Index of LATCP help library

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1 Overview

LATCP allows you to control the LAT software on a node and to
obtain information from it. For example, you can use LATCP to
create services on the local node, to associate a port on the
local node with a service or device on a remote terminal server,
and to display information about services offered on the local
node or on other nodes in the network.

When you use LATCP commands to change LAT characteristics (such
as creating a service and associating a port with a service),
the changes take effect immediately. However, when the LAT
port driver stops, these characteristics are lost. If you want
these characteristics to be present the next time you start
the LAT port driver, edit LAT$SYSTARTUP.COM by modifying or
adding commands to set these characteristics. Then, invoke
LAT$STARTUP.COM to start the LAT port driver.

Format

  RUN SYS$SYSTEM:LATCP

To invoke LATCP, enter RUN SYS$SYSTEM:LATCP at the DCL command
prompt. At the LATCP> prompt, you can enter any of the LATCP
commands.

To exit from LATCP, enter the EXIT command at the LATCP> prompt
or press Ctrl/Z.

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

$ LCP :== $LATCP
$ LCP SET NODE/STATE=ON

LATCP executes the SET NODE command and returns control to DCL.

---

1 ATTACH

Transfers control from your current process to the specified
process. The LATCP ATTACH command is similar to the DCL ATTACH
command. For example, from the DCL command level you can enter
the DCL SPAWN command to create a LATCP subprocess without ending
your DCL session, execute several LATCP commands at the LATCP
prompt, then use the ATTACH command to return to DCL.

Format

    ATTACH [process-name]

2 Parameter

process-name

Specifies the name of a parent process or spawned subprocess to
which control passes. The process must already exist, be part of
your current job, and share the same input stream as your current
process.

Process names can contain from 1 to 15 alphanumeric characters.
If a connection to the specified process cannot be made, LATCP
displays an error message.

If you specify the /PID qualifier, do not use the process name
parameter. If you omit the /PID qualifier, you must use the
process name parameter.

To display processes, use the DCL SHOW SYSTEM command.

2 Qualifier

/PID

      /PID=pid

Specifies the process identification (PID) of the process that
will have terminal control. When you specify a PID, you can omit
the leading zeros. If you specify a PID, do not use the process
name parameter. If you omit the PID qualifier, you must use the
process name parameter.

2 Example

```
 $ SET PROCESS/NAME="TOP_LEVEL"
 $ SPAWN RUN SYS$SYSTEM:LATCP
 LATCP> SHOW NODE/ALL
    .
    .
    .
 LATCP> ATTACH "TOP_LEVEL"
 $
```

In this example, the user enters the DCL SPAWN command to
create a LATCP subprocess and uses LATCP to display the status

of all nodes known to the local node. After using LATCP, the
user enters the ATTACH command to return to the DCL command
level.

1 CREATE

2 LINK
   Creates the LAT data links, which are connections to LAN devices,
   such as Ethernet or FDDI (fiber distributed data interconnect)
   controllers, that you want your node to use. You must have OPER
   privilege to use this command.

   Format

     CREATE LINK   link-name

3 Parameter

link-name

   Specifies a name for a LAT data link. A link name can have up to
   16 ASCII characters. The characters allowed are as follows:

   o Alphanumeric characters: A-Z, a-z, 0-9

   o A subset of the international character set: ASCII codes 192-
      253

   o Punctuation characters: dollar sign ($), hyphen (-), period
      (.), and
      underscore (_)

   You can create a maximum of eight links on your local node.
   Use the SHOW LINK command for a list of the link names that are
   defined for your node.

3 Qualifiers

/DECNET

     /DECNET
     /NODECNET

   Directs LAT protocol to use the DECnet data link address (
   /DECNET) or the hardware address (/NODECNET) when starting the
   LAN controller. If you do not specify the /DECNET or /NODECNET
   qualifier, the default is that the LAT protocol will use the
   DECnet data link address.

   Note that if you enter the CREATE LINK command with the /DECNET
   qualifier and receive an error message indicating a "bad
   parameter value," it means the SCSSYSTEMID system parameter is
   set to an illegal value. To change the value of this parameter,
   use the following formula:

   (1024 * a) + n

   In the formula, a is the DECnet area and n is the DECnet computer
   number. If the value is outside the range of 1025 to 65535, the
   LAT protocol cannot start.

   When you use the /NODECNET qualifier, the LAN device driver code

determines which address to use. For example:

o If SCSSYSTEMID is set to 0 but DECnet is already running on an
   Ethernet controller, the LAN device code allows LAT to use the
   same address as DECnet (AA-00-04-00-xx-xx).

o If SCSSYSTEMID is set to 0 and DECnet is not running, the 08-
   00-2B-xx-xx-xx address is used (a different address format is
   used if your LAN controller is supplied by a vendor other than
   Digital).

o If the setting for SCSSYSTEMID is the same as the DECnet node
   number and DECnet is not running, the LAN device code forces
   LAT to use the AA-00-04-00-xx-xx address.

If DECnet is configured on the system (or if the system is part
of a cluster), SCSSYSTEMID may contain a nonzero value. This
is a problem only when the system has 2 or more LAN controllers
connected to the same logical LAN.

For example, if your system has an FDDI controller and an
Ethernet controller, your site may be configured so that the
FDDI ring attached to the FDDI controller and the Ethernet
segment attached to the Ethernet controller are bridged by a
10/100 LAN bridge (FDDI-to-Ethernet). In this configuration, it
is impossible to run LAT over both controllers.

In such a configuration, you must run LAT and DECnet over the
same controller if SCSSYSTEMID is not 0. If you fail to do so,
DECnet starts first, which in turn causes the LAT startup on
the other controller to fail. This failure occurs because LAT
startup tries to use the AA-00-04-00-xx-xx address (the DECnet
LAN address) but is prevented from doing so by the data link
layer. The LAT startup fails because DECnet is already using
this address on a different controller. (In a single logical
LAN, all data link addresses must be unique. In this setup,
both controllers try to use the same address, which is then not
unique.)

The following command (which creates the LAT link) also fails
because the LAN driver tries to use the address based on
SCSSYSTEMID:

LATCP> CREATE LINK LAT$LINK_2 /NODECNET

If SCSSYSTEMID is set to 0, configuring LAT and DECnet on
different controllers is possible. However, in a cluster
environment, SCSSYSTEMID cannot be set to 0.

/DEVICE

     /DEVICE=device-name

Specifies the LAN controller device name for a LAT data link (for
example, XEB0:). Only one LAT data link can be associated with a
LAN controller. If you enter the CREATE LINK command without the
/DEVICE qualifier, LATCP attempts to find an available controller
by using a list of possible LAT data link device names. Digital
advises that you specify a default device name by defining the
LAT$DEVICE logical name.

/LOG

```
     /LOG
     /NOLOG
```

Specifies whether LATCP displays a message confirming that
the link was created. If you do not specify the /LOG or /NOLOG
qualifier, the default is that no message will be displayed.

/STATE

```
     /STATE=option
```

Specifies whether the link will be available for use. STATE can
have two options:

ON   Specifies that the created link will be available for use
       with the LAT protocol running.
OFF   Specifies that the created link will not be available for
       use.

If you do not specify the /STATE=option qualifier, the default is
that the created link will be available for use (ON).

3 Example

```
 LATCP> CREATE LINK NETWORK_A /DEVICE=XEB0: /STATE=ON
```

The CREATE LINK command in this example creates an Ethernet
link named NETWORK_A. It specifies the Ethernet controller
device XEB0 for that link. The link will be available for use.

2 PORT
   Creates a logical port on your local node that connects with a
   remote device on a terminal server. Alternatively, this command
   creates a logical port on your local node that connects with a
   specific service. The service can be offered by a terminal server
   or associated with one or more dedicated ports on a remote LAT
   service node.

   You must have OPER privilege to use this command.

   Format

```
     CREATE PORT  [port-name]
```


3 Parameter

port-name

Specifies the port name in the form LTAn:, where n is a unique
number from 1 through 9999. If the port you specify already
exists, LATCP returns the following error message:

%LAT-W-CMDERROR, error reported by command executor
-SYSTEM-F-DUPLNAM, duplicate name

If you do not specify the port name, you must specify the
/LOGICAL qualifier.

                              NOTES

When creating a port, note the following:

o Digital recommends that you assign a logical name when
   creating a port, instead of specifying a specific LTA
   device.

o You cannot use the CREATE PORT and SET PORT commands,
   along with the DCL command SET TERMINAL, to change the
   characteristics of a DECserver port unless there is an
   existing LAT connection to that DECserver.

3   Qualifiers

/APPLICATION

   Specifies that a logical port on your node is an application
   port. It can be used to connect to a remote device (typically a
   printer) on a terminal server or to a dedicated port on another
   LAT service node.

   If you do not specify a port type, the default port type is
   APPLICATION.

                              NOTE

   By default, LATCP creates application LAT devices with
   the HANGUP terminal characteristic. However, if you want
   to apply the NOHANGUP characteristic to application LAT
   devices, you can do so by entering specific LATCP and DCL
   commands. For example:

   $ LCP :== $LATCP
   $ LCP CREATE PORT LTA1234
   $ LCP SET PORT LTA1234 /APPLICATION /NODE=terminal_server /PORT=server_port
   $ SET TERMINAL LTA1234 /PERMANENT /NOHANGUP

   Note that you can insert the SET TERMINAL command in the
   SYS$MANAGER:LAT$SYSTARTUP.COM file (enter the command for
   each LAT device that requires the NOHANGUP characteristic).

/DEDICATED

   Specifies that a logical port on your local node is dedicated
   to an application service. When users on a terminal server (or
   on another node that supports outgoing connections) request
   a connection to this service name, they are connected to the
   dedicated port. See the OpenVMS I/O User's Reference Manual for a
   description of programming an application service.

   After creating a dedicated port on a node, use the SET PORT
   /SERVICE command to map this port to a service.

/LIMITED

   Specifies that a logical port on your local node is limited to
   a service in the same way a port created using the /DEDICATED
   qualifier is dedicated to an application service. The difference
   is that ports created using the /LIMITED qualifier are under the
   control of the system login image (LOGINOUT.EXE) instead of an
   application program (a user who connects to a limited service and
   is assigned to a limited port receives the "Username:" prompt).

Using the /LIMITED qualifier, you can create a limited number
of ports and map them to a specific service offered by the host
system. If users are logged in to all of the limited ports for
the service, no more connections are allowed to that service
(terminal server users receive a "service in use" message).

/LOG

     /LOG
     /NOLOG

Specifies whether LATCP displays a message confirming that
the port was created. If you do not specify the /LOG or /NOLOG
qualifier, the default is that no message will be displayed.

/LOGICAL

     /LOGICAL=(NAME=logical-name[,TABLE=table][,MODE=mode])

Specifies a logical name to be associated with the actual name of
the created port. You must specify a logical name if you do not
specify a port name.

                              NOTE

     If you have sufficient privileges to create a port, but lack
     the privilege to assign a logical name, the port will still
     be created.

You can specify one of the following options for the TABLE
keyword:

GROUP   Places the logical name in the group logical name
            table. You must have GRPNAM or SYSPRV privilege to
            place the logical name in the group logical name table.
JOB   Places the logical name in the jobwide logical name
            table.
PROCESS   Places the logical name in the process logical name
            table. This is the default.
SYSTEM   Places the logical name in the system logical name
            table. You must have SYSNAM or SYSPRV privilege to
            place a name in the system logical name table.

You can also specify the name of a specific table. For example,
you could specify LNM$PROCESS, which would be the equivalent of
specifying PROCESS.

Options for the MODE keyword are:

EXECUTIVE   Creates an executive mode logical name. You must have
            SYSNAM privilege to create an executive mode logical
            name.
SUPERVISOR Creates a supervisor mode logical name.
USER   Creates a user mode logical name.

The access mode associated with the logical name is determined
by maximizing the access mode of the caller with the access mode
specified by the MODE keyword: the mode with the lower privilege
is used.

You cannot specify an access mode with a privilege higher than
that of the table containing the logical name. However, if your

process has SYSNAM privilege, then the specified access mode is
associated with the logical name regardless of the access mode of
the caller.

If you omit the MODE keyword, the access mode of the caller is
associated with the logical name.

You can also create the port as a limited port, using the
/LIMITED qualifier.

3   Examples

   1.LATCP> CREATE PORT LTA22: /APPLICATION

      The CREATE PORT command in this example creates an application
      port named LTA22: on a service node. You can associate the port
      with a specific printer on a terminal server (use the SET PORT
      /NODE /PORT command) or with a set of printers on a terminal
      server (use the SET PORT /NODE /SERVICE command). Or, you can
      associate the port with a dedicated port on a remote service
      node. In this case, use the SET PORT /NODE /SERVICE command,
      where the /SERVICE qualifier specifies an application service
      associated with a dedicated port on the remote node. See the
      examples for the SET PORT command.

   2.LATCP> CREATE PORT LTA21: /DEDICATED

      The CREATE PORT command in this example creates the LTA21:
      port. It will be used as a dedicated port that offers a
      specific service rather than a general timesharing service.

   3.LATCP> CREATE PORT /LOG /APPLICATION -
     _LATCP> /LOGICAL=(NAME=MAIL_PORT, TABLE=PROCESS, MODE=SUPERVISOR)

      The CREATE PORT command in this example creates an application
      port. It assigns the name of the new port to the specified
      logical name (MAIL_PORT). The logical is created as a
      supervisor mode logical name in the LNM$PROCESS_TABLE logical
      name table. LATCP displays a confirmation message.

   4.$ LCP :== $LATCP
     $ LCP CREATE SERVICE/LIMITED ONLY_ONE
     $ LCP CREATE PORT/LIMITED LTA1234:
     $ LCP SET PORT LTA1234: /SERVICE=ONLY_ONE

      This series of commands creates a limited service that allows
      only one user to log in to the system through that service.
      When a user connects to service ONLY_ONE by responding to the
      terminal server prompt (Local>), the user is assigned port
      LTA1234 and then prompted for the user name. Any user who
      attempts to connect to the same service while LTA1234 has a
      user logged in receives the "service in use" message.

2   SERVICE
    Creates a service on a service node. You must have OPER privilege
    to use this command.

    Format

      CREATE SERVICE [service-name]

3   Parameter

service-name

   Specifies a LAT service name. By default, a service name is the
   name of the local node you defined with the SET NODE command.

   The service name can be from 1 to 16 ASCII characters in length.
   The characters allowed are as follows:

   o   Alphanumeric characters: A-Z, a-z, 0-9

   o   A subset of the international character set: ASCII codes 192-
       253

   o   Punctuation characters: dollar sign ($), hyphen (-), period
       (.), and underscore (_)

3   Qualifiers

/APPLICATION

   Specifies that the created service is an application service. An
   application service offers a specific application on the service
   node rather than a general interactive service. You can define a
   dedicated port for the service by using the CREATE PORT and SET
   PORT commands.

/IDENTIFICATION

       /IDENTIFICATION[="identification-string"]

   Describes and identifies a service. Service nodes include the
   identification string in service announcements. A service node
   announces its services at regular intervals established with the
   SET NODE command. Entering the LATCP SHOW NODE command or the
   DECserver SHOW NODE command generates a display that includes
   this identification string. By default, the identification string
   is a translation of SYS$ANNOUNCE.

   You cannot specify more than 64 ASCII characters in an
   identification string (a SYS$ANNOUNCE longer than that will be
   truncated to the first 64 characters). Enclose the string in
   quotation marks (").

/LIMITED

   Specifies that the service is a limited service, using devices
   assigned the limited characteristic and associated with (mapped
   to) this limited service. This qualifier is used in conjunction
   with the SET PORT /LIMITED command (see example).

/LOG

       /LOG
       /NOLOG

   Specifies whether LATCP displays a message confirming that the
   service was created. If you do not specify the /LOG or /NOLOG
   qualifier, the default is that no message will be displayed.

/STATIC_RATING

>   /STATIC_RATING=rating
>   /NOSTATIC_RATING

Enables or disables dynamic service ratings. A dynamic service
rating means that a LAT algorithm calculates the availability
of a service dynamically, based on the overall level of activity
of the node that offers the service and the amount of memory.
When a terminal server or node requests a connection to a service
that is offered on two or more service nodes, the requesting
node selects the service node with the highest (most favorable)
service rating. This selection process is called load balancing.

The dynamic service rating, which is the default, is usually
adequate for efficient load balancing on the LAT network.
However, when necessary, you can use the /STATIC_RATING qualifier
to disable dynamic service ratings so that you can specify a
static (fixed) rating. That static rating value does not change
until the dynamic service rating is reenabled.

Use the static rating to direct users away from or toward your
node temporarily. Static ratings range from 0 to 255. Specify a
low value to make the local service node less likely to be used;
specify a high value to make the local service node more likely
to be used.

If you do not specify either the /STATIC_RATING or /NOSTATIC_
RATING qualifier, the default is that the LAT software uses the
dynamic service rating.

Limited and application services do not rely exclusively on
the dynamically calculated service rating. Instead, they use
a portion of the dynamic rating based on how many ports are
available for the service. For example, if a limited service has
50% of its ports available, the dynamic service rating will be
scaled, halved, and then added to 105. When ports are available,
the rating will always be above the value 105.

When all ports for a limited or application service are in use,
the rating will be based on the scaled dynamic rating and the
number of free queue slots on the local node. The rating will
always be less then 90.

This rating procedure for limited and application services
follows the terminal server rating algorithm for services and
available ports that the service offers, while at the same time
taking into account the availability of the node (which is the
factor used to calculate the dynamic rating).

If your system is licensed for a specific number of units (where
only a fixed number of users can log in to the system regardless
of how the login limit is set), then all dynamic ratings become 0
when all OpenVMS license units have been consumed. (This forces
all node service ratings to the lowest possible value when logins
are not possible because all OpenVMS license units have been
consumed.)

Note as well that the LAT software transmits a service
announcement message when a user logs in to or out of the system.
This allows the system to more quickly provide information
about service rating changes that result from a login or logout
operation.

3   Examples

  1. LATCP> CREATE SERVICE/STATIC_RATING=195 SALES

     The CREATE SERVICE command in this example creates the service
     SALES on a service node. This command assigns a static rating
     of 195 so terminal servers (and nodes that support outgoing
     connections) can assess the availability of services on the
     node.

  2. LATCP> CREATE SERVICE/APPLICATION GRAPHICS

     This command creates the service GRAPHICS on the local node.
     Use the CREATE PORT/DEDICATED and SET PORT/SERVICE=GRAPHICS
     commands to create a port that is dedicated to this service.

  3. $ LCP :== $LATCP
     $ LCP CREATE SERVICE/LIMITED ONLY_ONE
     $ LCP CREATE PORT/LIMITED LTA1234:
     $ LCP SET PORT LTA1234: /SERVICE=ONLY_ONE

     This series of commands creates a limited service that allows
     only one user to log in to the system through that service.
     When a user connects to service ONLY_ONE by responding to the
     terminal server prompt (Local>), the user is assigned port
     LTA1234 and then prompted for the user name. Any user who
     attempts to connect to the same service while LTA1234 has a
     user logged in receives the "service in use" message.

1 DEFINE

2 /KEY

Assigns a command string to a function key. For example, you can assign the LATCP SHOW NODE command to a function key.

Format

    DEFINE/KEY key-name equivalence-string

3 Parameters

key-name

Specifies the name of the function key that you want to define.
Valid key names are as follows:

Key Name	LK201/LK401 Keyboards	VT100-Type	VT52-Type
PF1	PF1	PF1	Blue
PF2	PF2	PF2	Red
PF3	PF3	PF3	Black
PF4	PF4	PF4	
KP0-KP9	Keypad 0-9	Keypad 0-9	Keypad 0-9
PERIOD	Keypad period (.)	Keypad period (.)	
COMMA	Keypad comma (,)	Keypad comma (,)	
MINUS	Keypad minus (-)	Keypad minus (-)	
Enter	Enter	Enter	Enter
FIND	Find	-	-
INSERT_HERE	Insert Here	-	-
REMOVE	Remove	-	-
SELECT	Select	-	-
PREV_SCREEN	Prev Screen (LK201) Prev (LK401)	-	-
NEXT_SCREEN	Next Screen (LK201) Next (LK401)	-	-
HELP	Help	-	-
DO	Do	-	-
F6-F20	F6-F20	-	-

equivalence-string

Specifies the command string that you want assigned to the function key. To preserve spaces and lowercase characters, enclose the string in quotation marks (" ").

3 Qualifiers

/ECHO

    /ECHO

```
        /NOECHO
```

   Specifies whether LATCP displays the command string on your
   screen when you press the key. If you do not specify the /ECHO
   or /NOECHO qualifier, the default is that the command string
   will be displayed. You cannot use /NOECHO with the /NOTERMINATE
   qualifier.

/IF_STATE

```
        /IF_STATE=state-name
```

   Specifies the state that must be set (for example, the GOLD
   state) for the key definition to work. Lets you assign
   alternative meanings to keys when the specified state is set.
   See the discussion of the /SET_STATE qualifier. If you omit the
   /IF_STATE qualifier, LATCP uses the current state. The state name
   is an alphanumeric string. States are established with the /SET_
   STATE qualifier.

/LOCK_STATE

```
        /LOCK_STATE
        /NOLOCK_STATE
```

   Specifies that the state set by the /SET_STATE qualifier remain
   in effect until explicitly changed. If you use the /NOLOCK_STATE
   qualifier, the state set by /SET_STATE remains in effect only
   for the next definable key that you press or for the next read-
   terminating character (such as Return or Ctrl/Z) that you type.

   You can specify the /LOCK_STATE qualifier only with the /SET_
   STATE qualifier. If you do not specify the /LOCK_STATE or
   /NOLOCK_STATE qualifier, the default is that the state set by the
   /SET_STATE qualifier remains in effect until explicitly changed.

/LOG

```
        /LOG
        /NOLOG
```

   Specifies whether LATCP displays a message confirming that the
   command was executed. If you do not specify the /LOG or /NOLOG
   qualifier, the default is that no message will be displayed.

/SET_STATE

```
        /SET_STATE=state-name
```

   Causes the specified state to be set when you press the defined
   key. The state name can be any alphanumeric string (for example,
   GOLD). Use the DEFINE/KEY/IF_STATE=state-name command to
   associate new meanings for keys when the specified state is set.
   See the example for the DEFINE/KEY command.

   If you omit the /SET_STATE qualifier, the current state that was
   locked remains in effect.

/TERMINATE

```
      /TERMINATE
      /NOTERMINATE
```

   Specifies whether the command string will be terminated
   (processed) when you press the function key. The default is
   /NOTERMINATE, which allows you to press other keys before the
   command string is processed. Pressing Return has the same effect
   as using /TERMINATE.

   The /NOTERMINATE qualifier allows you to create key definitions
   that insert text into command lines, after prompts, or into other
   text that you are typing.

3   Example

```
 LATCP> DEFINE/KEY PF4 "SHOW NODE " /NOTERMINATE/SET_STATE=GOLD
 LATCP> DEFINE/KEY PF4 "/ALL"/IF_STATE=GOLD/TERMINATE
```

   The first DEFINE/KEY command in this example assigns the SHOW
   NODE command to function key PF4. To process the SHOW NODE
   command, you must press Return after pressing PF4. Note the
   space after the word NODE in the first DEFINE/KEY command. This
   space allows you to enter a node name after pressing PF4. When
   you press Return, the SHOW NODE command is processed. If the
   space is omitted, LATCP does not recognize the command (SHOW
   NODE). The state is set to GOLD; that state will be in effect
   for the next key that you press.

   The second DEFINE/KEY command defines the use of the PF4 key
   when the keypad is in the GOLD state. When you press PF4 twice,
   the SHOW NODE/ALL command is processed.

1 DELETE

2   LINK
    Deletes a logical link from a node. You must have OPER privilege
    to use this command.

    Format

       DELETE LINK   link-name

3 Parameter

link-name

    Specifies the name of the link that you want to delete.

    Use the SHOW LINK command for a list of the links that are
    defined for your node.

3 Qualifiers

/LOG

        /LOG
        /NOLOG

    Specifies whether LATCP displays a message confirming that
    the link was deleted. If you do not specify the /LOG or /NOLOG
    qualifier, the default is that no message will be displayed.

3 Example

 LATCP> DELETE LINK NETWORK_A /LOG

    The DELETE LINK command in this example deletes the link
    NETWORK_A. The link was created with the CREATE LINK command.

2 PORT
    Deletes a logical port from a node. You must have OPER privilege
    to use this command.

    Format

       DELETE PORT   port-name

3 Parameter

port-name

    Specifies the name of the application port or the dedicated port
    that you want to delete. An application port connects to a remote
    device on a terminal server, whereas a dedicated port connects to
    a special service.

Use the SHOW PORT command for a list of the application ports and
the dedicated ports that are defined for your service node. You
cannot use the DELETE PORT command to delete an interactive or
forward LAT port.

3 Qualifiers

/LOG

        /LOG
        /NOLOG

Specifies whether LATCP displays a message confirming that
the port was deleted. If you do not specify the /LOG or /NOLOG
qualifier, the default is that no message will be displayed.

3 Example

 LATCP> DELETE PORT LTA27:

    The DELETE PORT command in this example deletes the LTA27:
    application port. The port was created with the CREATE PORT
    command.

2 QUEUE_ENTRY
Deletes an incoming queued request, or entry, from the local
node.

    Format

        DELETE QUEUE_ENTRY queue-entry-id

3 Parameter

queue-entry-id

    Specifies the identification number (ID) of the queued entry that
    you want to delete.

    Use the SHOW QUEUE_ENTRY command to view the list of queued
    entries and their IDs.

3 Example

 LATCP> DELETE QUEUE_ENTRY 0056

    The DELETE QUEUE_ENTRY command deletes the queued request with
    an ID of 0056.

2 SERVICE
Deletes a service that your service node currently offers. You
must have OPER privilege to use this command.

    Format

        DELETE SERVICE service-name

3 Parameter

service-name

   Specifies the name of the service, as displayed by the SHOW
   SERVICE command.

3 Qualifiers

/LOG

      /LOG
      /NOLOG

   Specifies whether LATCP displays a message confirming that the
   service was deleted. If you do not specify the /LOG or /NOLOG
   qualifier, the default is that no message will be displayed.

3 Example

 LATCP> DELETE SERVICE SALES

   The DELETE SERVICE command in this example removes the
   service SALES from your service node. The service is no longer
   available to server users.

1 EXIT

Stops execution of LATCP and returns control to the DCL command
level. You can also enter Ctrl/Z at any time to exit.

Format

    EXIT

2 Parameters
   None.

2 Example

 LATCP> EXIT

The EXIT command in this example exits the LATCP program and
returns control to the DCL command level.

1 **HELP**

Provides online help information for using the LATCP commands.

Format

    HELP [command-name...]

2 Parameter

command-name

The name of a LATCP command or LATCP command and command keyword.
If you enter the HELP command with a command name only, such as
HELP SET, LATCP displays a list of all of the command keywords
used with the SET command.

2 Example

 LATCP> HELP SET PORT

In this example, the HELP SET PORT command produces a
description of the SET PORT command and shows the command
format.

1 RECALL

Displays previously entered LATCP commands on the screen so that
you can execute them again.

Format

    RECALL [command-specifier]

2 Parameter

command-specifier

Specifies the number or the first several characters of the LATCP
command you want to recall. Command numbers can range from 1 to
20. The most recently entered command is number 1.

Use the /ALL qualifier to display all the commands in the RECALL
buffer, along with their command number so that you can determine
the number of the command that you want to recall.

If you do not include the command specifier or the /ALL qualifier
when entering the RECALL command, LATCP displays the last
command.

2 Qualifiers

/ALL

Specifies that LATCP display all the commands in the RECALL
buffer. LATCP displays the number of each command.

2 Examples

1.LATCP> RECALL 2

   In this example, the RECALL command recalls the second-to-last
   command you entered.

2.LATCP> RECALL SET

   In this example, the RECALL command recalls the last SET
   command you entered.

1 REFRESH

Refreshes the display screen so that any output from some other
source (such as a broadcast message) is erased from the screen.

Format

    REFRESH

2 Example

 LATCP> REFRESH

In this example, the REFRESH command refreshes the display on
your screen.

1 SCROLL

Allows you to retrieve information that has scrolled off the
screen, either up or down.

Format

    SCROLL

2 Parameters
   None.

2 Qualifiers

/DOWN

      /DOWN[=value]

Scrolls the LATCP screen display down the number of lines
indicated by the specified value. For convenience, you can also
use the Next (or Next Screen) key on your keyboard to scroll down
15 lines (instead of entering the SCROLL/DOWN=15 command).

If you do not specify a value, the default value is 1.

/UP

      /UP[=value]

Scrolls the LATCP screen display up the number of lines indicated
by the specified value. For convenience, you can also use the
Prev (or Prev Screen) key on your keyboard to scroll up 15 lines
(instead of entering the SCROLL/UP=15 command).

If you do not specify a value, the default value is 1.

2 Example

 LATCP> SCROLL /UP=5

    The SCROLL command in this example allows you to scroll up to
    view five lines of screen display that has previously scrolled
    off the viewing area.

1 SET

2 LINK
   Changes the characteristics of LAT data links. You must have OPER
   privilege to use this command.

   Format

     SET LINK link-name

3 Parameter

link-name

   Specifies the name for a LAT data link. A link name can have up
   to 16 ASCII characters. The characters allowed are as follows:

   o Alphanumeric characters: A-Z, a-z, 0-9

   o A subset of the international character set: ASCII codes 192-
      253

   o Punctuation characters: dollar sign ($), hyphen (-), period
      (.), and underscore (_)

   The SHOW LINK command displays the names of the links defined for
   a node.

3 Qualifiers

/LOG

     /LOG
     /NOLOG

   Specifies whether LATCP displays a message confirming that the
   link's characteristics were modified. If you do not specify the
   /LOG or /NOLOG qualifier, the default is that no message will be
   displayed.

/STATE

     /STATE=option

   Specifies availability of the link for use. The two options for
   STATE are:

   ON   Specifies that the link will be available for use with
            the LAT protocol running.
   OFF   Specifies that the link will not be available for use.

   If you do not specify the /STATE=option qualifier, the default is
   that the link will be available (ON).

3 Example

```
LATCP> SET LINK NETWORK_A /LOG /STATE=ON
```

   The SET LINK command in this example directs LATCP to start
   the controller for link NETWORK_A and then to display a
   confirmation message.

2 NODE
   Specifies the LAT characteristics of your local node. You must
   have OPER privilege to use this command.

   Format

     SET NODE [node-name]

3 Parameter

node-name

   Specifies a node name for your local node. By default, the node
   name is the translation of SYS$NODE. A LAT node name should be
   the same as the DECnet node name. If the node is not running
   DECnet but will be in the future, Digital recommends that you
   define SYS$NODE and use it for both DECnet and LAT node names.

   A LAT node name can be from 1 to 16 ASCII characters. The
   characters allowed are as follows:

   o Alphanumeric characters: A-Z, a-z, 0-9

   o A subset of the international character set: ASCII codes 192-
      253

   o Punctuation characters: dollar sign ($), hyphen (-), period
      (.), and underscore (_)

3 Qualifiers

/ANNOUNCEMENTS

     /ANNOUNCEMENTS
     /NOANNOUNCEMENTS

   Allows you to control whether your OpenVMS system multicasts
   information to the network.

   If you specify /NOANNOUNCEMENTS, LAT service announcements are
   disabled on the local node. Remote nodes must rely on the LAT
   service responder feature in the LAT protocol V5.2 or higher to
   connect to the local node. Therefore, Digital recommends that
   you use this qualifier only in a networking environment where
   newer model terminal servers and hosts are present (all LAT
   hosts, terminal servers, and PCs are running LAT protocol V5.2
   or higher).

   If you specify /NOANNOUNCEMENTS in an environment where LAT
   protocol V5.1 is present, those LAT protocol V5.1 systems (for
   example, DECserver 100, 200, and 500 systems) will be unable to
   connect to any of the systems that have LAT service announcements
   disabled.

/CIRCUIT_TIMER

       /CIRCUIT_TIMER[=msecs]

    Allows you to control the interval in milliseconds (msecs)
    between messages sent from the local node to other service nodes
    or terminal servers while connections to those nodes are active.
    Use this qualifier only if your node allows outgoing connections
    (/CONNECTIONS=OUTGOING_ONLY or /CONNECTIONS=BOTH).

    A low value for the interval decreases the response time for the
    port but increases the demand on service nodes. Set the circuit
    timer in the range of 10 to 1000 msecs.

    The default value of 80 msecs gives a generally acceptable
    response time while creating a moderately low overhead on the
    service nodes. You cannot change this parameter when active or
    pending LAT connections exist.

/CONNECTIONS

       /CONNECTIONS=option

    Allows you to specify the type of connections permissible on the
    local node. The four options for CONNECTIONS are:

    INCOMING_   Specifies that the local node permit incoming
    ONLY   connections only.
    OUTGOING_   Specifies that the local node permit outgoing
    ONLY   connections only. Specify this on systems that
                   can tolerate the overhead associated with outgoing
                   connections, such as standalone systems.
    BOTH   Specifies that the local node permit both incoming
                   and outgoing connections. Specify this on systems
                   that can tolerate the overhead associated with
                   outgoing connections, such as standalone systems.
    NONE   Specifies that the local node disallow both
                   incoming and outgoing connections.

    If you do not specify the /CONNECTIONS=option qualifier, the
    default is that the node will permit incoming connections only.

/CPU_RATING

       /CPU_RATING=cpu-power
       /NOCPU_RATING

    The /CPU_RATING qualifier assigns your local node a rating that
    represents the power of your node's CPU (central processing unit)
    relative to other CPUs in the LAN. The value of cpu-power can
    range from 1 (for a CPU with the lowest power) to 100 (for a CPU
    with the highest power).

    When a terminal server or node requests a connection to a service
    that is offered on the local node and one or more other service
    nodes, the requesting node selects the service node with the
    highest (most favorable) service rating, based on the overall
    level of activity of the node that offers the service and
    the amount of memory. This selection process is called load
    balancing.

    You can influence the rating for services on your node by

specifying a value for the /CPU_RATING qualifier. If you specify
a high value for cpu-power, the LAT driver will calculate a
relatively high service rating for services on your node (service
ratings as high as 255 are possible). If you specify a low value,
the LAT driver will calculate relatively low service ratings;
connections will most likely be made to the same service that
is offered on other nodes. In either case, the LAT driver can
calculate a greater range of values for dynamic service ratings
(the entire range from 0 to 255). Consequently, the ratings will
more accurately reflect the availability of the service node.

If you do not specify either the /CPU_RATING=cpu-power or /NOCPU_
RATING qualifier, the default is that no CPU rating will be used
A value of 0 indicates no CPU rating.

/DEVICE_SEED

    /DEVICE_SEED[=value]

Sets the default starting number (within a range from 1 through
9999) for the unit numbers that will be assigned to new LTA
devices. Note that when ports are created by assigning a channel
to LTA0: with the $ASSIGN system service, the channel numbers
fall in this same range.

The default device seed value is approximately half of the
maximum unit number (which you set by using the /UNIT_NUMBER_
MAXIMUM qualifier). Interactive LAT ports, and those created
with the CREATE PORT/LOGICAL command, are assigned unit numbers
beginning with the specified device seed value and continuing
up to the maximum unit number. When the maximum unit number is
reached, the port is assigned the next available unit number
beginning at the bottom of the range (LTA1:).

Note that each time you specify the /UNIT_NUMBER_MAXIMUM
qualifier, the device seed value is reset to approximately half
of the newly specified maximum unit number.

/FORWARD_SESSION_LIMIT

    /FORWARD_SESSION_LIMIT[=value]

Controls the number of sessions (a value within a range from 16
through 255) allowed on each outgoing connection. By default, 16
sessions are allowed on an outgoing connection, which means that
16 individual processes can direct the DCL command, SET HOST/LAT,
to the same remote node.

You must increase the value for the /FORWARD_SESSION_LIMIT
qualifier if a user on your system enters the command,
SET HOST/LAT, and receives an error message indicating that the
session limit for the LAT circuit has been reached (%LAT-F-
VCSESLIM). Note, however, that you can change this value only
when no connections exist.

/GROUPS

    /GROUPS=option[,...]

Gives the listed groups access to services offered on your
local node or prevents the listed groups from accessing services
offered on your local node, depending on the options used.

A network manager organizes terminal server nodes into groups
based on the number of terminal server nodes in the LAT network.
Groups subdivide the LAT network, limiting the number of terminal
server nodes that can connect with a given service node.

As manay as 256 groups, numbered 0 through 255, can be in the
LAT network. By default, all terminal server nodes and nodes
supporting outgoing connections belong to group 0. If you enter
one group code, you can omit the parentheses. Use the SHOW NODE
command for a list of the groups enabled for your service node.

The /GROUPS qualifier has several options. For each option
described, you can specify more than one group by:

o Listing them separated by commas

o Specifying a range

The available options are:

ENABLE=group- code[,...]	Gives the listed groups access to your service node.
DISABLE=group- code[,...]	Prevents the listed groups from accessing your service node. The listed groups had been enabled previously for access to your node.
ENABLE=group- code[,...], DISABLE=group- code[,...]	This option lets you enable certain groups and disable other groups in one command line: gives access to the groups listed with the ENABLE option and removes access from the groups listed with the DISABLE option. Enclose both ENABLE and DISABLE in parentheses; for example, /GROUP=(ENABLE=(10,12), DISABLE=(1-30)).

/IDENTIFICATION

     /IDENTIFICATION[="identification-string"]

Describes and identifies a node. Service nodes include the
identification string in service announcements. A service node
announces its services at regular intervals established with the
SET NODE command. Entering the LATCP SHOW NODE command or the
DECserver SHOW NODE command generates a display that includes
this identification string. By default, the identification string
is the translation of SYS$ANNOUNCE.

You cannot specify more than 64 ASCII characters in an
identification string (a SYS$ANNOUNCE longer than that will be
truncated to the first 64 characters). Enclose the string in
quotation marks (" ").

/KEEPALIVE_TIMER

     /KEEPALIVE_TIMER[=secs]

Allows you to control the maximum interval between idle run
messages sent by your local node to another service node to which
it has a LAT connection. The interval is in seconds. Your node
sends these messages when no other traffic is being generated
over the virtual circuit. If the service node acknowledges
these messages, your node will continue to monitor the status
of the circuit. If your node does not receive acknowledgment, it

responds as if the circuit is down.

Use this qualifier only if your node allows outgoing connections
(/CONNECTIONS=OUTGOING_ONLY or /CONNECTIONS=BOTH).

The default value is 20. Digital recommends this value for
normal LAN environments. For a heavily loaded LAN, consider
using a higher value. Set the timer in the range of 10 to 255.
For applications that require quick notification and possible
failover of a service node failure, use a lower value. You cannot
change this value if active or pending connections exist.

/LARGE_BUFFER

       /LARGE_BUFFER
       /NOLARGE_BUFFER

Allows you to control whether the LAT software uses large buffers
while managing communications between OpenVMS systems (the
default).

If you must use the /NOLARGE_BUFFER qualifier (for example, to
limit packet sizes to be no larger than the Ethernet maximum),
Digital recommends that you specify this command after all
logical LAT links have been created and before the LAT node
has been turned on. For example, note following commands in
LAT$SYSTARTUP.COM:

```
 $!
 $! Create each logical LAT link with a unique name and
 $! unique LAN address (forced with /NODECNET).
 $!
 $ LCP CREATE LINK FDDI_1 /DEVICE=FCA0 /NODECNET
 $ LCP CREATE LINK FDDI_2 /DEVICE=FCB0 /NODECNET
 $!
 $! Don't use large buffer support (force packet
 $! sizes to be no larger than what Ethernet can
 $! support).
 $!
 $ LCP SET NODE /NOLARGE_BUFFER
 $!
 $! Turn on the LAT protocol.
 $!
 $ LCP SET NODE /STATE=ON
```


/LOG

       /LOG
       /NOLOG

Specifies whether LATCP displays a message confirming that the
node's characteristics were modified. If you do not specify the
/LOG or /NOLOG qualifier, the default is that no message will be
displayed.

/MULTICAST_TIMER

       /MULTICAST_TIMER[=secs]

Specifies the time, in seconds, between multicast messages sent
by a service node. A multicast message announces the services
offered by a service node. The minimum value is 10 seconds; the

maximum is 180 seconds. The default value is 60.

/NODE_LIMIT

        /NODE_LIMIT=value
        /NONODE_LIMIT

    Specifies the maximum number of service nodes that your
    local node can store in its service and node database. Use
    this qualifier only if your node allows outgoing connections
    (/CONNECTIONS=OUTGOING_ONLY or /CONNECTIONS=BOTH).

    When the database reaches the node limit, no more nodes are
    added to the database when your local node receives service
    announcement messages. You can ensure that the node limit is not
    reached by using the /USER_GROUPS qualifier to restrict access
    from the local node to other service nodes on the network.

    If you do not specify either the /NODE_LIMIT=value or /NONODE_
    LIMIT qualifier, the default is no limit. A value of 0 indicates
    no limit.

/QUEUE_LIMIT

        /QUEUE_LIMIT=value

    Allows you to set a limit on the number of entries (incoming
    LAT connections only, not outgoing printer connections) that are
    queued on the system. The queue limit value can range from 0 to
    200, with a default of 24. A value of 0 indicates that no queuing
    is allowed.

/RETRANSMIT_LIMIT

        /RETRANSMIT_LIMIT[=count]

    Specifies the number of times your local node repeats
    transmission of a message to a service node after a transmission
    fails. If the transmission is still unsuccessful after these
    attempts, the virtual circuit between your local node and the
    service node terminates, along with all sessions associated with
    the virtual circuit.

    Use this qualifier only if your node allows outgoing connections
    (/CONNECTIONS=OUTGOING_ONLY or /CONNECTIONS=BOTH).

    Specify a value in the range of 4 to 120. The default is 8. The
    value you choose depends on the type of physical link used for
    your network, as well as the amount of traffic on the network.
    See your network manager for a suggested value. You cannot change
    this value if active or pending connections exist.

/SERVICE_RESPONDER

        /SERVICE_RESPONDER
        /NOSERVICE_RESPONDER

    Specifies whether your system responds to special LAT multicast
    messages that request service information. Some terminal servers
    do not have their own service and node database. When a user on
    such a terminal server requests a connection to a service, the

server sends a LAT multicast message requesting names of nodes
that offer the requested service. Service responder nodes reply
with the requested information.

If you specify /SERVICE_RESPONDER, your system responds to the
special LAT multicast messages. (If you specify /NOSERVICE_
RESPONDER, your system does not respond to those messages.)
Digital recommends that you set up only one or two nodes in
the LAN as service responder nodes. The nodes should have the
largest databases in the LAN. Use this option only if your node
allows outgoing connections (/CONNECTIONS=OUTGOING_ONLY or
/CONNECTIONS=BOTH).

If you do not specify either the /SERVICE_RESPONDER or
/NOSERVICE_RESPONDER qualifier, the default is that your system
will not respond to the special LAT multicast messages.

/SESSION_LIMIT

     /SESSION_LIMIT=option

Specifies the maximum number of simultaneous sessions across
all local-access ports. This limit does not affect the use of
dedicated and application ports. It affects interactive port
creation only, limiting the amount of resources consumed by
interactive users creating new sessions.

The options for the /SESSION_LIMIT qualifier are:

INCOMING=value   Sets the session limit for incoming
                              connections only. The default is no
                              limit (a value of 0).
OUTGOING=value   Sets the session limit for outgoing
                              connections only. The default is no
                              limit (a value of 0).
INCOMING=value,OUTGOING=valuSets the limit for both outgoing
                              and incoming connections. Enclose
                              both options in parentheses; for
                              example, /SESSION_LIMIT=(INCOMING=20,
                              OUTGOING=25).

o A high limit allows users to have more sessions but increases
   memory utilization on your local node.

o A low limit decreases memory utilization on your local node
   but limits user access to services on the network.

If the limit is reached, interactive users cannot create new
sessions. In this case, increase the session limit or disconnect
any connections that are no longer being used.

Specify a value in the range of 0 to 255. Specifying 0 leaves no
limit on the number of sessions that can be created. To prevent
sessions from being created, use the /CONNECTIONS qualifier.

Not specify the /SESSION_LIMIT qualifier causes no limit on the
number of incoming and outgoing sessions. This is the default.

/STATE

     /STATE=option

Specifies whether LAT connections are allowed. The three options

for STATE are:

ON   Starts the LAT port driver (and LAT protocol software)
            on your node.

            Digital strongly recommends that the LATCP command SET
            NODE/STATE=ON be executed before any LTA application or
            dedicated ports are created (use the format provided in
            SYS$MANAGER:LAT$SYSTARTUP.TEMPLATE) for two reasons:

            o It ensures that LTDRIVER will delete any leftover
               LTA devices that have a reference count of 0 and are
               explicitly marked for deletion (using the $DASSGN
               system service or the LATCP DELETE PORT command,
               for example). Because every LATCP management port
               (LATCP$MGMT_PORT) that was created by the previous
               LATCP invocation is deleted, no conflicts result with
               the LAT application ports or newly created dedicated
               ports.

            o The deletion of leftover LTA devices with a reference
               count of 0 minimizes the use of nonpaged pool memory.

OFF   Stops the LAT port driver (and LAT protocol software) on
            your node. Any existing LAT connections are aborted. Any
            characteristics that you changed or set with LATCP are
            lost.

            To start the LAT protocol on your node again, invoke
            LAT$STARTUP.COM. The LAT characteristics defined in
            LAT$SYSTARTUP.COM will take effect.
SHUT   Specifies that new LAT connections cannot be created on
            your local node, but existing connections may continue.
            The LAT protocol continues running only until the last
            active session disconnects, (after which LTDRIVER will
            stop). At that time, your node changes to the OFF state.

                              CAUTION

    If you stop the LAT software by specifying either the SET
    NODE/STATE=OFF or SET NODE/STATE=SHUT command, the LAT
    print symbiont (LATSYM) will shut down all print queues that
    it is processing. The system will then generate an OPCOM
    message indicating that the print queues are stopped. You
    must manually restart those print queues.

If you do not specify the /STATE=option qualifier, the default is
that the LAT port driver and LAT protocol software on your node
will be started (ON).

/UNIT_NUMBER_MAXIMUM

      /UNIT_NUMBER_MAXIMUM=value

Specifies the maximum unit number for a LAT device. For example,
if you specify 140, then LTA140: will be the device with the
highest unit number. Specify a value that is high enough to
accommodate all devices that may be in use simultaneously. When
the number of devices in use exceeds the value you specify, the
system gives certain LAT devices unit numbers that exceed your
maximum.

Note the following as well:

o   When LATCP reaches the maximum unit number, it will continue
    to implicitly create LTA devices beginning with the lowest
    available unit number.

o   You cannot use the System Generation (SYSGEN) utility to set
    the maximum unit number for a LAT device.

The range of maximum unit numbers is 99 through 9999. The default
is 9999. Note that each time you specify the /UNIT_NUMBER_MAXIMUM
qualifier, the LTA device seed value is reset to approximately
half of the newly specified maximum unit number.

/USER_GROUPS

    /USER_GROUPS=option[,...]

Restricts access (from the local node) to service nodes in the
network that belong to the specified groups. Your local node can
access only those service nodes associated with the user groups
specified. The /USER_GROUPS qualifier also serves to limit the
number of nodes stored in your node's node database. (The local
node only stores information about the nodes and services that
belong to at least one of the specified user groups.) By default,
all LAT service nodes belong to group 0.

This qualifier affects your local node when outgoing connections
are enabled (/CONNECTIONS=OUTGOING_ONLY or /CONNECTIONS=BOTH).

Use the SHOW NODE command for a list of the user groups (service
groups) enabled for your node.

The /USER_GROUPS qualifier has several options. For each option
described here, you can use two ways to specify more than one
group:

o   List them separated by commas

o   Specify a range

ENABLE=group-code[,...]	Gives your node access to the listed user groups.
DISABLE=group-code[,...]	Prevents your node from accessing the listed groups. The listed groups were enabled previously.
ENABLE=group-code[,...], DISABLE=group-code[,...]	This option lets you enable certain groups and disable other groups in one command line: gives your node access to the groups listed with the ENABLE option and prevents your node from accessing the groups listed with the DISABLE option. Enclose both ENABLE and DISABLE in parentheses; for example, /GROUP=(ENABLE=(10,12), DISABLE=(1-30)).

3   Examples

  1.LATCP> SET NODE DUKE /IDENT="NODE DUKE, SALES VMSCLUSTER"

    The SET NODE command in this example specifies node name DUKE
    for your local node. The identification string "NODE DUKE,
    SALES VMSCLUSTER" is multicast from node DUKE.

```
2.LATCP> SET NODE /MULTICAST_TIMER=50-
 _LATCP> /GROUPS=(ENABLE=(1-3,8,11),DISABLE=5)
```

   The SET NODE command in this example causes your local node
   to send multicast messages every 50 seconds to announce
   DUKE's services to terminal servers. The command also enables
   groups 1, 2, 3, 8, and 11 for access to the local node, and
   it disables group 5 from accessing the local node. Group 5 had
   been previously enabled.

```
3.LATCP> SET NODE /CONNECTIONS=BOTH-
 _LATCP> /USER_GROUPS=(ENABLE=(24,121-127),DISABLE=0)
```

   The SET NODE command in this example sets up your local node
   to allow both incoming and outgoing connections. Users on your
   local node can access those service nodes belonging to user
   groups 24 and 121 through 127. Users cannot access service
   nodes in user group 0.

```
4.LATCP> SET NODE /CIRCUIT_TIMER=80 /KEEPALIVE_TIMER=20 -
 _LATCP> /RETRANSMIT_LIMIT=20 /CONNECTIONS=BOTH -
 _LATCP> /MULTICAST_TIMER=60 /GROUPS=(DISABLE=0,ENABLE=73-)
 _LATCP> /SESSION_LIMIT=(OUTGOING=10,INCOMING=0)
```

   The SET NODE command in this example sets many characteristics
   at once for node DUKE.

2   PORT
    Associates a logical port on the local node with a remote port
    on a terminal server that supports a device. Alternatively,
    it associates a logical port on the local node with a specific
    service. The service can be offered by a terminal server or
    associated with one or more dedicated ports on a remote LAT
    service node.

    You must have OPER privilege to use this command.

    Format

      SET PORT port-name

3 Parameter

port-name

   Specifies the name of the port. A port name must be in the form
   LTAn:, where n is a unique number from 1 through 9999.

                            NOTE

     You cannot use the CREATE PORT and SET PORT commands,
     along with the DCL command SET TERMINAL, to change the
     characteristics of a DECserver port unless there is an
     existing LAT connection to that DECserver.

3 Qualifiers

/APPLICATION

   Specifies that a port on the local node is an application port,

logically associated with a port on a terminal server or a
dedicated port on another LAT service node. The terminal server
port supports a device (for example, a printer). If the port
is used to support a printer, the print queue is established in
a startup command procedure. See the OpenVMS System Manager's
Manual for a description of configuring remote printers on a
terminal server.

If you do not specify a port type, the default port type is
APPLICATION.

/DEDICATED

Specifies that a logical port on your local node is dedicated
to an application service. The /DEDICATED qualifier requires the
/SERVICE qualifier.

To set up an application service for a logical port on a LAT
service node:

1. Create the service by specifying the CREATE SERVICE
   /APPLICATION command and then define the dedicated port by
   specifying the CREATE PORT/DEDICATED command. You can include
   these commands in LAT$SYSTARTUP.COM.

2. Associate the dedicated ports with the service by specifying
   the SET PORT/DEDICATED/SERVICE command.

3. Start the application program. Within the program, allocate
   dedicated ports with the same name as those defined in
   LAT$SYSTARTUP.COM.

/LIMITED

Specifies that a logical port on your local node is limited to
a service in the same way a port created using the /DEDICATED
qualifier is dedicated to an application service. The difference
is that ports created using the /LIMITED qualifier are under the
control of the system login image (LOGINOUT.EXE) instead of an
application program (a user who connects to a limited service and
is assigned to a limited port receives the "Username:" prompt).

Using the /LIMITED qualifier, you can create a limited number
of ports and map them to a specific service offered by the host
system. If users are logged in to all of the limited ports for
the service, no more connections are allowed to that service
(terminal server users receive a "service in use" message).

/LOG

    /LOG
    /NOLOG

Specifies whether LATCP displays a message confirming that the
port's characteristics were modified. If you do not specify the
/LOG or /NOLOG qualifier, the default is that no message will be
displayed.

/NODE

    /NODE=remote-node-name

Specifies the name of a terminal server (or a remote node that
supports outgoing connections) to be logically associated with
the specified application port on your node. The server supports
a remote device. Note that you can set up an application port
on your local node and associate the port with a dedicated port
on a remote LAT service node. The remote port is dedicated to an
application service.

/PASSWORD

     /PASSWORD=remote-password

Specifies the password required to access a remote service that
is logically associated with the specified application port.

/PORT

     /PORT=remote-port-name

Specifies the name of the remote port on a terminal server that
supports a remote device, or specifies the name of a remote port
dedicated to an application service on a remote LAT service node.
In either case, the remote port is logically associated with the
specified application port on your local node.

/QUEUED

     /QUEUED
     /NOQUEUED

Specifies queued or nonqueued access to the server port. A queued
or nonqueued request is accepted by a terminal server if a
remote port is free. If the remote port is busy and queuing is
enabled on the terminal server, then the server queues the remote
request. If you do not want your remote requests to be queued on
the server, specify /NOQUEUED.

Not specifying either the /QUEUED or /NOQUEUED qualifier results
in queued access to the server port. This is the default.

/SERVICE

     /SERVICE=service-name

Specifies either of the following:

o   The name of the remote service offered at a terminal server
    port that will be associated with the specified application
    port (/APPLICATION) on the local node

o   A service name for an application program being offered on a
    dedicated port (/DEDICATED) on a LAT service node

To specify the name of a remote service offered at a terminal
server port, use the /NODE and /SERVICE qualifiers. To specify a
particular port for a service, use the /NODE, /PORT, and /SERVICE
qualifiers. Ask the terminal server manager for these names.

To name a service for a particular application program to be
offered locally on a dedicated port, use the /DEDICATED and

/SERVICE qualifiers. (The service must have been created with the
CREATE SERVICE command.) Assign only one service to a dedicated
port, but note that several ports can have the same service
assigned.

You can also set up the port as a limited port, using the
/LIMITED qualifier.

3   Examples

  1.LATCP> SET PORT LTA22: /APPLICATION /NODE=TS33EW /PORT=LN02

    The SET PORT command in this example sets up port LTA22: as
    an application port to be associated with the port named LN02
    on the terminal server named TS33EW. This command associates
    port LTA22: with a specific printer on the server. In the next
    example, the SET PORT command associates a port with a set of
    printers (designated by the service name PRINTER) on a terminal
    server.

  2.LATCP> SET PORT LTA19: /APP /NODE=TLAT1 /SERVICE=PRINTER /QUEUED

    The SET PORT command in this example shows how to associate
    a local logical port with a service (several printers) on a
    terminal server. The command associates the application port
    LTA19: with the service PRINTER on terminal server TLAT1. The
    service PRINTER can be associated with one or more ports on
    TLAT1. The /QUEUED qualifier specifies that the server offering
    the service PRINTER can queue the remote connection request if
    all ports offering the service are in use. See the description
    of print operations in the OpenVMS System Manager's Manual for
    information on setting up print queues.

  3.LATCP> SET PORT LTA21: /DEDICATED /SERVICE=GRAPHICS

    The SET PORT command in this example specifies that the
    application port LTA21: on the local service node offers the
    service GRAPHICS to users on terminal servers or on nodes that
    support outgoing connections. GRAPHICS is a particular utility
    or application program.

  4.LATCP> SET PORT MAIL_PORT /SERVICE=MAIL/NODE=RMNODE

    The SET PORT command in this example associates the port whose
    logical name is MAIL_PORT with the dedicated service MAIL
    on remote node RMNODE. The port logically named MAIL_PORT
    was created with the CREATE PORT command (see Example 3 in
    the discussion of the CREATE PORT command). The logical name
    could also have been created with an OpenVMS DCL ASSIGN or
    DEFINE command. On node RMNODE, a port must be dedicated to
    the service MAIL by using the SET PORT port-name /DEDICATED
    /SERVICE=MAIL command.

  5.$ LCP :== $LATCP
    $ LCP CREATE SERVICE/LIMITED ONLY_ONE
    $ LCP CREATE PORT/LIMITED LTA1234:
    $ LCP SET PORT LTA1234: /SERVICE=ONLY_ONE

    This series of commands, which includes the SET PORT command,
    creates a limited service that allows only one user to log in
    to the system through that service. When a user connects to
    service ONLY_ONE by responding to the terminal server prompt
    (Local>), the user is assigned port LTA1234 and then prompted
    for the user name. Any user who attempts to connect to the

same service while LTA1234 has a user logged in receives the
    "service in use" message.

2   SERVICE
    Dynamically changes the characteristics of a locally offered
    service. You must have OPER privilege to use this command.

    Format

      SET SERVICE   [service-name]

3 Parameter

service-name

    Specifies the service whose characteristics are to be modified.
    If a service name is omitted, the default service name is the
    name of the local node you defined by using the SET NODE command.

3 Qualifiers

/APPLICATION

    Sets up the service as an application service. An application
    service offers a specific application on the service node rather
    than all of the resources on the service node. Define a dedicated
    port for the service by using the CREATE PORT and SET PORT
    commands.

/CONNECTIONS

      /CONNECTIONS
      /NOCONNECTIONS

    Specifies whether a service offered by an OpenVMS system accepts
    incoming connections. If you use the /NOCONNECTIONS qualifier
    to disable incoming connections, users cannot connect to that
    service and receive instead the error message "service is
    disabled".

    By default, a service accepts incoming connections
    (/CONNECTIONS).

/IDENTIFICATION

      /IDENTIFICATION[="identification-string"]

    Describes and identifies a service. Service nodes include the
    identification string in service announcements. A service node
    announces its services at regular intervals established with the
    SET NODE command. Entering the LATCP SHOW NODE command or the
    DECserver SHOW NODE command generates a display that includes
    this identification string.

    By default, the identification string is the translation of
    SYS$ANNOUNCE. A service node announces its services at regular
    intervals established with the SET NODE command.

You cannot specify more than 64 ASCII characters in an
identification string (a SYS$ANNOUNCE longer than that will be
truncated to the first 64 characters). Enclose the string in
quotation marks (" ").

/LIMITED

   Specifies that the service is a limited service, using devices
   assigned the limited characteristic and associated with (mapped
   to) this limited service. This qualifier is used in conjunction
   with the SET PORT /LIMITED command (see example).

/LOG

       /LOG
       /NOLOG

   Specifies whether or not LATCP displays a message confirming
   that the command was executed. If you do not specify the /LOG
   or /NOLOG qualifier, the default is that no message will be
   displayed.

/QUEUED

       /QUEUED
       /NOQUEUED

   Specifies whether a locally offered limited (/LIMITED) or
   application (/DEDICATED) service is allowed to have queued
   connections when all ports are busy (the default). If you specify
   /NOQUEUED, incoming connections will be rejected if all ports are
   busy.

/STATIC_RATING

       /STATIC_RATING=rating
       /NOSTATIC_RATING

   Enables or disables dynamic service ratings. A dynamic service
   rating means that a LAT algorithm calculates the availability
   of a service dynamically, based on the overall level of activity
   of the node that offers the service and the amount of memory.
   When a terminal server or node requests a connection to a service
   that is offered on two or more service nodes, the requesting
   node selects the service node with the highest (most favorable)
   service rating. This selection process is called load balancing.

   The dynamic service rating, which is the default, is usually
   adequate for efficient load balancing on the LAT network.
   However, when necessary, you can use the /STATIC_RATING qualifier
   to disable dynamic service ratings so that you can specify a
   static (fixed) rating. That static rating value does not change
   until the dynamic service rating is reenabled.

   Use the static rating to direct users away from or toward your
   node temporarily. Static ratings range from 0 to 255. Specify a
   low value to make the local service node less likely to be used;
   specify a high value to make the local service node more likely
   to be used.

   If you do not specify either the /STATIC_RATING or /NOSTATIC_

RATING qualifier, the default is that the LAT software uses the
dynamic service rating.

Limited and application services do not rely exclusively on
the dynamically calculated service rating. Instead, they use
a portion of the dynamic rating based on how many ports are
available for the service. For example, if a limited service
has 50 percent of its ports available, the dynamic service rating
will be scaled, halved, and then added to 105. When ports are
available, the rating will always be above the value 105.

When all ports for a limited or application service are in use,
the rating will be based on the scaled dynamic rating and the
number of free queue slots on the local node. The rating will
always be less then 90.

This rating procedure for limited and application services
follows the terminal server rating algorithm for services and
available ports that the service offers, while at the same time
taking into account the availability of the node (which is the
factor used to calculate the dynamic rating).

If your system is licensed for a specific number of units (where
only a fixed number of users can log in to the system regardless
of how the login limit is set), then all dynamic ratings become 0
when all OpenVMS license units have been consumed. (This forces
all node service ratings to the lowest possible value when logins
are not possible because all OpenVMS license units have been
consumed.)

Note as well that the LAT software transmits a service
announcement message when a user logs in to or out of the system.
This allows the system to more quickly provide information
about service rating changes that result from a login or logout
operation.

3   Examples

1.LATCP> SET SERVICE SALES /IDENT="SALES FORCE TIMESHARING SERVICES"

   The SET SERVICE command in this example specifies a new
   identification string, "SALES FORCE TIMESHARING SERVICES", for
   the service SALES. This string is announced with the service
   SALES in the multicast messages sent by a service node.

2.$ LCP :== $LATCP
  $ LCP SET SERVICE/LIMITED ONLY_ONE
  $ LCP CREATE PORT/LIMITED LTA1234:
  $ LCP SET PORT LTA1234: /SERVICE=ONLY_ONE

   This series of commands changes an existing service to a
   limited service that allows only one user to log in to the
   system through that service. When a user connects to service
   ONLY_ONE by responding to the terminal server prompt (Local>),
   the user is assigned port LTA1234 and then prompted for the
   user name. Any user who attempts to connect to the same service
   while LTA1234 has a user logged in receives the "service in
   use" message.

1 SHOW

2 LINK
   Displays the status and LAT characteristics of links on the local
   node.

   Format

      SHOW LINK [link-name]

3 Parameter

link-name

   Specifies the name for a LAT data link. A link name can have up
   to 16 ASCII characters.

   If you do not specify a link name, LATCP displays information
   about all links currently defined for the node.

3 Qualifiers

/BRIEF

   Displays the device name and state of the link. This is the
   default display.

/COUNTERS

   Displays the device counters kept for the link. The numbers
   displayed represent the values recorded since the last time the
   counters were reset (when the node first started or when the ZERO
   COUNTERS command was used).

   Do not use the /BRIEF or /FULL qualifier with this qualifier.

   Counters Common to CSMA/CD and FDDI Links lists and describes
   counters common to both CSMA/CD (carrier sense, multiple
   access with collision detect) and FDDI (fiber distributed data
   interface) links.

   Table 1 Counters Common to CSMA/CD and FDDI Links

Counter	Description
Messages received	The total number of messages received over the link.
Multicast messages received	The total number of multicast messages received over the link.
Bytes received	The total number of bytes of information received over the link.
Multicast bytes received	The total number of multicast bytes received over the link.
System buffer unavailable	The total number of times no system buffer was available for an incoming frame.
Unrecognized destination	The total number of times a frame was discarded because there was no portal with

	the protocol enabled. This count includes frames received for the physical address only.
Messages sent	The total number of messages sent over the link.
Multicast messages sent	The total number of multicast messages sent over the link.
Bytes sent	The total number of bytes of information sent over the link.
Multicast bytes sent	The total number of bytes of multicast messages sent over the link.
User buffer unavailable	The total number of times no user buffer was available for an incoming frame that passed all filtering.
Data overrun	The total number of bytes lost on the link's device because the local node's input buffers were full. A nonzero value can indicate noisy lines, a bad device, a busy or poorly tuned system (not enough resources allocated), or a hardware problem with another device on the LAN connection.

Receive Errors Common to CSMA/CD and FDDI Links lists and
describes receive errors common to both CSMA/CD and FDDI links.
These errors, which are included in the display generated by
the SHOW LINK/COUNTERS command, are represented by flags that
indicate the error has occurred.

Table 2 Receive Errors Common to CSMA/CD and FDDI Links

Flag	Description
Block check error	CRC error in packet(s) received.
Framing error	Received frame(s) ended incorrectly.
Frame too long	Frame(s) received longer than length limits.
Frame status error	CRC error on ring noticed by local FDDI station (FDDI only).
Frame length error	Frame length too short (FDDI only).

Transmit Errors Common to CSMA/CD and FDDI Links lists and
describes transmit errors common to both CSMA/CD and FDDI links.
These errors, which are included in the display generated by
the SHOW LINK/COUNTERS command, are represented by flags that
indicate the error has occurred.

Table 3 Transmit Errors Common to CSMA/CD and FDDI Links

Flag	Description
Excessive collisions	Frame(s) failed to transmit because the collision limit of 16 was reached (CSMA/CD only).
Carrier check failures	Indicates transceiver problem or short circuit in cable.
Short circuit	Short circuit in cable.
Open circuit	Open circuit in cable.
Frame too long	Frame(s) too long. Indicates a transmission problem in one of the portals using the link.
Remote failure to defer	A remote station failed to defer frame(s) transmission. Could indicate a misconfigured network.
Transmit underrun	Transmission of a frame was too slow. Indicates a hardware controller error.
Transmit failure	Frame(s) failed to transmit.

CSMA/CD Counters lists and describes link counters specific to CSMA/CD only.

Table 4 CSMA/CD Counters

Counter	Description
Transmit CDC failure	The total number of carrier detect check errors, that is, the number of times the local node failed to detect that another Ethernet station was already transmitting when the local node began transmitting.
Messages transmitted:	Single collision–The total number of times a frame was successfully transmitted on the second attempt after a normal collision on the first attempt. Multiple collision–The total number of times a frame was successfully transmitted on the third or later attempt after normal collisions on previous attempts. Initially deferred–The total number of times a frame transmission was deferred on its first attempt. This counter is used to measure Ethernet contention with no collisions.

FDDI Counters lists and describes link counters specific to FDDI only.

Table 5 FDDI Counters

Counter	Description
Ring initializations initiated	The total number of times a ring reinitialization was initiated by the link.
Ring initializations received	The total number of times a ring reinitialization was initiated by some other link.
Directed beacons received	The number of times the link detected the directed beacon process. Each invocation of the directed beacon process is counted only once.
Connections completed	The number of times the station successfully connected to the concentrator.
Duplicate tokens detected	The number of times a duplicate token was detected on the link.
Ring purge errors	The number of times the ring purger received a token while still in the ring purge state.
LCT rejects	Link Confidence Test rejects. Indicates a problem with communication between station and concentrator.
Elasticity buffer errors	Elasticity buffer function errors. Indicates a station on the ring with a transmit clock out of tolerance.
MAC error count	The number of times the MAC (Media Access Control) changed the E indicator in a frame from R to S.
Traces initiated	The number of times the PC-trace process was initiated by the link.
Traces received	The number of times the link was requested to perform the PC-trace process.

Ring beacons initiated	The number of times the ring beacon process was initiated by the link.
Link errors	The number of times the Link Error Monitor (LEM) detected an error in a received message. Slow counts are normal.
Duplicate address test failures	The number of times the link address was a duplicate.
FCI strip errors	The number of times a Frame Content Independent Strip operation was terminated by receipt of a token.
LEM rejects	The number of times excessive LEM errors were encountered.
MAC frame count	The total number of frames (other than tokens) seen by the link.
MAC lost count	The total number of times a frame (other than a token) was improperly terminated.

/FULL

   Displays the device name, state, and datalink address of the link
   and indicates whether the DECnet address is enabled.

3 Examples

   1.LATCP> SHOW LINK/FULL NETWORK_A

     The SHOW LINK command in this example produces the following
     display of information about link NETWORK_A:

        Link Name: NETWORK_A   Datalink Address: 08-00-2B-10-12-E3
        Device Name: _ESA7:   DECnet Address: Disabled
        Link State: On

     The display in this example gives the device name of link
     NETWORK_A and the device's hardware address. The link is in
     the On state.

2 NODE
   Displays the status and LAT characteristics of a node.

   Format

      SHOW NODE [node-name]

3 Parameter

node-name

   Specifies the name of the node for which information is
   displayed. If you do not specify a node name, LATCP displays
   information about the local node.

   You can also specify any valid wildcard for this parameter
   For example, the SHOW NODE A* command displays the status and
   characteristics of all nodes that begin with the letter A.

3 Qualifiers

/ALL

Displays information about all nodes known to your local node.
When you use this qualifier, specify the /FULL or /BRIEF
qualifier as well. If you do not specify either the /FULL or
/BRIEF qualifier, the default display will contain the node
status and identification string (the display generated by the
/BRIEF qualifier).

/BRIEF

Displays the node status and identification string. This is the
default display if you specify the /ALL qualifier.

/COUNTERS

Displays the counters kept for the node. Do not use the /BRIEF or
/FULL qualifier with this qualifier. LAT Node Counters lists and
describes the counters displayed with SHOW NODE/COUNTERS.

Table 6 LAT Node Counters

Counter	Description
Messages received	The total number of LAT messages received by the local node. If you specify a remote node with the SHOW NODE command, the number of LAT messages received from that remote node.
Messages transmitted	The total number of LAT messages transmitted by the local node. If you specify a remote node with the SHOW NODE command, the number of LAT messages transmitted to that remote node.
Slots received	The total number of LAT slots received by the local node. If you specify a remote node with the SHOW NODE command, the number of slots received from that remote node. A slot is a message segment that contains information corresponding to a single session.
Slots transmitted	The total number of LAT slots transmitted by the local node. If you specify a remote node with the SHOW NODE command, the number of slots transmitted to that remote node.
Bytes received	The total number of bytes of LAT information received by the local node. If you specify a remote node with the SHOW NODE command, the number of bytes received from that remote node.
Bytes transmitted	The total number of bytes of LAT information transmitted by the local node. If you specify a remote node with the SHOW NODE command, the number of bytes transmitted to that remote node.
Multicast bytes received	The total number of LAT multicast bytes received by the local node.
Multicast bytes sent	The total number of LAT multicast bytes sent by the local node.
Multicast messages received	The total number of LAT multicast messages received by the local node.
Multicast messages sent	The total number of LAT multicast messages sent by the local node.
No transmit buffer	The total number of times no buffer was available on the local node for transmission.
Multicast	The total number of times LTDRIVER failed to

messages lost	process an inbound multicast message because of failed communication with the LATACP.
Multicast send failures	The total number of times LTDRIVER failed to send a multicast message because of failed communication with the LATACP.
Controller errors	The total number of times LTDRIVER failed to communicate with the data link controller driver.
Last controller error	The most recent controller error.
Multiple node addresses	The total number of times that a node announced itself with a physical address different from that in a previous announcement.
Duplicates received	The total number of duplicate messages received by the local node. If you specify a remote node with the SHOW NODE command, the number of duplicate messages received from that remote node. This counter can indicate a system slowdown.
Messages retransmitted	The total number of LAT messages that the local node retransmitted because they were not acknowledged by terminal servers (or nodes that support outgoing connections). If you specify a remote node with the SHOW NODE command, the number of messages retransmitted to that remote node.
Illegal messages received	The total number of invalidly formatted LAT messages received by the local node. If you specify a remote node with the SHOW NODE command, the number of invalidly formatted messages the local node received from that remote node. Illegal messages are grouped into several types of protocol errors, which are listed at the end of this table.
Illegal slots received	The total number of invalidly formatted LAT slots received by the local node. If you specify a remote node with the SHOW NODE command, the number of invalidly formatted slots the local node received from that remote node.
Solicitations accepted	The total number of times a remote node accepted solicitations from the local node. If you specify a remote node with the SHOW NODE command, the number of accepted solicitations by that remote node.
Solicitations rejected	The total number of times a remote node rejected solicitation from the local node. If you specify a remote node with the SHOW NODE command, the number of rejected solicitations by that remote node.
Solicitation failures	The total number of times solicitations by the local node received no response.
Transmit errors	The total number of times the data link failed to transmit a LAT message.
Last transmit error	The most recent transmit error.
Virtual circuit timeouts	The total number of times a LAT circuit to another node timed out, indicating that the remote node failed to send a valid message in the required time span. If you specify a remote node with the SHOW NODE command, the number of times the local node timed out from a connection to that remote node.
Discarded output	The total number of data bytes that were

```
bytes                 discarded because of an overflow of an
                      internal buffer before the data could be
                      output to an LTA device.
User data lost        The total number of times LTDRIVER failed to
                      allocate resources to buffer session data.
                      User data is lost and the session is stopped.
Resource errors       The number of times LTDRIVER was unable to
                      allocate system resources.
Incoming solicits     The total number of times the local node
accepted              accepted solicitations from other nodes.
Incoming solicits     The total number of times the local node
rejected              rejected solicitations from other nodes.
```

The protocol errors that are counted as illegal messages are as
follows. These protocol error messages are displayed if their
associated counter is greater than zero:

o   Invalid message type received

o   Invalid start message received

o   Invalid sequence number received in start message

o   Zero-node index received

o   Node circuit index out of range

o   Node circuit sequence invalid

o   Node circuit index no longer valid

o   Circuit was forced to halt

o   Invalid server slot index

o   Invalid node slot index

o   Invalid credit field or too many credits used

o   Repeat creation of slot by server

o   Repeat disconnection of slot by master

/FULL

   Displays the node's status, identification string, LAT protocol
   version, and the values of the node's characteristics. This is
   the default except when you specify the /ALL qualifier.

/STATUS

   Displays statistical information for parameters such as the
   number of active circuits, sessions, and incoming queue entries.
   For each parameter, the display shows the current value, the
   highest value recorded, and the maximum value allowed.

   Note that you can specify the /STATUS qualifier with the SHOW
   NODE command to display information about the local node only
   (for example, the command SHOW NODE /STATUS FOREIGN_NODE is not
   supported).

3   Examples

```
1. LATCP> SHOW NODE/FULL

   The SHOW NODE command in this example produces the following
   display of information about the local node:

     Node Name:    LTC                     LAT Protocol Version:      5.2
     Node State:   On
     Node Ident:   LTC - Engineering Development

     Incoming Connections:  Enabled     Incoming Session Limit:    None
     Outgoing Connections:  Enabled     Outgoing Session Limit:    None
     Service Responder:      Disabled

     Circuit Timer (msec):        80     Keepalive Timer (sec):       20
     Retransmit Limit (msg):      20     Node Limit (nodes):        None
     Multicast Timer (sec):       20     CPU Rating:                   8
     Maximum Unit Number:       9999

     User Groups:     43, 73
     Service Groups:  7-9,13,23,40,43,45,66,72-73,89,120-127,248-255

     Service Name     Status      Rating  Identification
     LTVMS            Available       31 D  .
```

This display indicates that the local node LTC is in the On
state, which means LAT connections can be created on the
node. LTC is running Version 5.2. of the LAT protocol. The
identification of the node is "LTC - Engineering Development".
Because this is the local node, the display does not give
the address of a LAN device. Use the SHOW LINK command to
find addresses of devices on the local node. The display for
the status of remote nodes, as shown in Example 2, gives the
Ethernet address of that node.

Both incoming and outgoing connections can be made on node LTC,
the number of sessions is unlimited. The display indicates the
values of various timers and lists the groups that are enabled.
Users on the local node can access service nodes belonging to
user groups 43 and 73. Locally offered services can be accessed
by nodes belonging to the service groups listed.

The display indicates that the CPU rating of the local node
is 8. The display shows that the node offers a service named
LTVMS. This service is available and its rating is 31 D
(dynamic). (An S would indicate the rating is static.)

```
2. LATCP> SHOW NODE/FULL RWWUP

   The SHOW NODE command in this example produces the following
   display about the remote node RWWUP:

     Node Name:    RWWUP                   LAT Protocol Version:      5.2
     Node State:   Reachable               Address:      AA-00-04-00-11-10
     Node Ident:   .

     Incoming Connections:  Enabled

     Circuit Timer (msec):        80
     Multicast Timer (sec):       20

     Service Groups:  7, 13, 42-43, 45, 66, 70-72, 75-82, 88-89

     Service Name     Status      Rating  Identification
     NAC              Available       28     .
```

```
        SYSMGR           Available    28    .
```

This display indicates that remote node RWWUP is reachable and
runs Version 5.2 of the LAT protocol. The display includes the
Ethernet address of node RWWUP. Because incoming connections
are enabled, you can connect to a service on node RWWUP,
provided that your node belongs to one of the service groups
listed in the display.

Node RWWUP offers two services: NAC and SYSMGR. Both are
available.

3. LATCP> SHOW NODE/ALL/BRIEF

The SHOW NODE command in this example produces the following
display about all nodes known to the local node:

```
    Node Name        Status       Identification
    ---------        -----------  ----------------------------------
    ABLAN            Reachable    Unauthorized access is prohibited.
    ASKWEN           Reachable    .
    CHUNK            Reachable    A member of the MAIN VMScluster
                     .
                     .
                     .
    UTOO             On           Can be healthy at the Center
    VULCUN           Reachable    Beam me up
    ZENX             Reachable    ZENX
```

The SHOW NODE command in this example indicates the status
(whether a node is reachable) and identification of all nodes
known to the local node. Note also that the display includes
the status of the local node UTOO. The status can be either On,
Off, or Shut. Here it is On.

4. $ LCP :== $LATCP
   $ LCP SHOW NODE /STATUS

The SHOW NODE /STATUS in this example produces the following
display:

```
    Node Name:    NODE1                    LAT Protocol Version: 5.2
    Node State:   On
    Node Ident:   Test system

                              Current   Highest   Maximum
                              -------   -------   -------
    Active Circuits:                1         2      1023
    Connected Sessions:             1         6    260865
    Incoming Queue Entries:         0         0        24
    Outgoing Queue Entries:         0         1     32767
    Unprocessed Announcements:      0         7       500
    Unprocessed Solicits:           0         2       250

    Local Services:                 1         2       255
    Available Services:           188       194       N/A
    Reachable Nodes:              166       172       N/A

    Discarded Nodes:                0
```

2 PORT
   Displays the status and LAT characteristics of ports on the local
   node.

```
    Format

       SHOW PORT   [port-name]


3   Parameter


port-name

    Specifies the name of the port for which information is
    displayed. If you do not specify a port name, the SHOW PORT
    command displays the characteristics for all LTAn: ports on a
    node.

    Do not use the /APPLICATION, /DEDICATED, /FORWARD, or
    /INTERACTIVE qualifiers with a specific port name.

    In addition do not use the /LIMITED qualifier with a specific
    port name.


3   Qualifiers


/APPLICATION

    Generates a display of all application ports.


/BRIEF

    Displays port type, port status, and the remote node name, port,
    and service associated with the port. This is the default if you
    do not specify a port name with the SHOW PORT command.


/COUNTERS

    Displays the counters kept for the port. Do not use the /BRIEF or
    /FULL qualifiers with this qualifier.


/DEDICATED

    Generates a display of all dedicated ports.


/FORWARD

    Generates a display of all LAT ports used for either outgoing LAT
    connections or local LAT management functions.


/FULL

    Displays the following information:

    o  Port type

    o  Port status

    o  Target port name, node name, and service name associated with
       the port
```

o   Remote node name, port, and service associated with the port
    if a connection is currently active

For more information, see the description of the SHOW PORT/FULL
example.

/INTERACTIVE

Generates a display of all LAT ports used for incoming
interactive connections.

/LIMITED

Generates a display of all limited LTA devices on the system
(previously established with the CREATE PORT /LIMITED or SET PORT
/LIMITED command).

3   Examples

1.LATCP> SHOW PORT /FULL

The SHOW PORT command in this example produces the following
type of display. The display reflects the characteristics set
by the command examples given with the SET PORT command.

```
   Local Port Name:   _LTA16:            Local Port Type:  Forward
   Local Port State:  Inactive
   Connected Link:

    Target Port Name:                          Actual Port Name:
    Target Node Name:      LATCP$MGMT_PORT  Actual Node Name:
    Target Service Name:                       Actual Service Name:


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

   Local Port Name:   _LTA17:        Local Port Type:  Interactive
   Local Port State:  Active
   Connected Link:      LAT$LINK

    Target Port Name:          Actual Port Name:  PORT_1
    Target Node Name:          Actual Node Name:  MY_DS200_SERVER
    Target Service Name:       Actual Service Name:


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

   Local Port Name: _LTA19: Local Port Type: Application (Queued)
   Local Port State:  Active
   Connected Link:      LAT$LINK

    Target Port Name:                   Actual Port Name:
    Target Node Name:       TLAT1       Actual Node Name:       TLAT1
    Target Service Name:  PRINTER    Actual Service Name:  PRINTER


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

   Local Port Name:   _LTA21:            Local Port Type:  Dedicated
   Local Port State:  Inactive
   Connected Link:

    Target Port Name:                          Actual Port Name:
    Target Node Name:                          Actual Node Name:
    Target Service Name:  GRAPHICS             Actual Service Name:
```

```
       ------------------------------------------------------------

  Local Port Name: _LTA22: Local Port Type: Application (Queued)
  Local Port State:  Active
  Connected Link:    LAT$LINK

    Target Port Name:      LN02         Actual Port Name:      LN02
    Target Node Name:      TS33EW       Actual Node Name:    TS33EW
    Target Service Name:                Actual Service Name:


       ------------------------------------------------------------
```

The display in this example shows information about all the
ports on the local node. The display shows information for each
of the four types of ports:

o Forward: a port used for outgoing LAT connections or for
   executing local management functions and LATCP commands.
   Port LTA16: is a forward port. The display shows that the
   port is currently inactive-no current LAT connection exists.
   The target node name of LATCP$MGMT_PORT indicates that LATCP
   is using this port to execute the LATCP commands entered
   by the user. If the display listed a node and service name,
   it would mean that the port is being used for an outgoing
   connection.

o Interactive: a port created as a result of an incoming LAT
   connection request from another node or terminal server.
   Port LTA17: is an interactive port connected with port PORT_
   1 on the terminal server MY_DS200_SERVER.

o Application: a port used for solicited connections to
   devices on terminal servers or to application services on
   remote LAT service nodes. Port LTA22: is an application
   port. The port maps to port LN02 (a printer) on a terminal
   server node TS33EW. The display indicates that server TS33EW
   queues connection requests from the local node. Port LTA19:
   is also an application port. The port maps to the service
   PRINTER on terminal server TLAT1.

o Dedicated: a port dedicated to a local application service.
   Port LTA21: is dedicated to the service GRAPHICS.

The target port name, target node name, and target service
name are the names specified with the SET PORT command. They
are passed to the remote node or terminal server when the
connection request is made.

The actual port name, actual node name, and actual service name
are the names returned by the remote node when it accepts the
connection request. They may differ from the corresponding
target names (specified with the SET PORT command) if the
remote node translates the names. For example, terminal servers
that accept connections to LAT service names usually return the
name of the port to which the connection was actually directed.

2.LATCP> SHOW PORT LTA1 /COUNTERS

  The SHOW PORT /COUNTERS command in this example produces a
  display that lists counter information for the LTA1 device.

    Port Name: _LTA1:

    Seconds Since Zeroed: 66

```
          Remote Accesses:                    0   Framing Errors:      0
          Local Accesses:                     0   Parity Errors:       0
          Bytes Transmitted:                  0   Data Overruns:       0
          Bytes Received:                     0   Password Failures:   0
          Solicitations Accepted:             1
          Solicitations Rejected:             1
          Incoming Solicits Accepted:         0
          Incoming Solicits Rejected:         0
          Last disconnect reason code:        18
               (%LAT-F-LRJDELETED, queue entry deleted by server)
```

2   QUEUE_ENTRY
    Displays information about requests, or entries, queued on the
    local node.

    Format

      SHOW QUEUE_ENTRY [queue-entry-id]

3   Parameter

queue-entry-id

    Specifies the identification number (ID) of the queued entry
    for which information is displayed. If you do not specify a
    value for this parameter, information about all queued entries
    is displayed.

3   Qualifiers

/BRIEF

    Displays the following information about the queued entries:

    o   Position

    o   Entry ID

    o   Source node

    o   Service

    o   Port name

    (This is the default display.)

/FULL

    In addition to the information displayed by the /BRIEF qualifier,
    the /FULL qualifier provides the following information for each
    node:

    o   Node queue position

    o   Service queue position

    o   Node address

    o   Soliciting Link

3   Examples

    1.LATCP> SHOW QUEUE_ENTRY

       The SHOW QUEUE_ENTRY command in this example produces the
       following type of display.

          Position   Entry ID   Source Node   Service   Port Name
          --------   --------   --------------- --------------- ---------
                1   79EC   NODE1   LAT_LIMITED
                2   7AEC   NODE2   LAT_LIMITED
                3   7CEC   NODE3   LAT_LIMITED

    2.LATCP> SHOW QUEUE_ENTRY/FULL

       The SHOW QUEUE_ENTRY/FULL command in this example produces the
       following type of display.

          Entry ID: 7AEC   Remote Node: NODE1
          Node Queue Position: 1   Address: 08-00-2B-0A-A0-A0
          Service Queue Position: 1

           Target Port:
           Target Service: LAT_LIMITED
           Soliciting Link: LAT$LINK

          Entry ID: 7CEC   Remote Node: NODE2
          Node Queue Position: 2   Address: AA-00-04-00-37-DD
          Service Queue Position: 2

           Target Port:
           Target Service: LAT_LIMITED
           Soliciting Link: LAT$LINK

2   SERVICE
    Displays the status and LAT characteristics of LAT services known
    to the local node.

    Format

       SHOW SERVICE   [service-name]

3   Parameters

service-name

    Specifies the name of the service for which information will be
    displayed. If you do not specify a service name, LATCP displays
    information about all services known to the node.

    You can also specify any valid wildcard for this parameter. For
    example, the SHOW SERVICE LAT_* command displays the status and
    characteristics of all services that begin with the LAT_ prefix.

3   Qualifiers

/BRIEF

    Displays the status and identification string of the service.

/COUNTERS

    Displays the counters kept for the service. Do not use the /BRIEF
    or /FULL qualifier with this qualifier. The following table lists
    and describes the counters:

    Counter   Description

    Remote Counters

    Connections   The total number of times the local node
    attempted   attempted to connect to the service offered
                      on a remote node.
    Connections   The total number of times the local node
    completed   successfully connected to the service offered
                      on a remote node.

    Local Counters

    Connections   The total number of times the local node
    accepted   accepted a connection request from a remote
                      node to a locally offered service.
    Connections   The total number of times the local node
    rejected   rejected a connection request from a remote
                      node to a locally offered service.
    Password   The total number of connect requests to the
    failures   service which were rejected due to password
                      violation errors.

/FULL

    Displays the status, identification string, and type of service,
    and the values set for service characteristics. This qualifier
    also displays the status of all service nodes offering the
    service.

/LOCAL

    Displays information about services offered by the local node
    only. You can use this qualifier with the /BRIEF, /COUNTERS, or
    /FULL qualifier.

3   Examples

    1.LATCP> SHOW SERVICE NODE1 /FULL

      The SHOW SERVICE command in this example produces the following
      display of information about service NODE1. This service is
      offered by the local node.

        Service Name: NODE1   Service Type: General
        Service Status: Available   Connections: Enabled
        Service Password: Enabled   Queueing: N/A
        Service Ident: NODE1 - Test system

        Node Name   Status   Rating   Identification

```
   LAV                    On            31 D   .
   LATP                   Reachable     48     .
   LITTN                  Reachable     37     .
   LTDRV                  Reachable     82     .
```

The display in this example indicates that the locally offered
service NODE1 is available and its service type is general,
meaning that it is a general timesharing service (in contrast
to a dedicated application service). The display also lists the
status of all the nodes that offer the service. The local node
is LAV. The status of the local node can be either On, Off,
or Shut. Here node LAV's status is On. The status of the other
nodes indicates whether they are reachable. The display lists
the ratings of each service node, indicating their relative
capacity to accept new connections. The D next to the locally
offered service indicates that node LAV computes its rating
dynamically. An S would indicate that the node's rating was set
permanently by the node's system manager.

2.LATCP> SHOW SERVICE OFFICE/FULL

The SHOW SERVICE command in this example produces the following
display of information about the service OFFICE, which is
offered by a remote node:

```
   Service Name:    OFFICE
   Service Status:  Available
   Service Ident:   .

   Node Name              Status      Rating    Identification
   BURGIL                 Reachable    121      .
   DARWIN                 Reachable     43      .
```

The display in this example indicates that the service is
available. The display also indicates the status and other
information about the nodes that offer the service, BURGIL and
DARWIN.

1 SPAWN

Creates a subprocess, enabling you to execute DCL commands
without terminating your LATCP session. The LATCP SPAWN command
is similar to the DCL SPAWN command.

To return to your LATCP session, either log out of the subprocess
by entering the DCL LOGOUT command, or use the DCL ATTACH command
to attach your terminal to the process running LATCP.

Format

    SPAWN [DCL-command]

2 Parameter

DCL-command

Specifies a DCL command. If you specify a DCL command, LATCP
executes the command in a subprocess. Control returns to LATCP
when the DCL command terminates.

If you do not specify a DCL command, LATCP creates a subprocess
and you can then enter DCL commands. You can continue your LATCP
session by logging out of the spawned subprocess or by attaching
to the parent process with the DCL ATTACH command.

2 Example

```
 LATCP> SPAWN
 $
```

The SPAWN command in this example creates a subprocess at DCL
level. You can now enter DCL commands. Log out or enter the DCL
ATTACH command to return to the LATCP prompt.

1 ZERO_COUNTERS

Resets the link, node, and service counters maintained by the
local node. You must have OPER privilege to use this command.

Format

    ZERO COUNTERS

2 Qualifiers

/LOG

        /LOG
        /NOLOG

Specifies whether LATCP displays a message confirming that the
counters were reset. If you do not specify the /LOG or /NOLOG
qualifier, the default is that no message will be displayed.

/LINK

        /LINK[=link-name]

Specifies the link (on your local node) for which you want
counters reset. If you do not specify a link name, LATCP zeroes
counters for the link LAT$LINK.

/NODE

        /NODE[=node-name]

Specifies the node for which you want counters reset. If you do
not specify a node name, LATCP zeroes the counters for your local
node.

/PORT

        /PORT=port-name

Specifies the port (on your local node) for which you want
counters reset.

/SERVICE

        /SERVICE=service-name

Specifies the service (on your local node) for which you want
counters reset.

2 Example

```
 LATCP> ZERO COUNTERS/SERVICE=LTVM
 LATCP> SHOW SERVICE LTVM /COUNTERS
```

```
Service Name:  LTVM

Seconds Since Zeroed:      9
Connections Attempted:     0    Connections Accepted:     0
Connections Completed:     0    Connections Rejected:     0
```

   The ZERO COUNTERS command in this example resets the counters
   kept for service LTVM. The display produced by the SHOW SERVICE
   command shows how the ZERO COUNTERS command reset the counters
   to zero.