tables.

Several of these steps are the same as those you would use to configure for a single database, with some variations to handle a multi-databases scenario.

As you configure your data adapter, refer to the following topics for related information:

- *Describing AUTOSQL Catalog Tables to the Server* on page 2-11.
- *Meeting Run-Time Requirements for the SQL/DS Data Adapter* on page 2-12.
- *Providing Access for SQL/DS End Users* on page 2-12.
- *Providing SQL/DS CONNECT Authority* on page 2-13.
- *Testing the SQL/DS Data Adapter Installation and Connection* on page 2-14.

**Note:** Space allocated during the installation of the server will accommodate the data adapter. No additional disk space is required.



**Procedure How to Link to the Server Maintenance and Production Disks (Step 1 of 7)**

Link to the server maintenance disk with read/write privileges, and access it as your A disk. Then, link to the server production disk with read/write privileges, and access it as your C disk.

**Procedure How to Link to the SQL/DS Production Disk (Step 2 of 7)**

Link to the SQL/DS production disk (normally SQLDBA 195) with read-only privileges, and access it as any available file mode. Your SQL/DS Database Administrator can supply the exact link instructions for this minidisk.

**Procedure How to Run the SQLINIT EXEC (Step 3 of 7)**

Execute the IBM-supplied SQLINIT EXEC to access each SQL/DS database for the installation. The SQLINIT EXEC resides on the SQL/DS production disk.

**Procedure How to Run the GENFSQL EXEC (Step 4 of 7)**

Execute the GENFSQL EXEC with the DBLIST parameter.

```
EX GENFSQL ( [ keyword1=value1 keyword2=value2... ] DBLIST(db1 db2) )
```

where:

*keyword*

Is any parameter listed in the table in *How to Run the GENFSQL EXEC (Step 5 of 5)* on page 2-8.

*value*

Is the acceptable value for the parameter.

*db1, db2*

Are databases for preprocessing of the ASMSQL source generated during the data adapter installation process.



**Note:** DBLIST is a parameter supplied in the IBM SQLPREP EXEC. Contact your IBM software installer or consult the appropriate IBM SQL/DS manual for restrictions and RDBMS-specific limitations.

After the GENFSQL EXEC is executed, data adapter users may reference the specified databases (*db1* and *db2*).

**Procedure How to Grant Access to the RSQL Access Module (Step 5 of 7)**

The GRANT RUN command must be used to grant access to the RSQL access module for any target databases that were not processed by the GRANT parameter (if GRANT=YES is specified), or for all target databases (if GRANT=NO is specified).

The GRANT RUN command can be executed from any SQL processor facility, such as IBM's ISQL or DBSU. You may assign RUN privileges to individual users or all users (PUBLIC).

To distribute RUN privileges, issue

```
GRANT RUN ON creator.RSQL TO {sqluserid1,sqluserid2...|PUBLIC} ;
```

where:

*creator*

Is the same name used for the GENFSQL SQLUID parameter. Leave it blank if you specified the default (blank) SQLUID value.

*sqluserid1,sqluserid2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the specified access module.

**Procedure How to Grant Access to AUTOSQL Catalog Tables (Step 6 of 7)**

The data adapter is distributed with an automated procedure designed to simplify the process of describing SQL/DS tables to the server. This program is a full-screen Dialogue Manager procedure named AUTOSQL. It produces Master and Access Files for specified SQL/DS tables. For related information, see *Describing AUTOSQL Catalog Tables to the Server* on page 2-11.

You must assign GRANT SELECT privileges to all AUTOSQL users. These privileges grant access to the SQL/DS catalog tables SYSTEM.SYSCOLUMNS and SYSTEM.SYSINDEXES.

To distribute the privileges to specific users or to all users, issue both of the following SQL commands

```
GRANT SELECT ON SYSTEM.SYSCOLUMNS TO {sqluser1,sqluser2...|PUBLIC} ;
```

```
GRANT SELECT ON SYSTEM.SYSINDEXES TO {sqluser1,sqluser2...|PUBLIC} ;
```

where:

*sqluser1,sqluser2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the catalog table.

### **Procedure** How to Grant Access to User Tables (Step 7 of 7)

You must authorize data adapter users to access their tables and views with the GRANT SELECT command. If you are unfamiliar with the GRANT command or if you do not have SELECT authorization for the tables (or views), contact your SQL/DS database administrator to assist you.

To distribute SELECT privileges, issue

```
GRANT SELECT ON object_name TO {sqluserid1,sqluserid2...|PUBLIC} ;
```

where:

*object\_name*

Is the name of the table or view.

*sqluserid1*,*sqluserid2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the specified table or view.

**Note:** Additional privileges, including CREATE TABLE and CREATE INDEX, may be required to use two data adapter features-CREATE FILE and ON TABLE HOLD FORMAT SQL-which dynamically create tables with indices.



### **Data Adapter Installation Steps: Multiple SQL/DS Databases and Releases**

If your site is planning to use the data adapter with more than one SQL/DS database for different SQL/DS releases, follow these eight steps:

1. Install the data adapter.
2. Link to the server maintenance and production disks.
3. Link to the SQL/DS production disk.
4. Run the SQLINIT EXEC.
5. Re-run the GENFSQL EXEC.
6. Grant access to the RSQL access module.
7. Grant access to AUTOSQL catalog tables.
8. Grant access to user tables.

Note that several of these steps are the same as those you would use to configure for a single or multiple databases with a single release, with some variations to handle a multi-databases and release scenario.

As you configure your data adapter, refer to the following topics for related information:

- *Describing AUTOSQL Catalog Tables to the Server* on page 2-11.
- *Meeting Run-Time Requirements for the SQL/DS Data Adapter* on page 2-12.
- *Providing Access for SQL/DS End Users* on page 2-12.
- *Providing SQL/DS CONNECT Authority* on page 2-13.
- *Testing the SQL/DS Data Adapter Installation and Connection* on page 2-14.

SQL/DS Version 2 Release 2 sites may use the Database Services Utility (DBSU) UNLOAD PROGRAM and RELOAD PROGRAM commands to copy the data adapter access modules to additional SQL/DS database releases. This bypasses the requirement to rerun the GENFSQL EXEC (step 5) to create these modules. However, you still need to issue the GRANT commands described in steps 6 through 8.

### **Procedure How to Log On With a VM User ID and SQL/DS CONNECT Authority (Step 1 of 8)**

When you log on, you must use an authorized VM user ID. It must have CONNECT authority in the target SQL/DS database, or you must know an SQL/DS user ID and password combination which does have SQL/DS CONNECT authority. The user ID may already have implicit CONNECT authority. Contact your SQL/DS Database Administrator to verify this.

After you log on, spool your console for a record of the installation procedure, using the command:

```
CP SP CON START TO *
```

### **Procedure How to Link to the Server Maintenance and Production Disks (Step 2 of 8)**

Link to the server maintenance disk with read/write privileges, and access it as your A disk. Then, link to the server production disk with read/write privileges, and access it as your C disk.

### **Procedure How to Link to the SQL/DS Production Disk (Step 3 of 8)**

Link to the SQL/DS production disk (normally SQLDBA 195) with read-only privileges, and access it as any available file mode. Your SQL/DS Database Administrator can supply the exact link instructions for this minidisk.

### **Procedure How to Run the SQLINIT EXEC (Step 4 of 8)**

Execute the IBM-supplied SQLINIT EXEC to access the next SQL/DS database targeted for the installation. The SQLINIT EXEC resides on the SQL/DS production disk.

**Procedure How to Rerun the GENFSQL EXEC (Step 5 of 8)**

Before you rerun the GENFSQL EXEC, you must log on to the same SQL/DS user ID that you used in the previous run of the GENFSQL EXEC. This user ID will act as the creator name for the data adapter access modules. By doing this, you will ensure that the same data adapter access module identified to the SQL/DS RDBMS and to the data adapter as creator RSQL will be used for multiple target databases.

If you use a different creator name, each subsequent data adapter installation will replace the access module(s) of the previous installation, and the previous installation will be unusable.

Rerun the GENFSQL EXEC (described in *How to Run the GENFSQL EXEC (Step 5 of 5)* on page 2-8). This action creates the access module RSQL in the new target database. The GENFSQL EXEC also replaces the members of the FOCINT LOADLIB, where the data adapter load modules reside. This action repeats that of the primary installation, but will cause no harm.

**Procedure How to Grant Access to the RSQL Access Module (Step 6 of 8)**

If the GENFSQL EXEC was executed with the default of GRANT=YES in step 5, omit step 6 and continue with step 7, *How to Grant Access to AUTOSQL Catalog Tables (Step 7 of 8)* on page 2-21.

If you executed the GENFSQL EXEC with GRANT=NO, you now must issue the SQL GRANT RUN command to permit user access to the data adapter RSQL module.

The GRANT RUN command can be executed from any SQL processor facility, such as IBM's ISQL or DBSU. You may assign RUN privileges to individual users or all users (PUBLIC).

To distribute RUN privileges, issue

```
GRANT RUN ON creator.RSQL TO {sqluserid1,sqluserid2...|PUBLIC} ;
```

where:

*creator*

Is the same name used for the GENFSQL SQLUID parameter. Leave it blank if you specified the default (blank) SQLUID value.

*sqluserid1,sqluserid2*

Are authorized user IDs for individual users.

**PUBLIC**

Allows all users to access the specified access module.

**Procedure How to Grant Access to AUTOSQL Catalog Tables (Step 7 of 8)**

The data adapter is distributed with an automated procedure designed to simplify the process of describing SQL/DS tables to the server. This program is a full-screen Dialogue Manager FOCEXEC named AUTOSQL. It produces Master and Access Files for specified SQL/DS tables. For related information, see *Describing AUTOSQL Catalog Tables to the Server* on page 2-11.

You must assign GRANT SELECT privileges to all AUTOSQL users. These privileges grant access to the SQL/DS catalog tables SYSTEM.SYSCOLUMNS and SYSTEM.SYSINDEXES.

To distribute the privileges to specific users or to all users, issue both of the following SQL commands

```
GRANT SELECT ON SYSTEM.SYSCOLUMNS TO {sqluser1,sqluser2...|PUBLIC} ;
```

```
GRANT SELECT ON SYSTEM.SYSINDEXES TO {sqluser1,sqluser2...|PUBLIC} ;
```

where:

*sqluser1,sqluser2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the catalog table.

**Procedure How to Grant Access to User Tables (Step 8 of 8)**

You must authorize data adapter users to access their tables and views with the GRANT SELECT command. If you are unfamiliar with the GRANT command or if you do not have SELECT authorization for the tables (or views), contact your SQL/DS Database Administrator to assist you.

To distribute SELECT privileges, issue

```
GRANT SELECT ON object_name TO {sqluserid1,sqluserid2...|PUBLIC} ;
```

where:

*object\_name*

Is the name of the table or view.

*sqluserid1,sqluserid2*

Are authorized user IDs for individual users.

PUBLIC

Allows all users to access the specified table or view.

 **Note:** Additional privileges, including CREATE TABLE and CREATE INDEX, may be required to use two data adapter features—CREATE FILE and ON TABLE HOLD FORMAT SQL—which dynamically create tables with indices.

## Installing the VSAM Data Adapter

---

No installation steps are required to install the VSAM Data Adapter.

In order for the server to access VSAM (KSDS or ESDS) data sources, use the standard DLBL command. VSAM data sources exist only on OS or DOS disks (not on CMS disks). The Master Catalog must be allocated. The command SET DOS ON is not required. Note the following example:

```
LINK VSAMDISK 191 192 R
ACC 192 B
DLBL IJSYSCT B DSN MASTER CAT (VSAM PERM)
DLBL CUST B DSN CUST DATA (VSAM PERM)
```

The dsname must be the VSAM cluster name. Use the IDCAMS utility to obtain it. The CMS LISTFILE command cannot be used for this purpose.

The allocation statements for a VSAM alternate index on CMS are:

```
DLBL CUST B DSN CUST DATA (VSAM PERM)
DLBL DD1 B DSN CUST PATH1 (VSAM PERM)
DLBL DD2 B DSN CUST PATH2 (VSAM PERM)
```

The above can be issued in the server's profile or in a stored procedure.

For information on describing VSAM data sources, see the *Server Administration* manual.

## Installing the MODEL 204 Data Adapter

---

Before installing the MODEL 204 Data Adapter, ensure that MODEL 204 is installed and fully operational. If it is not, contact your MODEL 204 Database Administrator. If you install a new version of MODEL 204, you must reinstall the MODEL 204 Data Adapter.

Before installing, you should also be aware of maintenance procedures that may affect the installation process. See *Before You Install a Data Adapter: Maintenance Procedures* on page 2-2.

To install the MODEL 204 Data Adapter, you must:

1. Link to the Server Maintenance and Production Disks.
2. Access the MODEL 204 Maintenance Disk.
3. Execute the GENF204 EXEC.

**Procedure How to Link to the Server Maintenance and Production Disks (Step 1 of 3)**

Link to the server maintenance disk with read/write privileges, and access it as your A disk.

Then, link to the server production disk with read/write privileges, and access it as your C disk.

**Procedure How to Access the MODEL 204 Maintenance Disk (Step 2 of 3)**

**Caution:** Create a text library named IFTXT from the MODEL 204 IFCM TEXT file. First locate the following file, which is supplied with your MODEL 204 software.



`IFCM TEXTnnn`

where:

`nnn`

Is the MODEL 204 release level at your site.

Then, copy the above file (IFCM TEXT`nnn`) to a file named IFCM TEXT. Make IFCM TEXT into a text library named IFTXT.

**Procedure How to Execute the GENF204 EXEC (Step 3 of 3)**

Execute the GENF204 EXEC, which will generate the passthru module to MODEL 204 for the data adapter.

Once this step is completed, the MODEL 204 Data Adapter is operational.



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## CHAPTER 3

# Configuring National Language Support (NLS)

### Topics:

- Configuring Your VM Server for National Language Support
- Changing Your VM Server Code Page Settings
- Configuring VM Server NLS Default Characteristics
- Configuring Customized VM Server NLS Monocasing
- Configuring for Customized VM Server NLS Sort Sequences
- Customizing VM Client NLS Services

By default, the client and server support the US EBCDIC code page. However, if required by you enterprise, you can customize your NLS configuration to support:

- Alternate or additional code pages.
- Custom monocasing or custom sorting

## Configuring Your VM Server for National Language Support

---

You can customize your NLS server configuration to:

- **Change your code page settings.** You can change the code page settings on the server by editing the code page generation list file (CPCODEPG) and then running the Transcoding Services Generation Utility (TSGU) to generate the new transcoding table. The new transcoding table is based on the list of code pages defined in the updated code page generation list file (CPCODEPG). For more information, see *Changing Your VM Server Code Page Settings* on page 3-3.
- **Customize NLS default characteristics.** You can change the server code page setting and the language the server uses for error messages by editing the NLS configuration file (NLSCFG). For more information, see *Configuring VM Server NLS Default Characteristics* on page 3-8.
- **Customize monocasing.** You can customize the monocasing table by editing the code page definition file (CPNNNNN) and then generating the new monocasing table file (CASETBL) with the TSGU. For more information, see *Configuring Customized VM Server NLS Monocasing* on page 3-10.
- **Customize sorting.** You can customize the sorting table by editing the code page definition file (CPNNNNN) and then generating the new sorting table file (SORTTBL) with the TSGU. For more information, see *Configuring for Customized VM Server NLS Sort Sequences* on page 3-12.

**Note:** Customization of your NLS configuration is only necessary if your enterprise requires support for alternate or additional code pages, or custom monocasing and sorting.



### Reference NLS Configuration Files for VM

The following table describes the NLS configuration files:

File Name	File Type	Description
casetbl	ERRNLS	Monocasing table. This file contains the monocasing tables, which are generated using the TSGU procedure and are based on the code page generation list (CPCODEPG).
cpcodepg	EDANLS	Code page generation list. This file is a list of currently active code pages. It contains one code page for the server and multiple code pages for the client.

File Name	File Type	Description
CPNNNNN	EDANLS	Code page definition file. This file contains information on each code point value in the code page. There is a code page definition file for every code page listed in the known code page file (CPXCPTBL).
cpxcptbl	EDANLS	Known code page list. This file contains a list of enabled code pages for Information Builders' clients and servers.
langtbl	ERRORS	Known language list file. This file contains a list of enabled language names for iWay Software's clients and servers.
nlscfg	ERRORS	NLS configuration file. This file controls the server code page setting and the language the server uses for error messages. There is an NLSCFG file for both the client and server.
CS3CLNT	CONFIG	Communications configuration file. This file contains the code page setting and DBCS setting for the client.
sortTbl	ERRNLS	Sorting table. This file contains the sorting tables which are generated using the TSGU and are based on the contents of the code page generation list (cpcodepg).
trantbl	ERRNLS	Transcoding table file. This file contains the transcoding tables, which are generated using the TSGU, and are based on the contents of the code page generation list (CPCODEPG).

## Changing Your VM Server Code Page Settings

You will need to perform the following steps to change your code page configuration:

1. Identify the current code page settings.
2. Identify alternate or additional code pages by referencing the known code page file (CPXCPTBL).
3. Edit the code page generation list file (CPCODEPG) with the code page information collected from the known code page file (CPXCPTBL).
4. Generate the new transcoding tables based on the updated code page generation list file (CPCODEPG) using the TSGU.

5. If you generated a new server code page in step 4, you will need to modify the NLS configuration file (NLSCFG) to identify the new server code page and language used by the server for error messages.

**Note:** This step is only necessary if you generated a new server code page in step 4. If you generated new client code pages you do not need to modify the NLS configuration file (NLSCFG).



### Identifying Current VM Code Page Settings (Step 1 of 5)

For more information on the steps to change your server code page settings, see *Changing the VM Server Code Page Setting (Step 5 of 5)* on page 3-8. Code page settings are reflected in the code page generation list file CPCODEPG EDANLS. This file contains code page settings for both client and server and it is used to generate the transcoding tables with the TSGU. To identify your current code page settings, view the code page generation list file (cpcodepg).

During the server installation, your server is set up by default with the US EBCDIC code page 37. The client code page setting on the server is set up to support the following default code pages:

- US Mainframe EBCDIC CP 37
- US PC ASCII CP 437
- PC Windows ANSI CP 137
- Mainframe Latin-1 1047
- Unicode (UTF-8) 65001

### **Example** Using the Code Page Generation List File (CPCODEPG) for VM

The following is an example of a code page generation list file (CPCODEPG).

```
CP00037  E SBCS  US IBM MF EBCDIC code
CP00437  A SBCS  US PC ASCII code
CP00137  A SBCS  ANSI Character Set for MS-Windows
CP01047  E SBCS  IBM MF Open Systems (Latin 1)
CP65001  A UTF8  Unicode (UTF-8)
```

### Identifying Alternate or Additional VM Code Pages (Step 2 of 5)

For more information on the steps to change your server code page settings, see *Changing the VM Server Code Page Setting (Step 5 of 5)* on page 3-8. If your server requires support for alternate or additional code pages, you can identify the code pages by referencing the known code page file CPXCPTBL EDANLS.

**Note:**  If the desired code page is not listed in the known code page file (CPXCPTBL), refer to the appropriate IBM Character Data Representation Architecture (CDRA) document and create your own, or contact your local iWay Software representative for information about additional code pages.

### **Syntax**    **How to Use the Known Code Page File (CPXCPTBL) for VM**

*CPnnnnn b dbcid description*

where:

*CP*

Is the code page prefix (always CP).

*nnnnn*

Is the code page number.

*b*

Is the character type. Possible values are:

**A** for ASCII.

**E** for EBCDIC.

*dbcid*

Is the DBCS identifier (DBCSID).

*description*

Is a description of the code page.

### **Example**    **Using the Known Code Page File CPXCPTBL for VM**

The following is a listing of the contents of the known code page file (CPXCPTBL EDANLS):

## Changing Your VM Server Code Page Settings

```
CP00037  E SBCS  US IBM MF EBCDIC code
CP00437  A SBCS  US PC ASCII code
CP00137  A SBCS  ANSI character set for MS-Windows
CP00500  E SBCS  IBM MF International European
CP00273  E SBCS  IBM MF Germany F.R./Austria
CP00277  E SBCS  IBM MF Denmark, Norway
CP00278  E SBCS  IBM MF Finland, Sweden
CP00280  E SBCS  IBM MF Italy
CP00284  E SBCS  IBM MF Spain/Latin America
CP00285  E SBCS  IBM MF United Kingdom
CP00297  E SBCS  IBM MF France
CP00424  E SBCS  IBM MF Israel(Hebrew)
CP00850  A SBCS  IBM PC Multinational
CP00856  A SBCS  IBM PC Hebrew
CP00860  A SBCS  IBM PC Portugal
CP00862  A SBCS  IBM PC Israel
CP00863  A SBCS  IBM PC Canadian French
CP00865  A SBCS  IBM PC Nordic
CP00637  A SBCS  DEC Multinational Character Set
CP00600  A SBCS  DEC German NRC Set
CP00604  A SBCS  DEC British ( United Kingdom ) NRC Set
CP00608  A SBCS  DEC Dutch ( Netherland ) NRC Set
CP00612  A SBCS  DEC Finnish ( Finland ) NRC Set
CP00616  A SBCS  DEC French ( Flemish and French/Belgian ) NRC Set
CP00620  A SBCS  DEC French Canadian NRC Set
CP00624  A SBCS  DEC Italian ( Italy ) NRC Set
CP00628  A SBCS  DEC Norwegian/Danish ( Norway,Denmark ) NRC Set
CP00632  A SBCS  DEC Portugal NRC Set
CP00636  A SBCS  DEC Spanish ( Spain ) NRC Set
CP00640  A SBCS  DEC Swedish ( Sweden ) NRC Set
CP00644  A SBCS  DEC Swiss ( Swiss/French and Swiss/German ) NRC Set
CP00930  E SOSI  Japanese IBM MF Katakana Code Page (cp290+cp300)
CP00939  E SOSI  Japanese IBM MF Latin Extended (cp1027+cp300)
CP00932  A SJIS  Japanese PC Shift-JIS (cp897+cp301)
CP00942  A SJIS  Japanese PC Shift-JIS Extended (cp1041+cp301)
CP10942  A EUC   Japanese PC EUC
CP10930  E SOSIF  Japanese Mainframe ( Fujitsu )
CP20930  E SOSIH  Japanese Mainframe ( Hitachi )
CP00933  E SOSI  Korean IBM MF Extended (cp833+cp834)
CP00934  A KPC   Korean IBM PC (cp891+cp926)
CP00944  A KPC   Korean IBM PC Extended (cp1040+cp926)
CP00949  A KKS   Korean KS5601 code (cp1088+cp951)
CP00935  E SOSI  PRC IBM MF Extended (cp836+cp837)
CP00937  E SOSI  Taiwanese IBM MF (cp37+cp835)
CP00948  A TPC   Taiwanese IBM PC Extended (cp1043+cp927)
CP10948  A TBIG5  Taiwanese PC BIG-5 code
CP20948  A TNS   Taiwanese PC National Standard code
```

```

CP30948  A TTEL  Taiwanese PC Telephone code
CP00857  A SBCS  IBM PC Latin 5 (Turkish)
CP00920  A SBCS  ISO-8859-9 (Latin 5, Turkish)
CP01026  E SBCS  IBM MF Turkish
CP01252  A SBCS  ISO-8859-1 (Latin 1)
CP00819  A SBCS  ISO-8859-1 (Latin 1, IBM Version 8X/9X undef'ed)
CP00912  A SBCS  ISO-8859-2 (Latin 2)
CP01047  E SBCS  IBM MF Open Systems (Latin 1)
CP65001  A UTF8  Unicode (UTF-8)
CP00916  A SBCS  ISO-8859-8 (Hebrew)

```

## Adding Alternate or Additional VM Code Pages (Step 3 of 5)

For more information on the steps to change your server code page settings, see *Changing the VM Server Code Page Setting (Step 5 of 5)* on page 3-8. The code page generation list file CPCODEPG EDANLS is a list of code pages to generate with the TSGU and must be changed manually, using an editor, to contain the additional or alternate set of code page numbers identified in the known code page file.

Add the information for each additional or alternate code page on a separate line, one for the server and one or more for the clients accessing the server. You can copy the code page information from the known code page file (CPXCPTBL) into the code page generation list file (CPCODEPG). Note that only CP and the code page number (for example, CP00037) are required to generate the new transcoding tables. The maximum number of code page entries in the file is sixteen.

## Generating VM Transcoding Tables Using the TSGU (Step 4 of 5)

The Transcoding Services Generation Utility (TSGU) program is used to generate the NLS transcoding table file TRANTBL ERRNLS, based on the list of code pages defined in the code page generation list file (CPCODEPG). The transcoding table file (TRANTBL) contains the transcoding tables for all the possible code page combinations. You can generate a new transcoding table with the TSGU.

At the command prompt, type:

```
TGSU
```

You may execute two additional commands to confirm the generated information. At the command prompt, type:

```
TGSU INFO
```

To show basic NLS information.

```
TGSU INFO CP
```

To show a list of translation tables.

## Changing the VM Server Code Page Setting (Step 5 of 5)

For more information on the steps to change your server code page settings, see *Changing the VM Server Code Page Setting (Step 5 of 5)* on page 3-8. If you generate a new server code page in step 4 and want the server to recognize this new code page, you will need to modify the NLS configuration file NLSCFG ERRORS to identify the new server code page and language used by the server for error messages. This step is only necessary if you generated a new server code page in step 4. If you only generated new client code pages you do not need to modify the NLS configuration file (NLSCFG). For details on changing the NLS configuration file, see *Configuring VM Server NLS Default Characteristics* on page 3-8.

## Configuring VM Server NLS Default Characteristics

---

You can change the server code page and the language the server uses for error messages by editing the NLS configuration file NLSCFG ERRORS. You can reference the known language list file LANGTBL ERRORS for a list of enabled language names.

Error messages are only translated for German, Spanish, Swedish, French, Dutch, and Japanese. Error messages for all other languages are translated to English.

**Note:** Swedish and some other languages may only be partially translated.



### Example Changing the VM Server Code Page and Language

You can change the server code page and language of the server by editing the LANG setting in the NLS configuration file NLSCFG ERRORS. Changing the LANG setting sets all other parameters to valid values.

**Note:** The LANG setting should match the three-character language abbreviation (language ID) or the language name from the known language list file LANGTBL ERRORS.



The following example illustrates how you can change English to Dutch.

```
LANG = AMENGLISH
```

to

```
LANG = DUT
```

### Syntax How to Use the Known Language List File (LANGTBL) to Identify Enabled Language Names for VM

Enabled language names are contained in the known language list file LANGTBL ERRORS.

```
mmm aaaaaaaaaaaa bbb mnnnn cc
```

where:

*mmm*

Is a language code (the international dial code).

*aaaaaaaaaaaa*

Is the language name. Twelve characters is the maximum.

*bbb*

Is a three-character language abbreviation (language ID) that is used in the LANG setting.

*nnnnn*

Is the code page number.

*cc*

Is the hexadecimal value of the dollar symbol.

### **Example Using the Known Language List File (LANGTBL) for VM**

The following is an example of the contents of the known language list file LANGTBL ERRORS:

```
001AMENGLISH      00037
001ENGLISH        00037
045DANISH         DAN0027767
031DUTCH          DUT00037
358FINNISH        FIN0027867
033FRENCH         FRE00297
049GERMAN         GER00273
049GERMAN         GE500500
972HEBREW         HEB00424
039ITALIAN        ITA00280
081JAPANESE       JPN00930E0
081JAPANESE       JPE00939
082KOREAN         KOR00933
047NORWEGIAN     NOR0027767
351PORTUGUESE    POR00037
034SPANISH        SPA00284
046SWEDISH        SWE0027867
086T-CHINESE     ROC00937
090TURKISH        TUR01026AD
044UKENGLISH     UKE002854A
```

## Configuring Customized VM Server NLS Monocasing

---

Monocasing (also called case conversion) is the conversion of a letter from its lowercase to uppercase form (or vice versa). As part of the basic server initialization, the server is set up with standard monocasing where all requests, except for data between single quotes, are converted to uppercase according to the monocasing table (CASETBL). The monocasing table file CASETBL.ERRNLS converts a-z to A-Z only.

If you require customized monocasing, such as special upper/lowercase accented characters, then you must modify the code page definition file (CPNNNNN) and then generate a new NLS monocasing table file (CASETBL) using the TSGU. The new monocasing table is based on the changes made to the code page definition file (CPNNNNN).

**Note:** The server user functions, LOCASE and UPCASE, respect the NLS monocasing table file (CASETBL).



### **Procedure** How to Customize Your NLS Monocasing Table for VM

**Note:** As part of the basic initialization, monocasing tables are provided for most of the common European languages. You will only need to customize the monocasing tables if you require a special monocasing configuration.



NLS monocasing involves language-sensitive (code page sensitive) uppercase and lowercase conversion. You can customize each character's attributes by completing the following steps:

1. Edit the code page definition file (CPNNNNN), which is named by the code page number. For example, CP00037 contains the monocasing information for US English code page 37. For more information on the code page definition file (CPNNNNN), see *How to Use the Code Page Definition File (CPNNNNN) for VM* on page 3-14.

**Note:** You can reference the known code page file (CPXCPTBL) to find the name of the code page definition file.



The code page definition file (CPNNNNN) contains the Code Point and Graphic Character Global Identifier (GCGID). Make the appropriate changes to *GCGID uppercase* in the third column and *Character type* in the fifth column. The following is a chart of a sample code page definition file layout:

Code Point	GCGID	GCGID uppercase	Sort weight	Character type
00	..NULL..	.....	00	.
01	9E00000	.....	01	.
02	9E01000	.....	02	.
:				
40	9D50000	.....	40	S
41	9E00000	.....	41	U
42	9E00000	.....	42	U
:				
61	IA02000	IA01000	61	L
62	IB02000	IB01000	62	L
:				
F1	ND01000	.....	61	D
F2	ND02000	.....	62	D
:				
FF	SP30000	.....	FF	.

2. Edit the code page generation list file (CPCODEPG) and add the code page definition information as described in *Changing Your VM Server Code Page Settings* on page 3-3. The updated code page generation list (CPCODEPG) is used to regenerate the custom monocasing table file (CASETBL).

3. Execute the TSGU with the parameter CASE as follows:

`TSGU CASE`

The TSGU generates the updated NLS monocasing table file CASETBL.ERRNLS.

**Note:** For additional information on modifying monocasing values in the code page definition file, refer to the IBM CDRA Library SC09-9391-00 Level 1 Registry or contact your local iWay Software representative.



## Configuring for Customized VM Server NLS Sort Sequences

---

As part of the basic server initialization, the server is set up with standard sorting where the server uses sort sequences of the binary representation of a character string according to the sorting table SORTTBL ERRNLS. If you require customized sorting, such as changing your sort order to account for Swedish umlauts (Ü), then you must modify the NLS sorting table file (SORTTBL).

### **Procedure** How to Customize Your NLS Sort Tables for VM

**Note:**  As part of the basic initialization, sorting tables are provided for most of the common European languages. You will only need to customize the sorting tables if you require a special sorting sequence.

If you want to use a weighted sort that accounts for characters that are out of binary sequence, you can customize the sort tables by completing the following steps.

1. Edit the code page definition file CPNNNNN EDANLS, which is named by the code page number. For example, CP00037 contains the sorting information for US English code page 37. For more information on the code page definition file (CPNNNNN), see *How to Use the Code Page Definition File (CPNNNNN) for VM* on page 3-14.

**Note:**  You can reference the known code page file (CPXCPTBL) to find the name of the code page definition file.

The code page definition file (CPNNNNN) contains the Code Point and Graphic Character Global Identifier (GCGID). Make the appropriate changes to the *Sort weight* listed in the fourth column. The following is a chart of a sample code page definition file layout:

Code Point	GCGID	GCGID uppercase	Sort weight	Character type
00	..NULL..	.....	00	.
01	SE000000	.....	01	.
02	SE010000	.....	02	.
:				
40	SE050000	.....	40	S
41	SE000000	.....	41	U
42	SE000000	.....	42	U
:				
61	IA020000	IA010000	61	L
62	IB020000	IB010000	62	L
:				
F1	ND010000	.....	61	D
F2	ND020000	.....	62	D
:				
FF	SP300000	.....	FF	.

2. Edit the code page generation list file (CPCODEPG) and add the code page definition information as described in *Changing Your VM Server Code Page Settings* on page 3-3. The updated code page generation list (CPCODEPG) is used to regenerate the custom sorting table file (SORTTBL).
3. Execute the TSGU with the parameter SORT, as follows:

`TSGU SORT`

The TSGU generates the updated NLS sorting table file SORTTBL.ERRNLS.

**Note:** For additional information on modifying monocasing values in the code page definition file, refer to the IBM CDRA Library SC09-9391-00 Level 1 Registry or contact your local server representative.



## **Syntax**    **How to Use the Code Page Definition File (CPNNNNN) for VM**

The code page definition file CPNNNNN EDANLS contains information on the characters for each code point value in the code page.

```
dd aaaaaaaaa aaaaaaaaa xx h
```

where:

*dd*

Is the hexadecimal code point value (00 through FF).

*aaaaaaaa*

Is the Graphic Character Global IDentifier (GCGID).

*xx*

Is the Sort weight. Consists of a hexadecimal code point value (00 through FF).

*h*

Is the character type. Possible values are:

**L** for Lower-case alphabet.

**U** for Upper-case alphabet.

**A** for Asian (non-alphabet) character.

**D** for Digit.

**S** for Special character.

**C** for Control (non-printable) character.

## **Customizing VM Client NLS Services**

---

During the client installation, your client is set up by default with the US EBCDIC code page 37. Customization of your NLS configuration is only necessary if your enterprise requires support for an alternate client code page. Client code page customization involves editing the NLS configuration file NLSCFG ERRORS.

### **Changing Your VM Client Code Page Setting**

You can change your client code page settings by manually editing the NLS configuration file NLSCFG ERRORS. The client code page settings in the NLS configuration file are sufficient for all client connection. However, if you wish, you can add code page and DBCS information in the communications configuration file CS3CLNT CONFIG for documentation purposes.

**Example Using the NLS Configuration File (NLSCFG) for VM**

You can use an editor to change the client code page and language the client uses for error messages by editing the NLS configuration file. Changing the LANG setting sets all other parameters to valid values. The following is an example of a typical NLS configuration file:

```
LANG = AMENGLISH
```

**Syntax How to Use the Communications Configuration File (CS3CLNT) for VM**

The NLS settings for CODE\_PAGE and DBCS are located in the communications block of the communications configuration file CS3CLNT CONFIG.

```
CODE_PAGE
```

Is the client code page. The hard-coded default value is 37.

```
DBCS
```

DBCS ID.

**Example Changing the Communications Configuration File (CS3CLNT) for VM**

The following is an example of the contents of the code page settings in a typical communications configuration file CS3CLNT CONFIG.

```
BEGIN
  PROTOCOL = TCP
  HOST =     IBIVM
  SERVICE = 1234
  CLASS =   CLIENT
  CODE_PAGE = 500
END
```



---

---

## CHAPTER 4

# Completing the Resource Analyzer/Resource Governor Configuration

### Topics:

- Completing Resource Analyzer/Resource Governor Configuration
- Granting Access to Resource Analyzer/Resource Governor Databases
- Running the Configuration Verification Program (CVP)
- Using Resource Analyzer/Resource Governor Trace Files

You must install and/or configure the following software components before you can begin using Resource Analyzer/Resource Governor:

- **Server.** A server must be installed and configured for Resource Analyzer/Resource Governor. The server houses the Resource Governor internal tables and processes data access requests. For details, see the *Server Installation* manual. For information about basic Resource Analyzer/Governor operations see the *Server Administration* manual.
- **WebFOCUS.** Select Resource Analyzer and/or Resource Governor during WebFOCUS client installation to run Resource Analyzer/Resource Governor reports. For details, see the *WebFOCUS and ReportCaster Installation and Configuration* manual for your platform.
- **Resource Analyzer/Resource Governor Web Application.** The Web application is required to run Resource Analyzer/Resource Governor reports. For details, see the *Data Management Administration Tools Suite Installation* manual.
- **Resource Analyzer/Governor Administrator.** Resource Analyzer and Resource Governor are used to control monitoring and build rules for data sources. To manage the associated administrative settings, you must install the Resource Analyzer/Resource Governor Administrator. For details about the Administrator, see the *Resource Analyzer Administrator's and User's Manual* and the *Resource Governor Administrator's and User's Manual*.

## Completing Resource Analyzer/Resource Governor Configuration

---

During server installation, you have the option of including Resource Analyzer/Resource Governor in your server instance. When you select this option, the first time you use the Resource Analyzer or Resource Governor Administration tool, your server instance is automatically set up for Resource Analyzer and Resource Governor and the necessary tables are created. See *How to Create Resource Analyzer/Resource Governor Internal Tables* on page 4-2.

If you did *not* select Resource Analyzer/Resource Governor during the initial server configuration, and you wish to do so at a later time, see *How to Add Resource Analyzer/Resource Governor to an Existing Server* on page 4-3.

### **Procedure** How to Create Resource Analyzer/Resource Governor Internal Tables

If you selected the Resource Analyzer/Resource Governor option during the initial installation of the server:

1. Go to the Resource Analyzer/Resource Governor Administrator and connect to the appropriate server. You are prompted for the information that is required to create the Resource Analyzer and Resource Governor internal tables. See *Resource Analyzer/Resource Governor Administration Parameters* on page 4-3. The internal tables are created based on your entries. A message is displayed when this process is completed.
2. If you selected Resource Governor during installation, go to *Running the Configuration Verification Program (CVP)* on page 4-6 before you use the Resource Governor Administrator to control monitoring and build rules.

If you are configuring for Resource Analyzer only, you do not need to run the CVP after the internal tables are created. You may begin to use the Resource Analyzer Administrator to control the monitoring of data sources.

For details about using the Administrator tools, see the *Resource Analyzer Administrator's and User's Manual* and the *Resource Governor Administrator's and User's Manual*.

**Tip:**  If you did *not* select Resource Analyzer/Resource Governor during the initial server installation and you wish to do so now, complete the steps in *How to Add Resource Analyzer/Resource Governor to an Existing Server* on page 4-3, rather than those described here.

## **Procedure** How to Add Resource Analyzer/Resource Governor to an Existing Server

If Resource Analyzer/Resource Governor was not automatically set up during the server installation, you may add it at any time, following these steps:

1. Edit the server profile, EDASPROF.EDAPROF, located on the production disk, and turn Resource Analyzer/Resource Governor on by adding the following line:

```
SET SMARTMODE=ON
```

2. Go to the Resource Analyzer/Resource Governor Administrator and connect to the appropriate server. You are prompted for the information that is required to create the Resource Analyzer and Resource Governor internal tables. See *Resource Analyzer/Resource Governor Administration Parameters* on page 4-3. The internal tables are created based on your entries. A message is displayed when this process is completed.
3. For related information about the Administrator, see the *Resource Analyzer Administrator's and User's Manual* and the *Resource Governor Administrator's and User's Manual*.

### **Next Steps:**

- If you are configuring Resource Analyzer only, the configuration process is now complete.
- If you are configuring Resource Governor, proceed to *Running the Configuration Verification Program (CVP)* on page 4-6.

## **Syntax** How to Disable Resource Analyzer/Resource Governor

If you wish to disable Resource Analyzer/Resource Governor, edit the server profile, EDASPROF.EDAPROF, located on the production disk, and turn the SMARTMODE parameter off by commenting out the statement SMARTMODE=ON:

```
-*SET SMARTMODE=ON
```

## **Reference** Resource Analyzer/Resource Governor Administration Parameters

You are prompted for the following information when you connect to the server from the Resource Analyzer/Resource Governor Administrator.

Required Information	Explanation
<p><a href="#">Owner Name</a></p>	<p>This value is required to use a relational database for collection. It serves as the owner name of the tables that are used for system administration and also, at run time, for collection by Resource Analyzer or Resource Governor. By default, the tables are created for the specified owner name in the default database. The owner must be authorized to create tables in this database.</p> <p>If you wish to create the tables in an alternate database where the owner is authorized to create tables, and if the technique is supported by the RDBMS, you can specify the database name as well (for example, database.owner). Consult the appropriate RDBMS documentation for the exact syntax.</p> <p><b>Default:</b> None</p> <p><b>Note:</b> The owner name is not applicable to FOCUS/FDS collection and may be left blank.</p>
<p><a href="#">Collection Name</a></p>	<p>This value is used by Resource Analyzer or Resource Governor as the server name in collected data and on reports.</p> <p>Any 8 character identifier is acceptable, but the value should be unique across all servers where Resource Analyzer or Resource Governor is installed.</p> <p><b>Default:</b> Host server name</p>
<p><a href="#">Collection Adapter</a></p>	<p>This value is used to identify which data adapter is used for storing Resource Analyzer or Resource Governor collection data, as well as the system administration tables.</p> <p>It also determines the SUFFIX used when creating the Master Files for these tables.</p> <p><b>Default:</b> None</p>
<p><a href="#">Server Type</a></p>	<p>This value is used to monitor the type of server being used to monitor Resource Analyzer or Resource Governor.</p> <p><b>Default:</b> Full Function Server</p>

## Granting Access to Resource Analyzer/Resource Governor Databases

---

Resource Analyzer/Resource Governor has two separate databases, one used for administration and the other is used for usage monitoring data. If you are using a relational database as your Resource Analyzer/Resource Governor repository, a GRANT command is issued for all users (PUBLIC) when the internal tables are created. This command enables them to write to the usage-monitoring database.

The owner ID specified when the internal tables are created is granted user-access rights to the administrative databases (SMCONTROL, SMKBASE, SMPRL, and SMPARAMETERS).

If you want to grant other users access to the administrative databases you must issue additional GRANT commands for those user IDs. A sample data file, GKEGRANT.DATA, can be found on the production disk. This file contains the commands needed to grant user-access to the Resource Analyzer/Resource Governor administrative databases. For sample syntax, see *How to Grant Access to an Administrative Database* on page 4-5.

### **Syntax** How to Grant Access to an Administrative Database

The following syntax grants user-access to a Resource Analyzer/Resource Governor administrative database.

```
GRANT SELECT, UPDATE, INSERT ON owner.admin_database TO user1, user2 ..
```

where:

*owner*

Is the owner name of the tables that are used for system administration and collection.

*admin\_database*

Is one of the Resource Analyzer/Resource Governor administrative databases. For details, see *Granting Access to Resource Analyzer/Resource Governor Databases* on page 4-5.

*user1, user2 ..*

Are the user IDs of the users to whom you wish to grant access.

**Note:** To grant certain users access to the Resource Analyzer/Resource Governor administrative databases, you must issue the GRANT command for each database.



## Running the Configuration Verification Program (CVP)

---

The Configuration Verification Program (CVP) is applicable *only* to Resource Governor, *not* to Resource Analyzer.

The CVP verifies Resource Governor installation and configuration. The following remote procedures are executed:

- GKECOL
- GKEPARAM
- GKEGOV
- GKERULE
- GKEDEL

For more information on these procedures, see the *Server Administration* manual.

The CVP verifies the following functionality:

- Request usage monitoring (collection).
- Request governing based on collection.

It uses a temporary table, GKEIVP, for validating usage monitoring and governing.

### **Procedure** How to Run the Resource Governor Configuration Verification Program (CVP)

1. Run the GKEIVP, located on the production disk, as a remote procedure call (RPC) from any connector that can access the server:

`EX GKEIVP`

2. Examine the output. If the Resource Governor installation and configuration is successful, the following messages are included among the output that displays:

- This statement indicates that the test data has been put into the test table, GKEIVP, for subsequent selects:

```
*****  
*   INSERTS COMPLETED FOR TEST DATA   *  
*****
```

- This statement indicates that the Resource Governor utility procedure, GKECOL, has successfully completed, and that data about test requests will be temporarily logged in the Usage Monitor:

```
*****  
*   GKECOL COMPLETED SUCCESSFULLY     *  
*****
```

- This statement indicates that the test requests using SELECT against the GKEIVP test database have completed successfully, and that usage monitoring data has been populated in the Resource Governor Usage Monitoring databases:

```
*****  
* REQUESTS COMPLETED FOR TEST COLLECTION DATA *  
*****
```

- This is a cancellation message that Resource Governor generates to indicate that a SELECT statement was issued and canceled, based on rules built by the CVP and used for governing:

```
(GKE36048) RESOURCE GOVERNOR CANCELED THIS REQUEST.   Governing  
Mode=GOVERN = GOVERN  
KBName = IVP  RuleNum = 3  Threshold Type = ROWS  Thresh Exceeded =  
10
```

If the Resource Governor installation and configuration is unsuccessful, error messages (preceded by the keyword *ERROR*) are displayed among the output, which are specific to the type of error encountered. For example:

- The following error message results from the incorrect execution of the GKECOL procedure:

```
ERROR SETTING COLLECTION ON
```

- The following error message results from the incorrect execution of the GKETABLE procedure:

```
ERROR CREATING GKETABLE
```

 **Tip:** If the success messages are not found in the TS3OUT listing, or if error messages are found, turn tracing on and examine the messages in the trace file for any problems during the setup. For more information about turning traces on and using the information contained in the trace, see the *Server Administration* manual.

## Using Resource Analyzer/Resource Governor Trace Files

---

Resource Analyzer/Resource Governor's internal trace component is called GKE.

For more information on how to turn on individual tracing systems, what is listed in a trace, and how to determine what is going on in the server when a request is processed, see the *Server Administration* manual.



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