InfoServer Client for OpenVMS

LASTCP and LADCP Utilities

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This manual describes the LASTCP and LADCP utilites. You use the LASTCP utility to configure the LASTport transport protocol on your OpenVMS system, and you use the LADCP utility to manage InfoServer device services.

Revision/Update Information:	This is a new manual.
Software Version:	InfoServer Software Version 2.0 or later
Operating System Version:	VMS Version 5.0 or later

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Preface

Intended Audience

This manual is intended for OpenVMS system managers.

Document Structure

This document consists of two sections:

- A description of the LASTCP utility, which you use to start the LASTport transport and to monitor transport activity. This section explains how to start InfoServer Client for OpenVMS software automatically.

- A description of the LADCP utility, which you use to load the LASTport/Disk driver and to manage InfoServer device services.

Each section provides the following information:

- Invoking and exiting the utility
- Restrictions or privileges required
- Descriptions of commands, including format, parameters, and examples.

Related Documents

The following documents provide information about InfoServer systems:

- *InfoServer System Operations Guide*
- *InfoServer 100 Installation and Owner's Guide*
- *InfoServer 150 Installation and Owner's Guide*

Conventions

The following conventions are used in this manual:

Ctrl/x	A sequence such as Ctrl/x indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button.
Return	In examples, a key name is shown enclosed in a box to indicate that you press a key on the keyboard. (In text, a key name is not enclosed in a box.)
. . .	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.
( )	In format descriptions, parentheses indicate that, if you choose more than one option, you must enclose the choices in parentheses.
[]	In format descriptions, brackets indicate that whatever is enclosed within the brackets is optional; you can select none, one, or all of the choices. (Brackets are not, however, optional in the syntax of a directory name in a file specification or in the syntax of a substring specification in an assignment statement.)
red ink	Red ink indicates information that you must enter from the keyboard. For online versions of the book, user input is shown in **bold**.
boldface text	Boldface text represents the introduction of a new term or the name of an argument, an attribute, or a reason.
italic text	Italic text represents information that can vary in system messages (for example, Internal error *number*).
UPPERCASE TEXT	Uppercase letters indicate that you must enter a command (for example, enter OPEN/READ), or they indicate the name of a routine, the name of a file, the name of a file protection code, or the abbreviation for a system privilege.
numbers	Unless otherwise noted, all numbers in the text are assumed to be decimal. Nondecimal radixes— binary, octal, or hexadecimal—are explicitly indicated.

LASTCP Utility

LASTCP Description

InfoServer Client for OpenVMS software uses the LASTport protocol to communicate with InfoServer systems on a local area network (LAN). The LASTport protocol is implemented in the OpenVMS device driver ESS$LASTDRIVER.

The LASTCP utility is the management interface that allows you to control and diagnose ESS$LASTDRIVER. You can use LASTCP to do the following:

- Start and stop ESS$LASTDRIVER
- Display counters for circuits, lines, nodes, and ESS$LASTDRIVER
- Display node characteristics
- Display known clients and servers
- Display LASTport status
- Reset counters

The description of the LASTCP utility covers the following topics:

- Invoking and exiting the utility
- LASTCP Help Facility
- Starting InfoServer Client for OpenVMS software automatically
- LASTCP commands

Invoking and Exiting the Utility

Use of LASTCP requires normal privileges, except where noted. To invoke LASTCP, enter the following command:

```
$ RUN SYS$SYSTEM:LASTCP
%LASTCP-I-VERSION, ESS$LASTDRIVER V1.5 is running
LASTCP>
```

At the LASTCP> prompt, you can enter LASTCP commands. To exit the utility, type EXIT or press Ctrl/z after the LASTCP> prompt.

You can also execute a single LASTCP command by using a DCL string assignment statement, as shown in the following example:

```
$ LASTCP :== $LASTCP
$ LASTCP SHOW CLIENTS
```

LASTCP executes the SHOW CLIENTS command and returns control to DCL command level.

LASTCP Help Facility

LASTCP provides a Help Facility that contains information about each command and its parameters and qualifiers, as well as examples of its use. Refer to the HELP command description for more information about the LASTCP Help Facility.

Starting InfoServer Client for OpenVMS Software Automatically

You must edit the system startup files to provide for automatic startup and shutdown of InfoServer Client for OpenVMS software when your system is rebooted.

Add the command line that starts InfoServer Client for OpenVMS to the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM. You must position this new command line *after* the line that invokes the DECnet network startup command procedure. The following example shows the network startup command line followed by the InfoServer Client for OpenVMS startup command line. Note that if you omit the TAPE parameter, only the disk function is started.

```
$  @SYS$MANAGER:STARTNET
   .
   .
   .
$  @SYS$STARTUP:ESS$STARTUP CLIENT TAPE
```

You can edit the file SYS$STARTUP:ESS$LAST_STARTUP.DAT to specify desired startup qualifiers.

Startup Restrictions: PATHWORKS and RSM

If PATHWORKS or RSM or both are installed, the InfoServer Client for OpenVMS startup must be run before the startup for PATHWORKS or RSM or both.

```
$  @SYS$MANAGER:STARTNET
   .
   .
   .
$  @SYS$STARTUP:ESS$STARTUP CLIENT TAPE
$  @SYS$STARTUP:PCFS_STARTUP
$  @SYS$STARTUP:RSM$SERVER_STARTUP
```

InfoServer Client for OpenVMS software provides device drivers and control programs that are shared by both the PATHWORKS and RSM products. All InfoServer Client for OpenVMS components are prefixed with ESS$. The drivers and control programs supplied with InfoServer Client for OpenVMS software provide all necessary support for both PATHWORKS and RSM in addition to InfoServer Client support. You must execute the InfoServer Client for OpenVMS startup in the site-specific startup before executing either the PATHWORKS or RSM startup procedures.

Startup Restrictions: SYSMAN

You cannot start InfoServer Client for OpenVMS from a subprocess. Because the OpenVMS System Management utility (SYSMAN) uses subprocesses to complete its tasks on remote nodes, SYSMAN cannot be used to execute the SYS$STARTUP:ESS$STARTUP procedure.

User Account Requirements

To work with InfoServer Client for OpenVMS software, user accounts on your system must have the following privileges and quotas:

- You need GRPNAM privilege if the /GROUP qualifier of the LADCP BIND command is used; SYSNAM privilege is required if the /SYSTEM qualifier of the LADCP BIND command is used.

- At a minimum, you need default UAF account quotas.

See the *VMS Authorize Utility Manual* for a description of how to verify and change account privileges and quotas.

SYSGEN Parameter MAXBUF Requirement

To use all the utility's SHOW funtions, you must set the value of the SYSGEN parameter MAXBUF to 32000. This value is required to accomodate LASTDRIVER structures.

LASTCP Commands

Table LASTCP–1 summarizes LASTCP commands and their functions.

Table LASTCP–1 Summary of LASTCP Commands

Command	Function
EXIT	Returns the user to DCL command level
HELP	Displays HELP text for LASTCP commands
SHOW CLIENTS	Displays known clients
SHOW CIRCUIT COUNTERS	Displays circuit counters
SHOW LINE COUNTERS	Displays line counters
SHOW NODE CHARACTERISTICS	Displays node characteristics
SHOW NODE COUNTERS	Displays node counters
SHOW SERVERS	Displays known servers
SHOW STATUS	Displays local status
SHOW TRANSPORT COUNTERS	Displays transport counters
START TRANSPORT	Starts LASTDRIVER
STOP TRANSPORT	Stops LASTDRIVER
ZERO COUNTERS	Resets counters

You can abbreviate LASTCP commands to the first unique characters of the command verb. For example, you can abbreviate the command SHOW SERVERS to SH SE.

EXIT

Stops execution of LASTCP and returns control to DCL command level. You can also type Ctrl/z to exit at any time.

Format

EXIT

Parameters

None.

Example

```
LASTCP>  EXIT
```

This command exits the LASTCP program and returns control to DCL command level.

HELP

Provides online help information for using LASTCP commands.

Format

HELP   [command-name]

Parameter

command-name
The name of a LASTCP command. If you enter the HELP command with a command name only, such as HELP SET, LASTCP displays a list of all of the command keywords used with the SET command.

Description

The HELP command is an online reference for LASTCP commands. After you view an initial help display, press RETURN. The help display stops and the LASTCP> prompt is displayed. If you do not specify a command name, the HELP command displays general information on the commands for which help is available. By supplying a command name, you can obtain syntax information for that command.

Example

```
LASTCP>  HELP SHOW NODE

SHOW

   NODE

      SHOW    ACTIVE NODE     CHARACTERISTICS
              KNOWN NODE      COUNTERS
              NODE node-id

   Display counters or characteristics for the node(s) selected.

   Additional information available:

   examples
```

In this example, the HELP SHOW NODE command produces a description of the SHOW NODE command and shows the command format.

SHOW CIRCUIT COUNTERS

Displays the circuit counters maintained by the Ethernet data link driver. To use the SHOW CIRCUIT COUNTERS command, you must have SYSPRV and SHARE privileges.

Format

SHOW CIRCUIT COUNTERS

Parameters

None.

Qualifiers

/ALL_CONTROLLERS
Displays the circuit counters for all Ethernet controllers in use.

/CONTROLLERS=(letter)
Displays the circuit counters for the Ethernet controllers specified. To specify an Ethernet controller, determine the device's unit name in the form **ddcu**.

If you omit both the /ALL_CONTROLLERS and /CONTROLLERS qualifiers, LASTCP displays the counters for the first Ethernet controller.

Example

```
LASTCP>  SHOW CIRCUIT COUNTERS /ALL_CONTROLLERS

Ethernet Circuit Counters on unit XQA3:
   48938482   Bytes received
   44263546   Bytes sent
      70647   Data blocks received
      66823   Data blocks sent
          0   Local buffer errors
          0   Multicast received but not enabled

Ethernet Circuit Counters on unit XQB3:
   43241769   Bytes received
   39768821   Bytes sent
      68976   Data blocks received
      60375   Data blocks sent
          0   Local buffer errors
          0   Multicast received but not enabled
```

This example shows the circuit counters for all Ethernet controllers in use.

SHOW CLIENTS

This command displays information for all known clients in the network.

Format

SHOW CLIENTS

Parameters

None.

Description

The information displayed includes the following:

*   Node name, which is the client's DECnet node name.

*   Node id, which is the client's hardware address and incarnation value. The incarnation value is an identifier assigned to each client each time the client is restarted.

*   Physical address, which is the Ethernet address.

*   Active links, which is the number of links the client has created.

*   Start time, which is the time the client connected to the server. If the client is not connected, LASTCP displays a hyphen.

Example

```
LASTCP>  SHOW CLIENTS

    Node            Node            Physical        Active  Start
    Name            Id              Address         Links   Time

    MAG357      08002B05B19B-2122   AA-00-04-00-59-25   1     -
    THOLIN      08002B082600-3C2A   AA-00-04-00-40-26   0     -
    XOCHTL      08002B080A5E-5D11   AA-00-04-00-05-25   0     -
    BRONTE      08002B082415-101F   AA-00-04-00-1D-25   2     -
    MILTON      08002B045CD1-050F   AA-00-04-00-2A-26   0     -
    WOOLFE      08002B0308F5-4D19   AA-00-04-00-4D-25   0     -
    WRONG       08002B045C6D-4711   AA-00-04-00-60-25   2     -
    JIMF1       08002B045DDF-310F   AA-00-04-00-2A-27   1     -
    SUMAC       08002B080645-0006   AA-00-04-00-42-25   0     -
    BOOT        08002B040EEC-D723   08-00-2B-04-0E-EC   0     -
```

This command displays a list of all known clients.

SHOW LINE COUNTERS

Displays the line counters maintained by the Ethernet data link driver. To use this command, you must have SYSPRV and SHARE privileges.

Format

SHOW LINE COUNTERS

Parameters

None.

Qualifiers

/ALL_CONTROLLERS
Displays the line counters for all Ethernet controllers in use.

/CONTROLLERS=(letter)
Displays the line counters for the Ethernet controllers specified. To specify an Ethernet controller, determine the device's unit name in the form **ddcu**.

If you omit both the /ALL_CONTROLLERS and /CONTROLLERS qualifiers, LASTCP displays the counters for the first Ethernet controller.

Description

The line counters reflect all users of the data link for this controller. See the *VMS Network Control Program Manual* for a complete description of these counters.

Example

```
LASTCP>  SHOW LINE COUNTERS /ALL_CONTROLLERS

Ethernet Line Counters on unit XQA3:
    65535    Seconds since last zeroed
   521887    Receive frames
       12    Receive errors
   110796    Multicast frames received
 92535097    Receive bytes
  7018641    Multicast bytes received
   438736    Transmit frames
        0    Transmit errors
    32338    Multicast frames transmitted
 74717562    Transmit bytes
  2420463    Multicast bytes transmitted
      522    Frames sent, single collision
      606    Frames sent, multiple collisions
        0    Frames sent, initially deferred
        0    Transmit collision detect check failures
        0    Data overruns
        1    System buffer unavailable
        0    User buffers unavailable
        0    Unrecognized frame destination
```

This command displays the line counters for the first Ethernet controller.

SHOW NODE CHARACTERISTICS

Displays node characteristics for a specific node, all active nodes, or all known nodes.

Format

SHOW   [NODE nodename][ACTIVE NODE][KNOWN NODE]
        CHARACTERISTICS

Parameters

NODE nodename
Specifies the DECnet node name of the client or server.

ACTIVE NODE
Specifies active nodes.

KNOWN NODE
Specifies known nodes.

Description

The node characteristics displayed are as follows:

* Node name, which is the client's or server's DECnet node name.

* Node id, which is the node's **hardware address** and **incarnation value**. The incarnation value is an identifier assigned to each node each time it is restarted.

* Physical address, which is the Ethernet address.

* Active links, which are the number of links the client has created.

* Start time, which is the time the client connected to the server. If the client is not connected or if the node is a server, LASTCP displays a hyphen.

Example

```
LASTCP>  SHOW NODE BRONTE CHARACTERISTICS

   Node            Node            Physical        Active   Start
   Name             Id             Address         Links    Time

   BRONTE     08002B082415-101F  AA-00-04-00-1D-25    0       -
```

This command displays node characteristic information for node BRONTE.

SHOW NODE COUNTERS

Displays the node counters that ESS$LASTDRIVER maintains for a specific node, for all active nodes, or for all known nodes.

Format

SHOW   [NODE nodename][ACTIVE NODE][KNOWN NODE] COUNTERS

Parameters

NODE nodename
Specifies the DECnet node name for the node whose counters you want to display.

ACTIVE NODE
Specifies that counters should be displayed for all active nodes.

KNOWN NODE
Specifies that counters should be displayed for all known nodes.

Description

The following counter information is displayed:

- The number of bytes received and sent

- The number of frames received and sent

- The number of commands received and sent

Example

```
LASTCP> SHOW NODE BRONTE COUNTERS

Node counters for node BRONTE

    2415 Bytes received
   33144 Bytes sent
      45 Frames received
      57 Frames sent
       0 Commands issued
      17 Commands received
```

This command shows counters for node BRONTE.

SHOW SERVERS

Displays information for all known servers in the network.

Format

SHOW SERVERS

Parameters

None.

Description

The information displayed includes the following:

- Node name, which is the server's DECnet node name.

- Node id, which is the server's hardware address and incarnation value. The incarnation value is an identifier assigned to each server each time ESS$LASTDRIVER is started.

- Physical address, which is the Ethernet address. If a server has more than one Ethernet controller, all Ethernet addresses are displayed.

- Active links, which is the number of links the client has created. For the SHOW SERVERS command, active links are always 0.

- Start time, which is the time the client connected to the server. For the SHOW SERVERS command, start time is always a hyphen.

Example

```
LASTCP> SHOW SERVERS
```

Node Name	Node Id	Physical Address	Active Links	Start Time
LETTER	08002B028F25-87C0	AA-00-04-00-12-26	0	-
AUTHOR	AA0003013C27-FA60	AA-00-04-00-83-27	0	-
WRITER	08002B035577-0BA0	AA-00-04-00-24-26	0	-
TYPIST	08002B02F0CC-6300	AA-00-04-00-5E-25	0	-
EDITOR	08002B039028-11A0	AA-00-04-00-42-26	0	-
PENCIL	AA00030108C1-3420	AA-00-04-00-08-24	0	-
CRAYON	08002B032BD0-8680	AA-00-04-00-5F-26	0	-
MARKER	08002B0210CC-87A0	AA-00-04-00-D7-25	0	-
PASTEL	08002B029814-44E0	AA-00-04-00-63-25	0	-
PAINTS	08002B06E9F1-E4E0	AA-00-04-00-9A-25	0	-
PINK	08002B02F51B-B9E0	AA-00-04-00-A1-27	0	-
BROWN	08002B0612B6-4980	AA-00-04-00-DA-25	0	-

This command shows all known servers.

SHOW STATUS

Displays the local status of ESS$LASTDRIVER.

Format

SHOW STATUS

Parameters

None.

Example

```
$ RUN SYS$SYSTEM:LASTCP
%LASTCP-I-VERSION, ESS$LASTDRIVER V1.4 is running

LASTCP> SHOW STATUS

Status of ESS$LASTDRIVER V1.4 on node TDOG at 1-JAN-1990 15:56:55
Protocol version 3.0, Uptime: 15 06:35:43.14, Checksum Off,
Slow mode Off

66549 Bytes pool
    8 Ethernet buffers
   16 I/O request packets
    9 Association control blocks
    1 Local session control blocks
    0 LSC In-Use blocks
    2 Transaction control blocks
    9 Circuit status blocks
  182 Node data blocks
    5 Transmit quota
   80 Maximum circuits
    0 LAN group code
    0 Server circuit timeout
```

This command displays the status of ESS$LASTDRIVER. Note that the
value of the Server circuit timeout is the value that was set with the START
TRANSPORT/TIMEOUT command. If the /TIMEOUT qualifier is not used
with the START TRANSPORT command, the Server circuit timeout value is
zero, as in this example.

SHOW TRANSPORT COUNTERS

Displays the transport counters maintained by ESS$LASTDRIVER.

Format

SHOW TRANSPORT COUNTERS

Parameters

None.

Qualifiers

/ALL_CONTROLLERS
Displays the circuit counters for all Ethernet controllers in use.

/CONTROLLERS=(letter)
Displays the transport counters for the Ethernet controllers specified. To specify an Ethernet controller, determine the device's unit name in the form **ddcu**.

If you omit both the /ALL_CONTROLLERS and /CONTROLLERS qualifiers, LASTCP displays the counters for the first Ethernet controller.

Example

```
LASTCP> SHOW TRANSPORT COUNTERS /CONTROLLERS=(A)

ESS$LASTDRIVER Transport Counters for XQA3

    251608  Seconds since last zeroed
   5549774  Receive frames
         0  Receive multicasts
         0  Receive duplicates
         0  Receive errors
  00000000  Last receive failure code
   6204594  Transmit frames
         0  Transmit errors
  00000000  Last transmit failure code
         0  Retransmissions
         0  Datalink Restarts
         1  Protocol errors
  00000001  Protocol error bit mask
         0  Checksum errors
         3  Client transaction aborts
         6  Server transaction aborts
         8  Missed segment request aborts
         0  No Transmit buffers
         0  Invalid transaction mode
         0  Illegal circuit ID
       211  Invalid multicast messages
         1  Congested circuit
Protocol errors include:
    Invalid run message
```

This command displays the transport counters for controller A.

START TRANSPORT

Initializes an Ethernet controller with the LAST protocol.

Format

SHOW SERVERS

Parameters

None.

Qualifiers

/ALL_CONTROLLERS
Initializes all present Ethernet controllers with the LASTport protocol. Do not use this qualifier with the /CONTROLLERS qualifier.

/CHECKSUM
Allows ESS$LASTDRIVER to checksum all messages sent and received. By default, /CHECKSUM is not enabled.

/CIRCUIT_MAXIMUM=n
Specifies the maximum number of clients that can connect to the disk server. The number of clients can be in the range of 1 to 65535. By default, 80 clients can connect to the disk server.

/CONTROLLERS=(letter[,...])
Initializes the specified Ethernet controllers with the LASTport protocol. Do not use this qualifier with the /ALL_CONTROLLERS qualifier. By default, LASTCP initializes the first Ethernet controller. To specify an Ethernet controller, determine the device's unit name in the form **ddcu**.

/GROUP=n
Is the group code to associate with the disk server. By default, the group code is 0. If you assign a group code to a disk server, only workstations with the same group code can connect to services offered by the server.

/NODENAME=name
Initializes ESS$LASTDRIVER with the specified node name. By default, LASTCP uses the DECnet node name.

/SLOW_MODE

Forces remote transports to transmit only one segment at a time. Use this qualifier *only* when a transmitter can transmit at a faster rate than the local node can receive. By default, /SLOW_MODE is not enabled.

/TIMEOUT=n

Specifies the minimum interval in seconds to be used by the server transport to determine when inactive clients should be disconnected. An inactive client is one that has been turned off or otherwise isolated from the server.

By default, the server's timer is specified by the client transport. This qualifier allows a minimum value to be enforced on all connections.

The letter n represents an integer value in the range of 60 to 65535 seconds.

/TRANSMIT_QUOTA=n

Limits the number of concurrent message buffers that ESS$LASTDRIVER can transmit for each transaction. The default transmit quota is five message buffers.

Description

By default, ESS$LASTDRIVER is started on all Ethernet controllers on the system.

The START TRANSPORT command is also included in the LAD_STARTUP.COM file, so the transport is started automatically.

To use the START TRANSPORT command, you must have CMKRNL and SYSPRV privileges. Start the transport *after* you start DECnet. DECnet does not start properly if you start the transport first.

Examples

```
1.  LASTCP>  START TRANSPORT /CONTROLLERS=(A)
    %LASTCP-I-STARTED, ESS$LASTDRIVER V1.4 started on node NODE2
    %LASTCP-I-ADAPINIT, Initializing adapter XQA6: for ESS$LASTDRIVER
    LASTCP>
```

The command in this example starts ESS$LASTDRIVER and initializes controller A.

2. LASTCP> **START TRANSPORT /ALL_CONTROLLERS /CIRCUIT_MAXIMUM=50**
    %LASTCP-I-STARTED, ESS$LASTDRIVER V1.4 started on node NODE2
    %LASTCP-I-ADAPINIT, Initializing adapter XQA6: for ESS$LASTDRIVER
    %LASTCP-I-ADAPINIT, Initializing adapter XQB6: for ESS$LASTDRIVER
    LASTCP>

The command in this example starts starts ESS$LASTDRIVER, initializes all controllers, and limits the number of client connections to 50.

STOP TRANSPORT

Stops ESS$LASTDRIVER. To use the STOP TRANSPORT command, you must have CMKRNL and SYSPRV privileges.

Format

STOP TRANSPORT

Parameters

None.

Description

Any active sessions are aborted and all system dynamic memory is returned.

If you are using PATHWORKS, you must shut down PATHWORKS using normal PATHWORKS procedures before stopping the LASTport transport.

Example

```
LASTCP> STOP TRANSPORT
%LASTCP-I-STOPPED, ESS$LASTDRIVER stopped
LASTCP>
```

This command example stops ESS$LASTDRIVER.

ZERO COUNTERS

Resets circuit, transport or node-specific counters maintained by the Ethernet datalink or LASTport drivers.

Format

ZERO   [NODE nodename][CIRCUIT][TRANSPORT] COUNTERS

Parameters

NODE nodename
Specifies the DECnet node name of the client whose counters you want to reset.

CIRCUIT
Specifies the circuit whose counters you want to reset.

TRANSPORT
Specifies the transport whose counters you want to reset.

Examples

1. LASTCP> **ZERO CIRCUIT COUNTERS**
   %LASTCP-I-ZEROCIRC, Circuit counters zeroed
   LASTCP>

   This command resets the circuit counters on all Ethernet controllers initialized with the LASTport protocol.

2. LASTCP> **ZERO TRANSPORT COUNTERS**
   %LASTCP-I-ZEROTRAN, Transport counters zeroed
   LASTCP>

   This command resets the transport counters on all Ethernet controllers initialized with the LASTport protocol.

3. LASTCP> **ZERO NODE FLUX COUNTERS**
   %LASTCP-I-ZERONODE, Node counters for FLUX zeroed
   LASTCP>

   This command resets the counters for node FLUX.

LADCP Utility

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LADCP Description

You use the LADCP utility to configure and control the LASTport/Disk and LASTport/Tape protocols on OpenVMS host systems. OpenVMS systems that use LASTport/Disk and LASTport/Tape services are called client nodes. You can use LADCP to do the following:

- Establish **bindings** to services. A binding creates a new DAD*n*: virtual disk unit or a new MAD*n*: virtual tape unit on the local OpenVMS system.

- Remove bindings to services.

You can control service access by using a service access password. You can also write-protect services. In this case, local OpenVMS users of a DAD*n*: or MAD*n*: device unit receive an error if they attempt a write operation to the unit.

The protocols allow you to access media that reside on an InfoServer system as though they were locally connected to your OpenVMS system. Thus, several OpenVMS client nodes can share the same media, eliminating the need for duplicate drives and media.

DAD*n*: and MAD*n*: device units are also referred to as **virtual device units**. They represent the local OpenVMS context for a volume that resides on a remote server. The OpenVMS driver that controls the DAD*n*: units is called ESS$DADDRIVER. The OpenVMS driver that controls the MAD*n*: units is called ESS$MADDRIVER.

The LASTport/Disk and LASTport/Tape protocols depend on the LASTport transport. The ESS$STARTUP.COM command procedure in SYS$MANAGER automatically loads ESS$DADDRIVER and ESS$MADDRIVER as well as ESS$LASTDRIVER, the local area system transport driver.

_____ **Note** _____

Your site-specific startup command procedure must include a call to ESS$STARTUP.COM. If you are using DECnet software, you must place the call *after* the SYS$MANAGER:STARTNET.COM command that starts DECnet software.

_____

Invoking and Exiting the Utility

To invoke LADCP, enter the following command:

```
$  RUN SYS$SYSTEM:ESS$LADCP
LADCP>
```

You can enter LADCP commands at the `LADCP>` prompt.

You can also execute a single LADCP command by using a DCL string assignment statement, as shown in the following example:

```
$  LADCP :== $ESS$LADCP
$  LADCP BIND CD_DOC_00661 /NOWRITE
```

LADCP executes the BIND command and returns control to DCL command level.

To exit LADCP, type EXIT or press Ctrl/z after the `LADCP>` prompt.

LADCP Help Facility

LADCP provides a Help facility that contains information about each LADCP command, including parameters, qualifiers, and examples of its use. See the HELP command description for more information about the LADCP Help facility.

LADCP Commands

Table LADCP–1 summarizes LADCP commands and their functions.

Table LADCP–1 Summary of LADCP Commands

Command	Function
BIND	Establishes a LAD service binding and creates a device unit.
EXIT	Returns the user to DCL command level.
HELP	Displays help text for LADCP commands.
SHOW SERVICES	Displays services offered by all available InfoServer systems on the network.
UNBIND	Eliminates an established LAD service binding.

BIND

Establishes a binding to a LASTport/Disk or LASTport/Tape service and creates a DAD*n*: virtual disk unit or a MAD*n*: virtual tape unit.

Format

BIND   service-name

Parameter

service-name
Specifies the name of the service to bind to. This name can be up to 255 ASCII characters long. You can use any of the valid characters in the following list. Services are offered to the OpenVMS client node by InfoServer systems. Usually, a service name is the same as the volume label of the disk or tape volume to which the InfoServer system is providing access.

If you assign an InfoServer name, you can use only the following set of characters:

*   A–Z

*   a–z

*   0–9

* $ (dollar sign)

*   . (period)

*   _ (underscore)

*   - (hyphen)

*   Multinational characters in the ASCII range 192–255

All InfoServer names are case insensitive. For example, InfoServer software treats an uppercase A and a lowercase a as the same character.

Qualifiers

/[NO]ASYNCHRONOUS
Specifies whether all write requests should complete immediately. The default is /NOASYNCHRONOUS. /NOASYNCHRONOUS prevents the write request from completing until the data has been written to the remote physical disk volume. /ASYNCHRONOUS results in faster response times.

/CONNECT
Valid only with the /TAPE qualifier. If /CONNECT is specified, LADCP immediately attempts a network connection to the service and returns the status of the attempt.

/DISK
Indicates that the service to bind to is a virtual disk. This is the default qualifier.

/GROUP
Specifies whether a logical name of the form DAD$*service-name* or MAD$*service-name* is placed in the group logical name table. The variable *service-name* is the name of the service for which a binding is being established. This logical name points to the DAD*n*: or MAD*n*: virtual device unit that the BIND command creates. GRPNAM privilege is required to use this qualifier.

/PASSWORD=password-string
Specifies an optional service access control password. The password is required if the InfoServer system requires password protection for the specified service name. The password string can be up to 39 ASCII characters long.

/SYSTEM
Specifies whether a logical name of the form DAD$*service-name* or MAD$*service-name* is placed in the system logical name table. The value *service-name* is the name of the service for which a binding is being established. This logical name points to the DAD*n*: or MAD*n*: virtual device unit that the BIND command creates. SYSNAM privilege is required to use this qualifier.

/TAPE
Indicates that the service to bind to is a virtual tape service.

/[NO]WRITE_ENABLE
Tells the ESS$DADDRIVER to allow the OpenVMS user write access to the service. The default is /NOWRITE_ENABLE.

Description

The BIND command creates a local DAD*n*: or MAD*n*: device unit on the OpenVMS system, representing a service binding between the local node and the remote volume. This DAD*n*: or MAD*n*: virtual device unit provides the local context for the remote volume and is the target of user I/O operations. A logical name in the form DAD$*service-name* (or MAD$*service-name*) is placed in the process logical name table and points to the virtual device unit.

Use the UNBIND command to eliminate an existing binding.

Examples

1. LADCP> **BIND CD_DOC_00661/SYSTEM**
   %LADCP-I-BIND, service bound to logical unit DAD$CD_DOC_00661 (_DAD10:)
   $ **MOUNT/SYSTEM DAD$CD_DOC_00661 CD_DOC_00661**

   In this example, the BIND command creates a DAD*n:* unit named DAD10:
   that is the target of user I/O requests to access a remote disk volume
   named CD_DOC_00661. The logical name DAD$CD_DOC_00661 is placed
   in the process logical name table as well as in the system logical name
   table, providing a more convenient name for the virtual disk unit. The user
   would then enter the DCL command MOUNT/SYSTEM to make the remote
   disk volume available for file operations to all users on the local OpenVMS
   system.

2. LADCP> **BIND VIRTUAL_DISK/WRITE/NOASYNC**
   %LADCP-I-BIND, service bound to logical unit DAD$VIRTUAL_DISK (_DAD12:)

   In this example, the BIND command creates a device for the VIRTUAL_
   DISK service name and creates the logical name DAD$VIRTUAL_DISK to
   point to this device. It also specifies that any write request performed is
   written before the write request completes.

3. LADCP> **BIND/TAPE/CONNECT TAPE_DRIVE**
   %LADCP-I-CONNAVAIL, successful connection to service TAPE_DRIVE
   %LADCP-I-BIND, service bound to logical unit MAD$TAPE_DRIVE (_MAD2:)

   In this example, the BIND command creates a device for the TAPE_DRIVE
   read/write logical tape service and creates the logical name MAD$TAPE_
   DRIVE to point to the device. LADCP immediately attempts to form a
   connection to the service.

EXIT

Stops execution of LADCP and returns control to DCL command level. You can also press Ctrl/z to exit at any time.

Format

EXIT

Parameters

None.

Example

```
LADCP>  EXIT
```

In this example, the EXIT command exits the LADCP program and returns control to DCL command level.

HELP

Provides online help information for using LADCP commands.

Format

HELP   [command-name]

Parameter

command-name
Specifies the name of a LADCP command. If you enter the HELP command
with a command name only, such as HELP BIND, LADCP displays a list of all
of the command keywords used with the BIND command.

Description

The HELP command is an online reference for LADCP commands. After you
view an initial help display, press Return. The help display stops, and the
system displays the LADCP> prompt. If you do not specify a command name,
the HELP command displays general information on the commands for which
help is available. Specifying a command name displays syntax information on
that command.

Example

```
LADCP>  HELP BIND
```

In this example, the HELP BIND command displays a description of the BIND
command and the command format.

SHOW SERVICES

Displays services offered by all available InfoServer systems on the network.

Format

SHOW SERVICES

Parameters

None.

Qualifiers

/All
Displays all available services.

/Disk
Displays disk services. This is the default display.

/Tape
Displays tape services.

Description

The SHOW SERVICES command provides the following information:

- Service name of the service offered, such as ONLINE_DOC.

- Type of device containing the service, such as RRD42.

- Service rating—higher ratings indicate better service.

- Current connects.

- Whether writes are allowed to the device.

Example

```
LADCP> SHOW SERVICES
Interrogating network, please wait...

Services offered by node LIBRARY_ESS (LAD V3.1, Address: 08-00-2B-XX-XX-XX)
                                                      Current   Writes
Service:                          Device:   Rating: Connects: Allowed?:

ONLINE_DOC                        RRD42      64751       1       No
CONDIST3                          RRD42      64760       3       No
CONDIST2                          RRD42      64751       4       No
CONDIST1                          RRD42      64751       4       No
VXT_FONT_SET_BL4X                 RZ23L      65016       0       Yes
   .
   .
   .
```

In this example, the SHOW SERVICES command displays information about available disk services.

UNBIND

Ends an existing binding between the local OpenVMS system and a remote disk or tape volume.

Format

UNBIND   client-device

Parameter

client-device
Specifies the name of the virtual device unit that represents the service binding. This name is either the name of the DAD*n*: or MAD*n*: unit returned in the BIND command or the logical name (DAD$*service-name* or MAD$*service-name*) created by the BIND command to point to the DAD*n*: or MAD*n*: unit.

Description

The UNBIND command unbinds a client device from a service name and deletes the device. This command breaks any existing connections for the client device and deletes it when all channels to the device have been deassigned.

You cannot UNBIND a device that has been mounted. Once a client device has been mounted, you must use the DCL command DISMOUNT/UNLOAD to delete the client device. For tape clients, this is the only way to break the network connection to the service and delete the unit.

You use the LADCP UNBIND command only when a service binding is created that cannot be mounted (for example, a service name is entered incorrectly) or when a service must be deleted for any other reason.

To end a service binding, follow these steps:

1   **If the DAD*n*: or MAD*n*: unit is mounted**

   •   Notify all users of the service to stop performing I/O requests to the corresponding unit.

   •   Dismount the unit using the DCL command DISMOUNT/UNLOAD. This command ends the binding and automatically deletes the unit.

2   If the DAD*n*: or MAD*n*: unit is not mounted

- Enter the LADCP UNBIND command to end the binding and delete the DAD*n*: or MAD*n*: unit.

Nonprivileged users can use the UNBIND command only for a virtual device unit that they created with a BIND command. BYPASS privilege is required to unbind a virtual disk unit not owned by the user.

Example

```
LADCP>  UNBIND DAD$CD_DOC_00661
%LADCP-E-MOUNTED, cannot UNBIND a mounted device
%LADCP-I-DISMOUNT, please use OpenVMS command DISMOUNT/UNLOAD to delete unit
```

In this example, the UNBIND command returns an error because the DAD*n*: unit is mounted. The user must enter the DCL command DISMOUNT /UNLOAD to end the binding and delete the DAD*n*: unit. Note that the LADCP command UNBIND is not needed after a DCL command DISMOUNT /NOUNLOAD.

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