

CICS® Universal Client Configuration



Configuring CICS Universal Client for Windows NT® for TCP62

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Chapter 1. Overview

The sample configuration shown in Figure 1 consists of a CICS Universal Client for Windows NT Version 3.1 connecting to CICS Transaction Server for OS/390 Version 1.3. Communication is through TCP62 provided with the CICS Universal Client for Windows NT on the client workstation and AnyNet[®] provided with VTAM on the mainframe server.

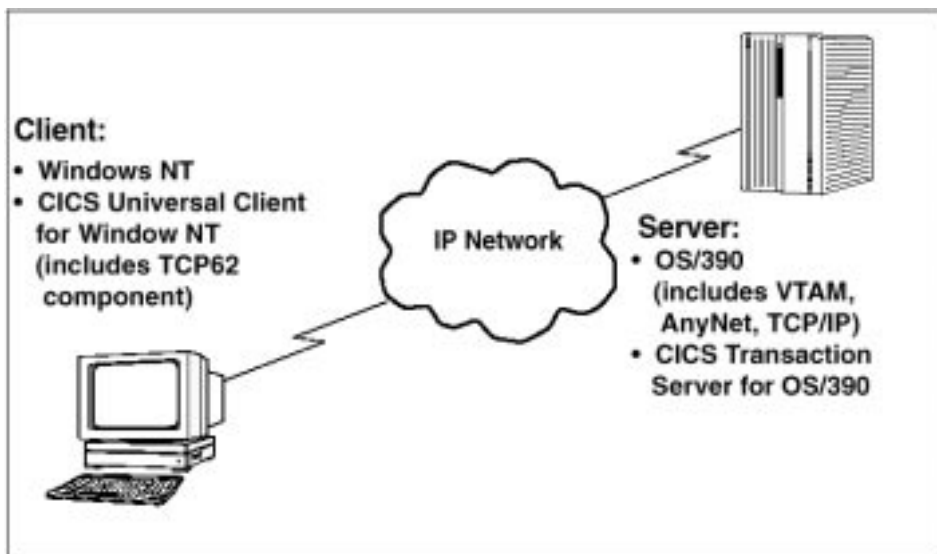


Figure 1. CICS Universal Client for Windows NT to CICS TS through TCP62

To understand how TCP62 works, refer to the *CICS Universal Client Administration* book for your platform.

The TCP62 component is provided with the CICS Universal Client for Windows NT so you do not have to configure TCP62 on the client workstation.

For the sample configuration we chose to autoinstall an LU6.2 parallel connection rather than define a static definition. Combined with the ability to dynamically create VTAM logical units (LUs) and control points (CPs), autoinstall is advantageous as it enables you to use the same CTG.INI configuration file for all workstations without having to define multiple entries in VTAM and CICS.

Overview

Although we used the CICS Transaction Server for OS/390 Version 1.3 for the sample configuration, you could use earlier versions of the CICS Transaction Server for OS/390, or CICS/ESA Version 4.1.

In this document we cover the following topics:

- “Chapter 2. Software Checklist” on page 3
- “Chapter 3. Definitions Checklist” on page 5
- “Chapter 4. Matching Definitions” on page 7
- “Chapter 5. Sample Configuration” on page 9 of:
 - OS/390
 - VTAM
 - AnyNet
 - CICS Transaction Server for OS/390 Version 1.3
 - CICS Universal Client for Windows NT Version 3.1
 - TCP/IP HOSTS file on workstation
- “Chapter 6. Testing Your Configuration” on page 19
- “Chapter 7. Security Implementation” on page 21
- “Chapter 8. Useful Commands and Utilities” on page 23

Chapter 2. Software Checklist

The levels of software we used in the sample configuration are not necessarily the latest levels available. Check the relevant products for levels of compatible software.

We used the following software on the CICS server:

- OS/390 Version 2.5
 - Includes VTAM Version 4.1
 - Includes AnyNet feature
 - Includes IBM TCP/IP for OS/390
- CICS Transaction Server for OS/390 Version 1.3

We used the following software on the client workstation:

- Windows NT Workstation Version 4 (service level 4)
- CICS Universal Client for Windows NT Version 3.1
 - Includes TCP62 component
- JDK Version 1.1.8 for Windows NT (necessary for running the configuration tool and other tools.)

Software Checklist

Chapter 3. Definitions Checklist

Before you configure the products, we recommend that you acquire definitions for the parameters listed below. Reference keys, for example, **1** are assigned to definitions that must contain the same value in more than one product.

- OS/390
 - TCP/IP address and hostname
- AnyNet
 - TCP Major Node
 - DNSUFFIX **1**
 - Port
- VTAM
 - NETID **2**
 - APPL **3**
 - LOGMODE **4**
- CICS Transaction Server for OS/390
 - ISC System Initialization Table (SIT) override
 - Applid **3**
 - DFHISC group
 - Modename in the LU6.2 sessions autoinstall template CBPS **4**
- CICS Universal Client for Windows NT Version 3.1
 - Fully qualified CP name or template
 - IP address mask for CP name (optional)
 - Anynet domain name suffix
 - Partner LU name **2** . **3**
 - Local LU name or template
 - IP address mask for LU name template (optional)
 - Mode name **4**
- TCP/IP HOSTS file on client workstation
 - IP_address NetName.NetWork.DomainNameSuffix **3** . **2** . **1**

Definitions Checklist

Chapter 4. Matching Definitions

In the sample configuration a number of definitions must match. Table 1 shows the definitions that must be the same. The Example column shows the values we used in our configuration (see “Chapter 5. Sample Configuration” on page 9).

Table 1. Matching Definitions: CICS Universal Client for Windows NT: TCP62

Ref: Key	VTAM	CICS Transaction Server	Client configuration	TCP/IP HOSTS File	Example
1	DNSUFFIX	—	Anynet domain name suffix	DomainNameSuffix	hursley.ibm.com
2	NETID	—	Partner LU name	Network	GBIBMIYA
3	APPL	Applid	Partner LU name	NetName	IYCQCTS5
4	LOGMODE	Modename	Mode name	—	LU62PS

Matching Definitions

Chapter 5. Sample Configuration

In this section we present examples of each of the definitions mentioned in “Chapter 3. Definitions Checklist” on page 5. The values highlighted in the figures refer to the Example column of Table 1 on page 7.

OS/390 TCP/IP

The TCP/IP address and hostname are defined to the OS/390 TCP/IP in the PROFILE.TCPIP and TCPIP.DATA data sets. For the sample configuration, 9.20.101.6 is the TCP/IP address of our OS/390 system, and winmvs26 is our TCP/IP hostname. Refer to *IBM TCP/IP MVS: Customization and Administration Guide Version 3.2* for more information about configuring TCP/IP on OS/390.

AnyNet

In this section we present the AnyNet definitions for the server.

TCP Major Node

Figure 2 on page 10 shows the TCP Major Node definition used in our configuration. The TCP Major Node defines the AnyNet interface between TCP/IP and VTAM. This definition specifies the domain name suffix, DNSUFFIX **1**, and the TCP protocol port number that VTAM uses to support SNA sessions over an IP network. All nodes that establish SNA sessions over an IP network must use the same port number. The default value is 397 and has been registered with the Internet Activities Board (IAB).

Refer to *VTAM AnyNet Guide to SNA over TCP/IP* for more information about AnyNet.

Sample Configuration

```
ANYTCP  VBUILD TYPE=TCP,                X
        CONTIMER=25,                    X
        DGTIMER=40,                      X
        DNSUFFIX=HURSLEY.IBM.COM,        X 1
        EXTIMER=5,                       X
        IATIMER=60,                      X
        PORT=397,                        X
        TCB=10,                          X
        TCPIPJOB=TCPIP
ANY1GRP GROUP ISTATUS=ACTIVE
ANY1LINE LINE ISTATUS=ACTIVE
ANY1PU  PU    ISTATUS=ACTIVE
```

Figure 2. AnyNet: TCP Major Node Definition

CDRSC Definitions

The CDRSC defines the remote client and instructs VTAM to route any session requests through the TCP/IP physical unit (PU). In our sample configuration we dynamically generated CDRSC definitions through a key and template defined in the client configuration (see “Dynamic CP Name Generation” on page 16) Therefore you do not have to define a CDRSC major node.

VTAM

In this section we present the VTAM definitions for the server.

DYNLU

To dynamically allocate CDRSC definitions, specify DYNLU=YES as a startup option for VTAM. This parameter saves you the need to define multiple static CDRSC definitions within VTAM. The CDRSC names are dynamically generated from the **CP name** and **IP address mask for CP name** client configuration settings, along with the IP address of the client machine. See “Dynamic CP Name Generation” on page 16 for more details.

NETID

You specify the NETID **2** for VTAM in your VTAM start procedure. For the sample configuration, specify NETID=GBIBMIYA.

APPL

Figure 3 shows the VTAM APPL **3** definition required for the sample configuration. Because TCP62 supports only LU6.2 parallel sessions, specify PARSESS=YES.

```

AP26CICS VBUILD   TYPE=APPL
*
IYCQCT55 APPL   AUTH=(ACQ,PASS,VPACE),VPACING=0,EAS=29,PARSESS=YES,    X
                SONSCIP=YES,MODETAB=MTCICS
*
:::

```

Figure 3. VTAM: APPL Definition

LOGMODE

Figure 4 shows the LOGMODE **4** required for the LU6.2 parallel sessions.

```

LU62PS  MODEENT LOGMODE=LU62PS,
TYPE=0,          ONLY TYPE RECOGNISED
FMPPROF=X'13',   SNA
TSPPROF=X'07',   SNA
PRIIPROT=X'B0',  PRIMARY PROTOCOL
SECPROT=X'B0',   SECONDARY PROTOCOL
COMPROT=X'79A5', COMMON PROTOCOL
SSNDPAC=X'00',
SRCVPAC=X'00',
RUSIZES=X'8989', RUSIZES IN-4096 OUT-4096
PSNDPAC=X'00',
PSERVIC=X'0602000000000000122F00'

```

Figure 4. VTAM: LOGMODE Definition for LU6.2 Parallel Sessions

CICS Transaction Server for OS/390 Version 1.3

In this section we present the definitions for the CICS Transaction Server for OS/390.

System Initialization Table Parameters

Figure 5 on page 12 23 on page 63 shows the SIT parameters to enable intersystem communication (ISC) and to define the CICS region APPLID.

Sample Configuration

```
::  
ISC=YES  
APPLID=IYCQCTS5  
::
```

Figure 5. CICS Transaction Server SIT Definitions: ISC and APPLID

Autoinstall of LU6.2 Connection

The autoinstall control program, DFHZATDY, is used in conjunction with the APPC autoinstall template for parallel sessions secondary (CBPS) to dynamically create an LU6.2 connection. The same program also automatically releases and uninstalls the connection once all sessions are released. By default, the CPBS sessions definition, found in group DFHAI62, uses a blank modename. As groups that start with DFH should not be altered, we copied this group as AXHAI62, altered the CBPS definition to have a modename of LU62PS **4**, and changed the MAXIMUM sessions option to Max(8,1). The second value in the number of sessions specifies that the CICS server is to have one contention winner only. This value is for change number of sessions (CNOS) purposes and to enable START requests to be initiated by the server to the client. A value of 1 is recommended to ensure that START requests are shipped serially from the server to the client and thereby avoid committing all available sessions to START requests.

Figure 6 shows our altered APPC autoinstall template for parallel sessions.

```
CEDA View Sessions( CBPS      )  
Sessions      : CBPS  
Group         : AXHAI62  
Description   : APPC Autoinstall template for parallel session  
SESSION IDENTIFIERS  
Connection    : CBPS  
SESSName     :  
NETnameq     :  
M0dename     : LU62PS  
SESSION PROPERTIES  
Protocol      : Appc                Appc ! Lu61 ! Exci  
Maximum       : 008 , 001          0-999  
RECEIVEPfx   :  
RECEIVECount :                    1-999  
SENDPfx      :  
SENDCount    :                    1-999  
SENDSIZE     : 04096                1-30720  
RECEIVESIZE  : 04096                1-30720  
::
```

Figure 6. APPC Autoinstall Template CBPS for Parallel Sessions

To activate autoinstall control program DFHZATDY, you can issue the CICS CEMT command shown in Figure 7.

```
CEMT SET AUTOINSTALL PROGRAM(DFHZATDY)
STATUS: RESULTS - OVERTYPE TO MODIFY
Aut Max( 100 ) Progr( DFHZATDY ) Cur(000)   Ena      NORMAL
```

Figure 7. Results of CEMT SET AUTOINSTALL PROGRAM(DFHZATDY)

Alternatively you can add an SIT override to your CICS JCL (see Figure 8).

```
::
AIEXIT=DFHZATDY
::
```

Figure 8. CICS Transaction Server SIT Definition: AIEXIT

CICS Universal Client for Windows NT Version 3.1

You use the CICS Universal Client's configuration tool to define the settings for TCP62 communication. The configuration tool generates the CTG.INI file, which is located in the \bin subdirectory. The CICS Transaction Gateway uses the CTG.INI file to establish a connection to a CICS server.

For information on using the configuration tool, refer to your *CICS Transaction Gateway Administration* book.

You need to define the following **Server** configuration settings, (see Figure 9 on page 15 and Figure 10 on page 15).

Server name

An arbitrary name for a particular CICS server.

Description

An arbitrary description for the CICS server.

Network protocol

The protocol for communication with the CICS server, in this case, TCP62

Partner LU name **2** . **3**

The LU Name of the server as it is known to the APPC configuration at the CICS Universal Client. This must be a qualified 17-character name, as in our example, GBIBMIYA.IYCQCTS5.

Sample Configuration

Local LU name or template

The name of a local LU to be used when connecting to the server. You can enter a real LU name or a template for the name of a local LU to be used when connecting to the CICS server.

If you enter a template, you must fill in the **IP address mask for LU name template** field.

See “Dynamic LU Name Generation” on page 16 for more information.

IP address mask for LU name template

An IP address mask in most-significant-byte-first order. This must be a hexadecimal number, as in our example FFFFFFF80.

Mode name **4**

The mode name to be used when connecting to the server.

Fully qualified CP name or template

A fully-qualified CP name, or a template for the fully-qualified CP name, of the node to be started.

If you enter a template, as in our sample configuration, you must fill in the **IP address mask for CP name (optional)** field.

See “Dynamic CP Name Generation” on page 16 for more information.

IP address mask for CP name

An IP address mask in most-significant-byte-first order. This must be a hexadecimal number, as in our example FFFF8080.

Anynet domain name suffix **1**

The AnyNet[®] domain name suffix. This parameter is used with the partner (Partner LU name) to determine the IP address of the host associated with that LU.

The *CICS Universal Client Administration* book and the configuration tool's online help provide descriptions of the configuration settings for CICS Universal Client.

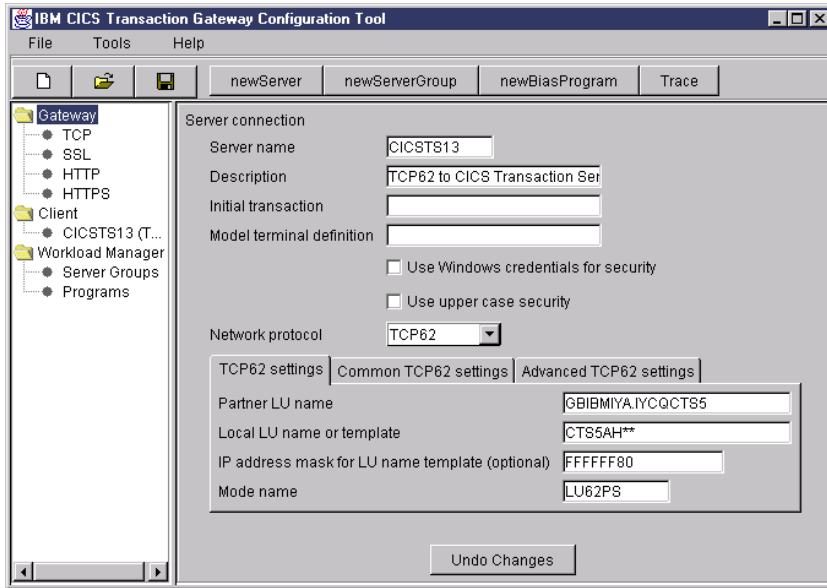


Figure 9. TCP62 settings in configuration tool

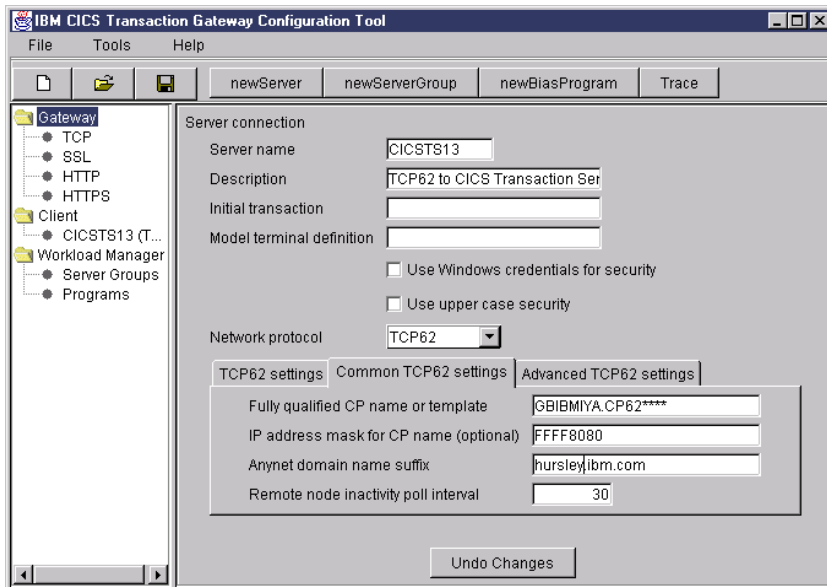


Figure 10. Common TCP62 settings in configuration tool

Figure 11 on page 16 shows an excerpt from the resultant CTG.INI file.

Sample Configuration

```
SECTION Client = *
CPName          = GBIBMIYA.CP62****
CPIPAddressMask = FFFF8080
DomainNameSuffix = hursley.ibm.com      1
:::
ENDSECTION
:::
SECTION Server  = CICSTS13
Description     = TCP62 to CICS Transaction Server v1.3
Protocol       = TCP62
NetName        = GBIBMIYA.IYCQCTS5     2 . 3
LocalLUName    = CTS5AH**
LUIPAddressMask = FFFFFFF80
ModeName       = LU62PS                4
ENDSECTION
:::
SECTION Driver  = TCP62
DriverName     = CCLTCP62
ENDSECTION
```

Figure 11. CICS Universal Client CTG.INI File Definitions

The *CICS Universal Client Administration* guide for your platform provides definitions of the parameters in the CTG.INI file.

Dynamic LU Name Generation

With dynamic name generation for the Local LU name, you can use the same CTG.INI file on all client machines because different Local LU names are generated on the basis of the IP address of the client machine. Therefore you do not have to define multiple LUs within VTAM.

In our configuration, the Local LU name of CTS5AH** indicates that a name must be dynamically generated to replace the two template replacement characters, that is, asterisks (*). Using the Local LU name, IP Address Mask, and the workstation IP address, the algorithm creates a Local LU name of CTS5AH38. If several hundred clients will be using dynamic LU name generation to connect to the server, you should have more template replacement characters in your Local LU name, for example, CTS5****.

Dynamic CP Name Generation

You can dynamically generate CP names with an algorithm similar to that for dynamic LU name generation (see “Dynamic LU Name Generation” Using the CP name, IP address mask for the CP name, and the workstation IP address, a CP is dynamically generated within VTAM. Therefore you do not have to define multiple CPs to VTAM.

In our configuration the CP name of GBIBMIYA.CP62**** indicates that a name must be dynamically generated to replace the four template replacement characters, that is, asterisks (*). If several hundred clients will be using

dynamic CP name generation, you should have more template replacement characters in your CP name, for example, GBIBMIYA.CP*****. The NETID **2** part must of the Partner LU name must not contain any template replacement characters.

TCP/IP HOSTS File

In this section we present the definition required for the TCP/IP HOSTS file. The definition maps the IP address of the OS/390 system to the generated IP name. The IP name is generated by concatenating the NetName **3**, the Network name **2**, and the DomainNameSuffix **1**.

Figure 12 shows the TCP/IP HOSTS file definition we used for our configuration. Note the order of the parameters. The IP address of the OS/390 system is first. After one or more spaces, the NetName **3** precedes the Network **2** name, which in turn precedes the DomainNameSuffix **1**.

OS/390 IP address	Generated IP name
9.20.101.6	IYCQCTS5.GBIBMIYA.hursley.ibm.com
	NetName Network DomainNameSuffix 3 2 1

Figure 12. TCP/IP HOSTS File Definition

Sample Configuration

Chapter 6. Testing Your Configuration

After you have installed and configured all relevant products for the sample configuration, we recommend that you:

1. Start the CICS Transaction Server for OS/390.
2. Check that autoinstall control program DFHZATDY is available (see “Autoinstall of LU6.2 Connection” on page 12).
3. Start the CICS Universal Client for Windows NT Version 3.1, using the CICSCLI /S=CICSTS13 command. (CICSTS13 is the name of server in the client configuration, see Figure 11 on page 16.)
4. Check the status of the CICS Universal Client, using the CICSCLI /L command. The connection status to the CICS server should show “Available.”
5. Issue the CICSTERM /S=CICSTS13 command to install a terminal on the CICS Transaction Server for OS/390.
6. Run a CICS server transaction, for example, CEMT or CECL.

In the sample configuration, the CTG.INI definition dynamically creates an LU with netname CTS5AH38, and sample autoinstall control program DFHZATDY dynamically creates a connection name of AH38 by using the last characters of the netname. The CICS server CEMT command displays the netname and connection dynamically created and CBPS, the autoinstall template for parallel sessions (see Figure 13).

```
CEMT INQ CONNECTION
STATUS: RESULTS - OVERTYPE TO MODIFY
Con(AH38) Net(CTS5AH38)      Ins Acq Vta Appc
Con(CBPS) Net(TEMPLATE1)    Ins Re1 Vta Appc
```

Figure 13. CICS TS Version 1.3: Display of Dynamically Generated Connection

Testing Your Configuration

Chapter 7. Security Implementation

To provide the necessary security for your CICS regions, CICS Transaction Server for OS/390 uses the MVS SAF to route authorization requests to an ESM, such as RACF, at appropriate points within CICS transaction processing. There are many types of security available from transaction security to CICS resource security. The CICS Transaction Server for OS/390 provides the following security mechanisms for the APPC environment:

- Bind-time (or session) security prevents an unauthorized connection between CICS regions.
- Link security defines the authority of the remote system to access transactions or resources to which the connection itself is not authorized.
- User security checks that a user is authorized both to attach a transaction and to access all resources the transaction requires.

For CICS Universal Clients connecting to the CICS Transaction Server for OS/390, you may want to consider configuring link security.

Preparing Link Security for Our Sample Configuration

For incoming ECI, EPI, and CICSTERM requests, CICS Transaction Server for OS/390 needs link security specified on the APPC autoinstall template for parallel sessions, CBPS. We set these parameters in the SECURITY section:

```
Securityname      = HOLLING (RACF-authorized TSO ID)
ATtachsec        = Verify
Usedfltuser      = Yes
```

In addition, you must specify SEC=YES as a SIT override.

Running CICS Universal Client Applications with Link Security

To establish a connection between the CICS Universal Client and CICS Transaction Server for OS/390, issue the CICSCLI /S=*server* command as described in see “Chapter 6. Testing Your Configuration” on page 19. Link security is initiated when the first ECI, EPI, or CICSTERM request is made on a newly established connection. If you have not provided a userid and

Security Implementation

password, a CICS Universal Client security pop-up window requests that you enter a valid userid and password (see Figure 14).

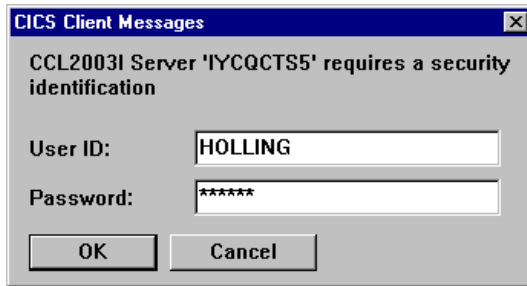


Figure 14. CICS Universal Client Security Pop-up Window

To prevent the security pop-up window from appearing you can:

- Specify the CICSCLI /C /U /P options to assign a userid and password to each request sent to the server specified by the /C option.
- Pass the userid and password in the ECI parameter block.
- Specify the CICSCLI /N option to suppress all pop-ups. In this case a security error is returned to the ECI, EPI, or CICSTERM request.
- Select **Enable popups** in the client configuration.

Chapter 8. Useful Commands and Utilities

You will find the commands discussed in this section useful during installation and configuration.

TSO VTAM Commands from SDSF

The following commands are entered from system display and search facility (SDSF) on TSO:

Display TCPIP Status

The display command, `d tcpip`, indicates whether TCP/IP is active (see Figure 15).

```
D TCPIP
EZAOP50I TCPIP STATUS REPORT 931
COUNT  TCPIP NAME  VERSION  STATUS
-----  -
      1  TCPIP      CS V2R5   ACTIVE
*** END TCPIP STATUS REPORT ***
EZAOP41I 'DISPLAY TCPIP' COMMAND COMPLETED SUCCESSFULLY
```

Figure 15. SDSF: Display TCPIP Status

Display AnyNet PU State

The display command, `d net,id=any1pu,e`, shows the state of the AnyNet PU (see Figure 16 on page 24). For AnyNet to work, the status must be `ACTIV`. The following parameters are also of interest: `CP NETID 2` shows the network name, `DYNAMIC LU=YES` confirms that dynamic LU generation is enabled, `MAJNOD` shows the TCP Major Node, and `LOGICAL UNITS:` indicates that our dynamically generated LU, `CTS5AH38`, is active.

Useful Commands and Utilities

```
D NET,ID=ANY1PU,E
IST097I DISPLAY ACCEPTED
IST075I NAME = ANY1PU, TYPE = PU_T2.1 341
IST486I STATUS= ACTIV--L--, DESIRED STATE= ACTIV
IST1043I CP NAME = ***NA***, CP NETID = GBIBMIYA, DYNAMIC LU = YES
IST1589I XNETALS = NO
IST081I LINE NAME = ANY1LINE, LINE GROUP = ANY1GRP, MAJNOD = AP26ANYN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST355I LOGICAL UNITS:
IST080I CTS5AH38 ACT/S----Y
IST314I END
```

Figure 16. SDSF: Display AnyNet PU State

Display TCP Major Node

The display command, `d net,id=ap26anyn,e`, shows the current state of the TCP Major Node (see Figure 17). The status should be `ACTIV`. The other parameters of interest are `DNSUFFIX`, showing the domain name suffix **1**, and the `OS/390 TCP PORT`.

```
D NET,ID=AP26ANYN,E
IST097I DISPLAY ACCEPTED
IST075I NAME = AP26ANYN, TYPE = TCP/IP MAJOR NODE 824
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1342I DNSUFFIX = HURSLEY.IBM.COM
IST1692I TCB = 10 TCP PORT = 397
IST1400I DGTIMER = 40 EXTIMER = 5
IST1406I CONTIMER = 25 IATIMER = 60
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST170I LINES:
IST232I ANY1LINE ACTIV
IST314I END
```

Figure 17. SDSF: Display TCP Major Node

Display VTAM STATS Information

The display command, `d net,stats,type=vtam`, shows whether AnyNet SNA over TCP/IP is installed and the number of TCP Major Nodes defined to this VTAM (see Figure 18 on page 25).

```

D NET,STATS,TYPE=VTAM
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=VTAM 781
IST1349I COMPONENT ID IS 5695-11701-411
IST1345I  ID      VALUE      DESCRIPTION
        ::
IST1227I 130      YES = ANYNET/MVS SNA OVER TCP/IP INSTALLED
IST1227I 127      1 = TCP/IP MAJOR NODES
IST1227I 128      10 = MAXIMUM TCB VALUE FOR TCP/IP MAJOR NODES
IST1227I 129      3 = TCP/IP LU-LU SESSIONS
        ::
IST314I END

```

Figure 18. SDSF: Display VTAM STATS Information

Display Active Session Status Information

The display command, `d net,sessions,lu1=CTS5AH38,list=all`, shows the active sessions between the client and server (see Figure 19).

```

D NET,SESSIONS,LU1=CTS5AH38,LIST=ALL
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS 636
IST873I  PLU      SLU      SID      STATUS
IST874I GBIBMIYA.IYCQCTS5 GBIBMIYA.CTS5AH38 F337539C85506917 ACTIV/SV
IST874I GBIBMIYA.CTS5AH38 GBIBMIYA.IYCQCTS5 DA17EACE855E1757 ACTIV
IST874I GBIBMIYA.CTS5AH38 GBIBMIYA.IYCQCTS5 DA17EACE855E1756 ACTIV/SV
IST924I -----
IST878I NUMBER OF PENDING SESSIONS =          0
IST924I -----
IST878I NUMBER OF ACTIVE  SESSIONS =          3
IST924I -----
IST878I NUMBER OF QUEUED  SESSIONS =          0
IST924I -----
IST878I NUMBER OF TOTAL   SESSIONS =          3
IST314I END

```

Figure 19. SDSF: Display Active Session Status Information

Display Session Information

The display command, `d net,sessions,sid=DA17EACE855E1757`, shows information for the session in Figure 19. Figure 20 on page 26 shows this particular session to be **ACTIV**. Other parameters of interest are **LOGMODE** **4** showing LU6.2 user modename LU62PS, and the **LOCAL TCP/IP ADDRESS** and port number and **REMOTE TCP/IP ADDRESS** and port number of OS/390 and the client workstation, respectively.

Useful Commands and Utilities

```
D NET,SESSIONS,SID=DA17EACE855E1757
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS 124
IST879I PLU/OLU REAL = GBIBMIYA.CTS5AH38 ALIAS = ***NA***
IST879I SLU/DLU REAL = GBIBMIYA.IYCQTS5 ALIAS = ***NA***
IST880I SETUP STATUS = ACTIV
IST875I ALSNAME TOWARDS PLU = ANY1PU
IST933I LOGMODE=LU62PS , COS=*BLANK*
IST1165I LOCAL TCP/IP ADDRESS = 9.20.101.6..397
IST1165I REMOTE TCP/IP ADDRESS = 9.1.150.232..1240
::
IIST314I END
```

Figure 20. SDSF: Display Session Information

Display Version of VTAM Running

The SDSF command, `d net,vtamopts`, displays the version of VTAM running on OS/390.

SDSF Vary Command

It may be necessary to activate nodes that are currently inactive. The vary commands are similar to the display commands. For example, to vary the TCP Major Node active in our sample configuration, you would issue this SDSF command: `v net,act,id=ap26any n .`

TCP/IP Commands

The following commands are entered from a command prompt:

Ping Utility

To verify the TCP/IP communication between the client and the server, use the ping utility. You can specify either the IP address or IP name. Figure 21 shows the messages returned from the ping utility when the IP name is specified.

```
ping IYCQTS5.GBIBMIYA.hursley.ibm.com

Pinging IYCQTS5.GBIBMIYA.hursley.ibm.com [9.20.101.6] with 32 bytes of data:

Reply from 9.20.101.6: bytes=32 time=190ms TTL=52
Reply from 9.20.101.6: bytes=32 time=191ms TTL=52
Reply from 9.20.101.6: bytes=32 time=190ms TTL=52
Reply from 9.20.101.6: bytes=32 time=201ms TTL=52
```

Figure 21. TCP/IP: Messages Returned from Ping Utility

Tracert Utility

The tracert utility traces the TCP/IP path to the requested destination. It is useful for determining whether there is a problem with one of the intermediate nodes. Figure 22 shows the TCP/IP route from the workstation to the CICS Transaction Server for OS/390 Version 1.3 used in our configuration.

```

tracert IYCQCTS5.GBIBMIYA.hursley.ibm.com

Tracing route to IYCQCTS5.GBIBMIYA.hursley.ibm.com [9.20.101.6]
over a maximum of 30 hops:

  1  <10 ms  <10 ms  <10 ms  vulture-150.almaden.ibm.com [9.1.150.254]
  2  <10 ms  10 ms  <10 ms  cisco.almaden.ibm.com [9.1.24.253]
  3  <10 ms  10 ms  <10 ms  sjalm-t3.almaden.ibm.com [9.1.1.11]
  4  <10 ms  10 ms  10 ms  9.32.221.25
  5  10 ms  <10 ms  <10 ms  9.32.221.20
  6  60 ms  70 ms  81 ms  199.4.213.121
  7  120 ms  130 ms  130 ms  9.32.1.166
  8  200 ms  191 ms  190 ms  portsmouth5.mpn.ibm.com [9.32.184.82]
  9  200 ms  231 ms  200 ms  9.31.253.29
 10  190 ms  200 ms  190 ms  9.31.232.118
 11  200 ms  201 ms  190 ms  hurroute1.hursley.ibm.com [9.20.61.2]
 12  200 ms  191 ms  200 ms  hurmss-01.hursley.ibm.com [9.20.26.218]
 13  200 ms  191 ms  200 ms  IYCQCTS5.GBIBMIYA.hursley.ibm.com [9.20.101.6]

Trace complete.

```

Figure 22. TCP/IP: Messages Returned from Tracert Utility

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