Oracle® Rdb

Oracle SQL/Services Installation Guide

Release 7.1.6

June 2005

This document contains installation information for Oracle SQL/Services and OCI Services for Oracle Rdb Release 7.1.6 for OpenVMS Alpha and OpenVMS VAX.

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Oracle Rdb Oracle SQL/Services Release 7.1.6 Installation Guide, Release 7.1.6 for OpenVMS Alpha and OpenVMS VAX

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Preface

Oracle SQL/Services, a client/server component of Oracle Rdb, allows you to develop client application programs on a variety of desktop and mainframe systems so that you can access Oracle Rdb databases as well as other databases supported by the SQL interface to Oracle Rdb.

Purpose of This Manual

This manual describes how to install and configure Oracle SQL/Services release 7.1.6 for OpenVMS systems and, optionally, OCI Services for Oracle Rdb. This installation guide and the *Oracle Rdb Oracle SQL/Services Release 7.1.6 Release Notes* are the only manuals that you need to install the Oracle SQL/Services server and OpenVMS client API software. Refer to the readme files on the Oracle Rdb Client CD-ROM for installing all other client application programming interface (API) software.

Oracle SQL/Services software is installed separately from the SQL and Oracle Rdb software. There is a separate installation guide for installing SQL and Oracle Rdb. Oracle SQL/Services is a client/server product in which client application programs usually (but not necessarily) run on different systems than the server. Appendix A presents the installation for the Oracle SQL/Services OpenVMS client application programming interface (API) software.

You do not have to install a previous version of Oracle SQL/Services before installing Oracle SQL/Services release 7.1.6.

Keep this guide with your distribution kit. You will need it to install maintenance updates or to reinstall Oracle SQL/Services.

Intended Audience

Read this manual if you are responsible for:

- Planning the installation of Oracle SQL/Services and OCI Services for Oracle Rdb (see Chapter 1)

- Installing and running multiple versions of Oracle SQL/Services (see Chapter 2)

- Changing your system by adjusting parameters, startup and shutdown files, and privileges required for running Oracle SQL/Services (see Chapter 3)

- Perform postinstallation tasks in order to use OCI Services for Oracle Rdb (see Chapter 4)

To install the software, you must:

- Be familiar with VMSINSTAL, the command procedure used to install software products in the OpenVMS environment. To locate the description of VMSINSTAL, see the OpenVMS documentation set.

- Have access to the SYSTEM account on your system or to an account with the user privilege, SETPRV.

Operating System Information

You can find information about the versions of the operating system and optional software that are compatible with this release of Oracle SQL/Services in the latest version of the Oracle SQL/Services Release Notes, and at the Oracle Rdb product website http://www.oracle.com/rdb/product_info/index.html.

Contact your Oracle Corporation support representative if you have other questions about product requirements or compatibility.

Structure

This manual has the following chapters and appendixes:

Chapter 1	Explains how to plan the installation and prepare your system.
Chapter 2	Explains how to install and run multiple versions of Oracle SQL/Services and how to run the Installation Verification Procedure (IVP).
Chapter 3	Explains procedures to follow after the installation of Oracle SQL/Services completes successfully.

Related Documents

The Oracle SQL/Services documentation set contains detailed information and guidelines for installing software on your OpenVMS systems and for becoming familiar with related system management tasks.

The *Oracle SQL/Services Server Configuration Guide* contains information on configuring and managing the Oracle SQL/Services server on your OpenVMS systems.

The *Guide to Using the Oracle SQL/Services Client API* provides reference material and a complete description of API routines, data structures, and supported data types in addition to a description of the tools for API application development for the experienced programmer.

The latest version of the *Oracle Rdb Oracle SQL/Services Release Notes* may contain information needed to install Oracle SQL/Services and OCI Services for Oracle Rdb. In addition, the release notes may contain configuration information for OCI Services for Oracle Rdb. Read that document before starting the Oracle SQL/Services installation.

Conventions

In this manual, Oracle Rdb refers to Oracle Rdb for OpenVMS software. Release 7.1 of Oracle Rdb software is often referred to as release 7.1.

OpenVMS refers to the OpenVMS Alpha and OpenVMS VAX operating systems.

The SQL interface to Oracle Rdb is referred to as SQL. This interface is the Oracle Rdb implementation of the SQL standard adopted in 1999, in general referred to as the ANSI/ISO SQL standard or SQL:1999. See the *Oracle Rdb Release Notes for OpenVMS Alpha* for additional information about this SQL standard.

Oracle ODBC Driver for Rdb software is referred to as the ODBC driver.

Executors are referred to as services.

File names and names of utilities are varianted for a multiversion installation. That is, the file name or utility may have a two-digit version number appended as the last two characters of its name. For example, the management client may be SQLSRV_MANAGE71 and log files may be *71.log.

In examples, an implied carriage return occurs at the end of each line. You must press the Enter key at the end of a line of input.

The following conventions are also used in this manual:

Convention	Meaning
. . .	Vertical ellipsis points in an example mean that information not directly related to the example has been omitted.
. . .	Horizontal ellipsis points in statements or commands mean that parts of the statement or command not directly related to the example have been omitted.
boldface text	Boldface type in text indicates a term defined in the text.
< >	Angle brackets enclose user-supplied names.
[ ]	In text, brackets enclose optional information from which you can choose one or none. In a prompt, brackets indicate that the enclosed item is the default response. For example, [y] means the default response is Yes.
$	The dollar sign represents the DIGITAL Command Language prompt. This symbol indicates that the DCL interpreter is ready for input.
Ctrl/C	This symbol indicates that you must press the Ctrl key while you simultaneously press another key (in this case, C).

1

Preparing to Install Oracle SQL/Services for OpenVMS

This chapter discusses the preparations and requirements necessary for installing Oracle SQL/Services and, optionally, OCI Services for Oracle Rdb (formerly known as SQL*Net for Rdb).

1.1 Overview of Oracle SQL/Services

Oracle SQL/Services is a client/server component of Oracle Rdb in which the server runs on computers that use OpenVMS and the clients represent various types of remote computers.

Before installing Oracle SQL/Services, you must ensure that at least one version of Oracle Rdb or SQL is installed on your server system.

Oracle SQL/Services release 7.1.6 provides a multiversion kit only. You must specify a multiversion variant of the software kit when you invoke VMSINSTAL.

You do not need to match the Oracle SQL/Services install type with Oracle Rdb and SQL.

Installing the Oracle SQL/Services multiversion kit allows you to have multiple Oracle SQL/Services servers on a single node. Note that the OpenVMS client is installed on the server node as nonvariant. The OpenVMS client files overwrite any previously existing files.

The Oracle SQL/Services server kit for OpenVMS provides the server software that allows clients running on various types of remote computers to access databases supported by SQL on an OpenVMS server system. The Oracle SQL/Services server kit also includes software for running Oracle SQL/Services OpenVMS client applications.

Appendix A provides instructions on installing Oracle SQL/Services client application programming interface (API) software on OpenVMS systems other than the server node.

Oracle SQL/Services provides online release notes. Oracle Corporation recommends that you read the release notes before proceeding with the installation.

1.2 Overview of OCI Services for Oracle Rdb

OCI Services for Oracle Rdb provides an environment in which you can run OCI applications to access data in Oracle Rdb databases. OCI applications can use the Oracle Call Interface (OCI) or software such as the PL/SQL interface or Oracle Developer Suite to access and manage data in an Oracle Rdb database.

OCI Services for Oracle Rdb connects OCI clients to Oracle Rdb servers. The unique advantage offered by OCI Services for Oracle Rdb is the ability to use Oracle SQL semantics to access data in Oracle Rdb databases.

OCI Services for Oracle Rdb performs the following tasks:

- Identifies itself to the client applications as an Oracle database server

- Emulates many of the Oracle SQL semantics

- Uses Oracle Net (previously known as Oracle SQL*Net) for network communications

OCI Services for Oracle Rdb broadens the range of your client applications by letting you build a single source code stream that runs against either an Oracle Rdb database instance or an Oracle database instance.

For example, you can substitute the Oracle Rdb server for the Oracle server when your application requires functions supplied by an Oracle Rdb database. If you use only the Oracle Rdb server, OCI Services for Oracle Rdb provides many of the capabilities of the OCI architecture to your Oracle Rdb applications.

Figure 1–1 shows the client/server relationships in an OCI Services for Oracle Rdb environment.

Figure 1–1   Client/Server Processing
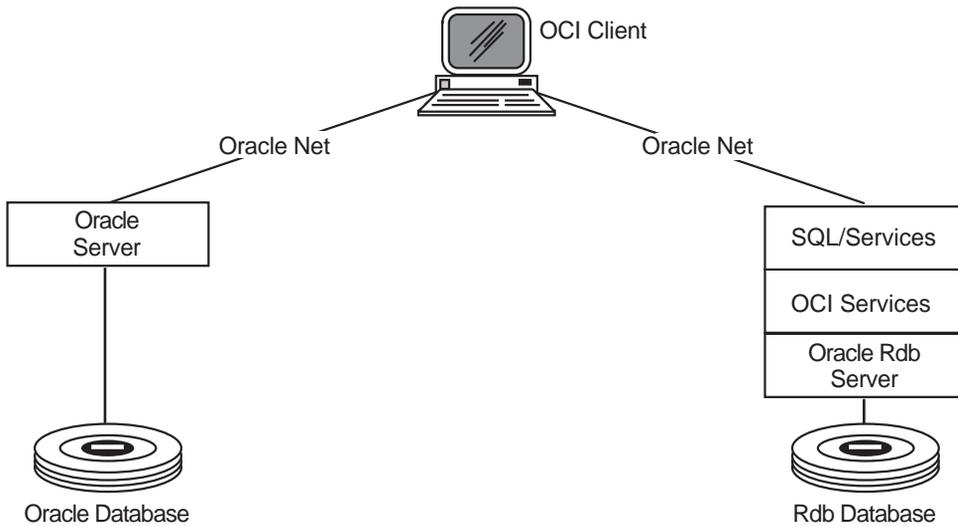
You install OCI Services for Oracle Rdb as an optional part of the Oracle SQL/Services installation procedure.

1.3 Required Operating System Classes and Subclasses

The OpenVMS operating system arranges all files into classes and subclasses. This allows customers to remove and add parts of OpenVMS by function, rather than by file. To provide full capability, each layered product requires certain OpenVMS classes or subclasses.

Oracle SQL/Services requires a minimum of the following OpenVMS classes:

- Files required for OpenVMS to boot on all systems (BASE)

- Network Support (NET)

- Programming Support (PROG)

- Secure User's Environment (USER)

- Utilities (UTIL)

1.4 Prerequisite and Optional Software

This section discusses the software that you must have installed on your system before installing Oracle SQL/Services. This section also includes information about software that you can use with Oracle SQL/Services. Refer to the latest release of the *Oracle Rdb Oracle SQL/Services Release Notes* for a complete list of compatible products and their required version numbers.

1.4.1 Operating System Requirements

Oracle SQL/Services release 7.1.6 requires one of the following OpenVMS environments:

- OpenVMS Alpha version 7.3-2 or later

- OpenVMS VAX version 7.1 or later

To run the Oracle SQL/Services server on the OpenVMS operating system, you also need the Oracle Rdb database component, release 7.0.7 or later. In addition, one or both of the following transport software options is required:

- DECnet for OpenVMS systems
  DECnet is supported on OpenVMS VAX systems. Beginning with Oracle SQL/Services release 7.1.5.8, DECnet is not supported for OCI connections on OpenVMS Alpha systems.

- HP TCP/IP Services for OpenVMS

1.4.2 Optional Software

Refer to the latest release of the *Oracle Rdb Oracle SQL/Services Release Notes* or the *Guide to Using the Oracle SQL/Services Client API* for a description of which network transports can be used with the Oracle SQL/Services API on each client system.

For a complete list of compatible products, refer to the latest release of the *Oracle Rdb Oracle SQL/Services Release Notes.*

1.5 Prerequisite Hardware

You can install Oracle SQL/Services only when your system meets or exceeds the minimum hardware and disk space requirements. The hardware requirements are listed in the latest release of the Oracle SQL/Services Release Notes, and the disk space requirements are listed in Table 1–1. The required system disk storage is not system dependent, but does depend on the Oracle SQL/Services kit that you are installing.

1.6 Installation Requirements

The following sections discuss the steps you must take and the requirements you must meet before you install Oracle SQL/Services release 7.1.6. Read the latest release of the *Oracle Rdb Oracle SQL/Services Release Notes* for the most up-to-date information about installing Oracle SQL/Services.

Note that OCI Services for Oracle Rdb on OpenVMS VAX is only supported with Oracle client releases prior to release 9.2. Oracle releases 9.2 and later do not support connecting with Oracle7. Oracle release 7.3.4 is the highest Oracle release supported on VAX; OCI Services for Oracle Rdb includes Oracle 7.3.4 libraries.

1.6.1 Disk Space

Installing the Oracle SQL/Services server requires 43,000 blocks of available disk storage space during the installation. Once the Oracle SQL/Services server is installed, less storage space is required. Installing Oracle SQL/Services and OCI Services for Oracle Rdb requires 120,000 blocks of available disk storage space.

To determine the number of available disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

1.6.2 Shut Down Oracle SQL/Services

For a multiversion installation, the Oracle SQL/Services server for a previous version can be running; the same version cannot be running. If you are installing Oracle SQL/Services in a cluster, you cannot be running the same version on any other node in the cluster. For example, if you want to install release 7.1.6, no other release of 7.1.n (where n is any number) can be running.

1.6.3 Replacing OpenVMS Client Files

The Oracle SQL/Services server installation also installs the OpenVMS client on the server node. Even though the server is installed as multiversion, the OpenVMS client software is installed as nonvarianted. Any previously existing OpenVMS client files on this node are replaced. The following files and images are replaced:

- SYS$LIBRARY:SQLSRV.H
- SYS$LIBRARY:SQLSRVCA.H
- SYS$LIBRARY:SQLSRVDA.H

- SYS$LIBRARY:SQLSRV$API.OPT
- SYS$LIBRARY:SQLSRV$API.EXE

1.6.4 Required OpenVMS Privileges

The VMSINSTAL command procedure is located in SYS$UPDATE, which is a restricted directory. To install Oracle SQL/Services, you must use an account that has the SETPRV privilege authorized. As one of its first actions, the VMSINSTAL command procedure grants all privileges except BYPASS to the process that invokes it. The VMSINSTAL command succeeds only if the account has the SETPRV privilege.

To check the default privileges of the installing account, log in and enter the following DCL command:

```
$ SHOW PROCESS/PRIVILEGES
```

If the account lacks the SETPRV privilege, you cannot install Oracle SQL/Services. You have two options:

- Ask your system manager to use the OpenVMS Authorize utility (AUTHORIZE) to modify the default privileges of your account to include the SETPRV privilege.

- Run AUTHORIZE and make the changes yourself, if the installing account has the SYSPRV privilege. For example:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> MODIFY account-name/DEFPRIVILEGES=(SETPRV)
UAF> EXIT
```

To activate the change in privileges, you must log out and then log in again.

1.6.5 Required User Limits and SYSGEN Parameters

Table 1–1 provides the minimum user process parameters and SYSGEN parameters required to install Oracle SQL/Services kit. These values are checked only during the installation procedure.

Table 1–1   Minimum User Process Parameters and SYSGEN Parameters Required for Oracle SQL/Services Installation

User Limit or SYSGEN Parameter	Value	Comment
BYTLM	20480	User process quota limit

Table 1–1   (Cont.) Minimum User Process Parameters and SYSGEN Parameters Required for Oracle SQL/Services Installation

User Limit or SYSGEN Parameter	Value	Comment
FILLM	50	User process quota limit
ENQLM	100	User process quota limit
ASTLM	24	User process quota limit
BIOLM	18	User process quota limit
DIOLM	18	User process quota limit
GBLSECTIONS	7	SYSGEN parameter
CLISYMTBL	250	SYSGEN parameter
MAXBUF	5120	SYSGEN parameter
PGFLQUOTA	5000	SYSGEN parameter
VIRTUALPAGECNT	20480	SYSGEN parameter
WSMAX	2048	SYSGEN parameter
GBLPAGES	4000 + (150 * MAXPROCESSCNT)/512 + 3	SYSGEN parameter
GBLPAGFIL	4000 + (150 * MAXPROCESSCNT)/512 + 3	SYSGEN parameter

1.6.6 Installing Process Account Password Must Not Be Locked

If the SQLSRV$DEFLT and RMU$SRV accounts do not exist, the Oracle SQL/Services installation procedure creates them. In order for the installation procedure to create these accounts and generate passwords for them, you must install Oracle SQL/Services from an account that does not have a locked password.

If the installing account has a locked password, the installation procedure cannot automatically generate a password for the created accounts and aborts with the following message:

```
************************************************************

Error generating password for the <xxx> account.
Please refer to the "Preinstallation Checklist" in the
Oracle SQL/Services Installation Guide for directions.

************************************************************
```
To modify an account with a locked password, use the Authorize utility.

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> MODIFY account-name/FLAGS=NOLOCKPWD
UAF> EXIT
```

1.6.7 Back Up Your System Disk

At the beginning of the installation, the VMSINSTAL command procedure asks if you have backed up your system disk. Oracle Corporation recommends that you back up your system disk before installing any software layered on top of the operating system.

This precaution protects your system software. A system failure at a critical point in the installation procedure could leave unusable files.

Use the backup procedures that have been established at your site. For details on backing up your system disk, see the section on the OpenVMS Backup utility in the OpenVMS documentation set.

1.6.8 Avoid Giving Users Access to Help

When the installation inserts the Oracle SQL/Services Help modules into the OpenVMS Help Library, it must have sole access to the OpenVMS Help Library. If anyone uses the HELP command when the installation tries to insert the Oracle SQL/Services Help module, the installation stalls. You can prevent other users from using Help during the installation by:

- Running the installation when no one else is logged in.

- Limiting access to the Help Library SYS$HELP:HELPLIB.HLB to the SYSTEM account. Remember to note the original protection on the library, which you can determine with the following command:

  ```
  $ DIR/PROTECTION SYS$HELP:HELPLIB.HLB
  ```

  You can limit Help Library access with the following command:

  ```
  $ SET PROTECTION = (S:RWED, O, G, W) SYS$HELP:HELPLIB.HLB
  ```

After the installation, return the protection on the Help Library to the original setting. Instructions are provided in Section 3.1.

1.6.9 Prevent Interactive Users from Gaining Access to the System

If the installation fails for an indeterminable reason, Oracle Corporation recommends that you install Oracle SQL/Services again, keeping all interactive users off the system during the installation procedure. You might also choose to keep interactive users off the system if

you will be changing any system parameter values with the AUTOGEN command procedure. Use the DCL REPLY command to inform users of the schedule for the installation. Prevent other users from logging in by issuing the DCL SET LOGIN command:

```
$ REPLY/USER "Installation of Oracle SQL/Services starting in 20 minutes. Please
log out."
$ SET LOGIN/INTERACTIVE=0
```

Both of these commands require the OPER privilege.

If any batch or device jobs are running, you have two options:

■ Wait until the last one finishes.

■ Use the DCL DELETE/ENTRY command to stop any job still running.

1.6.10 Time Required to Install Oracle SQL/Services

The installation takes approximately five minutes. This time may vary depending on your type of media, your system configuration, and whether or not you need to reboot your system.

1.6.11 UICs for the SQLSRV$DEFLT and RMU$SRV Accounts

The Oracle SQL/Services installation asks for user identification codes (UICs) for the SQLSRV$DEFLT and RMU$SRV accounts if these accounts do not exist.

To find an available UIC, decide what UIC group to use, and then run the Authorize utility (AUTHORIZE). For example, to find an available UIC in the 300 group, perform the following:

```
$ AUTHORIZE :== $AUTHORIZE
$ AUTHORIZE
UAF> SHOW/BRIEF [300,*]
```

A list of the used UICs in the 300 group is displayed. Available UICs are those that are not listed.

1.7 Preinstallation Checklist

Table 1–2 summarizes the tasks that you must perform before installing Oracle SQL/Services. Check to make sure that you have performed all these tasks before proceeding with the installation.

Table 1–2   Preinstallation Checklist

Task	For More Information
Confirm required OpenVMS components.	See Section 1.3.
Confirm required database components.	See Section 1.4.1 and the *Oracle Rdb Oracle SQL/Services Release 7.1.6 Release Notes*.
Confirm required network transport software.	See Section 1.4.1 and the *Oracle Rdb Oracle SQL/Services Release 7.1.6 Release Notes*.
Confirm required hardware.	See the *Oracle Rdb Oracle SQL/Services Release 7.1.6 Release Notes*.
Confirm adequate disk space.	See Section 1.6.1.
Shut down Oracle SQL/Services on all nodes in a cluster if you are reinstalling the same version, for example release 7.1.n	See Section 1.6.2.
Resolve file replacement considerations.	See Section 1.6.3
Confirm adequate account privileges.	See Section 1.6.4.
Define sufficient values for user limits and SYSGEN parameters.	See Section 1.6.5.
Confirm installing account does not have locked password.	See Section 1.6.6.
Back up your system disk.	See Section 1.6.7.
Set help file protection and logins.	See Section 1.6.8 and Section 1.6.9.
Choose free UICs for the SQLSRV$DEFLT and RMU$SRV accounts, if necessary.	See Section 1.6.11.

2

Installing Oracle SQL/Services and OCI Services for Oracle Rdb

This chapter describes how to install Oracle SQL/Services and OCI Services for Oracle Rdb.

2.1 Accessing the Online Release Notes

The Oracle SQL/Services installation procedure copies the latest release notes to the SYS$HELP directory. The installation provides a PDF version of the release notes: SYS$HELP:SQLSRV071_RELEASE_NOTES.PDF. Adobe Acrobat files ending with extension .PDF can be read with an Adobe Reader. Readers for many platforms are available without fee from the Adobe web site.

Hardcopy release notes are not included with the documentation for Oracle SQL/Services.

You should review the release notes in case they contain any information about changes in the installation procedure.

2.2 Multiversioning

Beginning with release 7.1.5 of Oracle SQL/Services, you can only install the multiversion format of the software.

Oracle Rdb, the SQL interface to Oracle Rdb, and Oracle SQL/Services enable you to install and run multiple versions of Oracle Rdb, SQL, and Oracle SQL/Services software on a single system. They do this by segregating multiversion images and files by a file name variant or by a directory name variant (for example, SQLSRV$STARTUP71.COM). Note that even though the multiversion kit is installed, the OpenVMS client is installed on the server node as nonvariant. The OpenVMS client files overwrite any previously existing files.

During installation, most new Oracle SQL/Services images and directories are installed as varianted. Oracle SQL/Services ensures that the new variant images work in a multiversion environment with older supported versions of Oracle Rdb and Oracle SQL/Services client software and that the images and directories for previous versions are not replaced. The exception is the Oracle SQL/Services OpenVMS client, which is always installed as standard. The following OpenVMS client files are replaced:

- SYS$LIBRARY:SQLSRV.H

- SYS$LIBRARY:SQLSRVCA.H

- SYS$LIBRARY:SQLSRVDA.H

- SYS$LIBRARY:SQLSRV$API.OPT

- SYS$LIBRARY:SQLSRV$API.EXE

The Oracle SQL/Services release 7.1.6 installation kit contains the following files:

- SQLSRVV716AM071.A – Oracle SQL/Services for OpenVMS Alpha

- SQLSRVV716VM071.A – Oracle SQL/Services for OpenVMS VAX

- SQLSRVV716AM071.B – OCI Services for Oracle Rdb for OpenVMS Alpha

- SQLSRVV716VM071.B – OCI Services for Oracle Rdb for OpenVMS VAX

- SQSCLIA071.A – Oracle SQL/Services client kit for OpenVMS Alpha

- SQSCLIV071.A – Oracle SQL/Services client kit for OpenVMS VAX

The minimum supported version of Oracle Rdb and Oracle SQL/Services client software is release 7.0.4.

The following sections describe the multiversion support available with Oracle SQL/Services.

2.2.1 Overview of Multiversion Support in Oracle SQL/Services

The following are files that you may need to use:

- SYS$STARTUP:SQLSRV$STARTUP71.COM - to start the multiversion variant

- SYS$MANAGER:SQLSRV$SHUTDOWN71.COM - to stop the multiversion variant

- SYS$SYSTEM:SQLSRV_MANAGE71.EXE - to manage the multiversion variant

- SYS$STARTUP:SQLSRV_CREATE71.COM - command procedure that invokes the SQLSRV_CREATE71.SQS script to create a default configuration on a cluster node

other than the one on which the installation was performed, and then starts Oracle SQL/Services on that node

- SYS$STARTUP:SQLSRV_CREATE71.SQS - script to create the Oracle SQL/Services dispatcher and the GENERIC service, and the Oracle RMU dispatcher and Oracle RMU service

- SYS$SYSROOT:[SYSHLP.EXAMPLES.SQLSRV71] - sample scripts and applications

- SYS$COMMON:[SYSTEST.SQLSRV71] - the version 7.1 IVP files

- SYS$MANAGER:SQLSRV_CONFIG_FILE71.DAT - contains the definitions for the server and the server components, which include the dispatcher and service definitions. See the *Oracle Rdb Oracle SQL/Services Server Configuration Guide* for a detailed description of the server and component definitions.

During installation, you are prompted to specify alternate network ports for the Oracle SQL/Services clients and management service.

To run multiple versions of Oracle SQL/Services on the same system simultaneously, each version must be using unique network ports for the Oracle SQL/Services dispatcher and management service to listen on. You may use the default network ports if you wish. However, if you do, other versions of Oracle SQL/Services must use nondefault network ports or only one version of Oracle SQL/Services can run at a time.

Oracle SQL/Services release 7.1 clients and the Oracle ODBC Driver for Rdb V2.1 and higher clients can use alternate network ports.

> **Note:** Oracle SQL/Services clients prior to release 7.0 and Oracle ODBC Driver for Rdb clients prior to release 2.1 cannot connect to the server using alternate ports. These older clients will not work with the release 7.0 and higher version of the Oracle SQL/Services server if you use alternate dispatcher ports.

By default, the Oracle SQL/Services dispatcher listens on the following network ports:

- DECnet object 81

- TCP/IP port 118

Oracle SQL/Services clients connect to these ports by default.

The Oracle SQL/Services management service listens on the following network ports:

- DECNET object SQLSRV_SERVER

- TCP/IP port 2199

2.2.2 Using Oracle SQL/Services with Multiple Versions of Oracle Rdb

To use Oracle SQL/Services with multiple versions of Oracle Rdb, you must specify the version of SQL to use in the service definition that matches the version of Oracle Rdb that you want to access. For example, specify 7.1 to access a release 7.1 Oracle Rdb database or 7.0 to access a release 7.0 Oracle Rdb database. Define a separate service for each version of Oracle Rdb to which you want to provide access for clients. See the CREATE SERVICE or ALTER SERVICE command in the *Oracle Rdb Oracle SQL/Services Server Configuration Guide*. For example, to define a universal service named V70, which accesses Oracle Rdb release 7.0, whose owner is SQLSRV$DEFLT, enter the following command:

```
SQLSRV> CREATE SERVICE V70 SQL_VERSION 7.0 OWNER SQLSRV$DEFLT
_SQLSRV> MIN_EXECUTORS 2 MAX_EXECUTORS 10;
```

2.2.3 How to Run Multiple Versions of Oracle SQL/Services

The next two sections describe what you must do to run multiple versions of Oracle SQL/Services.

2.2.3.1 Managing the Server

To manage a multiversion server on a single node or in a cluster, you must be able to do the following:

- Start and stop the server

  You must be able to start up and shut down the server by using the SYS$STARTUP:SQLSRV$STARTUP71.COM and SYS$MANAGER:SQLSRV$SHUTDOWN71.COM procedures.

- Run the Oracle SQL/Services server management utility

  To use the Oracle SQL/Services management utility, you must invoke its variant form, SQLSRV_MANAGE71. When you have Oracle SQL/Services installed and the server is defined to use alternate ports, use the SQLSRV_MANAGE71 utility to connect to the server using the CONNECT TO SERVER command. Because the alternate network port and object are already defined in the configuration file following the installation, the alternate network port or object is used by default when you specify the CONNECT TO SERVER command from a node with access to the configuration file. However, you can also explicitly specify an alternate network port or object to use in the CONNECT TO SERVER command, for example:

```
SQLUSER71> sqlsrv_manage71
```

```
SQLSRV> connect to server network_port tcpip port_id 2200;
```

■ Run the Oracle SQL/Services Manager GUI

When you have installed the multiversion variant of Oracle SQL/Services and the
server is defined to use alternate network ports, use the Oracle SQL/Services Manager
GUI to connect to the server and specify the alternate network port chosen for the
management services at installation time in the Connect to Server screen.

Be sure to follow the guidelines described in Chapter 3, particularly if you are using Oracle
SQL/Services in a cluster.

2.2.3.2 Directing Clients to the New Server

When you install the multiversion kit and you choose to specify alternate network ports to
run more than one version of Oracle SQL/Services on the same system, you must configure
clients to allow them to communicate with the new Oracle SQL/Services server.

Clients can direct SQLSRV_ASSOCIATE requests to alternate ports. This can be done as
follows:

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To specify an alternate DECnet object, define the SQLSRV$DECNET_OBJECT logical
name using the following syntax where the DECnet object can be either a number or a name:

```
$ DEFINE SQLSRV$DECNET_OBJECT "<number> | <name>"
```

For example:

```
$ DEFINE SQLSRV$DECNET_OBJECT "142"
or
$ DEFINE SQLSRV$DECNET_OBJECT "SQLSRV71"
```

To specify an alternate TCP/IP port number, define the SQLSRV$TCPIP_PORT logical
name using the following syntax where the TCPIP_PORT number must be a number:

```
$ DEFINE SQLSRV$TCPIP_PORT "<number>"
```

For example:

```
$ DEFINE SQLSRV$TCPIP_PORT "10042"
```

The definition for alternate network ports is made on a per-client-process basis.

Windows Client Systems

On Windows systems, use an initialization (.ini) file to specify alternate server network ports. On 32-bit versions of Windows, use the sqsapi32.ini file. To use an alternate network port on server node A, define an alternate network port in the section of the .ini file for server node A. The alternate network port parameters in the .ini file are TCPIPPortNumber and DECnetObject. These parameters are defined under the nodename subsection.

To specify an alternate DECnet object, define the DECnet_Object parameter, where the DECnet object can be either a number or a name:

```
;
; Use server DECnet object decnet11 when connecting to RDBSRV
;
[RDBSRV]
DECnetObject=decnet11
```

To specify an alternate TCP/IP port number, define the TCPIP PortNumber parameter, where the port number must be a number:

```
;
; Use server TCP/IP port number 1040 when connecting to RDBSRV
;
[RDBSRV]
TCPIPPortNumber=1040
```

2.3 Configuration File

The configuration file conversion procedure supports conversions of Oracle SQL/Services releases from releases 7.1 through 7.1.5.3 to releases 7.1.5.4 and later. If your current version of Oracle SQL/Services is prior to release 7.1.5.4, you MUST convert the configuration file in order to use Oracle SQL/Services release 7.1.6.

Use one of the following methods to convert the configuration file:

- If your previous version is prior to release 7.0 and the conversion procedure failed during installation, follow these steps:

    - Delete the existing configuration file

    - Start the SQL/Services monitor by hand by using this command:

        ```
        $ @SYS$STARTUP:SQLSRV$STARTUP71.COM
        ```

    - Create a new configuration file by using SYS$MANAGER:SQLSRV_CREATE71.COM or by using SQLSRV_MANAGE.

- – Run the IVP (optional).

- – If you have release 5.1, 6.0, or 6.1 Oracle SQL/Services configuration files and you want to add your classes to a release 7.1.6 configuration file, follow the steps in Section 3.7.3.

- ■ If you delete the existing configuration file before you start the installation, the installation procedure creates a new configuration file, and the conversion procedure is not performed.

- ■ The installation procedure automatically converts the configuration file if necessary.

If you have a version of Oracle SQL/Services between release 7.1 and 7.1.5.4, the Oracle SQL/Services installation procedure converts the configuration file to include the log path and dump path in the definition of the dispatchers. Later versions of Oracle SQL/Services already have the log and dump paths in the configuration file.

The conversion configures all paths using the default value of SYS$MANAGER. The path directories can be changed at a later time by using SQLSRV_MANAGER:

```
SQLSRV> alter disp OCI_DISP Log path 'directory' dump path 'directory';
```

In an OpenVMS cluster environment, the installation procedure converts the configuration file for just the node on which you perform the installation. If you have configuration files on other nodes in the cluster, you have to execute SYS$MANAGER:SQLSRV_PUT_LOG_PATH71.COM on each node in the cluster. If you share a single configuration file among multiple nodes in a cluster, you do not have to execute the command procedure.

2.4 Installation Procedure

You must install Oracle SQL/Services on each server node or cluster that will be accessed by clients. OCI Services for Oracle Rdb is provided as a part of the Oracle SQL/Services software kit.

The Oracle SQL/Services installation process consists of a series of questions and informational messages.

2.4.1 Invoking VMSINSTAL

To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. The VMSINSTAL procedure is in the SYS$UPDATE directory. You can use the following syntax to invoke VMSINSTAL:

```
@SYS$UPDATE:VMSINSTAL saveset-name device-name OPTIONS N
```

Alternatively, you can type @SYS$UPDATE:VMSINSTAL at the system prompt. VMSINSTAL prompts you for the saveset name, device name, and options parameters. The remainder of this section describes these parameters.

Parameters

saveset-name

The saveset name of Oracle SQL/Services that you want to install. For example, SQLSRVV716AM071.

device-name

The name of the device upon which you plan to mount the media. It is not necessary to use the console drive for this installation. However, if you do use the console drive, you should replace any media that you removed once the installation is complete.

OPTIONS

There are several options that you can select when you invoke VMSINSTAL. See the OpenVMS documentation set on software installation for information on these options.

The following example displays the command to invoke VMSINSTAL to install the multiversion variant of Oracle SQL/Services from CDROM DUB4: and shows the system response.

```
$ @SYS$UPDATE:VMSINSTAL SQLSRVV716AM071 DUB4:
OpenVMS AXP Software Product Installation Procedure V7.3-2

It is 15-MAY-2004 at 15:22.

Enter a question mark (?) at any time for help.
```

2.4.2 Steps of the Installation Procedure

This section discusses the installation process itself, presenting all the questions that appear during the installation. This section presumes that you entered the product name, device name, and options parameters on the VMSINSTAL command line. Refer to Appendix B for a sample installation log.

Each question in the installation procedure is marked with an asterisk (*) at the beginning of the line. Some questions that appear when you run the installation program show the default response in brackets, for example [YES]. If you want to use the default response, press the Enter key.

1. Backing up your system disk

   The VMSINSTAL procedure asks if you are satisfied with your system backup. You should always back up your system disk before performing an installation. If you are satisfied with the backup of your system disk, press the Enter key.   Otherwise, enter NO to discontinue the installation. After you back up your system disk, you can start the installation again.

   ```
   * Are you satisfied with the backup of your system disk [YES]?
   ```

2. Mounting the media

   Mount the distribution media on the device that you specified. VMSINSTAL then confirms the name of the product that you are installing.

   ```
   * Where will the distribution volumes be mounted: DKA300

   Enter the products to be processed from the first distribution volume set.
   * Products: SQLSRVV716AM071
   * Enter installation options you wish to use (none):
   The following products will be processed:
     SQLSRVV716AM V7.1

   Beginning installation of SQLSRVV716AM V7.1 at 15:22

   %VMSINSTAL-I-RESTORE, Restoring product save set A ...
   ```

3. Reviewing the installation guide

   ```
    The Oracle SQL/Services installation guide has been provided in
    SYS$HELP:SQLSRV071_INSTALL_GUIDE.PDF.  Please review the installation
    guide before continuing with this installation.
   ```

```
* Do you want to proceed ? [NO]:
```

4. **Providing only the server and local OpenVMS client on the server kit**

   The installation kit provides the Oracle SQL/Services server and the local OpenVMS client. All other clients are provided on a separate Oracle Rdb Clients CD-ROM.

   ```
    Installation procedure for: "Oracle SQL/Services V7.1-6"

       This installation kit provides the Oracle SQL/Services server
       and the local OpenVMS client.  OpenVMS remote client
       kits are provided on the Oracle Rdb OpenVMS CD-ROM.  All other
       remote client kits are provided on a separate Oracle Rdb
       Clients CD-ROM.
   ```

5. **Confirming the kit type for multiversion installation**

   VMSINSTAL confirms that this is a multiversion installation and asks if you want to continue.

   ```
       You are about to install a multiversion Oracle SQL/Services
       OpenVMS kit.

       Even though this is a multiversion kit, all client files will
       be installed nonvariated.  Any existing Oracle SQL/Services
       OpenVMS client will be replaced by this installation.

   * Do you want to proceed [YES]: y

       Checking system requirements ...
   ```

6. **Entering a UIC and device for the Oracle SQL/Services SQLSRV$DEFLT account**

   The installation procedure prints a message about choosing a user identification code (UIC) for the SQLSRV$DEFLT account if the account does not already exist.

   ```
   The installation procedure will not proceed until you enter a
   valid user identification code (UIC) for the SQLSRV$DEFLT account.

   To find a free UIC in the 300 group (or another group if you wish),
   run the authorize utility and issue the 'SHOW/BRIEF [300,*]'
   command.  This will display all the used UICs in the 300 group.
   ```

   Oracle SQL/Services creates the account to run the default universal services, which handle API requests for the OpenVMS server system. During the installation, the account is used to run the IVP. You must choose a unique UIC for the SQLSRV$DEFLT account at the following prompt:

```
* Enter UIC to be used for the SQLSRV$DEFLT account (e.g. [300,2]): [300,1]
```

A subsequent message prompts you for the device upon which to place the SQLSRV$DEFLT account. You must choose a device or accept the SYS$SYSDEVICE default. Enter the device at the following prompt:

```
* Enter the default device for the SQLSRV$DEFLT account [SYS$SYSDEVICE]:
```

7. Entering a UIC and device for the Oracle SQL/Services RMU$SRV account

The installation procedure prints a message about choosing a user identification code (UIC) for the RMU$SRV account if the account does not already exist.

```
The installation procedure will not proceed until you enter a
valid user identification code (UIC) for the RMU$SRV account.

To find a free UIC in the 300 group (or another group if you wish),
run the authorize utility and issue the 'SHOW/BRIEF [300,*]'
command.  This will display all the used UICs in the 300 group.
```

Oracle SQL/Services creates the account in order to run RMU services, which handle API requests for the OpenVMS server system. During the installation, the account is used to run the RMU IVP. You must choose a unique UIC for the RMU$SRV account at the following prompt:

```
* Enter UIC to be used for the RMU$SRV account (e.g. [300,2]): [300,3]
```

A subsequent message prompts you for the device upon which to place the RMU$SRV account. You must choose a device or accept the SYS$SYSDEVICE default. Enter the device at the following prompt:

```
* Enter the default device for the RMU$SRV account [SYS$SYSDEVICE]:
```

8. Providing the version of SQL that the universal service named GENERIC should specify

The installation procedure defines a universal service named GENERIC in the default configuration file. You are requested to enter the version of SQL to which you want the GENERIC service set. You must specify a version that is currently installed on your system.

```
    This installation procedure will define a universal Oracle
    SQL/Services service named GENERIC in the default configuration
    file.  Please specify the version of SQL you would
    like the GENERIC service to set to (STANDARD or x.y).
```

```
* What version of SQL should the GENERIC service specify?: 7.1
```

9. Configuring transports

   The installation checks to see what transports are configured and running.

```
 The Oracle SQL/Services dispatcher listens on one or more of
    DECnet, TCP/IP, or IPX/SPX ports.  The  Oracle SQL/Services
    management service listens on DECnet or TCP/IP.  If a
    transport type is configured into the server but is not
    running when the server is started messages will be logged
    in the dispatcher or monitor log files and the server will
    continue with the transports that exist.  The following
    transport(s) are not currently running:
          - IPX/SPX
    If you do not plan on running these transports in the future
    you may choose to eliminate them from the configuration and
    avoid the log messages.
```

```
* IPX/SPX is not running. Do you want to configure it anyway [NO]? y
```

10. Installing an Oracle SQL/Services multiversion kit

    The installation does the following:

    ■   Requests that you enter alternate network ports on which the dispatcher and Oracle
        SQL/Services management service listen other than the default network ports that a
        previously installed earlier version of Oracle SQL/Services may be using.

    ■   If you choose to use alternate ports for this multiversion installation, each client
        will also need to be configured to use alternate ports.

    ■   Most files are installed varianted with the Oracle SQL/Services multiversion kit.
        The following are files you need to use:

        *   SQLSRV$STARTUP71.COM - to start the multiversioned variant

        *   SQLSRV$SHUTDOWN71.COM - to stop the multiversioned variant

        *   SQLSRV_MANAGE71 - to manage the multiversioned variant

        *   SQLSRV$ALTERNATE_PORTS71.COM - a command procedure that defines
            symbols for the alternate ports used by the Oracle SQL/Services dispatcher and
            management service. This procedure is used by SQLSRV$STARTUP71.COM
            and SQLSRV$IVP.COM

        *   SYS$COMMON:[SYSTEST.SQLSRV71] - the V7.1.6 IVP files

* SYS$COMMON:[SYSHLP.EXAMPLES.SQLSRV71] - the V7.1.6 example directory

■ Note that the OpenVMS client is installed on the server node as nonvariant and replaces any previously existing OpenVMS client files.

11. Using default Oracle SQL/Services network ports

> **Warning:** Oracle SQL/Services clients before release 7.0, and Oracle ODBC Driver for Rdb clients before release 2.1, do not have the ability to connect to the server using alternate ports. Older clients will not work with the release 7.1.5 and higher versions of the server if you choose not to use default ports.

The installation asks if you want to use the default Oracle SQL/Services network ports. You must use alternate network ports on which the dispatcher and Oracle SQL/Services management service listen if you want to run an older version of Oracle SQL/Services concurrently. Therefore, accept the default No and enter alternate network ports. If you choose to use the default network ports and enter Yes, and another installed version of SQL/Services uses the default ports, only one version of Oracle SQL/Services can run at a time in your multiversion environment.

```
By default, the Oracle SQL/Services dispatcher listens on
the following network ports:
      - DECnet object 81
      - TCP/IP port 118
      - IPX/SPX port 33969 (%0x84b1)
Oracle SQL/Services clients connect to the above ports by
default.

The Oracle SQL/Services management service listens on the
following network ports:
      - DECNET object SQLSRV_SERVER
      - TCP/IP port 2199
Oracle SQL/Services management clients connect to the above
ports by default.

You may have only one version of Oracle SQL/Services running
at a time using the default network ports.  If you have another
version of Oracle SQL/Services running now, or if you will in
the future, you must choose alternate network ports for this
multiversion installation.
```

```
Note that clients by default will connect to Oracle SQL/Services
via default ports.  Oracle SQL/Services 7.0 and higher clients
and Oracle ODBC Driver for Rdb 2.1 and higher clients can
use alternate ports.  Each client must be configured
to use alternate ports if you choose not to use default
ports for this installation.  See the Oracle SQL/Services
Installation Guide for information on using alternate ports.

        ************************************************
        *                 W A R N I N G                *
        *                                              *
        * Oracle SQL/Services clients before V7.0 and *
        * Oracle ODBC Driver for Oracle Rdb clients    *
        * before V2.1 cannot connect to the server     *
        * via alternate ports.  Older clients will not*
        * work with this server if you choose not to  *
        * use default ports.                           *
        ************************************************

* Do you want to use the default Oracle SQL/Services network ports [NO]:
* Enter alternate DECnet object for Oracle SQL/Services clients: 91
* Enter alternate TCP/IP port number for Oracle SQL/Services clients: 119
* Enter alternate IPX/SPX port number for Oracle SQL/Services clients:
* Enter alternate DECnet object for Oracle SQL/Services management: dbs_server
* Enter alternate TCP/IP port number for Oracle SQL/Services management: 2200
```

12. Installing OCI Services for Oracle Rdb

The installation asks if you want to also install OCI Services for Oracle Rdb (provided
as part of the Oracle SQL/Services kit).

```
    OCI Services for Rdb connects Oracle Net clients to Rdb
    servers. OCI Services for Rdb gives you the ability to use Oracle
    SQL semantics to access data in Rdb databases.  OCI Services for
    Rdb is a server-side solution, it will not in any way impact
    your existing Oracle installation.

  Oracle OCI Services for Rdb requires that you have Open/VMS version V7.3-2
  or higher already installed on Alpha systems and V7.1 or higher on VAX
  systems.
* Do you want to install OCI Services for Rdb [YES]?
```

13.   If you have an existing Oracle installation on this system

```
    please enter the root directory of your Oracle installation
    at the following prompt
```

```
If you have not installed Oracle on this system, please
hit carriage return.  The OCI Services for Rdb configuration
files will be placed in:

    SYS$COMMON:[SQLSRV71.SQLNET...].

See the OCI Services for Rdb documentation for information on how
to change the location of OCI Services for Rdb configuration files
after installation.
```

14. Specifying the root directory

If you install OCI Services for Oracle Rdb, the Oracle SQL/Services release 7.1 installation procedure asks for the root directory of your Oracle installation, if any. This step is skipped if you do not install OCI Services for Oracle Rdb. Provide the location by taking the actions described in the following table:

If you have an existing Oracle Server installation on this system	Enter the root directory of your Oracle installation.
If you have not installed Oracle Server on this system	Enter a carriage return. The Oracle SQL/Services installation procedure creates the following directory: SYS$COMMON:[SQLSRV71.SQLNET.NETWORK.ADMIN]

The Oracle SQL/Services dispatcher looks for the OCI Services for Oracle Rdb configuration information and message files in the appropriate directory (as described in the previous table).

```
    ************************************************************

* Enter root directory of your Oracle installation (if any):
```

The Oracle SQL/Services installation procedure creates the following OCI Services for Oracle Rdb samples:

– Database

– OCI service

– OCI dispatcher

See Chapter 4 for details about postinstallation procedures for OCI Services for Oracle

Rdb.

15. Choosing to run the IVP

The Installation Verification Procedure (IVP) for Oracle SQL/Services and Oracle RMU verifies the installation. You are asked if you want to run the IVP as part of the installation procedure. If you respond YES, VMSINSTAL runs both the Oracle SQL/Services and Oracle RMU IVPs following the installation. Oracle Corporation recommends that you run the IVP to be sure that Oracle SQL/Services is installed correctly.

The Oracle SQL/Services for OpenVMS IVP verifies the installation as follows:

- Selects the DECnet transport (if it is available) and performs the IVP and then selects the TCP/IP transport (if it is available) and performs the IVP again.

- Automatically uses the GENERIC service.

- Performs an associate.

- Creates a database if the Oracle Rdb monitor is running.

- Performs updates on the database and then drops the database.

- Performs a release.

```
* Do you want to run the IVP after the installation [YES]?
```

After Oracle SQL/Services is installed, you can run the Oracle SQL/Services IVP independently to verify that the software is available on your system. You might also want to run the IVP after a system failure to be sure that users can access Oracle SQL/Services. Online help contains instructions for running the IVP independently. You can also find instructions in Section 3.9.

16. Prompting for user name and password to run the installation verification procedure

If you have chosen to run the IVP, the installation procedure prompts you for a valid user name and password to run the installation verification procedure.

```
    The installation verification procedure requires a valid
    username and password in order to run.

Enter the username under which to run the IVP: SYSTEM

Enter the password for the SYSTEM account:
```

17. Choosing to purge files

You have the option to purge previous copies of files installed by Oracle SQL/Services that are superseded by this installation. Purging is recommended; however, if you need to keep the previous versions of files, enter NO in response to the question.

```
* Do you want to purge files replaced by this installation [YES]?
```

18. Displaying informational messages

   At this point, the installation procedure displays a number of informational messages that report on the progress of the installation. There are no further questions. If the installation procedure has been successful up to this point, VMSINSTAL moves the new or modified files to their target directories and updates help files. If you asked for files to be purged, that work is done now. The following messages are displayed:

```
    There are no further questions. The installation takes
    approximately 5 minutes

%VMSINSTAL-I-RESTORE, Restoring product save set B ...

    Beginning installation ...

    Installing under VMS V7.3-2     -  15-MAY-2004 15:32
.
.
.
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...
.
.
.
```

19. Creating and starting Oracle SQL/Services server, and creating and starting Oracle RMU and Oracle SQL/Services dispatchers and services

   The installation procedure runs the sqlsrv_create.sqs script, which creates the Oracle SQL/Services server, Oracle SQL/Services and Oracle RMU dispatchers and services, and OCI Services for Oracle Rdb, then grants access to these services to PUBLIC. Then the Oracle SQL/Services server is started.

20. Running the IVPs

   If you chose to run the IVPs, VMSINSTAL runs them now. When the IVPs run successfully, you see the following display:

```
.
.
```

```
                .
        ***** Oracle SQL/Services IVP succeeded *****
                .
                .
                .
        Oracle SQL/Services client tests completed successfully.
                .
                .
                .
          *** Oracle RMU IVP completed successfully. ***
                .
                .
                .
```

2.4.3 Completing the Installation Procedure

The following messages indicate that the entire installation procedure is complete for a multiversion variant of Oracle SQL/Services for Oracle Rdb for OpenVMS Alpha:

```
Installation of SQLSRVV716AM V7.1 completed at 15:44

  Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

  Creating installation data file: VMI$ROOT:[SYSUPD]SQLSRVV716AM071.VMI_DATA

Enter the products to be processed from the next distribution volume set.
* Products:
VMSINSTAL procedure done at 15:44
```

You can now log out of the privileged account:

```
$ LOGOUT
SYSTEM     logged out at 15-MAY-2001 15:44:15.50
```

Note that VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you are going to continue using the system manager's account and you want to restore these symbols, you should log out and then log in again or run SYS$LOGIN:LOGIN.

2.5 Errors That Cause the Installation to Fail

If errors occur during the installation procedure or when the IVP is running, VMSINSTAL displays failure messages. If the installation fails, you see the following message:

```
%VMSINSTAL-E-INSFAIL, The installation of SQLSRVV716AM V7.1 has failed.
```

If the IVP fails, you see these messages:

```
The SQLSRVV716AM V7.1 Installation Verification Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for SQLSRVV716AM V7.1 has failed.
```

Errors can occur during the installation procedure if any of the following conditions exist:

- Incorrect operating system version

  The installation will fail unless you are using OpenVMS Alpha Version 7.3-2 or later or OpenVMS VAX Version 7.1 or later operating system if you want to install SQL/Services or OCI Services for Oracle Rdb.

- Incorrect optional software version

  The Oracle SQL/Services IVP fails when neither DECnet nor TCP/IP network software is running at installation time.

- Insufficient privileges

  The account you use to install Oracle SQL/Services must have the SETPRV authorized privilege. See Section 1.6.4 for information about privileges.

- Insufficient disk space on system disk

  If the system disk does not have enough blocks available to install Oracle SQL/Services, purge or delete unnecessary files according to the policies at your site. When you have enough disk space, you are ready to continue the installation procedure. See Section 1.6.1 for disk space requirements.

- Insufficient quotas and parameters for successful installation

  You must have the necessary minimum SYSGEN parameters and account quotas set. See Table 1–1 for minimum user process account quotas and SYSGEN parameters required.

- OpenVMS Help Library is currently in use

  The installation must have sole access to the OpenVMS Help Library when it tries to insert the Oracle SQL/Services Help module into the library. Note that the installation does not fail under these circumstances; the installation broadcasts messages to all users until the help file is exited. See Section 1.6.8 for more information about the OpenVMS Help Library.

- Process startup failures due to unhandled errors in systemwide OpenVMS login procedure

All processes in the Oracle SQL/Services server environment are created by running the SYS$SYSTEM:LOGINOUT image with a process-specific command procedure named SYS$INPUT. Because LOGINOUT is used to create the process, the systemwide login procedure is executed by LOGINOUT during process creation. If this procedure fails, then the Oracle SQL/Services process will fail to start. By default, any DCL command or image that completes with a failure status with a severity level of either error or fatal can cause the procedure to fail unless it is handled using the DCL ON or SET NOON commands.

All Oracle SQL/Services processes start by executing the following DCL commands during process creation:

```
$ DELETE/SYMBOL/ALL
$ VRFY_SAVE = F$VERIFY(1)
$ DELETE <disk>:[directory]SQS_<node>_<component>.COM;
$ DEFINE SQS$DBSERVER TRUE
$ DEFINE SYS$LOGIN "<disk>:[directory]"
$ SET DEFAULT SYS$LOGIN
$ DEFINE SYS$SCRATCH "<disk>:[directory]"
```

If an Oracle SQL/Services process fails before executing these commands, review the systemwide login procedure to determine the reason for the failure.

- Oracle SQL/Services service startup failures

    The following problems can cause Oracle SQL/Services service process startup failures:

    – Service owner user name disk or directory does not exist

    – Service owner user name disk or directory not readable or writeable

    – Systemwide sylogin (SYLOGIN.COM) fails

    – Service customization file fails

For descriptions of error messages generated by these conditions, see the OpenVMS documentation on system messages, recovery procedures, and OpenVMS software installation. If you are notified that any of these conditions exist, you should take the appropriate action. (You might have to change a system parameter or increase an authorized quota value.)

2.6 Installation Failures

This section describes Oracle SQL/Services installation failures most commonly observed during Oracle SQL/Services installations. Errors resulting from these failures, however, are

not exclusively installation errors, but general Oracle SQL/Services errors that can arise under a variety of circumstances.

During the execution of the installation IVP, a number of log files are produced by different Oracle SQL/Services components. If the IVP fails, you can review the Oracle SQL/Services server component log files and the Oracle SQL/Services OpenVMS client log files.

2.6.1 Examining the Oracle SQL/Services Server Component Log Files

Oracle SQL/Services uses the following conventions to generate log file names for server components, where nodename is the node name, component-id is the server component, and version is the version number:

- If the SCSNODE SYSGEN parameter is set

  ```
  SQS_<nodename>_<component-id><instance><version>.LOG
  ```

- If the SCSNODE SYSGEN parameter is blank

  ```
  SQS_<component-id><instance><version>.LOG
  ```

The following log files are created by the server components when the server is started:

- **Oracle SQL/Services monitor log file**

  Oracle SQL/Services logs the following information in the monitor log file:

  – Dispatcher and service process startup and shutdown informational messages

  – Dispatcher and service process failure error messages, including names and locations of component log files

  – Oracle SQL/Services authentication and authorization failures for Oracle SQL/Services system management clients

  – Name and location of a monitor process bugcheck dump if the monitor encounters a nonrecoverable error

  Use the following command to list monitor log files on an OpenVMS system:

  ```
  $ DIRECTORY SYS$MANAGER:SQS*MON*.LOG
  ```

  For example, a monitor log file may appear as:

  ```
  SYS$MANAGER:SQS_NODE1_SQLSRV_MON_0071.LOG
  ```

  The monitor log file contains the node name and version of Oracle SQL/Services. The component-id is SQLSRV_MON.

The log file name may be represented as:

```
SYS$MANAGER:SQS_<nodename>_SQLSRV_MON_<instance><version>.LOG
```

- **Oracle SQL/Services dispatcher log file**

    Oracle SQL/Services logs the following information in a dispatcher log file:

    – Oracle SQL/Services authentication and authorization failures for Oracle SQL/Services and Oracle RMU clients

    – Server-side client network link disconnections due to service process failures

    – Client-side client network link failures

    – Name and location of a dispatcher process bugcheck dump if the dispatcher encounters a nonrecoverable error

    If you did not specify an alternate directory for log files in the dispatcher definition, use the following command to list dispatcher log files on OpenVMS (assuming you used the word "dis" in the first 10 characters of the names of all the dispatchers in your server):

    ```
    $ DIRECTORY SQLSRV_DISP_LOGPATH:SQS*DIS*.LOG
    ```

    For example, the dispatcher log file name for a dispatcher named SQLSRV_DISP may appear as:

    ```
    SQLSRV_DISP_LOGPATH:SQS_NODE1_SQLSRV_DIS00371.LOG
    ```

    Another option is to issue the DIRECTORY command on the directory specified by the dispatcher log file logical.

    The component-id is based on the first 10 characters of the dispatcher name, followed by a unique number, followed by the version. The component-id or dispatcher name used is SQLSRV_DIS.

    The log file name may be represented as:

    ```
    SQLSRV_DISP_LOGPATH:SQS_<nodename>_SQLSRV_DIS0003<version>.LOG
    ```

    The SQLSRV_DISP_LOGPATH logical name must be defined as a system logical name. If you do not define the SQLSRV_DISP_LOGPATH logical name and do not specify an alternate directory when you define the dispatcher, the default directory for dispatcher log files is the SYS$MANAGER directory. Once you have defined this logical name, you have to restart the dispatcher.

- **Oracle SQL/Services dispatcher dump file**

The SQLSRV_DISP_DUMPPATH logical name allows you to specify the location of the dump file directory as shown in the following example:

```
$ DEFINE/SYSTEM/EXEC SQLSRV_DISP_DUMPPATH DKA100:[USER1.DUMP]
```

The SQLSRV_DISP_DUMPPATH logical name must be defined as a system logical name. If you do not define the SQLSRV_DISP_DUMPPATH logical name and do not specify an alternate directory when you define the dispatcher, the default directory for dispatcher log files is the SYS$MANAGER directory. Once you have defined this logical name, you have to restart the dispatcher.

- **Oracle SQL/Services service log file**

  Oracle SQL/Services logs the following information in a service log file:

  – Service process startup errors

  – Oracle Rdb authentication and authorization failures for Oracle SQL/Services clients that use database services with database authorization set to the connect user name

  – Oracle Rdb and SQL error messages

  – Name and location of a service process bugcheck dump if the service encounters a nonrecoverable error

  On OpenVMS, service log files are created in the default directory of the service owner account. For example, use the following commands to list service log files for a service named GENERIC with a service owner account named SQLSRV$DEFLT that has a default directory of SYS$SYSDEVICE:[SQLSRV$DEFLT].

  ```
  $ DIRECTORY SYS$SYSDEVICE:[SQLSRV$DEFLT]SQS*GENERI*.LOG
  ```

  For example:

  ```
  SYS$SYSDEVICE:[SQLSRV$DEFLT]SQS_NODE1_GENERI004000171.LOG
  ```

  On OpenVMS systems the general format of the log file name is:

  ```
  SQS_<nodename>_<portion_of_service_name><serviceno><version>.LOG.
  ```

  The component-id field is based on the first 6 characters of the service name followed by a unique number.

2.6.2 Examining the Oracle SQL/Services OpenVMS Client IVP Log Files

The OpenVMS client IVP produces one or more log files, depending on which network transports are installed. OpenVMS client IVP log files are created in the SYS$COMMON:[SYSTEST.SQLSRV71] directory and are named clientnn.log. Use the following command to check for OpenVMS client IVP log files:

```
$ DIRECTORY SYS$COMMON:[SYSTEST.SQLSRV71]CLIENT*.LOG
```

3

After Installing Oracle SQL/Services for OpenVMS

After installing Oracle SQL/Services, you should review the following list of postinstallation tasks. Some of these tasks are required and some are optional. They are described in this chapter in the order in which you should execute them.

Postinstallation tasks for OCI Services for Oracle Rdb are described in Chapter 4, "Configuring OCI Services for Oracle Rdb".

Postinstallation tasks for Oracle SQL/Services:

1. Return the system to original settings.

2. Edit the system startup and shutdown files.

3. Configure SQL/Services system for reboot.

4. Adapt Oracle SQL/Services for use in a clustered environment.

5. Tailor your system.

6. Run the configuration file conversion utility.

7. Enhance Oracle SQL/Services performance.

8. Run IVP independently.

9. Delete versions of Oracle SQL/Services.

10. Determine and report problems.

3.1 Returning the System to Original Settings

If you have set interactive logins to 0, or changed the protection on the Help Library, you must reverse these actions.

- To restore interactive logins, enter the following command:

  ```
  $ SET LOGIN/INTERACTIVE=value
  ```

- To change the protection on the Help Library, enter the following commands:

  ```
  $ SET DEFAULT SYS$HELP
  $ SET PROTECTION=(S:RWED,O:RWED,G:RWED,W:RE) HELPLIB.HLB
  ```

3.2 Editing the System Files

Add the command that starts Oracle SQL/Services to the system startup file
(SYS$STARTUP:SYSTARTUP_VMS.COM or SYS$STARTUP:SYSTARTUP_V6.COM).
You must position this new command line *after* the line that starts Oracle Rdb if you are
using Oracle SQL/Services to access Oracle Rdb and *after* the line containing
UCX$STARTUP that starts TCP/IP services if you are using TCP/IP. The following example
shows the Oracle Rdb startup command line followed by the startup command line for
Oracle SQL/Services:

```
@SYS$STARTUP:RMONSTART.COM
@SYS$STARTUP:SQLSRV$STARTUP71.COM
```

Add the following command line to the system shutdown file,
SYS$MANAGER:SYSHUTDWN.COM, to shut down Oracle SQL/Services when the
system is shut down:

```
@SYS$MANAGER:SQLSRV$SHUTDOWN71
```

You must also configure your Oracle SQL/Services server system for reboot. See Section 3.3
for more information.

3.3 Configuring an Oracle SQL/Services System for Reboot

One of the tasks of the system manager installing Oracle SQL/Services software is to ensure
that the software installed on a system is correctly configured for reboot. This is important
so that whenever the system reboots, the Oracle SQL/Services server and all its components
automatically become available and running again.

During the installation, Oracle SQL/Services either updates the existing configuration file or
creates a new one. This file contains the initial server component definitions. To ensure that
any objects (dispatchers and services) that you create will automatically start up again on a
system reboot, accept the AUTOSTART attribute as ON (the default) in your dispatcher and
service definitions. Upon a system reboot operation, the system startup procedure runs the
SQLSRV$STARTUP71.COM file (in SYS$STARTUP), which in turn starts the server with

a START SERVER command. If all necessary components are defined as AUTOSTART ON, each component starts automatically as part of the reboot operation.

> **Note:** For any component that you want to start manually after a reboot operation, be sure to specify the AUTOSTART attribute as OFF in that component's definition. You must then issue a START DISPATCHER or START SERVICE command using the SQLSRV_MANAGE utility, or use the Oracle SQL/Services Manager GUI to start these components.

3.4 VMScluster Considerations

If the processor on which you installed Oracle SQL/Services is a member of a VMScluster environment, you need to make Oracle SQL/Services available to other cluster members. To do this, edit the system startup and shutdown files of the cluster members on which you want to run and shut down Oracle SQL/Services so that they invoke the Oracle SQL/Services startup and shutdown procedures. (You may omit this step if you have already made these changes in a command file that is invoked for all cluster systems.) See Section 3.2 for information on editing the system files.

3.4.1 Starting Oracle SQL/Services on Other Nodes in Your Cluster

This section provides information about starting Oracle SQL/Services on other nodes in your cluster.

After you have installed Oracle SQL/Services on one node in your cluster, you can run the SQLSRV_CREATE71.COM file on other nodes in the cluster. You can run this command procedure on any other nodes in your cluster on which you want to have an Oracle SQL/Services server created and running. To do this, issue the following command:

```
$ @SYS$MANAGER:SQLSRV_CREATE71
```

When you issue this command, output of the script is directed to the display device. This display appears identical to a regular Oracle SQL/Services installation script display output beginning with the message "Create the Oracle SQL/Services server" and ending with the message "@SQLSRV> EXIT;".

It is possible to share the same configuration file in a cluster; each node does not have to have its own file. See Section 3.7.1 for information about how to set up a shareable file.

When you run the SQLSRV_CREATE71.COM file, this command procedure searches for an existing configuration file and, if it finds one, asks you if you want to delete and re-create the configuration file. If you reply YES or Y, the existing configuration file is deleted. If you

reply NO or N, the procedure warns you that you may get errors if you are trying to create something that already exists and tells you to ignore these errors. By answering NO, you create your default configuration again if you have accidentally deleted a portion of it.

You can also copy the existing configuration file from one node to another if you want to use the same definitions on each node.

Note that the IVP does not run when you run the SQLSRV_CREATE71.COM file. You can run the IVP manually by performing the steps described in Section 3.9.

3.4.2 File Locations and Potential File Name Conflicts

Oracle SQL/Services places a variety of files in several locations by default. These files have unique names derived in part from the object names that you provide when you create the objects using either SQLSRV_MANAGE or the Oracle SQL/Services Manager GUI (see Table 3–1). The names are guaranteed *not* to conflict within an Oracle SQL/Services configuration, but may conflict with other software.

Table 3–1   Oracle SQL/Services File Locations

Object	File Name	File's Purpose
Monitor	SYS$MANAGER:SQS_<nodename>_SQLSRV_MON_ <instance><version>.LOG	Monitor output log file
	SYS$MANAGER:SQS_<nodename>_SQLSRV_MON_ <instance><version>.DMP	Monitor bugcheck dump file
Dispatcher	SQLSRV_DISP_LOGPATH:SQS_<nodename>_<portion of dispatchername><dispatcherno><version>.LOG	Dispatcher output log file
	SQLSRV_DISP_DUMPPATH:SQS_<nodename>_<portion of dispatchername><dispatcherno>.DMP	Dispatcher bugcheck dump file
	If you do not define the SQLSRV_DISP_LOGPATH or SQLSRV_DISP_DUMPPATH logical names, the log and dump files will be copied to the SYS$MANAGER directory by default. See Section 2.6.1.	
Services	SYS$SYSDEVICE:[SQLSRV$DEFLT]SQS_<nodename>_ <portion of servicename><serviceno><version>.LOG	Services output log file
	SYS$SYSDEVICE:[SQLSRV$DEFLT]SQS_<nodename>_ <portion of servicename><serviceno>.DMP	Services bugcheck dump file

Table 3–1 (Cont.) Oracle SQL/Services File Locations

Object	File Name	File's Purpose
	The services log and dump files will be copied to the login directory of the service owner. SYS$SYSDEVICE:[SQLSRV$DEFLT] is the default location.	

3.4.3 Oracle SQL/Services Server-Related Processes Created on Your System

When you start the server with the AUTOSTART attribute set to ON, a process is created on your system for each object type defined in the configuration (dispatchers and services) in addition to the monitor process. When a service is started, the number of processes defined with the MIN_EXECUTORS value in the CREATE SERVICE command is created. The maximum number of processes for a service is the MAX_EXECUTORS value.

3.5 Tailoring Your System

This section provides information about special system arrangements and cleanup procedures that you can perform after installing Oracle SQL/Services.

3.5.1 Displaying a List of Files Installed by Oracle SQL/Services

A file is written to your system that identifies all the Oracle SQL/Services files installed on your system.

To obtain this list after the installation ends, print or type a copy of the following file on an OpenVMS system:

```
SYS$UPDATE:SQLSRVV716AM071.VMI_DATA
```

3.5.2 Restoring Site-Specific Modifications

If you chose to create a new default configuration file during the installation and if you had customized your previous Oracle SQL/Services configuration, restore those changes now by using the SQLSRV_MANAGE utility or the Oracle SQL/Services Manager GUI.

3.6 Supported Network Transports

System management on an Oracle SQL/Services system for OpenVMS requires knowledge of the client, network, and server components. This section contains specific information about the network transports supported by Oracle SQL/Services.

The Oracle SQL/Services API supports one or more transports on each client, as shown in Table 3–2.

Table 3–2   Supported Transports for the Oracle SQL/Services API on Each Client

Client	DECnet	TCP/IP	Oracle Net
Windows 95	Yes	Yes	Yes
Windows 98	Yes	Yes	Yes
Windows NT	Yes	Yes	Yes
Windows 2000	Yes	Yes	Yes
Windows ME	Yes	Yes	Yes
Windows XP	Yes	Yes	Yes
OpenVMS	Yes	Yes	Yes
HP Tru64 UNIX	Yes	Yes	Yes
Red Hat Linux	Yes	Yes	Yes
Oracle ODBC Driver for Rdb for the Windows 95 operating system	Yes	Yes	No
Oracle ODBC Driver for Rdb for the Windows 98 operating system	Yes	Yes	No
Oracle ODBC Driver for Rdb for the Windows NT operating system	Yes	Yes	No

The dispatcher supports DECnet, TCP/IP, and OCI Services for Oracle Rdb connections simultaneously, but prerequisite support for each transport must exist.

The next several sections provide general information about using each transport with Oracle SQL/Services.

3.6.1 DECnet Transport Guidelines

DECnet must be running on the OpenVMS server system and properly configured on client systems. If you have problems, be sure that you can use the file transfer utilities (such as NCP or NCL) between client and server systems. See the latest version of the *Oracle Rdb Oracle SQL/Services Release Notes* and the *Oracle Rdb Oracle SQL/Services Server Release Configuration Guide* for more information.

3.6.2 TCP/IP Transport Guidelines

To use TCP/IP with Oracle SQL/Services on an OpenVMS system, you must have TCP/IP Services installed on your OpenVMS system and a TCP/IP stack on the client. See the *Oracle Rdb Oracle SQL/Services Release 7.1.6 Release Notes* and the *Oracle Rdb Oracle SQL/Services Server Release Configuration Guide* for more information.

3.6.3 OCI Services for Oracle Rdb Transport Guidelines

OCI Services for Oracle Rdb must be installed and running on your OpenVMS server system. See the *Oracle Rdb Oracle SQL/Services Release 7.1.6 Release Notes* and the *Oracle Rdb Oracle SQL/Services Server Release Configuration Guide* for more information.

3.7 Managing Configuration Files

This section provides information about managing and upgrading configuration files.

3.7.1 Sharing the Same Configuration File in a Cluster

There are two ways to share the same configuration file in a cluster:

- OPTION 1 (Recommended):

1. Copy SYS$SYSROOT:[SYSMGR]SQLSRV_CONFIG_FILExx.DAT; (where xx = version of sql/services) to

    SYS$COMMON:[SYSMGR]SQLSRV_CONFIG_FILExx.DAT;

2. Ensure all SQLSRV_CONFIG_FILExx.DAT; files are removed from the SYS$SYS-ROOT:[SYSMGR] area.

- OPTION 2:

Define the logical SQLSRV_CONFIG_FILExx (where xx is the version of SQL/Services) to point to the directory, and name the configuration file you want it to use.

3.7.2 Extracting Service Definitions From the Configuration File

Prior to Release 7.1.5.6, there was no easy way to extract the service definitions from your configuration file. The only method would be to issue a SHOW SERVICE FULL; command from the command line interface of the SQL/Services manage utility, then add the output to a .SQS (script) file. With minimal edits, you could create a script that would allow you the ability to run the .SQS file and re-create all service definitions again. Use the .SQS files in SYS$MANAGER as templates for your edits.

Starting in Release 7.1.5.6, there is an EXTRACT command in the SQL/Services manage utility which can be used to create a script (.SQS) that allows you to rebuild your service definitions.

```
SQLSRV> EXTRACT SERVER;
SQLSRV> EXTRACT DISPATCHER;
SQLSRV> EXTRACT SERVICE;
```

These examples will extract all definitions for each keyword, or you can specifiy specific dispatchers or services to extract:

```
SQLSRV> EXTRACT DISPATCHER OCI_DISP;
SQLSRV> EXTRACT SERVICE GENERIC;
```

3.7.3 Running the Oracle SQL/Services Configuration File Conversion Utility

If you have release 5.1, 6.0, or 6.1 Oracle SQL/Services configuration files that you want to convert to release 7.1.6 files, you must first convert the files to release 7.0 files, as shown in Section 3.7.3.2, and then convert release 7.0 files to release 7.1.6 files as shown in Section 3.7.3.1.

3.7.3.1 Converting Previous Configuration Files to Release 7.1.6

Follow these steps to convert release 7.0 Oracle SQL./Services configuration files to release 7.1.6 files:

1. Run the conversion utility:

```
@ SYS$MANAGER:SQLSRV_EXT_CONFIG70TO71 sqlsrv_config_file70.dat my_config.sqs
```

where sqlsrv_config_file70.dat is the name of the SQL/Services release 7.0 configuration file that you want to convert and my_config.sqs is the SQL/Services manager script file created by this procedure that can be used to create the new configuration file.

If you interrupt the the execution of the command file, check to see if the logical SQLSRV_EXT_DISP_V70 has been assigned:

```
$ show logical SQLSRV_EXT_DISP_V70
```

If the logical has been assigned, deassign it with the following command before you run the command file again:

```
$ deassign/system SQLSRV_EXT_DISP_V70
```

2. Edit the SQL/Services manager script file (my_config.sqs) and make any corrections, such as modifying the log path for the dispatcher or the SQL release number.

3. Follow one of the following procedures to create a configuration file for release 7.1.6:

   a. Create a new configuration file:

   ```
   $ SQLSRV_MANAGE71:== $SYS$SYSTEM:SQLSRV_MANAGE71.EXE
   $ SQLSRV_MANAGE71
   SQLSRV> set config_file temp.dat;
   The configuration file does not exist or could not be opened.
   Create it now? (N)
   SQLSRV>@MY_CONFIG.SQS;
   SQLSRV>EXIT
   $ COPY TEMP.DAT;SYS$MANAGER:SQLSRV_CONFIG_FILE71.DAT;
   $ @SYS$STARTUP:SQLSRV$STARTUP71
   ```

   b. Or follow these steps to add the necessary dispatchers and services to the configuration file created by the installation:

   – Edit the my_config.sqs file to remove lines such as creating a server.

   – Run the following commands:

   ```
   $SQLSRV_MANAGE71 :== $SYS$SYSTEM:SQLSRV_MANAGE71.EXE
   $SQLSRV_MANAGE71
   SQLSRV> @MY_CONFIG.SQS; -- This file must be modified before it can
   be run
   SQLSRV> EXIT
   $ @SYS$STARTUP:SQLSRV$STARTUP71
   ```

3.7.3.2 Converting Previous Configuration Files to Release 7.0

In order to convert release 5.1, 6.0, or 6.1 Oracle SQL./Services configuration files to release 7.0 files, you can run the conversion utility, SYS$MANAGER:SQLSRV_CONVERT_ CONFIG.EXE. This conversion utility converts any Oracle SQL/Services release 5.1, 6.0, or 6.1 configuration file into a SQLSRV_MANAGE script file that you can then run to add your previously defined classes to a release 7.0 configuration file as services. You can run the utility by following these steps:

- Run the image, taking defaults for the input and output file names. The defaults are:

  SYS$STARTUP:SQLSRV$CONFIG.DAT

  SYS$STARTUP:SQLSRV_CONFIG.SQS

- Define logical names to accept an input file name and produce an output file name from specific directories. For example:

```
$ DEFINE SQLSRV$CONFIG SYS$MANAGER:SQLSRV$CONFIG61.DAT
! for the existing SQLSRV$CONFIG61.DAT
$ DEFINE SQLSRV_CONFIG MY_CONFIG_SCRIPT_FILE.SQS
! for new MY_CONFIG_SCRIPT_FILE.SQS
$ RUN SYS$MANAGER:SQLSRV_CONVERT_CONFIG.EXE
```

■   Define a foreign symbol using the arguments p1 and p2 as the input and output file
    names. For example:

```
$ CVT :== $SYS$MANAGER:SQLSRV_CONVERT_CONFIG.EXE
$ CVT SYS$MANAGER:SQLSRV$CONFIG61.DAT MY_CONFIG_SCRIPT_FILE.SQS
```

The correct Oracle Rdb version must be set for each service (CLASS in terminology used by
releases prior to release 7.0). In previous versions of Oracle SQL/Services, the version was
set by the login procedure of the account specified as the STARTUP account in the
configuration file. In Oracle SQL/Services release 7.0 and higher, the version is an attribute
(SQL VERSION) of the defined service. The conversion utility attempts to default to this
version depending on the name of the STARTUP account; however, the default may not be
correct. Before creating the script file entry, the conversion utility displays the selected
default SQL VERSION for the service and allows you to take the default or enter a different
version. The version may be either the string STANDARD or x.x where x is a decimal digit.

Once you have created the SQLSRV_MANAGE script file, you can run it to add the
services to your release 7.0 configuration file. For example:

```
$ SQLSRV_MAN :== $SYS$SYSTEM:SQLSRV_MANAGE.EXE
$ SQLSRV_MAN -INPUT MY_CONFIG_SCRIPT_FILE.SQS
```

3.8 Enhancing Oracle SQL/Services Performance

This section includes information on system tuning and explains how to install Oracle
SQL/Services images. Installing Oracle SQL/Services images as shared images can reduce
memory consumption.

3.8.1 Tuning Your System

After you install Oracle SQL/Services you can adjust your system to enhance performance
or lower the use of some system resources. Information about tuning your system is included
in the *Oracle Rdb7 Guide to Database Performance and Tuning*. See the *Oracle Rdb
Release 7.1 Installation and Configuration Guide* for suggested initial system parameter
values.

3.8.2 Installing Oracle SQL/Services Images as Shared

If you expect Oracle SQL/Services to be used extensively on your system, you can reduce the system overhead and memory requirements by installing images as shared. When images are not installed as shared, users who access the images at the same time must each have a copy of these images in memory. When images are installed as shared, everyone uses the same copy of the image, eliminating duplication and improving performance.

Oracle SQL/Services images are not installed as shared by default on your system.

To install Oracle SQL/Services images as shared, follow these steps:

1. Edit the Oracle SQL/Services startup file SYS$STARTUP:SQLSRV$STARTUP71.COM to install the following Oracle SQL/Services images as shared at system startup:

```
$!      INSTALL ADD SYS$SYSTEM:SQLSRV_MANAGE'VERSION'.EXE  /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SYSTEM:SQLSRV_MON'VERSION'.EXE     /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SYSTEM:SQLSRV_DISP'VERSION'.EXE    /SHARE/OPEN/HEADER
$!      IF F$SEARCH ("SYS$SYSTEM:SQLSRV_DISPSHR''VERSION'.EXE") .NES. ""
$!      THEN
$!         INSTALL ADD SYS$SYSTEM:SQLSRV_DISPSHR'VERSION'.EXE SHARE/OPEN/HEADER
$!      ENDIF
$!      INSTALL ADD SYS$SYSTEM:SQLSRV_EXEC'VERSION'.EXE    /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$MESSAGE:SQLSRV_MESSAGES.EXE   /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$API.EXE        /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD.EXE        /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD1PC.EXE     /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD60.EXE      /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD1PC60.EXE   /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD61.EXE      /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD1PC61.EXE   /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD70.EXE      /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD1PC70.EXE   /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD71.EXE      /SHARE/OPEN/HEADER
$!      INSTALL ADD SYS$SHARE:SQLSRV$MOD1PC71.EXE   /SHARE/OPEN/HEADER
```

These lines are commented out in the SQLSRV$STARTUP.COM FILE.

2. Remove the comment characters (!) to have Oracle SQL/Services images installed as shared. If you have a multiversion system, remove the comment character for SQLSRV$MOD*.EXE for just the release of Oracle Rdb that you are running. For example, if you are running release 7.0.7 of Oracle Rdb, remove the comment character from the line containing SQLSRV$MOD70.EXE or SQLSRV$MOD1PC70.EXE.

3. Verify that you have enough global pages and global sections to accommodate the shared images. See the *Oracle Rdb Release 7.1 Installation and Configuration Guide* for information on how to verify and change the settings for the GBLSECTIONS and GBLPAGES parameters.

3.8.3 Checking Quotas for Service Processes

In all cases, minimum values for the following quotas are required for service processes to attach to the appropriate database and execute requests. The following list provides minimum recommended values:

- File limit (FILLM): 50

- Buffered I/O limit (BIOLM): 60

- Direct I/O limit (DIOLM): 60

- AST limit (ASTLM): 250

- Timer queue entry limit (TQELM)

  A recommended value for TQELM is twice the maximum number of services you expect to be running.

- Enqueue limit (ENQLM): 18000

- Nonpaged pool limit (BYTLM): 50000

- Page file quota (PGFLQUO): 40000

3.9 Running the Oracle SQL/Services Installation Verification Procedure (IVP) Independently

The Oracle SQL/Services Installation Verification Procedure (IVP) can be run at any time after the successful installation of Oracle SQL/Services. For example, if Oracle SQL/Services does not appear to be running properly, you may want to verify that the correct Oracle SQL/Services distribution kit files are present on your system.

The account you use to run the IVP must have the TMPMBX and NETMBX privileges and the SQLSRV$CLIENT identifier or network access.

To run the Oracle SQL/Services IVP after the installation of Oracle SQL/Services, perform the following steps:

1. Set the default to the following directory:

```
$ SET DEFAULT SYS$COMMON:[SYSTEST.SQLSRV71]
```

2. Enter the following command for the Oracle SQL/Services server kit:

```
$ @SQLSRV$IVP SER
```

The standalone IVP runs in the same manner as the VMSINSTAL IVP, except that it does not run the Oracle RMU IVP. To test the RMU IVP, first set your Oracle Rdb version to 7.1, then execute the following command:

```
$ RMU/EXECUTE/COMMAND "RMU/SHOW VERSION"
```

3.10 Deleting Versions of Oracle SQL/Services

> **Note:**   The command procedure rdb$deinstall_delete.com does not delete Oracle SQL/Services.

For your convenience, Oracle SQL/Services provides a command procedure SYS$MANAGER:SQLSRV$DEINSTALL_DELETE.COM to delete current or previous versions of Oracle SQL/Services. You must run this command file from an account that has SETPRV privileges, or from an account that has SYSPRV, CMKRNL, SYSNAM, and WORLD privileges.

The deinstall procedure displays a list of the versions of Oracle SQL/Services on your system, and asks which version you want to delete. For example, if Oracle SQL/Services V6.0, V6.1, and V7.0 are already installed on your system, the deinstall procedure displays the following information:

```
$ @SYS$MANAGER:SQLSRV$DEINSTALL_DELETE

  Oracle SQL/Services versions currently installed on your system

    1       Version 6.0
    2       Version 6.1
    3       Version 7.0
    0       Quit

Enter Choice to deinstall (0...3)
```

> **Note:**   To delete versions of Oracle SQL/Services prior to V5.1, you must use the Oracle Rdb deinstall procedure.

3.11 Postinstallation Checklist

Table 3–3 summarizes the tasks that you must perform after installing Oracle SQL/Services. Ensure that you have performed all these tasks before making Oracle SQL/Services available to users.

Table 3–3   Postinstallation Checklist

Task	For More Information
Reset logins and help file protection.	See Section 3.1.
Edit system startup and shutdown files.	See Section 3.2.
Configure an Oracle SQL/Services system for reboot.	See Section 3.3.
Start Oracle SQL/Services on other nodes in the cluster.	See Section 3.4.1.
Restore site specific modifications.	See Section 3.4.2.
Convert V6.0, V6.1, or V7.0 Oracle SQL/Services configuration files to V7.1.6.	See Section 3.7.3.
Tune your system (optional).	See Section 3.8.1.
Install images as shared (optional).	See Section 3.8.2.
Check service process quotas.	See Section 3.8.3.

4

Configuring OCI Services for Oracle Rdb

This chapter describes the steps you must perform to set up and use OCI Services for Oracle Rdb (formerly known as SQL*Net for Rdb) on OpenVMS systems.

You install OCI Services for Oracle Rdb as a part of the Oracle SQL/Services installation procedure. During the installation, the procedure also installs the Oracle SQL/Services version of the Oracle Net network transport, so that OCI clients can communicate with OCI Services for Oracle Rdb. After installing OCI Services, you use the Oracle SQL/Services Manager graphical user interface (GUI) or SQLSRV_MANAGE to set up the dispatcher and services (formerly referred to as executors) with the OCI message protocol necessary for OCI Services for Oracle Rdb communications.

The installation procedure cannot complete the configuration of the OCI Services for Oracle Rdb network for the sample database because of the possible variations in your existing OCI Services for Oracle Rdb configuration.

Table 4–1 lists the postinstallation tasks you must perform in order to use OCI Services for Oracle Rdb.

Table 4–1 Setting Up to Use OCI Services for Oracle Rdb

Step	Task	Reference
1	Preparing your Rdb database for use with OCI Services for Oracle Rdb	Section 4.1
2	Defining Oracle SQL/Services Dispatcher and Services	Section 4.2
3	Configuring OCI Services for Oracle Rdb	Section 4.3
4	Starting the OCI Dispatcher and OCI Service	Section 4.4
5	Accessing the database using OCI Services	Section 4.5

Table 4–1   Setting Up to Use OCI Services for Oracle Rdb

Step	Task	Reference
7	Configuring the sample files	Section 4.3
8	Adding users	Oracle SQL/Services Server Configuration Guide

4.1 Preparing Your Database

Although you need to install OCI Services for Oracle Rdb software only once on each server system, you must prepare each Oracle Rdb database that you want to serve with OCI Services for Oracle Rdb by defining the Oracle functions and the emulated Oracle data dictionary. The following sections provide more information.

4.1.1 Defining Oracle Functions and the Emulated Oracle Data Dictionary

To install the Oracle functions, perform the following steps:

1. Enter the following command at the DCL prompt.

   - For an Oracle Rdb single-version installation, enter:

     ```
     $ @SYS$LIBRARY:RDB$SETVER STANDARD
     ```

     Using the keyword STANDARD (or just the letter S) specifies that you want to run a standard version of SQL in an Oracle Rdb single-version environment.

   - For a multiversion Oracle Rdb environment, enter the following command at the DCL prompt and specify the appropriate Oracle Rdb environment:

     ```
     $ @SYS$LIBRARY:RDB$SETVER nn
     ```

     For nn in the command line, substitute the Oracle Rdb release number (for example, @SYS$LIBRARY:RDB$SETVER 71).

     Note: You must use Oracle Rdb release 7.0.4 or higher with Oracle SQL/Services release 7.1.

2. Using the Oracle Rdb interactive SQL utility, SQL$.EXE, SQL$70.EXE, or SQL$71.EXE, attach to the database.

3. Install the Oracle functions. Skip this step if you have previously installed the SQL functions. There is no need to reinstall the functions.

After attaching to the database, install the Oracle functions by running the SQL_FUNCTIONS.SQL script. For example:

- For an Oracle Rdb single-version installation, enter:

  ```
  SQL> @SYS$LIBRARY:SQL_FUNCTIONS
  ```

- For an Oracle Rdb multiversion installation, enter:

  ```
  SQL> @SYS$LIBRARY:SQL_FUNCTIONSnn
  where nn is 70 or 71.
  ```

Note: For multiversion installations, you must include the Oracle Rdb release number when you run the SQL_FUNCTIONS.SQL script. Make sure you include the Oracle Rdb release number, *not* the Oracle SQL/Services release number.

---

4. Run the prepare program using the RDB_NATCONN71 command file (which was copied with the OCI Services for Oracle Rdb software during the installation procedure) to create the emulated Oracle data dictionary:

   ```
   $ @SYS$LIBRARY:RDB_NATCONN71.COM PREPARE
   ```

   The program prompts you for a database name and optional parameters.

4.1.2 Granting privileges

The prepare and upgrade programs, run using the RDB_NATCONN71 command file, provide a secure database where users only need SELECT privileges on the database. SELECT is the only privilege granted to user PUBLIC. If you have not already run the prepare program, enter one of the following commands to run the prepare or upgrade programs:

```
$ @SYS$LIBRARY:RDB_NATCONN71.COM PREPARE
$ @SYS$LIBRARY:RDB_NATCONN71.COM UPGRADE
```

The required rights identifier, SQLNET4RDB, is created as part of the SQL/Services installation. SQLNET4RDB is granted the required privileges for OCI Services for Oracle Rdb tables that require UPDATE, INSERT, or DELETE privileges. For new installations or for new databases that have not been previously prepared for OCI Services for Oracle Rdb, the prepare program must be run on each database that is to be accessed by OCI Services for Oracle Rdb. You must run the upgrade program for databases that have been previously pre-

pared for OCI Services for Oracle Rdb. This program upgrades all tables, views, and modules of the emulated Oracle data dictionary to the latest release.

4.2 Defining Oracle SQL/Services Dispatcher and Services

OCI Services for Oracle Rdb databases are served through Oracle SQL/Services. This section describes how to create an Oracle SQL/Services dispatcher and Oracle SQL/Services services.

The items to be configured are:

- An OCI service describes how OCI clients access a specified Oracle Rdb database.

- An OCI dispatcher uses a TCP/IP or DECnet network protocol for communications with OCI clients. OCI Services for Oracle Rdb requires that the network transport use the OCI message protocol.

You can use either of the following methods to create and manage an OCI service, dispatcher, and other configuration data:

- The Oracle SQL/Services Manager GUI utility.

    This GUI is installed with Oracle DBAPack for Oracle Rdb.

    The GUI is available on all Microsoft platforms to help you manage an Oracle SQL/Services server from any Windows client.

- The SQLSRV_MANAGE client utility.

    This utility provides a command line interface to help you manage an Oracle SQL/Services server from an OpenVMS system.

4.2.1 Defining the OCI Dispatcher

To enable an Oracle SQL/Services OCI service to which Oracle clients can connect, you need an OCI dispatcher that listens for messages using the Oracle Net transport and the OCI message protocol. The OCI_DISP dispatcher created during the Oracle SQL/Services installation is such a dispatcher and can serve all your OCI dispatcher needs for OCI Services for Oracle Rdb. However, you can create your own OCI dispatchers to satisfy any unusual requirements in your environment.

If you want to use SQLSRV_MANAGE to create your own dispatcher, use the commands in SYS$MANAGER:SQLSRV_CREATE_OCI71.SQS.

You can also use the Oracle SQL/Services Manager GUI to create your own dispatcher. Click on Dispatchers in the navigation tree on the left side of the window. Then click on

either the Create Dispatcher toolbar button, or click on the Actions pull-down menu and select Create Dispatcher. Proceed through the steps in the following list.

If the following instructions have omitted some attributes that you see on the tab pages within the Create Dispatcher window, you should supply values according to the needs of your environment.

1. On the General tab page:

   ■ Enter a unique dispatcher name.

   ■ Override the default and set AutoStart to Off.

2. On the Network Ports tab page:

   ■ Select Oracle Net for the Transport.

   ■ Specify your OCI Services for Oracle Rdb listener name for Name/ID field.

     This is the name you give to your OCI Services for Oracle Rdb listener object.

     The Oracle listener uses the name LISTENER. If the Oracle listener is running on your system, you must choose a different listener name. Each OCI Services for Oracle Rdb listener object must have a unique name and must receive connection requests on different network ports or object names.

     The OCI_DISP dispatcher created by the OCI Services for Oracle Rdb installation uses OCI_LISTENER for its listener name. Therefore, you must choose a different listener name (and different network ports or object names) if your dispatcher is to run at the same time as the supplied OCI_DISP dispatcher.

   ■ Select OCI as the Protocol.

   ■ Click on the Add button.

   ■ When you are done configuring the OCI dispatcher, click on OK. When the input box asks if you want to start the dispatcher, click on NO. The dispatcher cannot start correctly until you have completed all steps.

4.2.2 Defining the OCI Service

The following instructions take you step-by-step through the process of configuring the OCI service using the Oracle SQL/Services Manager GUI.

> **Note:** As you perform the following steps, it might be helpful to refer to the *Oracle SQL/Services Server Configuration Guide* for more information about this GUI.

1. In the Oracle SQL/Services Manager, connect to your server system and click on Services in the navigation tree on the left side of the window. Then, click on either the Create Service toolbar button, or click on the Actions pull-down menu and select the Create Service option.

   If the following instructions have omitted some attributes that you see on the tab pages within the Create Service window, you should supply values according to the needs of your environment.

2. On the General tab page:

   ■ Specify a service name.
   This is the name that you use for the OCI connection when defining your OCI Services database in the Oracle Net configuration.

   ■ Select OCI protocol to override the default SQLSRV protocol.

   ■ Specify the Service Owner as the OpenVMS user name of the owner of your OCI Services for Oracle Rdb database.

   ■ Accept the default STANDARD for SQL_Version if your Oracle Rdb installation is running the standard version. For multiversion Oracle Rdb installations, specify the Oracle Rdb release number for SQL_Version.

3. On the Reuse Scope/Executors tab page:

   ■ Accept the default SESSION for Reuse Scope.

   ■ Enter an attach statement for your OCI Services for Oracle Rdb database, or leave it blank if you are defining a universal service.

   ■ Do not specify a Default Multischema Schema. (OCI Services for Oracle Rdb does not support Oracle Rdb multischema databases at this time.)

4. On the Authorization tab page:

   ■ Accept the default Connect Username for Database Access Authorization.

5. When you are done configuring the OCI service:

■ Click on OK. When the input box asks if you want to start the service, select YES or NO. However, the service will not be available until you complete all steps.

> **Note:** The following attribute values are *not* supported for OCI Services for Oracle Rdb databases:
>
> ■ TRANSACTION for Reuse Scope
>
> ■ Service Owner for Database Access Authorization
>
> ■ Grant Use
>
> All users have access to OCI services. However, the database still is protected because access to the database must be through the connect (client) user name.

4.3 Configuring OCI Connections

An Oracle SQL/Services dispatcher that uses Oracle Net as its network transport requires OCI network and connection definitions. You must take care to preserve any existing OCI network and connection definitions when you define new definitions required by OCI Services for Oracle Rdb. The following sections describe how to create the OCI network and connection definitions with an OpenVMS text editor.

> **Note:** If both Oracle and Oracle SQL/Services co-exist on a system, Oracle Corporation recommends that you add OCI network and connection objects used by Oracle SQL/Services (such as listeners for Oracle SQL/Services dispatchers and Oracle Rdb databases) to an existing OCI network configuration through the Oracle Network Manager.

The installation of OCI Services for Oracle Rdb creates sample files to be used as templates for configuring OCI connections. The sample files described in the following sections are located on the OpenVMS server in the SYS$COMMON:[SQLSRV71.SQLNET.NETWORK.ADMIN] directory or in the [.NETWORK.ADMIN] directory below the Oracle Root directory specified during installation.

4.3.1 Configuring LISTENER.ORA

OCI Services for Oracle Rdb requires that an Oracle SQL/Services dispatcher process be running on the OpenVMS server to listen for OCI network traffic. A sample OCI dispatcher object called OCI_DISP is automatically created during the installation of OCI Services for

Oracle Rdb. Before the dispatcher can be started, the DBA must create a file called LISTENER.ORA in the SYS$COMMON:[SQLSRV71.SQLNET.NETWORK.ADMIN] directory or in the [.NETWORK.ADMIN] directory below the Oracle Root directory specified during installation. If the client system currently uses a LISTENER.ORA file, this same file should be used for Oracle Rdb access as well. The Oracle Net Assistant GUI can be used to create and maintain this file. If the client does not already have an existing LISTENER.ORA file, use an OpenVMS text editor to create it. Edit the LISTENER.ORA_ SAMPLE file and fill in values for the HOST and PORT parameters. OpenVMS node names or TCPIP addresses may be used for the HOST parameter. The default TCPIP Port is 1527. For example:

```
OCI_LISTENER =
(ADDRESS_LIST =
  (ADDRESS =
    (COMMUNITY = TCP_COM.world)
    (PROTOCOL = TCP)
    (Host = ALPHA1)
    (Port = 1527)
  ))
```

Make sure that this file is written as LISTENER.ORA in the sample directory. By default, this is the directory where Oracle SQL/Services expects to find the LISTENER.ORA file during the startup of OCI_DISP. The following example shows how to start the dispatcher:

```
SQLSRV_MANAGE> connect server;
SQLSRV_MANAGE> start dispatcher oci_disp;
SQLSRV_MANAGE> show dispatcher oci_disp;
```

The state of the dispatcher will change from starting to running. Once in a running state, the dispatcher is listening for OCI network traffic. In the rare case where OCI_DISP does not start, the default location for the OCI dispatcher log file is SYS$MANAGER:SQS_*_OCI_ DISP*.LOG where the asterisks depict the OpenVMS node name and version-specific naming convention for the process and log file. If the file is not in the default location, issue the SHOW DISPATCHER command to determine the location. Examine this log file for errors. The Oracle Network management utilities are not used to start, stop, or reconfigure an OCI Services for Oracle Rdb dispatcher. The OCI Services for Oracle Rdb OCI_DISP dispatcher must be started, stopped, and configured using the SQLSRV_MANAGE71 utility, or the Oracle Rdb DBAPack client graphical user interface (GUI).

4.3.2 Configuring TNSNAMES.ORA

The sample file TNSNAMES.ORA_SAMPLE is provided to serve as a template for the mandatory client-side TNSNAMES.ORA file. If the client system currently uses a TNSNAMES.ORA file, this same file should be used for Oracle Rdb access as well. The

Oracle Net Assistant GUI can be used to create and maintain this file. The
TNSNAMES.ORA_SAMPLE file is a template provided for customers that do not already
have Oracle OCI applications installed and configured. If the client already has an existing
TNSNAMES.ORA file, simply update that file to include:

1. A unique alias name for the Oracle Rdb connection parameters.

2. A SID or SERVICE keyword which contains the name of the Oracle SQL/Services OCI
   service. Both keywords are interchangable.

3. A valid HOST node name or TCPIP address that defines the OpenVMS system node
   name or TCPIP address.

4. The PORT parameter that contains the TCPIP port number for the OCI_DISP dispatcher
   as defined in LISTENER.ORA on the server system (1527 by default).

If the client does not already have an existing TNSNAMES.ORA file, edit
TNSNAMES.ORA_SAMPLE using any OpenVMS editor and follow the above instructions
regarding keyword parameters. The resulting file from the edit session must be called
TNSNAMES.ORA and must reside on the client system. The location for
TNSNAMES.ORA on the client is platform specific. For Windows systems, the location is
oracle_home/network/admin. Note that Oracle OCI client software must also be installed on
the client system before the client application can connect to Oracle Rdb on the server.

The following is an example of a TNSNAMES.ORA entry for an Oracle Rdb connection:

```
rdb_71 =
  (DESCRIPTION=
   (ADDRESS=
     (PROTOCOL=TCP)
     (PORT=1527)
     (HOST=alpha1))
     (CONNECT_DATA=
     (SERVICE=oci_srv)
  ))
```

In the above example, RDB_71 is the user-defined alias name. This name must be unique
within the TNSNAMES.ORA file. The PORT number must match the port number of the
OCI dispatcher running on the server. The HOST parameter is either the OpenVMS node
name or the TCPIP address of the server. Either keyword SID or SERVICE may be used to
define the Oracle SQL/Services OCI service name. In this case the Oracle SQL/Services
service name is OCI_SRV.

There are two classes of Oracle SQL/Services services: database and universal. A database
class service includes the SQL ATTACH statement in the service definition (CREATE
SERVICE or SHOW SERVICE) to a specific Oracle Rdb database. The previous example is

a database class service definition. The universal class service does not include an SQL ATTACH statement in the service definition and may be used to access different Oracle Rdb databases. When you use universal services, an additional keyword, RDB_DATABASE, must be included in the TNSNAMES.ORA file. This parameter contains the location of the Oracle Rdb database, including disk and directory names. The RDB_DATABASE keyword must immediately follow the SID or SERVICE definition.

The following is an example of a universal service TNSNAMES.ORA file:

```
rdb_u_71 =
  (DESCRIPTION=
   (ADDRESS=
     (PROTOCOL=TCP)
     (PORT=1527)
     (HOST=alpha1))
     (CONNECT_DATA=
     (SERVICE=oci_712)
     (RDB_DATABASE=dka300:[my_dir]mf_personnel)
  ))
```

When you use a universal service you can attach to multiple Oracle Rdb databases from a single connection. An ASCII script file on the OpenVMS server is required for multiple attaches. (You can also use a script to attach to a single database.) The SQL ATTACH statements are defined in the script file.

> **Note:**   When you attach to multiple Oracle Rdb databases, the first ATTACH statement must not include an alias. All other ATTACH statements must include an alias.

For example, an OpenVMS file called MULTI.SQL is created and contains the following lines:

```
-- MULTI.SQL
ATTACH 'FILENAME DKA300:[DIR]mf_personnel';
ATTACH 'ALIAS a FILENAME DKA500:[DIR1.DIR2]rdb_prod';
-- END OF FILE
```

In the TNSNAMES.ORA file, the RDB_DATABASE keyword is defined differently. An at sign (@) character is required before the name of the OpenVMS script file. The previous example used a database name for RDB_DATABASE but for multiple attaches, a script filename is specified instead. For example:

```
rdb_2_db =
  (DESCRIPTION=
```

```
(ADDRESS=
  (PROTOCOL=TCP)
  (PORT=1527)
  (HOST=alpha1))
  (CONNECT_DATA=
  (SERVICE=oci_712)
  (RDB_DATABASE=@dka300:[my_dir]multi.sql)
))
```

Whenever the objects from the second database are accessed, the alias name is required:

```
SELECT last_name FROM emp@a WHERE employee_id='00164';
```

Note that both of the universal examples reference the same universal service, OCI_712. This is possible because there is no SQL ATTACH statement associated with the OCI_712 service definition.

Before any connection can be established, the OCI dispatcher and the OCI service must be in running states on the server.

Users can then test their OCI applications (for example, SQL*Plus and Oracle Forms) by supplying the username, password, and TNS alias name during the connection.

4.3.3 Configuring Optional Files

The SQLNET.ORA_SAMPLE file is provided as a template in the event that the DBA wants to create a SQLNET.ORA file. The SQLNET.ORA file is not necessary for connecting to Oracle Rdb. It is an optional file that can be used for either specifying a default domain name other than WORLD or to enable Oracle Net logging.

The SQLNET.ORA file can reside on either the client or the server. If using SQLNET.ORA on the OpenVMS server, make sure that the AUTOMATIC_IPC parameter is set to OFF. For example:

```
AUTOMATIC_IPC = OFF
```

To specify a default domain name, other than WORLD, specify the following:

```
NAMES.DEFAULT_DOMAIN = <domain_name>
```

When tracing is enabled using the SQLNET.ORA file, the level of tracing is for the Oracle Net layer, not the OCI Services for Oracle Rdb layer.

The valid parameters for enabling SQLNET.ORA tracing, depending on where the tracing occurs (client or server, or both) are shown in Table 4–2.

Table 4–2   Valid Parameters for Enabling SQLNET.ORA Tracing

Parameter	Values
TRACE_LEVEL_CLIENT TRACE_LEVEL_SERVER	OFF The default. No trace output USER User trace information ADMIN Administration trace information SUPPORT WorldWide Customer Support trace information
TRACE_FILE_CLIENT	Default is SQLNET.TRC
TRACE_FILE_SERVER	Default is SVR_PID.TRC
TRACE_DIRECTORY_CLIENT TRACE_DIRECTORY_SERVER	Operating system specific; must be a valid directory

For example:

```
TRACE_LEVEL_CLIENT = USER
TRACE_FILE_CLIENT =  RDB.TRC
```

4.4 Starting the OCI Dispatcher and OCI Service

Whether you are using the supplied OCI_DISP dispatcher or have defined your own dispatcher, the OCI dispatcher cannot be started until you have set up the connection configuration files as described in the previous step. You can now start your OCI dispatcher. The dispatcher must be running before you can connect to your database with OCI Services for Oracle Rdb.

You can start the OCI dispatcher by using the SQLSRV_MANAGE[nn] utility START DISPATCHER [OCI_DISP or DISP_name] or by running the Oracle SQL/Services Manager GUI and connecting to the server system.

Perform the following steps to run the Oracle SQL/Services Manager GUI:

1. Click on the plus signs (+) to the left of the server and to the left of Dispatchers, if necessary, to expose the tree of dispatchers.

2. Click on your OCI dispatcher, then either click on the Start button on the toolbar or click on the Actions pull-down menu, and select the Start option.

3. Optionally, you can double click on your OCI dispatcher to confirm that it is now running.

4. Because your OCI dispatcher is now ready to run, you can enable AutoStart for your OCI dispatcher by clicking on On in the AutoStart box.

If you did not already start your OCI service, you can start it now by using SQLSRV_MANAGE[nn] to connect to the server, and typing:

```
START SERVICE <service_name>
```

You can alsostart an OCI service by running the Oracle SQL/Services Manager GUI:

1. If necessary, click on the plus signs (+) to the left of Services to expand the tree of services.

2. Double click on your OCI service to obtain a status display. If the OCI service is not running, either click on the Start button on the toolbar or click on the Actions pull-down menu and select the Start option.

    You can enable AutoStart for your OCI service in the same manner as your OCI dispatcher.

4.5 Connecting Using OCI Services for Oracle Rdb

Once your installation is complete and your database has been prepared, you can access the database in exactly the same way you would access an Oracle database. On a PC, you can invoke a SQL*Plus application by entering a command similar to the following at the DOS prompt:

Example 4–1   Invoking the SQL*PLus Application

```
sqlplus username/password@OCI_SAMPLE
```

The user name and password must be a valid OpenVMS user name and password on your server system. In Example 4–1, the variable OCI_SAMPLE defines the TNS name that accesses the OCI service on your server. You can set up the TNSNAMES.ORA file by following the instructions in section 4.3.2.

A

Installing the API on an OpenVMS Client System

This appendix discusses the installation of the Oracle SQL/Services application programming interface (API) software for OpenVMS on remote systems.

A.1 Who Should Install the Oracle SQL/Services API on the OpenVMS Client System?

You need to follow the installation procedure in this appendix if you have remote OpenVMS systems (without the Oracle SQL/Services server installed) on which you want to install the Oracle SQL/Services API on the OpenVMS client system. You *need not* perform the installation procedure if your OpenVMS system is running the Oracle SQL/Services server kit; the Oracle SQL/Services API for the OpenVMS client has already been installed and is ready to use.

A.2 Flowchart for Installing the Oracle SQL/Services API on the OpenVMS Client System

Figure A–1 describes in a flowchart format the major steps necessary for installing the Oracle SQL/Services API on an OpenVMS client system.

Figure A–1   Flowchart for Installing the Oracle SQL/Services API for the OpenVMS Client System
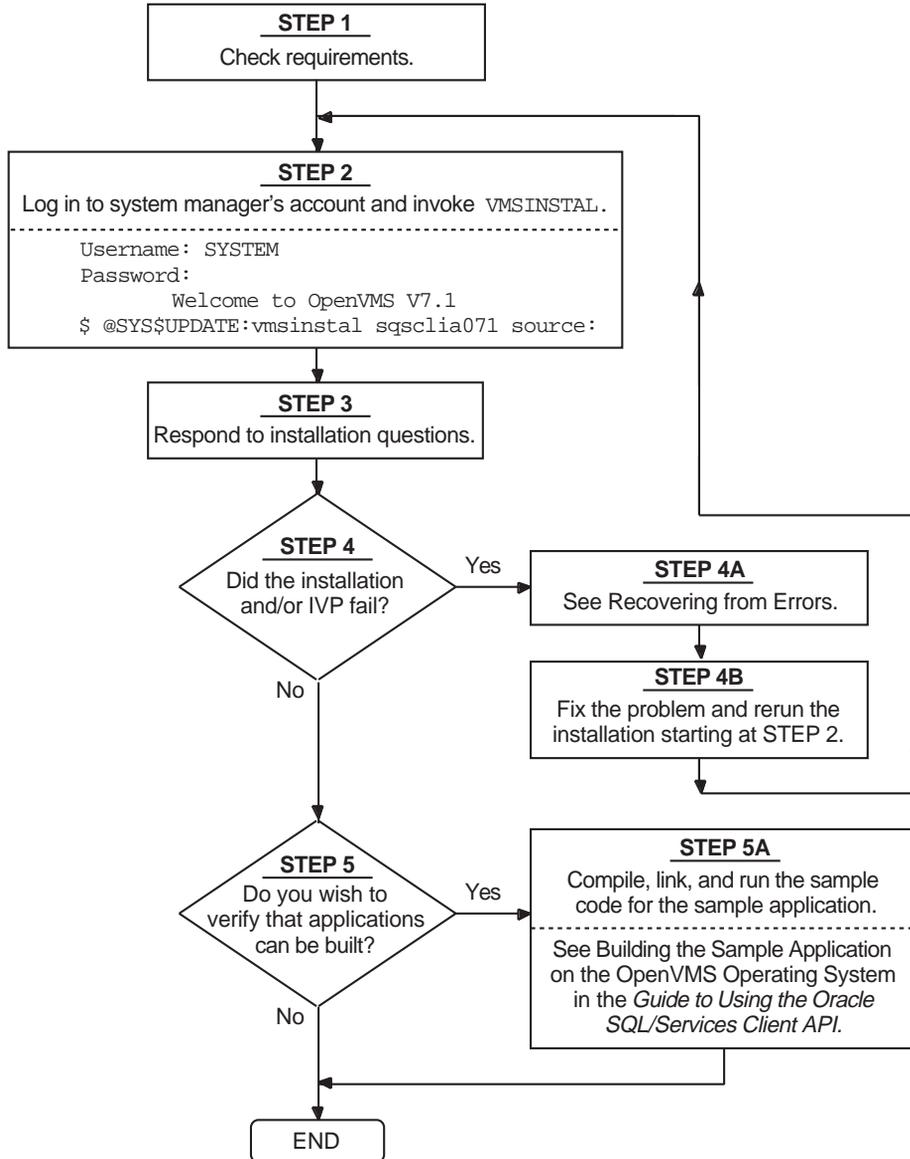
A.3 Preparing to Install the Oracle SQL/Services API on the OpenVMS Client System

This section discusses the preparations and requirements necessary for installing the Oracle SQL/Services API on the OpenVMS client on remote systems.

A.3.1 Prerequisite Software

To use the Oracle SQL/Services API for the OpenVMS client system, you must have DECnet, Transmission Control Protocol/Internet Protocol (TCP/IP), or Oracle Net network access to an OpenVMS server system running any supported version of Oracle SQL/Services so you can run the installation verification program (IVP).

- DECnet

  If you plan to use DECnet for client/server communication, you must install, configure, and run the DECnet software on both your OpenVMS client and OpenVMS server systems before you can use the Oracle SQL/Services API on the OpenVMS client system.

- TCP/IP

  If you plan to use TCP/IP for client/server communication, you must install, configure, and run the HP TCP/IP Services for OpenVMS software on both your OpenVMS client and OpenVMS server systems before you can use the Oracle SQL/Services API on the OpenVMS client system.

- OCI Services for Oracle Rdb

  If you plan to use OCI Services for Oracle Rdb for client/server communication, you must create an Oracle Net configuration. See the *Oracle SQL/Services Server Configuration Guide* for additional information about configuring OCI Services for Oracle Rdb.

The Oracle SQL/Services API on the OpenVMS client system includes client support for DECnet, TCP/IP, and Oracle Net.

The latest version of the *Oracle Rdb Oracle SQL/Services Release Notes* contains a complete list of the products that are compatible with this version of Oracle SQL/Services.

A.3.2 Installation Procedure Requirements

The following sections discuss the requirements for installing the Oracle SQL/Services API on the OpenVMS client.

A.3.2.1 Time

Installing the Oracle SQL/Services API on the OpenVMS client system and running the associated Installation Verification Procedure (IVP) takes approximately 5 minutes, depending on your system and network configurations.

A.3.2.2 Privileges

To install the Oracle SQL/Services API on the OpenVMS client system, you must be logged in to an account that has SETPRV or at least the following privileges:

- CMKRNL

- NETMBX

- PRMMBX

- SYSLCK

- SYSNAM

- SYSPRV

A.3.2.3 Disk Space

Installing the Oracle SQL/Services API on the OpenVMS client system requires 6,000 blocks of available storage space during the installation. Once the API is installed, less storage space is required.

To determine the number of available disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

A.3.2.4 VMSINSTAL Requirements

When you invoke the VMSINSTAL command procedure, it checks the following:

- If you are logged in to a privileged account

- If you have adequate quotas for installation

- If any users are logged in to the system

If VMSINSTAL detects any problems during the installation, it notifies you and asks if you want to continue the installation. In some instances, you can enter YES to continue. To stop the installation process and correct the situation, enter NO or press the Return key. Then correct the problem and start the installation again.

A.3.2.5 Backing Up Your System Disk

At the beginning of the installation, VMSINSTAL asks if you have backed up your system disk. Oracle Corporation recommends that you back up your system disk before installing any software layered on top of the operating system.

This precaution protects your system software. A system failure at a critical point in the installation procedure could result in unusable files. By backing up your system disk you also protect an existing version of the product, which may, if you request it, be deleted during the installation.

Use the backup procedures that have been established at your site. For details on backing up a system disk, see the information about the OpenVMS Backup utility in the OpenVMS documentation set.

A.4 Installing the Oracle SQL/Services API on the OpenVMS Client System

This section describes how to install the Oracle SQL/Services API on remote OpenVMS client systems.

A.4.1 Accessing the Distribution Kit

The Oracle SQL/Services API for the OpenVMS client system distribution kit save set can be found on the Oracle Rdb Server CD-ROM kit. Place this CD-ROM kit in your CD-ROM drive. The save set is used by VMSINSTAL to install the Oracle SQL/Services API on the OpenVMS client system.

A.4.2 Installation Procedure

The installation procedure for the Oracle SQL/Services API for the OpenVMS client system consists of a series of questions and informational messages. The following steps describe this process for an Oracle SQL/Services OpenVMS client API installation and provide examples of the questions and messages that you will encounter during the installation procedure.

Each question in the installation procedure is marked with an asterisk (*) at the beginning of the line. Some questions that appear when you run the installation procedure show the default response in brackets, for example, [YES]. If you want to give the default response, press the Return key or type YES. (The installation procedure accepts one, two, or three characters of the YES response, either in uppercase or lowercase letters, or any combination of uppercase and lowercase.)

To abort the installation procedure at any time, press Ctrl/Y. When you press Ctrl/Y, the installation procedure deletes all of the files that it has created up to that point and exits. You can then begin the installation procedure again.

Step 1: Log in to the system manager's account.

```
Username: SYSTEM
Password:
   Welcome to OpenVMS Alpha Operating System, Version V7.3-2 on node FLOWER
```

Step 2: Invoke VMSINSTAL.

Enter the following command to invoke the VMSINSTAL command procedure and to install the OpenVMS kit:

```
$ @SYS$UPDATE:VMSINSTAL SQSCLIA071 SOURCE
```

Replace *source* with the name of the directory on the client system where the saveset can be found. The VMSINSTAL procedure provides several options; for more information, see the OpenVMS documentation on software installation. The installation procedure displays the following information after you have successfully executed the VMSINSTAL command:

```
OpenVMS Alpha Software Product Installation Procedure V7.3-2

It is 24-MAY-2004 at 00:06.

Enter a question mark (?) at any time for help.
```

Step 3: Respond to backup question.

The VMSINSTAL procedure asks you if you are satisfied with the backup of your system disk:

```
* Are you satisfied with the backup of your system disk [YES]?
```

If you have not backed up your system disk, do not continue with the installation procedure until you do so. If you must back up the system disk, type NO. The VMSINSTAL procedure exits and returns you to the DCL prompt. Back up your system disk, and then invoke VMSINSTAL again.

If you have already backed up the system disk, type YES and press the Return key, or simply press the Return key.

```
The following products will be processed:

  SQSCLIA V7.1
```

```
        Beginning installation of SQSCLIA V7.1 at 00:07

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
```

Step 4: Select installation options.

The installation procedure then asks three questions:

```
* Do you want to install the Oracle SQL/Services version of Oracle Net?
* Do you want to purge files replaced by this installation [YES]?
* Do you want to run the IVP after the installation [YES]?
```

If you want to install the Oracle SQL/Services version of Oracle Net, answer YES to this first question. Otherwise, press the Return key to accept the default of No. Installing this Oracle Net image will not affect your existing OCI Services for Oracle Rdb installation; only Oracle SQL/Services clients and servers use this Oracle Net image.

The installation procedure does not automatically purge files that it replaces during the installation. To conserve disk space, you should purge the files. Press the Return key to direct the installation procedure to purge files that it replaces.

The Installation Verification Procedure (IVP) runs a series of tests to check that the installation procedure was successful. If you do not want to run the IVP, type NO in response to the prompt. If you want to run the IVP, press the Return key.

Step 5: Supply information for the IVP.

The IVP must establish a remote connection and thus requires a user name, password, and a node name. Enter your user name and password for the node on which the Oracle SQL/Services server is running. Supply the node name of your Oracle SQL/Services server system.

```
    ************************************************************

    The installation verification procedure requires a valid
    username and password in order to run.

    ************************************************************
Enter the username under which to run the IVP: username
Enter the password for the USERNAME account:

    ************************************************************

    The installation verification procedure requires a valid
    server node name in order to run. The IVP will call
    sqlsrv_associate using this node name.
```

```
    The IVP will fail without a valid server node name

    ************************************************************

* Enter the server node name for the IVP run: eagle

    ************************************************************
```

Step 6: Informational messages.

The installation procedure displays a number of messages about its progress:

```
    ************************************************************

    The Oracle SQL/Services Installation Verification Procedure
    (IVP) has been provided in SYS$COMMON:[SYSTEST.SQLSRV71].  It is
    invoked while inside the above directory using the commands:

            $ SET DEFAULT SYS$COMMON:[SYSTEST.SQLSRV71]
            $ @SQLSRV$IVP API

    ************************************************************

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
```

Step 7: Check for successful execution of the IVP.

If you chose to run the IVP in step 4, the installation procedure displays messages similar to the following:

```
Executing IVP for: Oracle SQL/Services V7.1-60
  Starting the DECnet test.

***** Connecting to generic service *****

***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  DECnet test completed successfully.

  Starting the TCP/IP test.

***** Connecting to generic service *****
```

```
***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  TCPIP test completed successfully.

Oracle SQL/Services client tests completed successfully.


IVP complete for: Oracle SQL/Services V7.1-60
```

Oracle SQL/Services checks internally to ensure that a transport is available. If DECnet support is provided, but TCP/IP is not, the IVP runs using DECnet. If TCP/IP support is provided, but DECnet is not, the IVP runs using TCP/IP. The IVP performs tests with both DECnet and TCP/IP when *both* DECnet and TCP/IP transports are available.

Step 8: End the installation procedure.

The installation procedure ends automatically with the following message:

```
Installation of SQSCLIA V7.1 completed at 00:08

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file: VMI$ROOT:[SYSUPD]SQSCLIA071.VMI_DATA

 VMSINSTAL procedure done at 00:08
```

VMSINSTAL deletes or changes your DCL symbols during the installation procedure. Therefore, if you are going to continue using the same account and you want to restore the symbols, you should log out and log in again.

A.4.3 Recovering from Errors

Errors can occur during the installation procedure if any of the following conditions exist:

- The server node does not have TCP/IP Services functioning correctly.

- The server node does not have DECnet functioning correctly.

- The server node is unavailable.

- The server node name is invalid.

- The server software is not installed, is improperly installed, or is not started.

- The server IVP failed.

- The client node has insufficient disk space.

- The client account has insufficient privileges.

- The client node does not have DECnet or TCP/IP Services functioning correctly.

- The local node name in the host database for TCP/IP Services is not in lowercase letters or a lowercase alias is not present.

A.5 Postinstallation Procedures

This section includes information about the files added to your system and running the IVP.

A.5.1 Files Added to the System

All C language header files (.h) and source files (.c) listed in Table A–1 are *created* on the client node during the installation of the Oracle SQL/Services API on the OpenVMS client system.

Table A–1   Files Created on or Copied to OpenVMS

VMI$ROOT	Name	Description
[SYSHLP.EXAMPLES.SQLSRV]	SQLSRV$DRIVER.C	Sample application driver module
[SYSHLP.EXAMPLES.SQLSRV]	SQLSRV$DYNAMIC.C	Sample application dynamic execution module
[SYSLIB]	SQLSRV$API.EXE	API library for local I/O
[SYSLIB]	SQLSRV$API.OPT	Link options file for API library (D_FLOAT)
[SYSLIB]	SQLSRV.H	C header file containing Oracle SQL/Services function prototypes, structure definitions, and typedefs
[SYSLIB]	SQLSRVCA.H	C declaration for the SQLCA structure
[SYSLIB]	SQLSRVDA.H	C declaration for the SQLDA structure
[SYSTEST.SQLSRV71]	SQLSRV$IVP.COM	Installation verification command procedure
[SYSTEST.SQLSRV71]	SQLSRV$IVP.EXE	IVP executable (D_FLOAT)
[SQLSRV71.SQLNET.NETWORK. MESG]	TNSUS.MSB	Oracle Net message file

The IVP produces a log file, called clientnn.log, every time you run the IVP. The log file is used primarily to capture error messages when the IVP fails. You can save disk space by deleting any unnecessary log files.

A.5.2 Running the IVP

You can run the IVP independently, any time after the Oracle SQL/Services API software is installed on the OpenVMS client system, to verify that the software is available on your system. You might also want to run the IVP after a system failure to be sure that users can access Oracle SQL/Services. Should you want to run the IVP again without installing Oracle SQL/Services, enter the following commands:

```
$ SET DEFAULT SYS$COMMON:[SYSTEST.SQLSRV71]
$ @SQLSRV$IVP API
```

The IVP displays a question asking you for the node name of the system upon which the server is installed:

```
* Enter the Oracle SQL/Services server node name:
```

After you respond with the node name, the IVP prompts for a user name and password. After you respond to these questions, the IVP runs automatically, displaying messages as it performs the software verification process:

```
Starting the DECnet test.
Enter the username: xxx
Enter the password: xxx
***** Connecting to generic service *****

***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  DECnet test completed successfully.

 Oracle SQL/Services client tests completed successfully.
```

A.6 Sample Installation

A sample Oracle SQL/Services API software installation log for the OpenVMS Alpha client system follows:

```
$ @SYS$UPDATE:VMSINSTAL SQSCLIA071 SOURCE

        OpenVMS Alpha Software Product Installation Procedure V7.3-2


It is 24-MAY-2004 at 00:06.

Enter a question mark (?) at any time for help.
%VMSINSTAL-W-NOTSYSTEM, You are not logged in to the SYSTEM account.
* Do you want to continue anyway [NO]? y
* Are you satisfied with the backup of your system disk [YES]?

The following products will be processed:
  SQSCLIA V7.1

        Beginning installation of SQSCLIA V7.1 at 00:07

%VMSINSTAL-I-RESTORE, Restoring product save set A ...

    ******************************************************************
    The Oracle SQL/Services OpenVMS client "V7.0-02" is
    installed on this system.  This installation will replace the
    currently installed Oracle SQL/Services OpenVMS client software.
    ******************************************************************

* Do you want to proceed [NO]: y

    **************************************************************

    If you wish to use Oracle SQL*Net with Oracle SQL/Services,
    you will need to install an Oracle SQL/Services specific
    version of Oracle SQL*Net.  Note that installing the
    Oracle SQL/Services version of Oracle SQL*Net will not in
    any way impact your existing Oracle SQL*net installation,
    if any.  Only Oracle SQL/Services clients and servers
    use the Oracle SQL*Net image provided by this installation.

    **************************************************************
* Do you want to install the Oracle SQL/Services version of Oracle SQL*Net? [y]:
* Do you want to purge files replaced by this installation [YES]?
* Do you want to run the IVP after the installation [YES]?

    **************************************************************
```

```
    The installation verification procedure requires a valid
    username and password in order to run.

    ************************************************************
Enter the username under which to run the IVP: username
Enter the password for the USERNAME account:

    ************************************************************

    The installation verification procedure requires a valid
    server node name in order to run.  The IVP will call
    sqlsrv_associate using this node name.

    The IVP will fail without a valid server node name

    ************************************************************

* Enter the server node name for the IVP run: eagle

    ************************************************************

    The Oracle SQL/Services Installation Verification Procedure
    (IVP) has been provided in SYS$COMMON:[SYSTEST.SQLSRV].  It is
    invoked while inside the above directory using the commands:

                $ SET DEFAULT SYS$COMMON:[SYSTEST.SQLSRV]
                $ @SQLSRV$IVP API

    ************************************************************

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...

Executing IVP for: Oracle SQL/Services V7.1-60
  Starting the DECnet test.

***** Connecting to generic service *****

***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  DECnet test completed successfully.
```

```
   Starting the TCP/IP test.

***** Connecting to generic service *****

***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  TCPIP test completed successfully.

Oracle SQL/Services client tests completed successfully.


IVP complete for: Oracle SQL/Services V7.1-60

        Installation of SQSCLIA V7.1 completed at 00:08

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file: VMI$ROOT:[SYSUPD]SQSCLIA071.VMI_DATA

        VMSINSTAL procedure done at 00:08
```

B

Sample Installation: Oracle SQL/Services Server Kit

This appendix contains a full server kit sample installation log for Oracle SQL/Services (including OCI Services for Oracle Rdb) for OpenVMS.

An example of a new installation procedure log on an OpenVMS Alpha system is included here to further guide system managers who are installing Oracle SQL/Services release 7.1.6.

```
$ @SYS$UPDATE:VMSINSTAL SQLSRVV716AM071 DUB4:
OpenVMS AXP Software Product Installation Procedure V7.3-2

It is 15-MAY-2004 at 15:22.

Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]?

* Where will the distribution volumes be mounted: DKA300

Enter the products to be processed from the first distribution volume set.
* Products: SQLSRVV716AM V7.1 at 15:22
* Enter installation options you wish to use (none):
The following products will be processed:
  SQLSRVV716AM V7.1

Beginning installation of SQLSRVV716AM V7.1 at 15:22

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
    Oracle SQL/Services release 7.1.5.8 and later is compiled explicitly
    for systems using the Alpha EV56 processor. If executed on an older
    processor, some operatins will be executed in emulation mode and
    will perform significantly slower.
```

```
 The Oracle SQL/Services installation guide has been provided in
 SYS$HELP.  Please review the installation guide before continuing
 with this installation.

*Do you want to proceed ? [NO]: Y


 Installation procedure for: "Oracle SQL/Services V7.1-6"

    This installation kit provides the Oracle SQL/Services server
    and the local OpenVMS Alpha client.  OpenVMS remote client
    kits are provided on the Oracle Rdb OpenVMS CD-ROM.  All other
    remote client kits are provided on a separate Oracle Rdb
    Clients CD-ROM.


    ************************************************************

    You are about to install a multiversion Oracle SQL/Services
    OpenVMS Alpha kit.

    Even though this is a multiversion kit, all client files will
    be installed nonvarianted.  Any existing Oracle SQL/Services
    OpenVMS Alpha client will be replaced by this installation.

    ************************************************************

* Do you want to proceed ? [YES]:

    Checking system requirements ...


    ********************************************************************

    The installation procedure will not proceed until you enter a
    valid user identification code (UIC) for the SQLSRV$DEFLT account.

    To find a free UIC in the 300 group (or another group if you wish),
    run the authorize utility and issue the 'SHOW/BRIEF [300,*]'
    command.  This will display all the used UICs in the 300 group.

    ********************************************************************
```

```
* Enter UIC to be used for the SQLSRV$DEFLT account (e.g. [300,2]): [300,1]
* Enter the default device for the SQLSRV$DEFLT account [SYS$SYSDEVICE]:

    ********************************************************************

    The installation procedure will not proceed until you enter a
    valid user identification code (UIC) for the RMU$SRV account.

    To find a free UIC in the 300 group (or another group if you wish),
    run the authorize utility and issue the 'SHOW/BRIEF [300,*]'
    command.  This will display all the used UICs in the 300 group.

    ********************************************************************

* Enter UIC to be used for the RMU$SRV account (e.g. [300,2]): [300,3]
* Enter the default device for the RMU$SRV account [SYS$SYSDEVICE]:

    ********************************************************************

    This installation procedure will define a universal Oracle
    SQL/Services service named GENERIC in the default configuration
    file.  Please specify the version of SQL you would
    like the GENERIC service to set to (STANDARD or x.y).

    ********************************************************************

* What version of SQL should the GENERIC service specify?: 7.1

    ********************************************************************
    The Oracle SQL/Services dispatcher listens on one or more of
    DECnet, TCP/IP, or IPX/SPX ports.  The  Oracle SQL/Services
    management service listens on DECnet or TCP/IP.  If a
    transport type is configured into the server but is not
    running when the server is started messages will be logged
    in the dispatcher or monitor log files and the server will
    continue with the transports that exist.  The following
    transport(s) are not currently running:
          - IPX/SPX
    If you do not plan on running these transports in the future
    you may choose to eliminate them from the configuration and
    avoid the log messages.
    ********************************************************************"

* IPX/SPX is not running. Do you want to configure it anyway [NO]? y
```

```
************************************************************

You have chosen to install a multiversioned Oracle
SQL/Services.

By default, the Oracle SQL/Services dispatcher listens on
the following network ports:
        - DECnet object 81
        - TCP/IP port 118
        - IPX/SPX port 33969 (%0x84b1)
Oracle SQL/Services clients connect to the above ports by
default.

The Oracle SQL/Services management service listens on the
following network ports:
        - DECNET object SQLSRV_SERVER
        - TCP/IP port 2199
Oracle SQL/Services management clients connect to the above
ports by default.

You may have only one version of Oracle SQL/Services running
at a time using the default network ports.  If you have another
version of Oracle SQL/Services running now, or if you will in
the future, you must choose alternate network ports for this
multiversion installation.

Note that clients by default will connect to Oracle SQL/Services
via default ports.  Oracle SQL/Services 7.0 and higher clients
and Oracle ODBC Driver for Rdb 2.1 and higher clients can
use alternate ports.  Each client must be configured
to use alternate ports if you choose not to use default
ports for this installation.  See the Oracle SQL/Services
Installation Guide for information on using alternate ports.

          ************************************************
          *                 W A R N I N G               *
          *                                             *
          * Oracle SQL/Services clients before V7.0 and *
          * Oracle ODBC Driver for Oracle Rdb clients   *
          * before V2.1 cannot connect to the server    *
          * via alternate ports.  Older clients will not*
          * work with this server if you choose not to  *
          * use default ports.                          *
          ************************************************
```

```
* Do you want to use the default Oracle SQL/Services network ports [NO]? y

   ****************************************************************

   OCI Services for Oracle Rdb connects Oracle Net clients to Rdb
   servers.  OCI Services for Oracle Rdb gives you the ability to
   use Oracle SQL semantics to access data in Rdb databases.
   OCI Services for Oracle Rdb is a server-side solution, it will not
   in any way impact your existing Oracle installation.

   OCI Services for Oracle Rdb requires that you have Open/VMS
   version V7.3 or higher already installed on Alpha systems and
   V7.1 or higher on VAX systems.

   ****************************************************************

* Do you want to install OCI Services for Oracle Rdb[YES]?

   ****************************************************************

   If you have an existing Oracle installation on this system
   please enter the root directory of your Oracle installation
   at the following prompt

   If you have not installed Oracle on this system, please hit
   carriage return.  The OCI Services for Oracle Rdb configuration
   files will be placed in:

      SYS$COMMON:[SQLSRV71.SQLNET...].

   See the OCI Services for Oracle Rdb documentation for information
   on how to change the location of OCI Services for Oracle Rdb
   configuration files after installation.

   ****************************************************************

* Enter root directory of your Oracle installation (if any):
* Do you want to run the IVP after the installation [YES]?

   ****************************************************************

   The installation verification procedure requires a valid
   username and password in order to run.

   ****************************************************************
```

```
Enter the username under which to run the IVP: jones

Enter the password for the JONES account:

* Do you want to purge files replaced by this installation [YES]?

    There are no further questions.  The installation takes
    approximately 5 minutes

%VMSINSTAL-I-RESTORE, Restoring product save set B ...


    Beginning installation ...


    Installing under VMS V7.3-2     - 15-MAY-2004 15:32


%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSTEST.SQLSRV71].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.SQLSRV71].
%VMSINSTAL-I-ACCOUNT, This installation updates an identifier named
SQLSRV$CLIENT.
%UAF-I-RDBMDFYMSG, identifier SQLSRV$CLIENT modified
%VMSINSTAL-I-ACCOUNT, This installation updates an identifier named
RDB$TRUSTED_USER.
%UAF-I-RDBMDFYMSG, identifier RDB$TRUSTED_USER modified
%VMSINSTAL-I-ACCOUNT, This installation updates an identifier named
SQLSRV_SHARED_MEMORY.
%UAF-I-RDBMDFYMSG, identifier SQLSRV_SHARED_MEMORY modified
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named SQLSRV$DEFLT.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier SQLSRV$DEFLT value [000300,000001] added to rights
database
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named SQLSRV$DEFLT.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named SQLSRV$DEFLT.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named SQLSRV$DEFLT.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
SYS$SYSDEVICE:[SQLSRV$DEFLT].

    *************************************************************
```

```
    SQLSRV$DEFLT has been modified in SYSUAF

    *************************************************************

%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named RMU$SRV.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier RMU$SRV value [000300,000003] added to rights
database
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named RMU$SRV.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named RMU$SRV.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named RMU$SRV.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
SYS$SYSDEVICE:[RMU$SRV].

    *************************************************************

    RMU$SRV has been modified in SYSUAF

    *************************************************************

%REGISTER-I-SUMMARY  images examined: 1, dependent images: 1
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[000000.SQLSRV71].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SQLSRV71.SQLNET].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SQLSRV71.SQLNET.POST_INSTALL].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SQLSRV71.SQLNET.NETWORK].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SQLSRV71.SQLNET.NETWORK.ADMIN].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SQLSRV71.SQLNET.NETWORK.MESG].

    *************************************************************

    Please refer to the OCI Services for Oracle Rdb documentation
    for specific instructions for setting up and running
    OCI Services for Oracle Rdb
    *************************************************************
```

```
%VMSINSTAL-I-ACCOUNT, This installation adds an identifier named SQLNET4RDB.
%UAF-I-RDBMDFYMSG, identifier SQLNET4RDB modified


%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

 Starting Oracle SQL/Services, creating and starting Oracle
 RMU and Oracle SQL/Services dispatchers and services.

SQLSRV>
@SQLSRV>
--
@SQLSRV> -- Create the Oracle SQL/Services server.
@SQLSRV> --
@SQLSRV> create server
    network_port decnet object "SQLSRV_SERVER"
    network_port tcpip port_id 2200
    ;
@SQLSRV>
--
@SQLSRV> -- Create the Oracle SQL/Services dispatcher which listens on DECnet
@SQLSRV> -- object 81, TCP/IP port 118 , and IPX/SPX port 0x84b1 unless
@SQLSRV> -- alternate ports were specified.
@SQLSRV> --
@SQLSRV>
create dispatcher sqlsrv_disp
    autostart on
    network_port decnet object "81"
    network_port tcpip port_id 119

    ;
@SQLSRV>
--
@SQLSRV> -- Create the GENERIC service with the following attributes:
@SQLSRV> --  - It is an Oracle SQL/Services service.
@SQLSRV> --  - It is started automatically when the server starts.
@SQLSRV> --  - No database is attached.
@SQLSRV> --  - Executors for the service are session reusable.
@SQLSRV> --  - It sets to the SQL version 7.1.
@SQLSRV> --  - The SQLSRV$DEFLT account is the owner of the service.
@SQLSRV> --  - Database authorization is Connect Username, so all database
@SQLSRV> --    access is made using the client-supplied user name and password.
@SQLSRV> --
@SQLSRV>
```

```
create service GENERIC
    autostart on
    sql version 7.1
    owner 'SQLSRV$DEFLT'
    database authorization connect username
    min_executors 2
    max_executors 10;
@SQLSRV>
--
@SQLSRV> -- Grant access to the GENERIC service to all users. This
@SQLSRV> -- allows any client that supplies a valid user name and
@SQLSRV> -- password to access this service.
@SQLSRV> --
@SQLSRV>
grant use on service GENERIC to public;
@SQLSRV>
--
@SQLSRV> -- Create the Oracle RMU dispatcher.
@SQLSRV> --
@SQLSRV>
create dispatcher rmu_disp
    autostart ON
    network_port decnet object rmu_disp protocol native
    network_port tcpip port_id 1571 protocol native
    ;
@SQLSRV>
--
@SQLSRV> -- Create the Oracle RMU service for 7.1.
@SQLSRV> --
@SQLSRV>
create service rmu_service
    protocol rmu
    autostart ON
    sql version 7.1
    owner 'RMU$SRV'
    database authorization connect username
    min_executors 4
    max_executors 100
    idle_executor_timeout 120;
@SQLSRV>
--
@SQLSRV> -- Grant access to the Oracle RMU service to all users. This
@SQLSRV> -- allows any client that supplies a valid user name and
@SQLSRV> -- password to access this service.
@SQLSRV> --
```

```
@SQLSRV>
grant use on service rmu_service to public;
@SQLSRV>
--
@SQLSRV> -- End of Oracle SQL/Services management commands
@SQLSRV> --
@SQLSRV> exit;
Installing Oracle SQL/Services images
%REGISTER-I-SUMMARY images examined: 1, dependent images: 0
Starting Oracle SQL/Services
Server started

 Creating OCI Services for Oracle Rdb sample service and dispatcher

@SQLSRV>
--
@SQLSRV> -- Connect to the server.
@SQLSRV> --
@SQLSRV> connect server;
Connecting to server ...
Connected
@SQLSRV> --
@SQLSRV> -- Create the OCI Services for Oracle Rdb dispatcher.
@SQLSRV> --
@SQLSRV>
create dispatcher OCI_DISP
    autostart off
    network_port sqlnet
    listener "oci_listener"
    protocol oci;
@SQLSRV>
--
@SQLSRV> -- Create a service for the sample OCI Services for Oracle Rdb
database.
@SQLSRV> --
@SQLSRV> create service OCI_SAMPLE
    protocol oci
    autostart off
    owner 'SQLSRV$DEFLT'
    database authorization connect username
    attach 'filename SYS$COMMON:[SYSHLP.EXAMPLES.SQLSRV71]oci_sample'
    sql version 7.1
    min_executors 1
    max_executors 10;
@SQLSRV>
```

```
--
@SQLSRV>


Creating the sample OCI Services for Oracle Rdb database using Rdb 71.

****** Use SYS$COMMON:[SYSHLP.EXAMPLES.SQLSRV71]OCI_SAMPLE as database name
******

****** Use Oracle Rdb version 71 ******

****** Creating database ... ******
****** Inserting functions ... ******

 Copyright © 1995, 2004, Oracle Corporation.  All Rights Reserved.


This script defines functions that use the Rdb$ORACLE_SQLFUNC_VCHAR_DOM
character domain for character types and the Rdb$ORACLE_SQLFUNC_DATE_DOM
date domain for date types.  This script attempts to create the
Rdb$ORACLE_SQLFUNC_VCHAR_DOM domain as VARCHAR(2000) using the default
character set and the Rdb$ORACLE_SQLFUNC_DATE_DOM domain as DATE VMS.
You can override these settings by defining these domains with the settings of
your choice. Then either ROLLBACK or run the SQL_FUNCTIONS_DROP71.SQL script
as appropriate.  Finally, re-run this script and ignore the 2 error messages
that result when this script attempts to create the 2 domains.
If the character set is not DEC_MCS, you must establish the character set
properly before running this script.

 Creating ABS

 Creating CEIL

 Creating COS

 Creating COSH

 Creating EXP

 Creating FLOOR

 Creating LN

 Creating LOG
```

```
Creating MOD

Creating POWER

Creating ROUND

Creating SIGN

Creating SIN

Creating SINH

Creating SQRT

Creating TAN

Creating TANH

Creating TRUNC

Creating CHR

Creating RDB$VARCHAR_TO_ASCII

Creating HEXTORAW

Creating RAWTOHEX

Creating RDB$IS_DEC_MCS_ALPHANUM

Creating RDB$IS_ALPHANUM

Type COMMIT if there were no unexpected errors, otherwise ROLLBACK

If you later wish to drop: Use @SQL_FUNCTIONS_DROP71.SQL
There are uncommitted changes to this database.
****** Inserting OCI Services for Oracle Rdb metadata ... ******

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%SQL-I-NO_NUMBER, INITIAL_EXTENT is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, NEXT_EXTENT is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, MIN_EXTENT is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, MAX_EXTENT is being converted from NUMBER to FLOAT
```

```
%SQL-I-NO_NUMBER, PCT_INCREASE is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, SNAPID is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, SSCN is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, TSCN is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, ERROR# is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, REFGROUP is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, STATUS is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, MASTER_VERSION is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, TABLES is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, FIELD1 is being converted from NUMBER to FLOAT
%SQL-I-NO_NUMBER, FLAG is being converted from NUMBER to FLOAT

 Type COMMIT if there were no unexpected errors, otherwise ROLLBACK
There are uncommitted changes to this database.

Please ignore the message: There are uncommitted changes to this database.


 Now executing the Oracle SQL/Services IVP

  Starting the DECnet test.

***** Connecting to generic service *****

***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  DECnet test completed successfully.

  Starting the TCP/IP test.

***** Connecting to generic service *****

***** Creating database SQLSRV_SAMPLE *****

***** Accessing database SQLSRV_SAMPLE *****

***** Oracle SQL/Services IVP succeeded *****

  TCPIP test completed successfully.

Oracle SQL/Services client tests completed successfully.
```

```
 Now executing the following command to verify the Oracle
 RMU service:

   RMU/EXECUTE/COMMAND "RMU/SHOW VERSION"

Executing RMU for Oracle Rdb V7.1

 *** Oracle RMU IVP completed successfully. ***

Installation of SQLSRVV716AM V7.1 completed at 15:44

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file: VMI$ROOT:[SYSUPD]SQLSRVAMVF071.VMI_DATA
VMSINSTAL procedure done at 15:44
```