

Configuring and Verifying TN3270 CSNA DLUR/DLUS

Document ID: 12340

Introduction

Prerequisites

- Requirements
- Components Used
- Conventions

Configuration

- Configure the CIP CSNA Feature
- Configure the TN3270 DLUR
- Configure the DLUR PU Switched Major Node
- Configure the TN3270 PU Switched Major Node

Verification

- Display the Status of DLUR on the Host
- Display the Status on the Router

Related Information

Introduction

An End Node Dependent LU Requester (DLUR) function is implemented as part of the TN3270 server. The purpose of the DLUR is to allow the routing of TN3270 logical units (LUs) to multiple channel-attached Virtual Telecommunications Access Method (VTAM) hosts to be performed in the Channel Interface Processor (CIP) card rather than on the VTAM hosts. The implementation of TN3270 server LUs under DLUR also allows the server to dynamically learn about the LU names on the activate logical unit (ACTLU), which greatly simplifies the configuration supporting specifically requested LUs such as printers. The latter is the purpose of this document.

This document outlines the steps necessary to configure and verify TN3270 DLUR. The figure below highlights the relationship between host definitions and the CIP router configuration. Note: An Advanced Peer-to-Peer Networking (APPN) Internet Operating System (IOS) image is not required to implement TN3270 DLUR. The Dependent LU Server (DLUS) name of NETA.CPAC is configured on the host and the DLUR name of NETA.JOHNDLUR is configured on the router. The client connects through TN3270 to the IP address 20.1.1.99 and requests either dynamic LUs or static LUs.

```
interface Channel0/2
ip address 20.1.1.54 255.255.255.0
```

```
tn3270-server
dlur NETA.JOHNDLUR NETA.CPAC
```

```
lsap token-adapter 1
link LINK1 rmac 4000.dddd.dddd rsap 04
```

```
pu JOHNPU 05D88101 20.1.1.99
```

```
SYS1.VTAMLST(ATCSTR00)
SSCPNAME=CPAC, NETID=NETA
```

```
SWJOHN
SWJOHN VBUILD TYPE=SWNET
*
SWJPU01 PU ADDR=01,
IDBLK=05D,
IDNUM=88101 ! or CPNAME=JOHNPU
ISTATUS=ACTIVE,
LUGROUP=DDDLUCMP ! Defined for Dynamic LUs
LUSEED=SWJLU##, ! The LU names for dynamic LUs
MAXPATH=1,
DLOGMOD=D4A32782,
USSTAB=ISTINCDT,
MODETAB=ISTINCLM,
MAXDATA=2052,MAXOUT=7,PACING=7,VPACING
```

Host generates the next available LU name. The first LU will be SWJLU06

The Client Requests Dynamic LUs 20.1.1.99 and a model 3278



Static LUs 20.1.1.99
LUName=SWJLU02

```
SWJLU01 LU LOCADDR=001 ! Static LU with local address 1
SWJLU02 LU LOCADDR=002 ! Static LU with local address 2
SWJLU05 LU LOCADDR=005
SWJSPU2 PU ADDR=01,
ISTATUS=ACTIVE,
NETID=NETA ! Optional - the NETID and host CP (SSCP)NAME.
! configured in SYS1.VTAMLST(ATCSTR00) NETA .CPAC
CPNAME = JOHNDLUR ! the name of the DLUR on the CIP
```

TN3270 DLUR/DLUS Static and Dynamic LUs – CSNA Example

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Configuration

Configure the CIP CSNA Feature

Since TN3270 requires that the Cisco Systems Network Architecture (CSNA) be running, the first thing to be configured is the external communication adapter (XCA) major node as shown below:

```
SYS1.VTAMLST(JEXCA)
```

JEXCA VBUILD TYPE=XCA

JEXCAP PORT CUADDR=7E4, ! the subchannel address corresponding to the CIP Device Address **E4**

--- **MEDIUM=RING** ! Token Ring

--- **ADAPNO=0**, ! corresponds to the CIP **adapter 0** 4000.dddd.dddd

--- **SAPADDR=4**, ! CIP assumes this SAP, remote PU issues TEST to CIP MAC and this SAP

--- **TIMER =60** ! must be equal to or greater than 30

G02E20A GROUP

ANSWER=ON,CALL=INOUT,DIAL=YES,ISTATUS=ACTIVE,AUTOGEN=(50,L,P)

*

K02T201S LINE

P02T201S PU

*

K02T202S LINE

P02T202S PU

*

Following the configuration of the XCA major node, the router CIP interfaces need to be configured with parameters matching the XCA major node, as shown below:

interface Channel0/0 ! interface channel *slot/port*

csna C010 E4 ! Escon port# C0, MVS logical partition 1, logical controller unit address the CUADD=0, csna path device [maxpiu value] [time-delay value] [length-delay value]

interface Channel0/2 ! The CIP virtual interface for virtual LANs and TN3270 server

no keepalive

ip address 20.1.1.54 255.255.255.0 ! the TN3270 IP address will use mask 255.255.255.0

lan TokenRing 0 --- ! lan type lan-id - a number from 0 to 31

Source-bridge 80 1 100 --- ! Ring 80 and Virtual Ring group of 100

adapter 0 4000.dddd.dddd ! adapter adapter-number (0-17) used by CSNA

adapter 1 4000.eeee.eeee ! adapter 1 used by DLUR

For more information on the relationship between Input/Output Control Program (IOCP), XCA and the CSNA path statement, refer to Host and Router Configuration Dependencies.

Configure the TN3270 DLUR

The following configuration shows how parameters such as DLUR/DLUS names, link SAP (LSAP) address, link to the host, and the PU name are specified in the TN3270-server mode configuration:

```
interface Channel0/2
```

```
tn3270-server ! starts TN3270 configuration mode
```

```
dlur NETA.JOHNDLUR NETA.CPAC ! tn3270 dlur name JOHNDLUR, host dlus CP name CPAC, the  
NETID and host CP (SSCP)NAME are configured in SYS1.VTAMLST(ATCSTR00) NETA and CPAC
```

```
lsap token-adapter 1 ! lsap type adapter-number [lsap] – the default dlur SAP is C0)
```

```
link LINK1 rmac 4000.dddd.dddd ! link name [rmac rmac] [rsap rsap] default loopback adapter 0,  
RSAP=04, defines and activates a link from DLUR to DLUS
```

```
pu JOHNPU 05D88101 20.1.1.99 ! (syntax is pu pu-name idblk-idnum ip-address); idblk-idnum value is  
defined on the host switched major node PU, ip-address is the one that the clients should use as the host IP  
address. Note: IP connectivity to the CIP router is assumed.
```

Note: For TN3270 DLUR, the server learns the LU names from the host ACTLUs (no LU-seed parameter is needed on the router).

Configure the DLUR PU Switched Major Node

The next step is to define the DLUR PU on the host as follows:

```
SWJSPU2 PU ADDR=01, ! the DLUR PU
```

```
--- -- -- -- PUTYPE=2,
```

```
--- -- -- -- STATUS=ACTIVE,
```

```
--- -- -- -- CPCP=YES,
```

```
--- -- -- -- NETID=NETA ! Optional – the NETID and host CP (SSCP)NAME are configured in  
SYS1.VTAMLST(ATCSTR00) NETA and CPAC.
```

```
--- -- -- -- CPNAME = JOHNDLUR ! the name of the DLUR on the CIP
```

Configure the TN3270 PU Switched Major Node

The final step is to define the TN3270 PU switched major node. This is where the **IDBLK=05D**, **IDNUM=88101** matches what is on the router.

```
SWJOHN VBUILD TYPE=SWNET
```

```
SWJPU01 PU ADDR=01,
```

```
--- -- -- -- IDBLK=05D,
```

```
--- -- -- -- IDNUM=88101, ! configured on TN3270 pu JOHNPU 05D88101 20.1.1.99
```

```

--- --- ISTATUS=ACTIVE,
--- --- LUGROUP=DDDLUGMP, ! must be defined for host dynamic LUs
--- --- LUSEED=SWJLU##, ! the LU names for dynamic LUs on the host SWJLU03,?
--- --- -PUTYPE=2
--- --- MAXPATH=1,
--- --- DLOGMOD=D4A32782,
--- --- USSTAB=ISTINCDT,
--- --- MODETAB=ISTINCLM,
--- --- MAXDATA=2052,MAXOUT=7,PACING=7,VPACING
SWJLU01 LU LOCADDR=001 --- ! Static LU with local address 1
SWJLU02 LU LOCADDR=002 --- ! Static LU with local address 2
SWJLU03 LU LOCADDR=003 --- ! Static LU with local address 3
SWJLU04 LU LOCADDR=004 --- ! Static LU with local address 4
SWJLU02 LU LOCADDR=005 --- ! Static LU with local address 5

```

PU JOHNPU is configured on a CIP token–adapter 1; LSAP=0xC0 issues TEST to RMAC **4000.ddd.ddd** and **RSAP 04** of the CIP adapter 0. The RSAP must be equal to the XCA SAP (in our example 04, which is the default, and it can be omitted from the **pu** command). The RMAC is the MAC of adapter 0 which, if omitted, will default to adapter 0. The TN3270 clients issue requests to the **IP address 20.1.1.99**; they must be configured and request a specific LU name (for example, SWJLU01) statically configured in the host switched major node. The name requested must match the name learned by the TN3270 server from the ACTLUs received from the host. Because DLUR is used, VTAM passes all LU names (static and dynamic LUs) to the TN3270 server; this eliminates the need for the lu–seed parameter on the router.

Verification

Display the Status of DLUR on the Host

The VTAM display command **/D NET,ID** for JOHNDLUR, shown below, is used to check for configuration parameters such as: name of the DLUR/ DLUS, the number of active LU–LU sessions, the link station name, SWJSPU2, and CP–CP sessions.

```

/D NET,ID= JOHNDLUR,E

DISPLAY ACCEPTED

NAME = NETA.JOHNDLUR, TYPE = ADJACENT CP 341

STATUS= ACT/S-----Y, DESIRED STATE= ACTIV

```

REGISTRATION TYPE = NO

MDLTAB=***NA*** ASLTAB=***NA***

ADJLIST = ***NA***

MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***

LOGMOD=CPSVCMG USS LANGTAB=***NA***

CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE

CDRSC MAJOR NODE = ISTCDRDY

CPNAME = NETA.JOHNDLUR - NETSRVR = ***NA***

ALSLIST = ISTAPNPU

DEVTYPE = INDEPENDENT LU / CDRSC

I/O TRACE = OFF, BUFFER TRACE = OFF

STATE TRACE = OFF

ENCRYPTION = NONE

CKEYNAME = JOHNDLUR CKEY = PRIMARY CERTIFY = NO

MAC = NONE MACTYPE = NONE

ACTIVE SESSIONS = 0000000004, SESSION REQUESTS = 0000000000

SESSIONS:

ADJACENT LINK STATION = SWJSPU2

NAME --- STATUS --- --- SID --- --- SEND RECV VR TP NETID

CPAC --- ACTIV/DL-S F0AF94840EC8AABE 000C 0000 0 0 NETA ! DLUR/DLUS secondary session

CPAC --- ACTIV/CP-S F0AF94840EC8AABD 0003 0001 NETA ---! CP-CP secondary session

CPAC --- ACTIV/DL-P F9873C13E76F5306 0000 0009 0 0 NETA --- ! DLUR/DLUS primary winner session

CPAC --- ACTIV/CP-P F9873C13E76F5305 0001 0002 0 0 NETA ! CP-CP primary conversation winner session. CP-CP and DLUR/DLUS each use two parallel sessions for full duplex transmission.

PHYSICAL UNITS SUPPORTED BY DLUR NETA.JOHNDLUR

SWJPU01 TYPE = PU_T2.1 --- --- , **ACTIV**

NAME = **NETA.JOHNDLUR**, TYPE = DIRECTORY ENTRY

DIRECTORY ENTRY = REGISTERED EN

CPNAME = NETA.JOHNDLUR – NETSRVR = NETA.CPAC

Display the Status on the Router

show extended channel 0/0 statistics

Use the **show extended channel 0/0 stat** router command to verify that the path is established and that the device is connected as shown with 'Y' under the **Con** column. If CSNA is not up, refer to Introduction and Overview to Troubleshoot CSNA.

```
Path: C010 -- ESTABLISHED ! the channel is up

----- Command -- ----- -- Selective -- System ---- Device -- -- CU
Dev Connects -- Retries ---- Cancels -- Reset ----- Reset ----- Errors ----- Busy

E4 -- 60701 -- --27908 -- --- 3 -- --- -- 0 -- ----- 2 ----- -- 0 --- ---- -- 0

-- -- -- ----- Blocks -- ----- ---- Bytes -- ---- ----- Dropped Blk -----
Dev-Lnk -- Read ---- Write ---- Read ----- Write -- ---- Read ----- Write----- wa

E4-00 ---- 29711 ---- 29709 ---10826216---- 8444480 -- -- 0 -- ----- 0 ----- -- 0
```

show extended channel 0/0 csna oper

Verify the correct status for CSNA with the **show extended channel 0/0 csna oper** command.

```
-----Path---Dv----- Status ----- SlowDown -- maxpiu --- time-delay -----length-del.
CSNA C010- -E4 ----setupCompleet -----off ----- 20470 --- -- 10 -- -- -- ----- 20470
```

show extended channel 0/2 tn3270-server

Use the **show extended channel 0/2 tn** command to verify 'active' status of DLUR/DLUS. See Show tn3270-server Field Descriptions for more information.

```
-- -- ----- < connection stats > -----
server-ip:tcp -- lu in-use -----connect-- disconn --fail----- host -- tcp

20.1.1.99:23 -- 0 --- 0 ----- 1----- 1---- -- 0 ----- 210 -- -- 0
total -- -- --- 0 --- 0
configured max_lu 2100

idle-time -- 0 -- -- keepalive 1800 -- unbind-action disconnect

tcp-port 23 -- -- -- generic-pool permit no timing-mark

dlur NETA.JOHNDLUR status -- -- -- ACTIVE

dlus NETA.CPAC
```

show extended channel 0/2 tn3270-server dlur

To check status of current and name of backup DLUS, use **show extended channel 0/2 tn dlur**.

```
dlur NETA.JOHNDLUR
```

```

preferred dlus NETA.CPAC                dlur-dlus status ACTIVE
current server NETA.CPAC                cp-cp status ACTIVE
backup dlus <not configured>
preferred server <not configured>
lsap token-adap 1 C0                    vrn <not configured>    status ACTIVE
link LINK1                               remote 4000.dddd.dddd 04 status ACTIVE

```

show extended channel 0/2 tn3270-server pu JOHNPU

Use the above command to check the status of the TN3270 PU.

```

name(index) -- ip:tcp -- -- -- xid----- state -- -link-----destination r-lsap
JOHNPU(1) -- 20.1.1.99:23 -- 05d88101 ----- ACTIVE -- dlur----- NETA.SWJPU01

```

```

idle-time -- 0 -- keepalive 1800 -- unbind-act discon generic-pool perm
ip-preced-screen 0 ip-preced-printer 0 ip-tos-screen 0 ip-tos-printer 0
bytes 662 in, 4224 out; frames 44 in, 47 out; NegRsp 2 in, 0 out
actlus 5, dacltus 2, binds 1

```

Note: if state is ACT/NA then the client is disconnected

```

lu -- name -- -- -- client-ip:tcp -- nail -- state -- model frames in out -- idle for
1      SWJLU01 -- -- 30.1.1.100 -- -- N -- ACT/SESS 32780 -- -- 8 -7 -- -- 0:14:45 ! t
2      SWJLU02 -- --never connected -- N -- ACT/NA -- -- -- -----1--1-----0:15:45 ! N

```

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Updated: Jan 04, 2008

Document ID: 12340
