

Install and Configure CL Server

Objective

- Given a configured APP node with the TPS Base software installed, you will install and configure the CL Server on the APP node.
- Given an installed and configured CL Server on a TPS node, you will perform basic CL Server operations.

In This Module

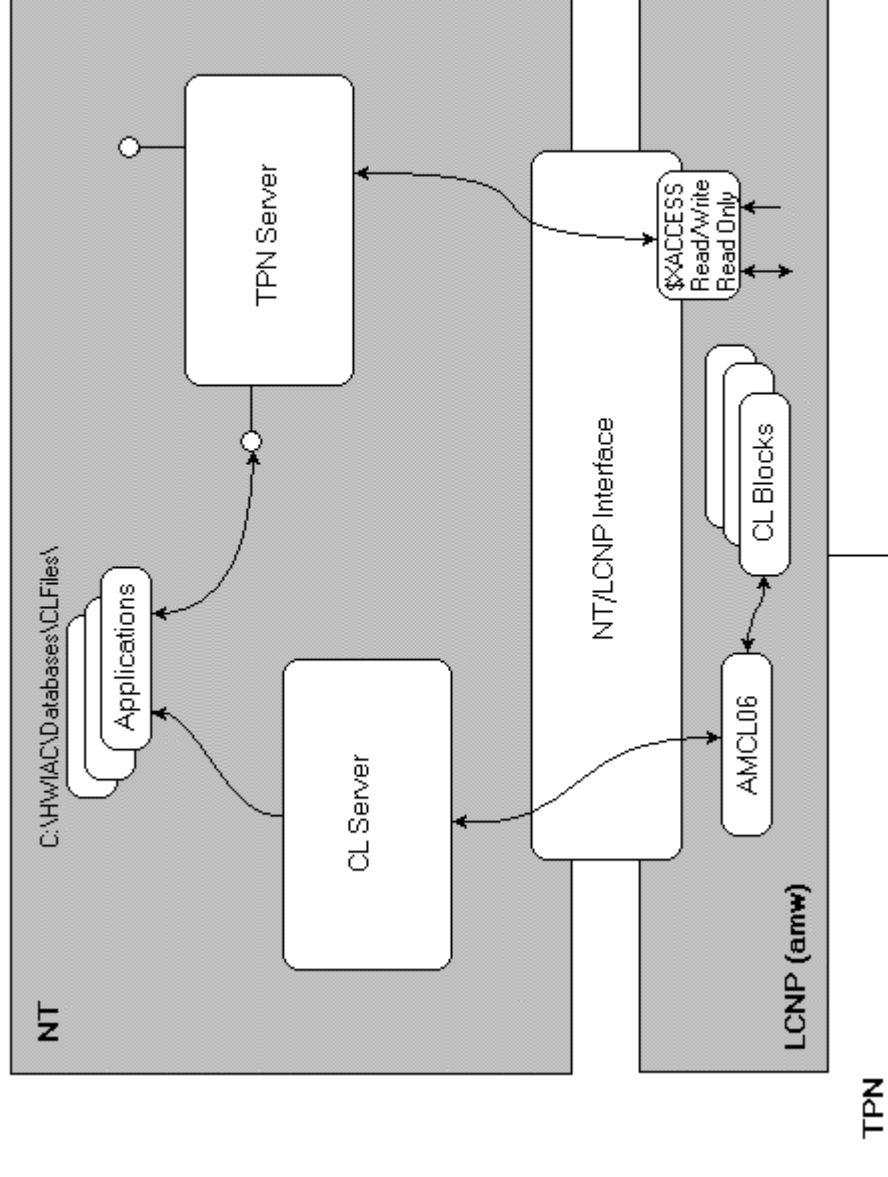
- Overview of CL Server
 - Configuration of the CL Server
 - Introduction to the CL used to initiate an NT application
 - Introduction to the Development and Installation of an NT application
 - Operation of the CL Server using the TPS Status Display and the CL Server Auxiliary Status Display
 - Start and Shutdown the CL Server Using the TPS Status Display
-

Install and Configure CL Server

Introduction

The CL Server accepts requests from the TPN to

- initiate up to 10 NT-side applications and
- notify the CL Block when the application has terminated



Install and Configure CL Server

Application Invocation

- **CL Block requests application execution**
 - using **AMCL06\$Execute_Task_With_Wait**
 - Specifies NT command line, including application name and arguments
 - No initial path is allowed
 - CL Block waits until the NT application terminates
 - Can specify a time limit
- **CL Server receives the request, and invokes the application**
 - Application runs under same account as CL Server (TPSApp)
- **Application performs its function**
- **CL Server monitors the application for termination**
- **At termination, the CL Block is notified**
 - No distinction between normal and abnormal terminations
 - **Return values** must be written to TPN parameters by the NT application, using the TPN Server, and the CL Block can then access them
- **CL Block resumes execution**

Install and Configure CL Server

\$XACCESS - Security

- Allowable values
 - Read Only
 - Read Write
 - Read Write only for CL initiated
- Default is Read Only



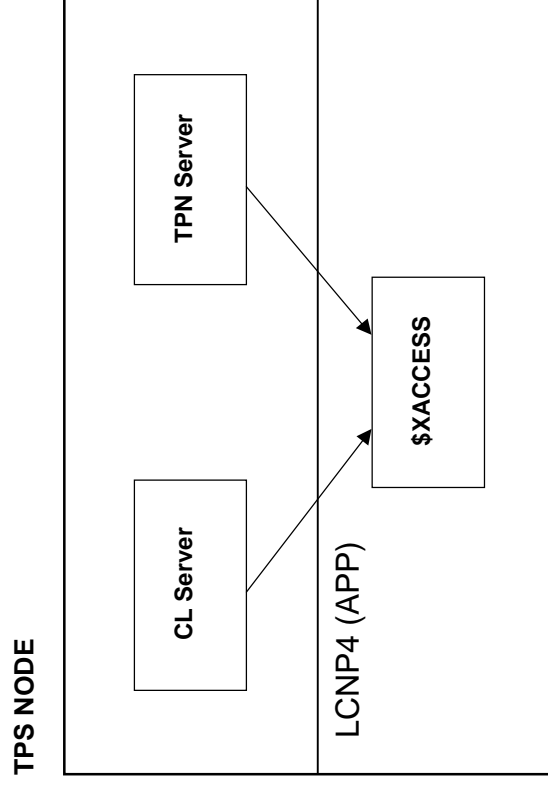
READ WRITE ONLY FOR CL INITIATED is only applicable for applications that are using a legacy, internal interface to the TPN .

For applications accessing data through the TPN Server, this results in READ ONLY access.

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Security Configuration, continued

- Although \$XACCESS is set while configuring the CL Server, it is the clients accessing data through the TPN Server that are affected.
- Affects ALL applications accessing data through the TPN Server whether or not a CL program initiated them.
- If a node has both a CL Server and a TPN Server, then \$XACCESS affects data access through the TPN Server. If a node has a TPN Server, but not a CL Server, \$XACCESS is ignored.
- CL Server configuration specifies the initial setting of the \$XACCESS parameter (parameter of the \$PRSTSnn point).
- Always set this to READ WRITE and let the TPN Server do the security.



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Component Configuration

Component Name

- You must specify a component name.
You may wish to use a naming convention such as TPN name and server_name_number
Example: **Refining_CLServer1**
- The created <component name> is the Component Name that appears in the TPS System Status display

Configure Component

Host Node: APP1

Base PROGID: HciCLServer

Component Name: CLServerAPP1

AutoStart: ☒ YES ☐ NO

Auxiliary Status Display ProgID: CLSRVRDISP.ClsrdispCtrl.1

Secured Methods: Shutdown, Capability

Method: Shutdown, Capability

Capability: <OPEN ACCESS>

Edit Capability:

Remove Component Configuration

Enter/Edit Server Specific Configuration...

OK Cancel Help

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Component Configuration, continued

HostName

- You must specify a host name, it cannot be left blank
 - do not specify a GUS
- No more than one CL Server per node
- Node must have an LCNP board

AutoStart

- **YES** to AutoStart

Auxiliary Status Display ProgID

- Do not change this entry

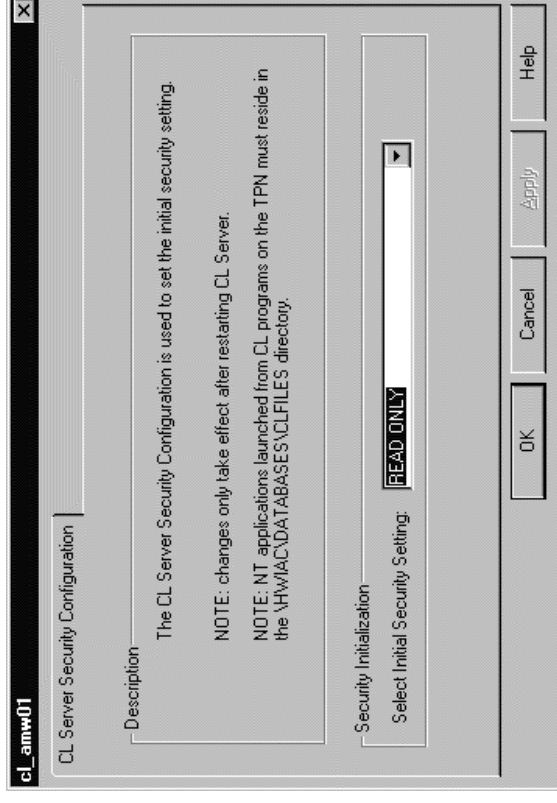
Secured Methods

- Add Proxy File for Shutdown as needed using the **Edit Capability** text box (Default is none)
- Can stop users from shutting down the server from the TPN Status display

Install and Configure CL Server

Security Configuration

- Specify the initial setting of the \$XACCESS parameter
- \$XACCESS controls the types of TPN data operations, which can be performed by NT applications
 - Allows the operator to throttle NT application access
- Allowable values
 - Read Only
 - Read Write only for CL initiated (actually Read Only for ALL apps)
 - Read Write (for all apps)



Install and Configure CL Server

Program to Test CL Block Initiation

```
PACKAGE
--
CUSTOM (ACCESS OPERATOR)
PARAMETER APP_NAME          : STRING ARRAY (1..10)
PARAMETER PRIORITY          : $BKGPRTY ARRAY(1..10)
PARAMETER AP_TMOUT, CL_TMOUT : TIME ARRAY(1..10)
END CUSTOM
--
BLOCK INIT_APP (GENERIC; AT BACKGRND)
%INCLUDE SET AMCL06
--
LOCAL NUM      : NUMBER -- LOOP COUNTER
LOCAL BLANKS   : STRING -- CHECK FOR BLANK APP_NAME
LOCAL RET_STAT : NUMBER -- SUBROUTINE RETURN STATUS
LOCAL DET_STAT : NUMBER -- SUBR. DETAIL RETURN STATUS
--
SET BLANKS = "
--
PROGRAM_LOOP: LOOP FOR NUM IN 1..10
IF APP_NAME(NUM) <> BLANKS THEN
&      (CALL BKG_CHANGE_PRIORITY(PRIORITY(NUM)));
&
&      CALL AMCL06$EXECUTE_TASK_WITH_WAIT
&      (RET_STAT,
&      DET_STAT,
&      APP_NAME(NUM),
&      AP_TMOUT(NUM),
&      CL_TMOUT(NUM))
&
ELSE GOTO RPT_LOOP
--
IF RET_STAT <> 0.0 THEN
&      (SEND:"APPL. INITIATED:APP_NAME(",NUM,")= ",APP_NAME(NUM));
&
&      SEND:"RETURN / DETAIL STATUS: ", RET_STAT, " / ", DET_STAT)
--
RPT_LOOP: REPEAT PROGRAM_LOOP
```

Install and Configure CL Server

Application Scheduling

Scheduling for applications is accomplished through the standard AM point processing mechanism.

The CL/AM extensions of the AM personality of the APP provide the ability for a CL/AM program to trigger an NT application.

Only background CL programs may be used to initiate application programs.

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Application Development

- Develop and debug the application using C++ or Visual Basic
- The application will be running in a non-interactive NT process.
- “Window-less” application
- Should log errors rather than attempt to display them
- Should not depend on interactive input
- Must run to completion within time limit specified by the CL Block

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Application Installation

- Install the application in the \HWIAC\DATABASES\CLFILES directory
 - This directory can contain the actual executable (**.exe**), or a shortcut (**.lnk**) to an executable in a different directory.
- Must be on the same node as the CL Server
- The CL Server looks for applications only in this directory
- The default security policy supplied by Honeywell restricts who can install applications in this directory.
- This allows a site to strictly control which applications may be invoked by a CL Block.
- Use of InstallShield or a similar installation package is strongly suggested
 - TPS uses InstallShield
 - Needed to ensure that all application components are properly installed

Install and Configure CL Server

NT Application Directory Summary

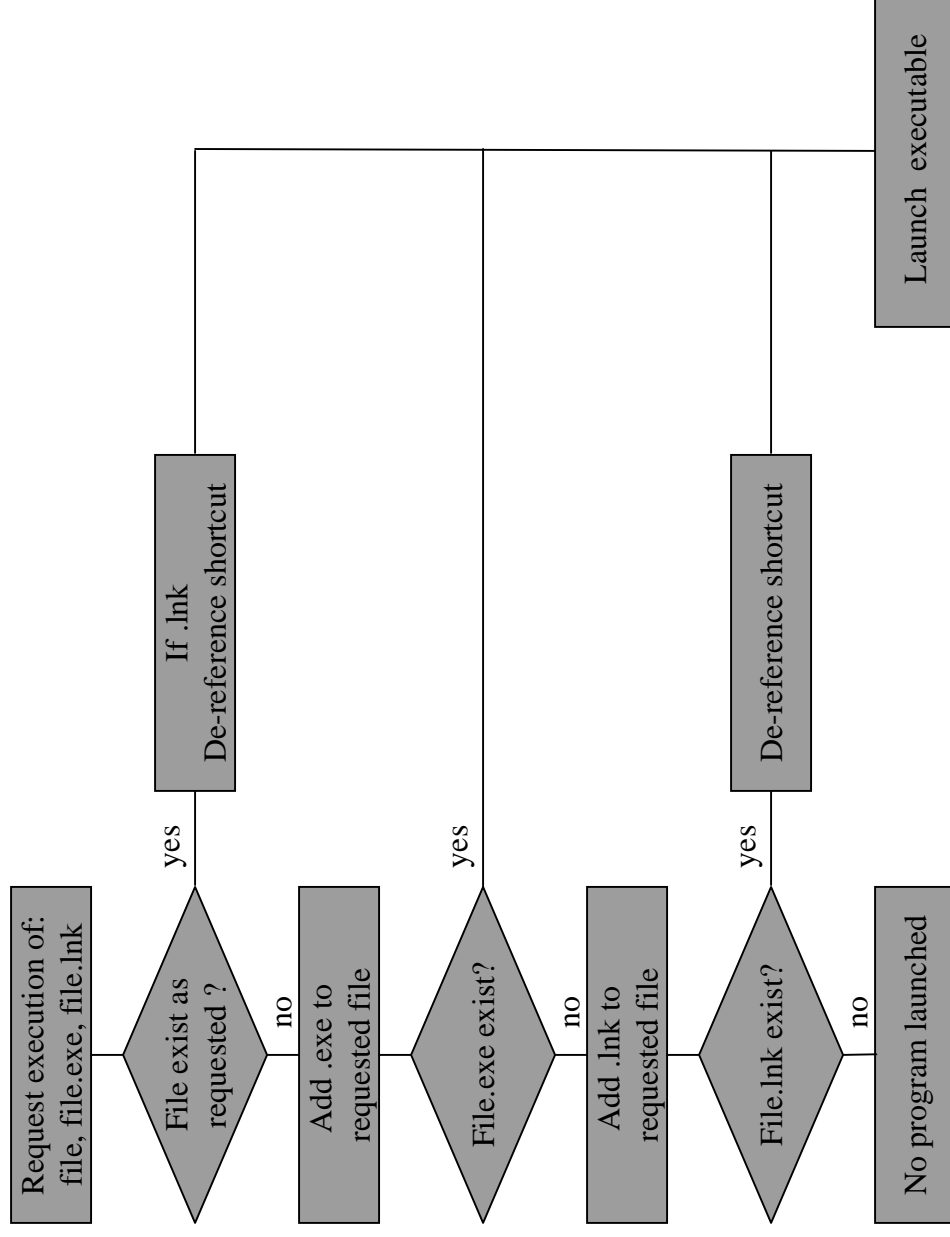
Using Shortcuts

WARNING

When a shortcut is created in the Windows NT Explorer, there is a hidden **.lnk** extension appended to the file name. This extension is not visible in the Windows NT Explorer. It is visible though, in the old Windows File Manager (**winfile.exe**). So it is possible to have an executable **xyz.exe** in the NT Application Directory, and a shortcut to **xyz.exe** in the same directory. The real file name of the shortcut would be **xyz.exe.lnk**. The files appear in the Windows NT Explorer as having the same name, but are different files.

Install and Configure CL Server

NT Application Directory Summary, continued



Install and Configure CL Server

NT Application Directory Summary, continued

Precedence in launching CL Initiated applications

When the CL Server receives a request from the TPN Network, to launch a CL Initiated application, the following order of precedence is used to determine the application to launch:

- If the file exists, exactly as typed in the command line received from the CL Block, it is launched. For example, if the file name was **xyz.exe**, and **xyz.exe** exists in the NT Application Directory, **xyz.exe** is launched. If the file names was **xyz.exe.lnk** (note the **.lnk** extension will be hidden in the Windows NT Explorer), and **xyz.exe.lnk** exists in the NT Application Directory, the shortcut will be de-referenced, and the de-referenced executable will be launched.
- If the file does not exist, as typed in the command line received from the CL Block, a **.exe** extension is appended onto the filename. A check is then made to see if the file exists with the **.exe** extension. If it does exist, it is launched. For example, if the file name was **xyz**, a **.exe** is appended to the file name. The file name **xyz.exe** is then checked to see if it exists.
- If the file still does not exist, a **.lnk** extension is appended onto the filename. A check is then made to see if the file exists with the **.lnk** extension. If it does exist, the shortcut is de-referenced, and the de-referenced executable is launched. For example, if the file name was **xyz**, a **.lnk** is appended to the file name. The file name **xyz.lnk** is then checked to see if it exists.

Install and Configure CL Server

Security

dcomcnfg

- Access to the CL Server is controlled using DCOM configuration
Start → Run → dcomcnfg
 - Administrators set permissions on DCOM applications to control who can launch the CL Server
 - Applications run under the CL Server's user ID (TPSAPP)

permissions

- TPSAPP is a member of the Programs Global group
- Set folder/file permissions
 - Data files (see next page)
 - Executable (see next page)
- Set TPN Server security (proxy files)
- Shutdown of the CL Server is controlled using the Honeywell TPS Configuration Utility and selecting TPS domain

Install and Configure CL Server

NT Application Directory Summary, continued

Accessing data for CL Initiated Applications

ATTENTION

The CL Server, and all CL Initiated Applications run under the **TPSApp** user account (a member of the Programs global group).

- If a CL Initiated Application is accessing a data file, make sure that TPSApp has appropriate access to the file and directory where the data file exists.
- If the NT Application Directory contains a shortcut to a given CL Initiated Application, make sure that TPSApp account (or Programs global group) has, at minimum, read and execute access to the file and directory where the executable exists.

Operate CL Server

- TPS Status Display
 - Auxiliary Status Display
 - Starting and Stopping the CL Server
-

Install and Configure CL Server

Auxiliary Status Display

CL Server Status Display

General Data

Component Name: CLServer_A01(AMWCMTR_D01)
State: WARNING
Version: 2014.0
Startup Time: 5/15/1998 - 14:35:13.72

Security Data

Initial Setting: READ/WRITE
Current Setting: READ/WRITE

CL/NT Application Data

NT Application Directory: C:\HW\AC\Databases\CLFiles
Currently Executing CL Initiated NT Applications:

PID	Application Name
176	ControlApp1
181	ControlApp2
188	ControlApp3
190	ControlApp4

Terminate

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Auxiliary Status Display, continued

CL Server General data

State: Current state of the server

- Possible values:
 - Failed: Unrecoverable error; server has failed
 - Idle: The server is running, but no applications are running
 - Running: The server is running with one or more applications
 - Stopped: The server is not running, either because it was manually stopped, or was not started
 - Warning: The server is running, but there is no connection to the TPN

Version: Version of the CL Server software

Install and Configure CL Server

Auxiliary Status Display, continued

Security data

Initial Setting: The configured initial setting of \$XACCESS

Current Setting: The current value of the \$XACCESS Processor Status Data Point (PSDP) parameter

CL/NT Application data

Currently Executing CL Initiated NT Applications :

- Process ID and name of all applications currently executing
- Any application can be manually terminated by selecting (highlighting) it and clicking “Terminate”

Terminate Button :

- This button becomes active when you select one or more of the CL Initiated Applications. When this button is clicked, the selected applications are terminated.

Install and Configure CL Server

Starting and Stopping the CL Server

Startup and Shutdown

- On startup, the CL Server checks for any applications "left over" from a failed CL Server
- If found, they are terminated
- On shutdown, the CL Server terminates all executing applications
- Notifies CL Blocks of application termination
- No abnormal status returned to the CL Block

