



NonStop CICS Administration Guide

Release 3.6.0

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About This Manual

This manual describes NonStop CICS, an optional component of the PIE/CICS product family. Separate chapters describe product concepts, installation, implementation, and how to run NonStop CICS.

Audience

This book is intended for PIE/CICS system administrators. Readers are expected to understand CICS and MVS concepts.

How This Manual is Organized

This manual consists of four chapters and an appendix. Listed below are the titles and a brief description of each chapter and the appendix.

- Chapter 1 Introduction
Explains the concepts and techniques used by NonStop CICS to achieve a robust CICS system that minimizes down time due to region failures.
- Chapter 2 Installing the NSCR
Describes a series of procedures to install a NonStop Control Region (NSCR) and customize PIE/CICS to work with NonStop CICS.
- Chapter 3 Implementing NonStop CICS
Explains how to set NonStop CICS operating conditions with a PNAM file and prepare the Network Monitor.
- Chapter 4 Running NonStop CICS
Explains considerations of running NonStop CICS and how to use the PIE/CICS List menus to display the status of CICS regions and individual users.
- Appendix A Customer Service
Describes procedures to report problems with NonStop CICS to UNICOM Systems, Inc. Software Customer Service.

Recommended Reading

The title and a brief description of all PIE/CICS manuals are shown in the following lists. Some manuals provide common information that applies to both the common and components of PIE/CICS. Other manuals pertain only to optional PIE/CICS components. These manuals need to be read only if these products are part of the PIE/CICS system installed at your site.

Common Manuals

These manuals provide common information that applies to both the shared and optional components of the PIE/CICS family.

- *PIE/CICS Installation Guide*
Includes a series of procedures to install PIE/CICS.
- *PIE/CICS Release Notes*
Describes new features or enhancements to PIE/CICS that are part of Release 3.6.0.
- *PIE/CICS Command Reference*
Describes PIE/CICS Application and Environment commands.
- *PIE/CICS Customization Guide*
Describes common procedures to adapt PIE/CICS to your site's environment.
- *PIE/CICS Operation and Administration Guide*
Describes common features or facilities that are available to all PIE/CICS products. Performance tuning techniques and implementing security also are described.
- *REXX for PIE/CICS User Guide*
Describes how to write, compile, and execute SAA-compliant REXX programs that operate within a PIE/CICS external environment.
- *PIE/CICS Custom Menus Administration Guide*
Describes how to create custom MultiCICS and Dynamic Menu screens that provide alternate language support.

Optional Manuals

These manuals describe optional PIE/CICS components.

- *PIE/CICS MultiCICS Administration Guide*
Provides customization procedures and usage information to support multiple PIE/CICS sessions with MultiCICS.
- *PIE/CICS Dynamic Menus Administration Guide*
Describes how to create custom PIE/CICS menus that provide extended security and enhanced transaction processing.
- *PIE/CICS NetGate Administration Guide*
Explains how to access multiple VTAM applications through a PIE/CICS session with NetGate.
- *PIE/CICS NetMizer Administration Guide*
Describes how to use NetMizer to optimize 3270-based data streams through a network.
- *PIE/CICS Availability Plus Administration Guide*
Explains how to use Availability Plus to distribute and balance work across multiple CICS regions.
- *PIE/CICS NonStop CICS Administration Guide*
Describes how to use NonStop CICS to route work across CICS regions to balance the workload and minimize down time in the event of a region failure.

Syntax Conventions

A syntax diagram is part of the description of each PIE/CICS command included in this manual. A diagram shows the possible parameters, values, and variables associated with a command.

Syntax diagrams adhere to common conventions. The physical appearance of a diagram's elements indicates whether a command parameter, variable, or other values are required, optional, or included by default.

- An underlined parameter is the default assigned to the command.
- Command names are presented in MIXed case. The uppercase portion of a command name is the requisite abbreviated form. Lowercase letters represent the optional remainder of the command name that need not be specified to execute the command.
- An *italicized lowercase* parameter represents a value assigned by the user.
- A vertical bar (|) separates two or more mutually exclusive parameter values. Only one value can be specified for each parameter.
- Parameters enclosed within brackets [] are optional. Only one value can be specified to a parameter.
- Parameters values enclosed within braces { } are required. If unspecified, the parameter default is assigned to the command.
- Monospaced type represents text displayed on a PIE/CICS screen or examples of JCL. code. Also, commands entered on a PIE/CICS screen are shown as monospace examples.

Chapter 1 Introduction

NonStop CICS is an optional component of the PiE/CICS family. This chapter describes how to use NonStop CICS to build a robust CICS system that minimizes down time resulting from a CICS region failure.

CICS Availability

CICS availability is critical. The cost of even short outages can be extremely high. Outages are the inevitable result of software or hardware problems, and required periodic maintenance. Minimizing the number of outages and the length of system down time is a critical issue at most sites.

Recognizing the need for recovery systems, you could use an automated operator to restart a region after it fails. The time needed to restart a region can range from a minute or more. If the system produces a dump, you must wait for the dump to complete. In addition, you must wait for all CICS recovery procedures to finish. Your system is unavailable for most of the recovery period.

Most sites cannot have mission-critical applications unavailable for the entire recovery period. In response, IBM created the Extended Recovery Facility (XRF). With XRF you have two regions: a regular region intended for normal CICS transaction work and a backup region. In the event that the regular region fails, XRF automatically re-assigns users to the backup region.

Even with XRF, the backup region is only partially initialized. It usually takes several minutes to fully initialize the region. In addition, you still have to wait until the dump and the recovery procedures are completed. Also, XRF can only reroute remote terminals. Local terminals are left hanging.

NonStop CICS provides a better solution. NonStop CICS runs multiple, fully initialized regions. Backup regions are available immediately when problems occur. NonStop CICS re-assigns users while recovery procedures continue in the failed region.

NonStop CICS does not have to wait for the entire period to complete a dump. Usually, a dump takes two minutes or less. In most cases, users are re-assigned to the backup region immediately after a failure. NonStop CICS handles both local and remote terminals. Unlike XRF, NonStop CICS does not need to continuously monitor CICS regions. Accordingly, the performance overhead of running NonStop CICS is less.

Capacity and Load Balancing

If your CICS system supports thousands of users, virtual storage constraint can become a problem, limiting the number of concurrent users signed on to a region. The typical solution is to allocate more regions to increase user capacity.

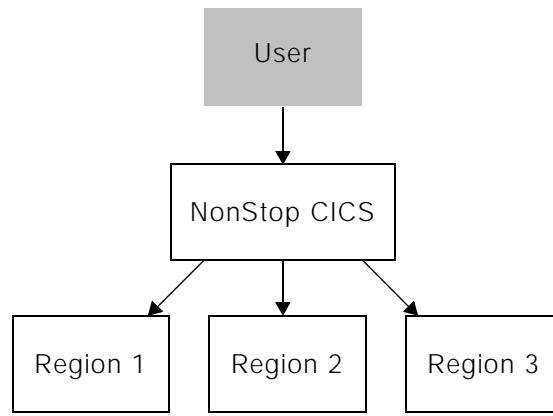
Both MRO and stand-alone CICS users can run multiple regions. However, with IBM alone, two major problems are left unresolved:

- Users need different logon procedures to access different regions. Also, users must be able to recognize when to use them.
- There is no way to distribute users evenly across your regions.

NonStop CICS resolves both problems. NonStop CICS automatically routes users to an appropriate region.

Users need only one logon procedure, regardless of how many regions they use. No special knowledge or training is required to access different regions.

NonStop CICS automatically routes users to different regions to distribute user load across regions exactly to your specifications. This method of user distribution is called *load balancing*.



Routing Users to Other Regions with NonStop CICS

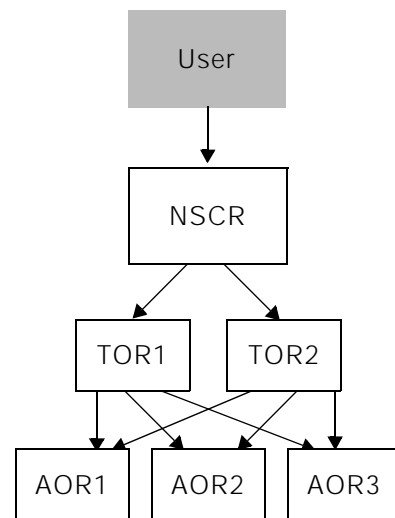
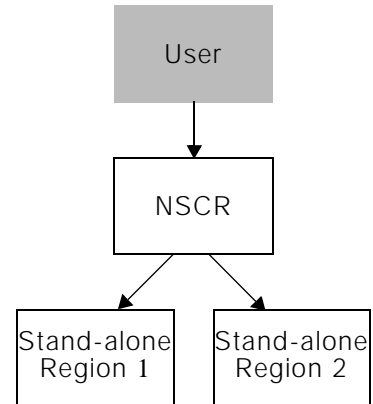
NonStop CICS runs in the NonStop Control Region (NSCR), a specialized region. NSCR is a stripped down stand-alone CICS region, running only the minimum system and application software. Usually, a NSCR runs the minimum required CICS, utilities, security, and NonStop CICS.

When your users log on to CICS, they actually log on through the NSCR. The NSCR then routes them to an available region.

If you are running without MRO, NSCR routes the user to one of your stand-alone CICS regions. The routing process looks like the upper figure shown at the right.

If you are running MRO, the NSCR routes the user to a TOR. Each TOR has access to the same AORs. You can see how this works in the lower figure.

Any region that serves as a destination for NonStop CICS users is called a target region. Although the figures show only two target regions, you can set up as many as you need.

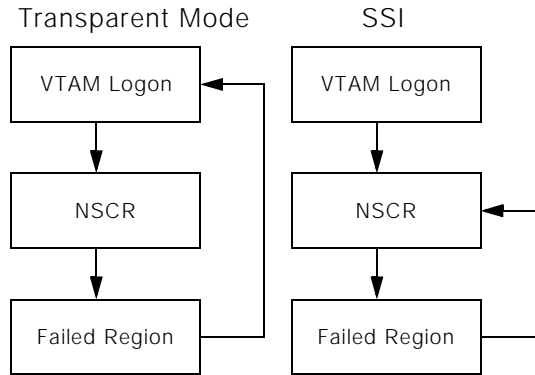


Routing Users After a Region Failure

NonStop CICS does not automatically re-assign users to an alternate target region if their region fails. Instead, users are rerouted to either the NSCR sign on screen, the VTAM logo, or VTAM menu depending on which option you choose.

This prevents possible network overload immediately after a region failure. If NonStop CICS automatically re-assigned users to alternate regions when a region failed, all affected users would log on to alternate regions simultaneously; a considerable load on your network.

This sudden load is actually unnecessary because only a portion of users are using their terminals at any given moment. Because NonStop routes all users to a logon or sign on screen, users log back on to the system when required. The load on the system is distributed over a longer period to logon and re-assign users to different regions.



Active and Passive Regions

An active target region serves users on a regular basis. A passive target region serves as a backup; it becomes active only if the target region is no longer available.

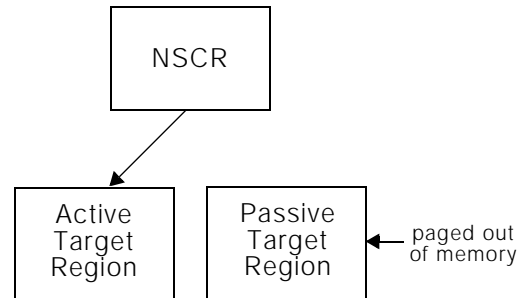
You can choose to have all active regions or one active region and one passive region.

Using multiple, active regions provides two primary benefits:

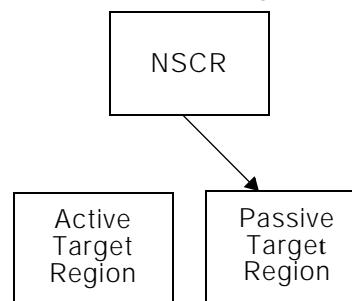
- It can increase user capacity by distributing users across several regions, thereby giving you virtual storage constraint relief.
- If a region fails, only some user transactions abend because only a part of your users have been doing their work on the failing region.

A passive region requires less overhead. It is in a wait state until the active region fails. CPU, real storage, and DASD resources are conserved.

When both regions are running:



When the active region fails:



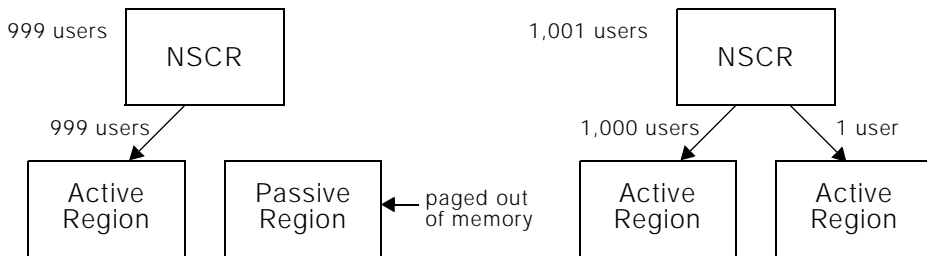
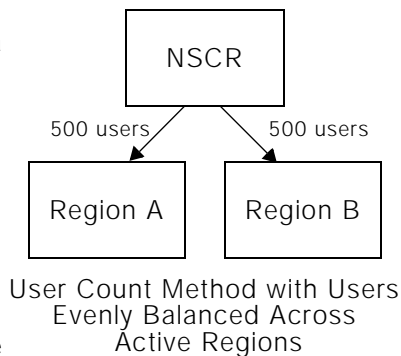
Balancing Methods

NonStop CICS uses two methods to route a user to a region after they have logged on to CICS.

User count NonStop CICS routes users to all available target regions to maintain a constant, pre-defined load balance in your CICS system.

Saturation NonStop CICS routes all users to a single target region until the region reaches its "saturation threshold". After that, additional users are routed to an alternate region.

The alternate region remains passive until required. This method is particularly beneficial when you need to conserve system resources by minimizing the number of active target regions.



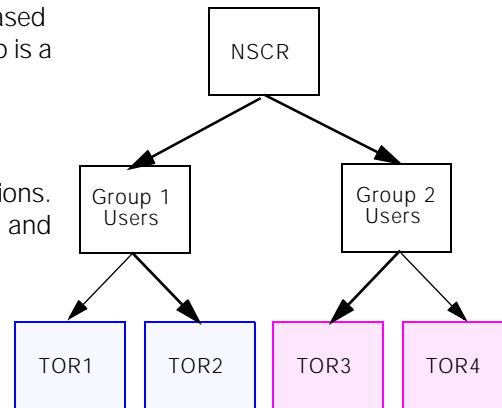
Saturation Routing Method with maximum users set at 1,000

Balancing Groups

NonStop CICS can route different users to different regions based upon their membership in a group. For example, programmers and regular users are normally assigned to different CICS systems. In this example, you want NonStop CICS to send programmers to a test system and everybody else to the production system.

NonStop CICS assigns users to a region based on *balancing groups*. A balancing group is a set of regions that serve the same group of users.

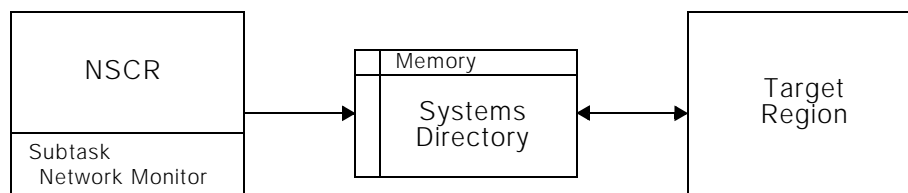
You can create several balancing groups to route different users to different types of regions. Alternatively, you can set up a single balancing group and route all users to that set of regions.



Network Monitor and the Systems Directory

The Network Monitor reports the status of regions that are members of balancing groups to NonStop CICS. Network Monitor determines the current state of a region and how many users are assigned to it. NonStop CICS uses the Network Monitor to route users to a region after they log on to CICS.

The Network Monitor runs as a subtask of the NSCR. Network Monitor tracks the status of regions on a Systems Directory. You can view the Systems Directory with the Group List Utility. Refer to [“PIE/CICS List Utilities” on page 56](#) for a description of PIE/CICS List utilities.



Note: If your site uses NetGate or Availability Plus, you are already running Network Monitor. However, both products require a separate Network Monitor for each region. NonStop CICS runs in a region by itself. The Network Monitor for NonStop CICS is completely independent from the NetGate and Availability Plus Network Monitor.

Signing On to the NSCR

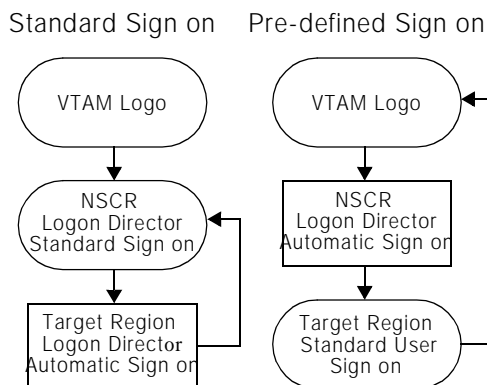
PIE/CICS provides two methods to sign on to the NSCR and the target region

- Standard Logon Director sign on
Users formally sign on to the NSCR using the PIE/CICS Logon Director. The Logon Director logs on users automatically to the target region. If their target region fails, they return to the NSCR Logon Director screen. This method requires that the target region run PIE/CICS, and the Logon Director is the default sign on facility.
- Pre-defined Logon Director sign on
Users are automatically signed on to the NSCR with a generic user ID and password. When NonStop routes them to their target region, users sign on to the target region in their normal manner. Users return to the VTAM logon screen if their target region fails.

With both standard and pre-defined sign on methods, users must sign on only once for both the NSCR and the target region. With both sign on methods, users are not aware that they are signed on to the NSCR.

You can see the difference between the standard and pre-defined sign on methods in the figure shown at the right.

Both methods use the Logon Director to sign on to the NSCR. The Logon Director provides many benefits that are not directly related to NonStop CICS. Read ["Logon Director" on page 3](#) of the *PIE/CICS Customization Guide* for more information about the Logon Director.



Note: Refer to ["Receiving sign on Data From Another Application" on page 8](#), and ["Pre-defined sign on Data to Specific Terminals" on page 11](#) of the *PIE/CICS Customization Guide*.



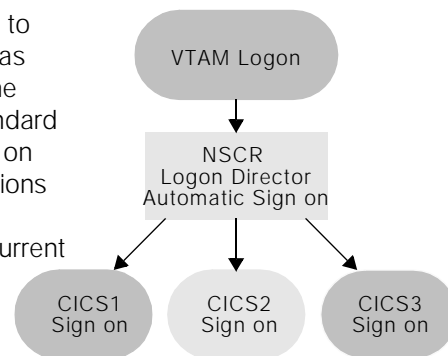
Sample NonStop CICS Configurations

This section includes several examples that show typical sign on methods that can be adapted for specific NonStop CICS configurations.

Example 1: Transparent Mode

In this example, an independent CICS region is running without MRO. Two new regions are added to the system. Users need to continue using their current sign on procedures, but have access to the new regions.

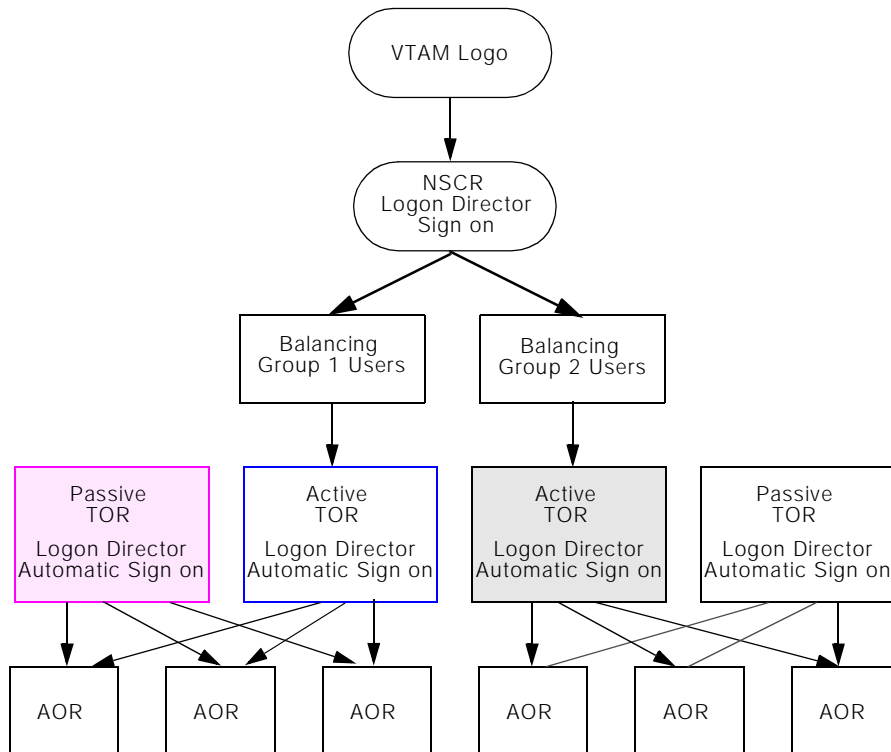
A single NonStop CICS balancing group is defined to manage all CICS regions. All regions are specified as active. If a region fails, users are re-assigned to the remaining regions that are still available. Either standard Logon Director or pre-defined Logon Director sign on methods can be used to grant access to other regions within the balancing group. Both methods are transparent, allowing users to continue with their current sign on procedures.



Example 2: SSI Mode

An MRO system runs with two TORs; one for production and the other for testing. Backup TORs are required. Users are returned to the NSCR Logon Director screen rather than VTAM to reduce the number steps required to log on to another region after a failure.

A passive, backup TOR is defined for each active TORs. Separate balancing groups are created for the production and test systems. The following figure shows an example of a CICS Single System Image (SSI) that incorporates these features. Users are sent to the NSCR sign on screen in case of failure.



Automated Operations

Because almost all NonStop CICS functions are controlled by commands, you can use your automated operator to control the NonStop CICS environment. See ["PNAM Online Functions"](#), beginning on page 105 of the *PIE/CICS Operation and Administration Guide*, for more information on these commands.

Utilities

PIE/CICS provides several online utilities to display the status of regions and users. The Balancing Group List and the Systems List present information about target regions, their current status, and how many users are assigned to each region. The User List reports similar information about individual users.

Chapter 2 Installing the NSCR

NonStop CICS can be installed by two methods:

- Auto-install

Auto-install is the simplest method. It creates a new CICS region for the NSCR during the installation of NonStop CICS. The NSCR runs with minimum overhead.

Auto-install is the recommended installation method. Auto-installation procedures begin on [page 12](#).

- Manual installation

If your site has unique requirements, or procedures that prevent you from installing CICS regions with the Auto-install method, you can create the NSCR yourself and install NonStop CICS into it. The manual method usually takes longer to complete than the Auto-install method. Manual installation procedures begin on [page 16](#).

Both methods consist of three major steps to install your NonStop CICS system:

1. Create the NSCR and install PIE/CICS.
2. Customize PIE/CICS for NonStop CICS.
3. Create one or more duplicate TORs or stand-alone CICS regions.

Procedures to complete the first step are described in this chapter. These procedures make references to the following manuals:

- *PIE/CICS Installation Guide*
- *PIE/CICS Release Notes*
- IBM CICS/ESA System Definition Guide (CICS 3+)

These manuals should be available as you complete this chapter's installation procedures.

Steps 2 and 3 are described in ["Implementing NonStop CICS" on page 21](#). Complete these steps after you have completed the first step in this chapter.

Using the Auto-Install Procedure

Auto-Install is the preferred installation method. Auto-Install should be used in most cases except when your site has unique policies or procedures that would prevent a NonStop CICS installation.

Step 1: Load PIE Data sets from the Product Tape

Perform this step if you are a new PIE/CICS user, or if you are upgrading to a new release of the product. Skip this step if PIE/CICS is and you are just adding NonStop CICS support.

1. Refer to the *PIE/CICS Installation Guide* and perform steps 1 through 3 of the installation procedure. These steps are:
 - Load the PIE/CICS CNTL dataset that contains generic versions of all PIE/CICS JCL, macros, and assembly programs.
 - Use the installation JCL from the CNTL dataset to unload the remaining datasets from the PIE/CICS distribution tape
 - Create PIE/CICS VSAM datasets

Step 2: Create CICS Non-VSAM Datasets

The NSCR requires a minimum of two CICS non-VSAM datasets:

- Auxiliary trace dataset
 - Dump dataset
1. Use JCL from the NSCNVSM member of the CNTL dataset to allocate both datasets.

Step 3: Create CICS VSAM Datasets

The NSCR needs a minimum of four CICS VSAM datasets:

- CICS System Definition dataset (CSD)
 - Auxiliary Temporary Storage dataset
 - Transient Data Intrapartition dataset
 - Restart dataset
1. Use member NSCVSAM of the CNTL dataset to create these datasets.
 2. Allocate two additional datasets if you are running CICS 3.1 and above:
 - Local catalog dataset
 - Global catalog dataset
- Use member NSCVSAM3 of the CNTL dataset to create these datasets.

Step 4: Update VTAMLST

NonStop CICS uses two VTAM APPLIDs; one for the NSCR and the other for the Network Monitor. This step creates VTAM APPL definitions for these APPLIDs in VTAMLST.

- Copy member NSCVTAM of the CNTL dataset to VTAMLST.
If you change the ACBNAME NONSTOP, make a corresponding change to the NonStop CICS start-up JCL. Refer to "Step 8: NSCR Start-Up JCL," on page 15.
If you change the ACBNAME PIENM001, make a corresponding change to the APPLID parameter of the Network Monitor start-up options. See page 21, "Implementing NonStop CICS"
- Activate your changes by entering **V NET,ACT,ID=NSCVTAM** from the console.

VTAM APPLID Definitions

```

APPLNSC VBUILD TYPE=APPL      NONSTOP CICS VTAM DEFINITIONS
*=====*
*      NONSTOP NETWORK ACCESS APPLID                               *
*=====*
PIENA001 APPL  EAS=500,          TOTAL TERMINALS IN NETWORK +1*
              ACBNAME=NONSTOP,  APPLID FOR ACB                *
              AUTH=(ACD,PASS);   CAN ACO & PASS TMLS + BLK    *
              VPACING=5,         MAX NORM FLOW REQUESTS       *
              SONSCIP=YES,       ALLOW SESSION OUTAGE NOTIFY  *
              PARSESS=YES,       LOG.2 SUPPORT                 *
*=====*
*      NONSTOP NETWORK MONITOR APPLID                             *
*=====*
PIENM001 APPL  ACBNAME=PIENM001, APPLID FOR ACB                *
              AUTH=(SPO),        AUTHORITY FOR OPERATOR COMMANDS*
              EAS=1,             ESTIMATED CONCURRENT SESSIONS *
*=====*

```

Step 5: Customize the CSD

In "Step 2: Create CICS Non-VSAM Datasets," on page 12, you created the CICS System Definition File (CSD) for the NSCR. This step initializes and customizes the CSD.

This procedure defines sixteen console terminals with IDs CNS0-CNS9 and CNSA-CNSF. These IDs correspond with the MVS console IDs 0-15. This allows you to issue commands to the NSCR from any of these MVS consoles.

- Edit and run the job found in member NSCCSDnn of the CNTL dataset to initialize and customize the CSD.

Choose the appropriate member based upon the version of CICS that runs with PIE/CICS:

CICS 4.1	NSCCSD41
CICS 5.1	NSCCSD51 (Also known as Transaction Server 1.1)
CICS 5.2	NSCCSD52 (Also known as Transaction Server 1.2)
CICS 5.3	NSCCSD53 (Also known as Transaction Server 1.3)
CICS 6.2	NSCCSD62 (Also known as Transaction Server 2.2)
CICS 6.3	NSCCSD63 (Also known as Transaction Server 2.3)

These members do the following:

- Initialize the CSD
- Add the auto-install models, programs, and transactions
- Define start-up lists

Step 6: Create CICS Tables

This step creates and assembles NSCR CICS tables. You must create entries for the ALT, DCT, FCT, PLTPI, PLTSD, SIT, and SRT tables.

1. Run member NSCTABnn of the CNTL dataset to assemble your tables.
Choose the appropriate member based upon the version of CICS that runs with PIE/CICS at your site.

CICS 4.1	NSCTAB41
CICS 5.1	NSCCSD51 (Also known as Transaction Server 1.1)
CICS 5.2	NSCCSD52 (Also known as Transaction Server 1.2)
CICS 5.3	NSCCSD53 (Also known as Transaction Server 1.3)
CICS 6.2	NSCCSD62 (Also known as Transaction Server 2.2)
CICS 6.3	NSCCSD63 (Also known as Transaction Server 2.3)

Or, use your own CICS table assembly procedures, particularly if SMP/E must be informed about these new CICS tables.

Step 7: Add Security System Support

This step adds security system support for NonStop CICS.

1. Use your standard site procedures to add NSCR to your security system.
2. See ["Securing PIE/CICS Transactions" on page 80](#) of the *PIE/CICS Customization Guide* for information about securing NonStop CICS transactions.

Step 8: NSCR Start-Up JCL

This step customizes the NSCR's start-up JCL.

1. Access member NONSTOP3 of the CNTL dataset if you are using CICS/ESA. For CICS 2.1, access member NONSTOP1.

The supplied auto-install program, PNC@PTIN, generates a sequential (always unique) CICS terminal ID. It is a value generated from lower to higher collating sequence that uses only the allowable characters for CICS termids. The first terminal to logon is assigned terminal ID *aaaa*. Each subsequent terminal that logs on is assigned the next ID in sequence.

In ["Step 6: Create CICS Tables," on page 14](#), you created two different start-up RDO lists: TSCLISTQ and TSCLIST. TSCLISTQ uses queryable RDO models and is the recommended list.

2. Change LIST=TSCLISTQ to LIST=TSCLIST if your terminals do not support query. NonStop CICS uses a PNAM file. This dataset is referenced with the ddname PIENAM.
3. Modify this DD statement to reflect your installation's standards. The PNAM file can be a PDS or a sequential dataset. A PDS is recommended because you can edit it in ISPF without having to bring down CICS. Member NSCPARM of the CNTL dataset is the sample PNAM file for NonStop CICS.
4. Review NONSTOPx for other changes, such as CICS SVC numbers and other dataset names.
5. Copy your start-up JCL to the appropriate PROCLIB. You may want to rename the member to NONSTOP.

Step 9: Entering Your PIE/CICS Password

Enter your PIE/CICS password and other license information obtained from UNICOM Systems, Inc. See ["Step 8: Enter PIE/CICS License Information," on page 14](#) of the *PIE/CICS Installation Guide* for instructions to enter this information.

Step 10: Add CICS Utility Software (Optional)

You can add support for other CICS utilities to the NSCR. Typically, you can include performance monitoring products or dataset dynamic allocation/de-allocation facilities. However, the NSCR should run the minimum number of applications as possible to maximize performance and reliability.

Note: NonStop CICS uses the first 16 bytes of the TCTTE user area. Make certain that no other software in the region uses this area.

Using Manual Installation Procedures

Manual installation is the second method to install NonStop CICS. Auto-install is the preferred installation method. Use this method only if your site has unique policies or procedures that prevent NonStop CICS from being installed by the Auto-install method. When you have finished with these procedures, go to [“Implementing NonStop CICS” on page 21](#).

Step 1: Create the NSCR

The NSCR is a CICS stand-alone region. Make certain the following requirements are met when you create the NSCR.

- The NSCR should run as few applications as possible to maintain maximum performance and stability. Eliminate any unnecessary CICS features (logging, journalizing, etc.). You can include support for other CICS utilities.
 - NonStop CICS uses the first 16 bytes of the TCTTE user area. Make certain no other software in the region uses this area.
1. Create your NSCR and add utility software.
 2. Cycle your NSCR and test it.

Step 2: Unload PIE Datasets from the Distribution Tape

This step adds PIE/CICS and NonStop CICS datasets to the NSCR.

1. Perform the following steps from the *PIE/CICS Installation Guide*.
 - If you are a new PIE/CICS user, or you are upgrading to a new version, perform installation steps 1 through 5. Do not create optional PCT and DCT entries.
 - If you are only adding NonStop CICS support to this release of PIE/CICS, perform steps 4 and 5. Do not create optional PCT and DCT entries.
2. Add support for the PNAM and PIELOG datasets in step 5.
3. Define the PNAM file using the ddname PIENAM.

The PNAM file may be a PDS or a sequential dataset. We recommend the PNAM file be defined as a PDS so that you can make changes to the dataset without having to cycle CICS. The sample NonStop CICS PNAM dataset is member NSCPARM of the CNTL dataset.

4. Define the PIELOG dataset with the PIELOG ddname.

```
//PIENAM DD DSN=your.pds(member),DISP=SHR  
//PIELOG DD SYSOUT=*,DCB=(RECFM=V,BLKSIZE=136)
```


Step 3: Complete CICS Table Changes

Some necessary CICS table options are not part of the overall PIE/CICS installation procedure. This step explains how to make entries to CICS tables that are required to support NonStop CICS. Changes are required for your CICS PLT, SIT, DCT, and TCT tables.

PLT Changes

PIE/CICS and NonStop CICS should be started automatically during CICS start-up. Likewise, both products should terminate at CICS shutdown. This step creates PLT entries to start and stop NonStop CICS.

1. Edit member PIEPLTPI of the CNTL dataset to insert PLTPI entries for NonStop CICS in the NSCR.
2. Insert the PCSMPINI entry before the PCNMPINI entry.

Requirements are shown below. If you are using CICS 3.1 or later, insert both entries after the DFHDELIM entry. If you are using CICS 2.1, insert the new entries anywhere.

```
DFHPLT TYPE=INITIAL,SUFFIX=A2
*
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM DELIMITER (CICS 3.1+ ONLY)
DFHPLT TYPE=ENTRY,PROGRAM=PCSMPINI PIE INIT
*
DFHPLT TYPE=FINAL
END , TO END TABLE MACRO
```

3. Insert a PLTSD entry for program PCNMPINI before your DFHDELIM entry.

```
PLTSD TITLE'DFHPLTS1- PROGRAM LIST TABLE SHUTDOWN'
*
DFHPLT TYPE=INITIAL,SUFFIX=S1
*
DFHPLT TYPE=ENTRY,PROGRAM=PCNMPINI
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
*
DFHPLT TYPE=FINAL
END ,
```

SIT Changes

1. Ensure that CLSDSTP=NOTIFY is in effect in your NSCR's DFHSIT table.
CLSDSTP=NOTIFY tells the operating system to notify the NSCR when a CLSDST PASS operation has finished. The completion notification allows the NSCR to complete user disconnects or logoffs and recover from terminal errors.
2. Insert PLTPI and PLTSD suffixes, if you do not already have them.

```
SIT TITLE 'DFHSITZZ - PRODUCTION SIT FOR CICS'
SITZZ DFHSIT TYPE=CSECT,
...
CLSDSTP=NOTIFY,
PLTPI=A1,
PLTSD=S1,
...
```

DCT Changes

The NonStop CICS start-up program, PCNMPINI, reads the PNAM file and places its commands in a transient data queue.

1. Insert DCT entries to support a transient data queue.

You may copy member PIEDCTNM of the CNTL dataset. Sample entries are shown below.

```
*****
* PIE/CICS DCT ENTRIES FOR LOAD BALANCER PARM FILE          *
*****
PIENAM DFHDCT TYPE=SDSCI,          NS INPUT PARM FILE      X
                DSCNAME=PIENAM,          X
                TYPEFLE=INPUT,           X
                OPEN=DEFERRED,          X
                BUFNO=1
*
PNAM DFHDCT TYPE=EXTRA,          NS DESTINATION          X
                DESTID=PNAM,           X
                DSCNAME=PIENAM
```

2. Add DCT entries for the PIE/CICS message log.

You may copy member PIEDCT of the CNTL dataset. Sample entries are shown below.

```
*****
* PIE/CICS OUTPUT MESSAGE AND AUDIT TRAIL LOG              *
*****
PIELOG DFHDCT TYPE=SDSCI,          PIE MESSAGE/AUDIT TRAIL LOG +
                DSCNAME=PIELOG,          +
                BLKSIZE=136,             +
                RECSIZE=132,             +
                RECFORM=VARUNB,          +
                TYPEFLE=OUTPUT,          +
                BUFNO=1
PIEL DFHDCT TYPE=EXTRA,          PIE MESSAGE/AUDIT TRAIL LOG +
                DESTID=PIEL,             +
                DSCNAME=PIELOG
```

TCT Changes

Ensure that all terminals have a user area of at least 16 bytes because NonStop CICS uses the first 16 bytes of the TCTTE user area.

Implement CICS Table Changes

1. Reassemble your CICS Tables
2. Cycle the NSCR.

Step 4: Update VTAMLST

This step adds an APPLID to VTAMLST for the Network Monitor.

1. Copy member APPLNSNM of the SAMPLIB to VTAMLST.

```

APPLNETM VBUILD TYPE=APPL
=====
* PIE/CICS SYSTEM MONITOR APPLIDS
=====
PIENM001 APPL ACBNAME=PIENM001,          APPLID FOR ACB
          AUTH=(SPO), AUTHORITY FOR OPERATYOR COMMANDS
          EAS=1          ESTIMATED CONCURRENT SESSIONS

```

If you change the ACBNAME PIENM001, make a corresponding change to the APPLID parameter of the Network Monitor start-up options. See [“Check Network Monitor Options”, beginning on page 41](#).

2. Ensure the NSCR APPL definition has AUTH=PASS specified

```
VTAM APPL AUTH=PASS
```

Step 5: VTAM Logmodes

When users log on to a VTAM application, certain physical characteristics are specified from the VTAM logmode table regarding the terminal in use (such as screen size, color, highlighting, graphics).

Usually, VTAM uses the default logmode from VTAMLST. However, when users initially log on to CICS, they can specify a different logmode, or a VTAM menu product can specify a different one for them.

When the NSCR performs CLSDST PASS to the target region, VTAM does not retain the changes made to the logmode. Instead, VTAM reverts to the default logmode. This can cause errors. Complete the procedures described in [“Using the VTAM Log on Message” on page 117](#) of the *PIE/CICS Customization Guide* to prevent these errors from occurring.

Step 6: Enlarge the Systems Directory

The Systems Directory needs a slot for each target region. The default table supports a maximum of 200 entries. If you have more than 200 target regions, see [“Increasing the Size of the Network Monitor Systems Table” on page 122](#) of the *PIE/CICS Customization Guide* for procedures to increase the size of the Systems Directory.

Step 7: Tune the NSCR

You need to tune the NSCR to maintain adequate performance. Refer to [“Performance and Tuning” on page 153](#) of the *PIE/CICS Customization Guide* for information about PIE/CICS tuning and performance.

Pay particular attention to the DSA portion of the [“Virtual Storage”](#) section regarding placing CICS Max Class restrictions on the PSGM transaction.

Step 8: Entering Your PIE/CICS Password

Enter your PIE/CICS password and license information. See [“Step 8: Enter PIE/CICS License Information,” on page 14](#) of the *PIE/CICS Installation Guide* for instructions.



Chapter 3 Implementing NonStop CICS

NonStop CICS must be adapted to your site's CICS system after installing PIE/CICS and creating the NSCR. This chapter includes a series of procedures to prepare NonStop CICS for use at your site after it is installed.

Implementation Planning

Planning a NonStop CICS system is a relatively straight-forward process. Answer the following questions about your current CICS system. The answers to these questions should help you plan the NonStop configuration needed at your site.

1. Do you have more than one type of CICS system? Do you want a separate balancing group for each system?
2. Does your site experience frequent planned and unplanned outages? If outages occur frequently, you can benefit from having more than two target regions per balancing group. Otherwise, two target regions are usually sufficient.

You can set up each balancing group independently, with different balancing methods and ratios.

3. Is your system under virtual storage constraint? Do you need to add more users? If so, you should activate all of your target regions and balance by user count.

If your system has enough capacity to support all users most of the time, you may want to have one active and one passive region. Balance the load by the saturation method (See [page 6](#).)

4. If you have more than one active region, decide how to distribute the load between them. You can distribute the load in any proportion between regions. For instance, you can set up your active regions to handle an equal load, or you could set up one region to handle three quarters of the load and the other region to handle only one quarter. Any ratio is possible.
5. Will you benefit most from the standard or predefined sign on method? Refer to ["Signing On to the NSCR" on page 8](#) for more information.

Step 1: Create a PNAM File

The PNAM file contains default definitions for a load balancing system. These definitions are used to create a load balancing system each time you initialize NonStop CICS.

If you want, you can override PNAM parameters with online commands. The conditions set by online commands remain in effect until you cycle the Network Monitor or CICS. For information about online PNAM commands, see [“Running NonStop CICS”, beginning on page 55](#).

Three different PIE/CICS products use a PNAM file: Availability Plus, NonStop CICS, and NetGate. NonStop CICS should have its own PNAM file. Even if you are already running NetGate or Availability Plus, you must create a separate PNAM file for the NSCR.

Perform the following steps to prepare a PNAM file:

1. Create a sequential dataset or a partitioned dataset member.
You can use the sample PNAM file, member NSCPARM of the CNTL dataset. NSCPARM contains PNAM commands for different NonStop CICS scenarios.
If you create a new PNAM file, we recommend that you create a PDS so that you can edit it from ISPF without having to bring down CICS. The dataset must be fixed length with a logical record length of 80 bytes. The dataset can be blocked or unblocked.
2. Create a PNAM ADD GROUP statement for each balancing group.
Use information from [“PNAM Command”, beginning on page 22](#), .
3. Create a PNAM ADD APPLID statement for every target region.
Follow the procedures located in the section titled [“PNAM Command”, beginning on page 22](#).

PNAM Command

The PNAM command controls the NonStop CICS environment. You can enter PNAM commands by three different methods:

- CICS 3270-type terminal
- MVS console (F CICS , PNAM)
- PNAM file

For more information on submitting online PNAM commands, see [“Running NonStop CICS”, beginning on page 55](#).

PNAM Command Syntax

The PNAM command includes keywords and parameters. The same PNAM keywords and parameters are used for NonStop CICS, Availability Plus, and NetGate. The basic syntax of the command is shown in the following figure.

```
PNAM [REQUEST=] function [parameters]
```

PNAM must be the first word in the statement followed by at least one blank. The statement can contain comments and valid PNAM keywords and parameters.

After the PNAM keyword, specify a function keyword (for example, ADD, CHANGE, or CLOSE). If you specify the function immediately following the PNAM keyword, you may omit the REQUEST= portion and type the function keyword alone. If the function keyword appears later in the statement, you must use the entire REQUEST=**function** parameter.

You can include comment statements. Begin comments with an asterisk (*) in column 1. You may also insert lines blank to improve readability.

Separate parameters from each other with a comma or space. Separate parameters from values with equal signs.

```
GROUP=CICS1 , LIST=(TOR1 , TOR2)
```

If you are creating statements for the PNAM file, you may continue the statement on multiple lines. Do not include the PNAM keyword on your continued statements; only new parameters or keywords. The continuation ends when the next line begins with PNAM, an asterisk (*), or is blank.

Example of PNAM Syntax

```
PNAM ADD GROUP=CICS1,
        LIST=(TOR1 , TOR2 , TOR3) ,
        BALMETH=USER

PNAM ADD APPLID=TOR1 , PHYSID=ABCD , ...
* THIS IS A COMMENT STATEMENT.
```

The first PNAM ADD statement ends at the blank line.

Incorrectly coded statements are omitted when the PNAM command is processed. Errors are logged in the PIELOG file, which you can review with your JES output display utility (SDSF, IOF). After start-up is complete, NonStop CICS issues message PCNM046, indicating how many errors were encountered during processing.

PNAM Keywords

PNAM command has many functions. Most functions are intended for online use. Those functions and their related parameters are documented in [“Running NonStop CICS” on page 55](#).

Usually, you specify the ADD function in the PNAM file. The following sections show the format of the PNAM ADD command and its parameters. On rare occasions, you may want to place CHANGE or DELETE commands at the end of the PNAM file and process the changes with the PNAM SEQIN command. For information on these functions, see [“Running NonStop CICS” on page 55](#).

Define a Target Region

Using the following parameters, create one ADD APPLID statement for every target region. If the region is identified by more than one name (actual APPLID and aliases), create a separate ADD APPLID statement for each name.

To balance by user count, set up several active regions. That is, give each region an OBJUSER value that is greater than zero.

To balance by saturation:

- Define an active region and a passive region in the balancing group. That is, give one an OBJUSER value of zero and one an OBJUSER value greater than zero.
- Assign the maximum number of user to the active region using the MAXUSER keyword.

```
PNAM [REQUEST=]ADD APPLID=applid,  
                  [PHYAPPLD=applid,]  
                  OBJUSER=nnnnnn  
                  [,MAXUSER=nnnnnn]  
                  [,DESC=comment]
```

REQUEST	Type of function being processed. If ADD is the first parameter, REQUEST is optional. For example, PNAM REQUEST=ADD can also be entered as PNAM ADD.
ADD	Adds the region defined with the following parameters to the NonStop CICS environment.
APPLID	Name of the target region. You can specify either the region's APPLID or an alias.
PHYAPPLD	If you specified an alias for the APPLID parameter, specify the region's actual APPLID with the PHYAPPLID parameter. PHYAPPLID associates the region's alias to its actual name.

OBJUSER Defines what portion of users are assigned to this region. The numbers work like “parts” in a mixture. For instance, if you have two regions in a group, you could assign 1 (one part) to one region and 1 to the other. Then each region would handle half the users. If you assigned 3 parts to the first and 1 part to the second, the first would handle three quarters of the total users. The second would handle only one quarter. It doesn't matter how large the numbers you assign are. Only the ratio between the numbers matters.

☞ To make a region passive, specify 0. Any value greater than zero makes the region active.

MAXUSER Maximum number of concurrent users that can be logged on to a region. When the maximum number is reached, NonStop CICS removes the region from the routing system. As soon as the region drops below this number of users, NonStop CICS reinstates the region to the routing system. To inactivate MAXUSER, specify 0. This option can be helpful when you have regular trouble with short on storage conditions. Since every user takes up virtual storage space, limiting the number of users allowed on a region can help to prevent future SOS conditions.

DESC Description of the region being defined. You can specify a description or status message. If you code it, code it last in the region's definition. You may display this description with the `PIE/CICS &ZAPPL(applid)` variable. For information on this variable, see the *PIE/CICS Command Reference*.

The following table summarizes the characteristics of parameter values that are normally used with the PNAM ADD to define a target region

Parameter	Valid Values	Default
APPLID	1 to 8 -characters	None
PHYAPPLD	1 to 4- characters	APPLID
DESC	1 to 32-characters	None
OBJUSER	0 to 999999	1
MAXUSER	0 to 999999	0

Create a Balancing Group

Using the following parameters, create one ADD GROUP statement for each balancing group. You can use aliases to identify target regions (see [“Define a Target Region” on page 24](#)).

```
PNAM [REQUEST=]ADD GROUP=groupname,
      LIST=(applid,applid,...,applid),
      BALMETH=USER
```

- REQUEST** The type of function being processed. If ADD is the first parameter, REQUEST is optional. For example, PNAM REQUEST=ADD could also be entered as PNAM ADD.
- ADD** Adds the group defined with the following parameters to the NonStop CICS environment.
- GROUP** Defines a group of target regions. Specify the name of the group.
- LIST** Defines which target regions belong to the group. Specify the APPLIDs of all target regions in the group. You may specify up to 100 regions, in any order.
- If you are using more than one balancing group, you may use the same target region in any number of groups. If you want to create one set of characteristics for a region in one group and another set of characteristics for the same region in another group, you must assign the region a different alias for each group. In this case, specify the region's alias, rather than its APPLID, in this list.
- BALMETH** Balancing method applied to the group. Only USER is acceptable.
- The following table summarizes the characteristics of parameter values that are normally used with the PNAM ADD to create a balancing group.

Parameter	Valid Values	Default
GROUP	1 to 8- characters	None
LIST	1 to 8- characters for each alias	None
BALMETH	USER	None

Define the INQUIRE Time-out Period

Network Monitor uses the VTAM INQUIRE command to obtain the status of target regions. Network Monitor INQUIRES are asynchronous to prevent the Network Monitor from halting and waiting for a response from a region in another VTAM domain if it does not respond.

The Network Monitor waits for a response for the specified INQUIRE time-out period. If no response is received within this period, then:

- A message is written to the console:

```
#PNDM038.MON034 VTAM INQUIRE pending for 'APPLID' for over 'nnnn'
seconds, APPLID now disabled for INQUIRES
```
- The APPLID is marked "inquire pending" and no more INQUIRES are issued for it. When the problem in the region has been corrected, you must reset the APPLID for further inquiries. See ["Managing Region Outages" on page 104](#) of the *PIE/CICS Operation and Administration Guide*, for instructions.

Use the TIMEOUT keyword with the PNAM command to set the timeout limit of a VTAM INQUIRE command.:

```
PNAM SET,TIMEOUT=nnnn
```

TIMEOUT	Maximum time in seconds to wait for an INQUIRE response from an application. If there is no response within the timeout period, the Network Monitor enters an inquire pending wait state. The minimum value is 10 seconds. The default is 60.
---------	---

PNAM Command Usage

The following examples show typical PNAM commands to define balancing groups.

EXAMPLE 1: Define a Balancing Group of Two Active Regions

The following PNAM commands define one balancing group named BESTTOR. It contains two regions, called CICSTOR1 and CICSTOR2. Both regions are defined by ADD APPLID statements. The OBJUSER value is the same for both regions; both regions support an equal number of users.

```
PNAM ADD GROUP=BESTTOR,LIST=(CICSTOR1,CICSTOR2),BALMETH=USER
PNAM ADD APPLID=CICSTOR1,OBJUSER=50
PNAM ADD APPLID=CICSTOR2,OBJUSER=50
```

EXAMPLE 2: Define a Balancing Group Consisting of an Active and Passive Region

This example defines the same group and regions as Example 1. However, CICSTOR2 is passive, because its OBJUSER value is 0. CICSTOR1 handles all users under normal conditions.

```
PNAM ADD,GROUP=BESTTOR,LIST=(CICSTOR1,CICSTOR2),BALMETH=USER
PNAM ADD,APPLID=CICSTOR1,OBJUSER=50
PNAM ADD,APPLID=CICSTOR2,OBJUSER=0
```

Step 2: Set up NonStop CICS Options in PIE/CICS

This step explains how to set up NonStop CICS options in PIE/CICS using the PIE/CICS License and Customization Options screens.

This section explains the update process only. See [“Customization Options” on page 65](#) of the *PIE/CICS Customization Guide*, and [“Enter PIE/CICS License Information” on page 14](#) of the *PIE/CICS Installation Guide* for information about completing the initial PIE/CICS customization.

Update changes become effective when you cycle CICS. You will be cycling CICS later in the implementation process.

The customization screens update an options control dataset identified by the PC@OPTS ddname. The installation procedure creates a unique options control dataset for the NSCR. Do not share an options control dataset between the NSCR and other PIE/CICS regions.

1. Start the NSCR.
2. Log on to the NSCR and enter the PIE transaction to start PIE/CICS. The LICENSE screen appears after entering the PIE transaction.

License information is contained in the letter that accompanied your PIE/CICS tape. If you do not have the letter, call UNICOM Systems, Inc. Customer Service to obtain new product license information.

3. Enter your CPU ID, expiration date, and password in the appropriate fields of the LICENSE screen.
4. For `Activate Password`, specify YES.
5. For `Number of Users`, specify zero, to allow an unlimited number of users.
6. Place a Y next to the PIE/CICS components licensed at your site.
7. Press PF5 to save your changes and PF3 to exit.

This initializes PIE/CICS and presents the Logon Director screen.

8. Enter your user ID and password.

You will be presented with the PIE/CICS master menu.
9. Select the System Administration menu. Then select Option 10: OPTIONS from the PIE/CICS System Administration menu.

The Customization Options screen (page 1) will be displayed.

10. Set the following options.

```
Temp storage name substitution—NO  
MR0/ISC support—NO  
Temp storage on auxiliary—NO
```

`Transient TCTTEs`—NO for best performance. However specify YES for virtual storage constraint relief if you have a lot of terminals and running CICS 3.1 or below. If you use your own auto-install program, determine whether it generates the same CICS terminal ID for a given nodename. If it does not, you must specify NO.

```
Automatic PIE GMM Tran—YES
```

11. Press PF8 to access page 2. Set the following option.

Dynamic Trans Routing—NO

12. Press PF5 to save your changes and PF3 to exit.

Customization Options Screen 1

```

PIE Customization Options (page 1 of 2)----- (C) 1995 TSC, Inc
Command ==>

Maximum logon attempt count . . . . 8                      Version 03.01.00
Avg No. of Concurrent Users . . . . 1                      Date 10/04/96
TSWITCH Auto-Signon Timeout . . . . 1 (Minutes)           Jul 96.278
Avg No. of Sessions per User . . . . 1                      APPLID CICSPROD
Temp storage name substitution . . . YES
MRO/ISC Support . . . . . FUL
Temp Storage on Auxiliary . . . . . YES
Name of Logon Director Help . . . . HELPHelp
Transient TCTTE's . . . . . YES
AOR AE/ATI support-1 byte field . . 4 (decimal offset in the TCT user area)
Create Tctte Extension . . . . . YES
or Use 4 byte field at . . . . . (decimal offset in the TCT user area)
Temp Storage Queue Prefixes . . . . ZZZ
Load Balancer 16 byte field at . . . 5 (decimal offset in the TCT user area)
Automatic PIE GMM Tran . . . . . YES
Message Destination Id . . . . . PIEL
Auto-start Network Monitor . . . . . NO

INSTRUCTIONS: Enter Down command for more options

PF: 1 Help 3 End 5 Save 6 RETRIEve 7 Up 8 D0wn 9 Delete

```

Customization Options Screen 2

```

PIE Customization Options (page 2 of 2)----- (C) 1995 TSC, Inc
Command ==>

Signon Message Display Time . . . . 2 (Seconds)           Version 03.01.00
Auto-start Terminal Security Monitor NO ←
Removeable Token Delimiters . . . . /- ←
Terminal Alarm on Cut/Paste . . . . YES                    Date 10/04/96
MVS Loaded Programs DDNAME . . . . DFHRPL ←                Jul 96.278
Dynamic Transaction Routing . . . . YES ←                    APPLID CICSPROD
Menu Security Re-check interval . . 60 (Minutes)
Menu Line Security Option . . . . . OMIT (OMIT|PROT) ←
Menu Auto-select Single line . . . . YES
Limit Transactions to One Session. . YES
Handle Unavailable Printer in NEP . . NO
Tranid Validation by Session Mgr . . NO
Extract VTAM Logonmsg by Logon Dir . YES
Multi-Language Characters . . . . .
-MRO API, use 1 byte field at . . . (decimal offset in the TCT user area)

```

Step 3: Modify the Terminal Directory

This step updates the NSCR's Terminal Directory. As with most steps in this chapter, these instructions contain only the basic requirements for NonStop CICS implementation. For more information about the Terminal Directory, see ["Terminal and User Directories" on page 43](#) of the *PIE/CICS Customization Guide*.

Modifying the Terminal Directory, User Directory, and user profiles updates the Repository dataset, identified by the PC@REPS ddname. The installation procedure creates a unique repository dataset for the NSCR. Do not share a repository dataset between the NSCR and other PIE/CICS regions.

For Predefined Sign ons

With this procedure, all users are signed on to the NSCR "generically" with the same user ID and password. Users must enter their actual user IDs and passwords when they are routed to the target region.

1. If you are not already there, access the System Administration menu in the NSCR. (To access the System Administration menu, enter PEXE MENU PIEMADM from an NSCR blank screen.)
2. Select Option 2: TERMINAL - Update Generic Terminal Directory.
3. Move the cursor to the command area of the first line with a terminal named * (asterisk). Type **R** and press ENTER. Now you have two asterisk entries.
4. In the first asterisk entry, change the asterisk to your current real VTAM node name (terminal ID).

This entry allows you to gain access to PIE/CICS menus from the NSCR from this terminal. When you sign on from this terminal, you will be presented with the PIE/CICS master menu. You may find it helpful to create more system administrator terminal entries before the asterisk entry.

5. In the second asterisk entry, leave the asterisk and add—

- Userid: PIEUSER
- Password: PIEUSER
- Logon: (NONE)

(Type (NONE) for Logon, just as shown.)

The asterisk entry defines all terminals accessing PIE except those listed before it. With your changes, PIE/CICS will now automatically sign all regular users on to PIE without displaying the Logon Director screen.

6. Press PF3 to exit.

Example of the Generic Terminal Directory Screen

```

PIE Generic Terminal Directory----- (c) TSC, Inc. 1987
Command ==>                               Scroll ==> CUR
...Terminal Userid..Password Logon.. Logoff PIE Dial Opt SLM TRM RST Updated.
___(MODEL)                                PIELMAIN USE   YES NO   FUL NO   FUL NO
___TERM4B5
___*          PIEUSER PIEUSER  (NONE)
___**END**

```

```

PF:  1 HELp   3 ENd   4 RETUrN   7 UP   8 DOWn

```

For Standard Sign ons

With this option, users sign on to the NSCR using PIE/CICS Logon Director. PIE/CICS passes their user IDs and passwords to the target region, so they don't have to sign on twice. (Automatic sign on in the target region is set up in the user profile, which you will be updating later in this chapter.)

1. If you are not already there, access the System Administration menu in the NSCR. (To access the System Administration menu, enter PEXE MENU PIEMADM from an NSCR blank screen.)
2. Select Option 2: TERMINAL - Update Generic Terminal Directory.
3. Verify that the Terminal Directory displayed matches the example below (which contains only defaults).
4. If you want, you can modify the Logon Director screen to display your company's logo instead of the PIE logo. Refer to ["Logon Director" on page 3](#) of the *PIE/CICS Customization Guide* for information about changing the appearance of the screen.

- Then, identify the screen in the terminal directory to put it into service. Move the cursor to the line containing Terminal * (asterisk). Change PIELMAIN to the name of your modified screen.

```
PIE Generic Terminal Directory-----(c) TSC, Inc. 1987
Command ==>                               Scroll ==> CUR
...Terminal Userid..Password Logon... Logoff PIE Dial Opt SLM TRM RST Updated.
___(MODEL)                                PIELMAIN USE  YES NO  FUL NO  FUL NO
___*                                       PIELMAIN
**END**

PF:  1 HELp    3 ENd    4 RETUrn    7 UP    8 D0wn
```

- Press PF3 to exit.

Step 4: Define Profiles

User profile settings specify where users are routed after they log on to the NSCR, when they log off, or their destination after a region failure.

This step explains how to customize PIE/CICS profiles to work with NonStop CICS. For more information about user profiles, see ["Profiles" on page 29](#) of the *PIE/CICS Customization Guide*.

PASS and TSWITCH Commands

Users are routed to their target regions with a CLSDST PASS (close destination and pass) operation. Instead of using the CICS version, NonStop CICS has its own CLSDST PASS commands, called PASS and TSWITCH. With NonStop CICS PASS and TSWITCH, the user is

- signed off PIE/CICS in the NSCR
- disconnected or logged off the NSCR
- logged on to the target region

In addition, you can pass sign on data to the target region with PASS and TSWITCH commands. For example, you can send the user ID, password, initial transaction, or PIE profile (if you are sending to another PIE/CICS region). Sign on data is passed in the VTAM Logon Message.

Command Syntax

Use the PASS command when you are running NonStop CICS using predefined sign ons. With PASS, when a user logs off or the region crashes, they are routed to the VTAM logo screen; the starting point for the sign on process

```
PASS group-name
```

Use the TSWITCH command when you are using the standard logon method. When the user logs off a region or the region crashes, they are routed to the Logon Director in the NSCR. This method eliminates the extra step of logging on to VTAM..

```
TSWITCH group-name [&ZUSER[/&ZPSWD]]
```

- | | |
|-------------------|---|
| <i>group-name</i> | Name of a NonStop CICS balancing group. When users assigned to this profile log on, NonStop CICS sends them to one of the regions defined to this balancing group. Specify the name of a balancing group you defined in the PNAM file. (If you want, you can specify an APPLID or an alias APPLID to send the user to a particular region.) |
| &ZUSER | ID variable of the user transferring to the target region. |

&ZPSWD Password variable of the user transferring to the target region. The following table shows acceptable values associated with parameters that are normally used with the PASS and TSWITCH commands

Parameter	Valid Values	Default
group-name	1 to 8 -characters	None
&ZUSER	None	None
&ZPSWD	None	None

Updating Your Profile

1. Access the System Administration menu in the NSCR.
Enter PEXE MENU PIEMADM from an NSCR blank screen to access the System Administration menu.
2. Select Option 8: PROFILE - List/Edit Profiles.
3. Place the cursor in the command area of the SYSTEM.USER profile. Type an S and press ENTER.
4. Place the cursor next to the PIE profile name field and change USER to any unique profile name. We suggest PREDEF for predefined sign ons or STANDARD for standard sign ons.

You can associate profile names to the user groups you have set up in your security system. For instance, if you are using RACF and you have a group of users called PAYROLL, you can create a profile called PAYROLL to reference all the users in the RACF PAYROLL group. This minimizes updates to the PIE/CICS User Directory. To implement this, modify the Post Sign on Initialization exit, PUXINIT. For more information on this exit, see the *PIE/CICS Customization Guide*.

```

PIE Profile (SYSTEM.PREDEF)----- (c) TSC, Inc. 1987
Option  ===>
Profile saved as SYSTEM. PREDEF                Update History
  1 Terminal - Specify Terminal Characteristics      Name: SD080BB
  2 Defaults - Specify defaults for PIE (reserved)  Term: PIE10002
  3 Keys    - Specify Global PIE keys              Date: 09/24/92
  4 Sessions- Specify Sessions Configuration       Time: 19:53:37

PIE profile group  ===> SYSTEM
PIE profile name   ===> PREDEF
PIE profile title  ===> Sample user profile

Default Application ===>
Initial PIE command ===> PASS/TSWITCH group-name
Final PIE command  ===> EXIT LOGOFF/SIGNOFF

Administrator ===> *           Terminal ===> *
Auditor         ===> *           Terminal ===> *
Generic forms, ?, % and * characters are accepted above.
    
```

5. Move the cursor to Initial PIE command and make the appropriate change.
 - For predefined sign ons: PASS group-name
 - For standard sign ons: TSWITCH group-name &ZUSER/&ZPSWD
 Supply the name of a balancing group you defined in the PNAM file.
6. Move the cursor to Final PIE command and make the appropriate change.



- For predefined sign ons: EXIT LOGOFF
 - For standard sign ons: EXIT SIGNOFF
7. Move the cursor to `Option`, type 1 and press ENTER. The Terminal Characteristics screen will be displayed.
 8. Change all options to match those in the following screen.

```

PIE Profile Terminal Characteristics----- (c) TSC, Inc. 1987
Command ==>

PIE Escape String   ==>                (1-5 char, start at 2nd position)
Command Delimiters ==>                (Characters for command stacking)
Titles display     ==> YES             (YES - display titles)
Message ID         ==> NO              (Yes - display message ID)
SYSTEM END Key     ==>                (PF01-PF24, PA01-PA03, CLEAR)
SYSTEM END Key     ==>                (PF01-PF24, PA01-PA03, CLEAR)
Scroll Default     ==> CURSOR         (Page, Data, Half, Cursor are valid)

INSTRUCTIONS:

Press ENTER key to update terminal option
Enter END or RETURN Command to update terminal options and exit
PF: 1 HELp  3 ENd  4 RETUrN  5 Save

```

9. Press PF3 to return to the PIE Profile screen.
10. Type 3 in the `Option` field and press ENTER. The PIE Profile Global Keys screen will be displayed.
11. Verify that all PF and PA keys are blank.
12. Press PF8 to access page 2 of the Global Keys screen.
13. Verify that all options are blank.
14. Press PF3 to return to the PIE Profile screen.
15. Type 4 in the `Option` field and press ENTER. The Profile Sessions Configuration screen will be displayed.
16. Verify that the `Name` and `Execute` fields are blank for all sessions.
17. Press PF8 to access page 2 of the Profile Sessions Configuration screen.
18. Verify that all `Name` and `Execute` fields are blank.
19. Press PF3 to return to the PIE Profile screen and press PF5 to save your changes.
20. If you have more than one balancing group defined in your PNAM file, change the profile name displayed on the PIE Profile screen and repeat steps 5 through 19 for all remaining groups.
21. Press PF3 twice to return to the Systems Administration menu.

Step 5: Modify the User Directory

This step customizes the NSCR's User Directory. For more information, see ["User Directory" on page 52](#) of the *PIE/CICS Customization Guide*.

You can minimize updates to the User Directory by associating profile names to the user groups you have set up in your security program. For instance, if you are using RACF and you have a group of users called PAYROLL, you can create a profile called PAYROLL to reference all the users in the RACF PAYROLL group. To implement this, modify the PIE/CICS Post Sign on Initialization exit, PUXINIT. For more information on this exit, see the *PIE/CICS Customization Guide*.

For Predefined Sign ons

1. If you are not already there, access the System Administration menu in the NSCR. (To access the System Administration menu, enter PEXE MENU PIEMADM from an NSCR blank screen.)
2. Select Option 3: USER - Update Generic User Directory.
3. Place the cursor in the command area in front of the first * (asterisk) entry. Type R and press ENTER. Now you have three asterisk entries.
4. Change the first asterisk line to User id : PIEU*.

```

PIE Generic Users Directory----- (c) TSC, Inc. 1987
Command ==>                               Scroll ==> CUR
...Userid.. Terminal Password Groupid MenuName Profile Updated.
___(MODEL) (MODEL) (MODEL) PIEMMAIN USER
___PIEU* * * PIEMADM ACCOUNT 05/24/92
___* * * PIEMADM ACCOUNT 05/23/92
___* * * PIEMMAIN USER 05/23/92
**END**

PF: 1 HELp 2 SELECT 3 ENd 4 RETUrN 7 UP 8 DOWn
    
```

5. Type S in the command area of this line and press ENTER. The Generic User Directory entry is displayed.
6. Set all attributes as shown in the sample screen below. Be sure to specify:
 - Profile name: PREDEF (or the name of the profile you created in the previous step)



- Alloc Disc: A

```

Update History
Userid      ==>  PIEU* System Admin ==>N (Y/N)      Name:  SD080BB
Terminal    ==>  *   Userid Type  ==>S (U/R/S)      Term:  PIE10002
Password    ==>  *   (Unique, Reusable, Shared)    Date:  06/02/93
                                                    Time:  19:53:37

Generic forms, ?, % and * characters are accepted above.

RESOURCES:
Groupid     ==>
User Data   ==>
Menu        ==>
Profile     ==>  PREDEF
Bulletin    ==>  PIEBMAIN
Help desk ID ==>

FEATURES:
Group Administrator ==>  N   (Y/N)
Lock Timeout       ==>  0   (Min)
Display Signon Msg ==>  N   (Y/N)
Log Signon Msg     ==>  N   (Y/N)
Allow Disc Status  ==>  A   (Y/N/A)
Allow Session Cancel ==>  Y   (Y/N)
Maximum Sessions   ==>  1   (1-12)
Private Profile     ==>  N   (Y/N/O)
Security Classes    ==>          (0-7)
Language           ==>
TSM Timeout        ==>          (Y/N)
Receive SuperMessage ==>          (Y/N)

PF: 3  ENd      4  RETURN
    
```

 **WARNING**

Any user ID that does not start with PIEU is a system administrator when you use the predefined sign on method. That is, if anyone supplies his or her user ID when logging on to the NSCR from VTAM and that user ID does not begin with PIEU, that user has access to the PIE/CICS menus.

To change this, change the asterisk in the first asterisk entry in the User Directory to a specific user ID. To add more system administrator IDs, copy this line by typing **R** in the command line of this entry and pressing ENTER.

7. Press PF3 twice to save the changes, return to the System Administration menu, and exit.



For Standard Sign ons

1. If you are not already there, access the System Administration menu in the NSCR. (To access the System Administration menu, enter PEXE MENU PIEMADM from an NSCR blank screen.)
2. Select Option 3: USER - Update Generic User Directory.
3. Make a list identifying all PIE/CICS system administrators. Make another list identifying all NonStop CICS end users.

(When a system administrator signs on, he or she will stay within the NSCR to perform maintenance using PIE/CICS utilities. When end users sign on to the NSCR, they are instantly routed to a target region.)

4. You have two (*) asterisk entries. The first is an administrator entry, the second a user entry. Change the user ID in the administrator to a system administrator user ID.

```

PIE Generic Users Directory----- (c) TSC, Inc. 1987
Command ===>                               Scroll ===> CUR
...Userid..Terminal Password Groupid MenuName Profile Updated.
___(MODEL) (MODEL) (MODEL) PIEMMAIN USER
___SP001 * * * PIEMADM ACCOUNT 05/24/93
___* * * PIEMMAIN USER 05/23/93
**END**

PF: 1 HELp 2 SELEcT 3 ENd 4 RETUrN 7 UP 8 DOWn
    
```

5. Type S in the command area of this line and press ENTER. Verify that the detail entry has System Admin: Y. Press PF3 to exit back to the User Directory list.
6. If you have another administrator, place the cursor in the command area in front of the administrator entry, type R, and press ENTER. This will create another, identical entry. Type the administrator's user ID in the User id field. Repeat this step until you have defined all your system administrators.
7. Move the cursor to the command area of the remaining asterisk entry and press ENTER. Set all attributes as shown in the screen on the following page. Be sure to specify—
 - Profile: STANDARD (or the name of the profile you created in the previous step)
 - Allow Disc: N



```

PIE Generic Users Directory Entry----- (c) TSC, Inc. 1987
Command ==>

Userid      ==> PAYR* System Admin ==>N (Y/N)      Update History
Terminal    ==> *   Userid Type   ==>S (U/R/S)     Name: SD080BB
Password    ==> *   (Unique, Reusable, Shared)    Term: PIE10002
                                                    Date: 06/02/93
                                                    Time: 19:53:37

Generic forms, ?, % and * characters are accepted above.

RESOURCES:                                     FEATURES:
Groupid     ==>                                     Group Administrator ==> N (Y/N)
User Data   ==>                                     Lock Timeout        ==> 0 (Min)
Menu        ==>                                     Display Signon Msg  ==> N (Y/N)
Profile     ==> STANDARD                               Log Signon Msg      ==> N (Y/N)
Bulletin    ==> PIEBMAIN                               Allow Disc Status    ==> N (Y/N/A)
Help desk ID ==>                                     Allow Session Cancel ==> Y (Y/N)
                                                    Maximum Sessions    ==> 1 (1-12)
Printer Id  ==>                                     Private Profile      ==> N (Y/N/0)
Alt Printer ==>                                     Security Classes     ==> (0-7)
                                                    Language            ==>

PF: 3  ENd      4  RETURn
    
```

8. Press PF3 twice to save the changes, return to the System Administration menu, and exit.



Step 6: Check Network Monitor Options

The Network Monitor refers to an options table to determine how certain tasks are completed. The default settings of the table are appropriate for most installations. However, you should review the defaults set in the options table to determine if any changes are necessary for your installation. Refer to ["Changing Network Monitor Conditions with the Options File"](#) on page 123 of the *PIE/CICS Customization Guide* for details.

Step 7: Create Duplicate Target Regions

1. Create your duplicate target regions. Be sure the names you gave these regions in the PNAM file match the names you give them here.
If you are using MRO, define your duplicate TORs to your AORs with RDO SESSIONS and CONNECTION definitions.
2. If you are installing PIE/CICS Availability Plus, do so now. For instructions, see the *PIE/CICS Availability Plus Administration Guide*. If you install Availability Plus or if you are using the predefined sign on method, you may skip to [“Step 9: Performance and Testing,”](#) on page 45.

Step 8: Special Standard Sign on Procedures (Optional)

This step is required only if you are using the standard sign on method. This procedure implements the PIE/CICS Logon Director in every target region, a requirement for standard sign ons.

Perform the following steps in every target region.

1. If you do not already have a PIE/CICS component working in this region, refer to the *PIE/CICS Installation Guide* and perform steps 4 and 5. If PIE/CICS is already running in the region, go on to [“Other CICS Table Changes” on page 43](#).
2. Update the PLT to start PIE/CICS automatically. You may use member PIEPLT of the CNTL dataset.

It is **not** necessary to un-comment the PCNMPINI entry. This entry is for the Network Monitor, which does not need to run in target regions unless you are also running Availability Plus or NetGate. Furthermore, if you want to turn on the Network Monitor in a target region, you should use the PIE/CICS Customization Options screen and have PIE/CICS turn it on automatically.

```
PLT Entry
DFHPLT TYPE=INITIAL,SUFFIX=A1
DFHPLT TYPE=ENTRY,PROGRAM=PCSMPI
```

Other CICS Table Changes

Perform the following steps in every target region.

1. Ensure that each target region's DFHSIT table specifies LGNMSG=YES.
2. Check the RELREQ option in your terminal entries:
 - If you assemble the TCT off-line, the RELREQ option is in the DFHTCT TYPE=TERMINAL macro. RELREQ's first parameter should be NO. For example:
RELREQ=(NO,YES)
 - If you use the CEDA transaction to define your terminals, the RELREQ option is in the TERMTYPE resource type. For all terminals accessible from PIE/CICS, specify RELREQ=NO.

Setting RELREQ to NO prevents terminals from being released when they are requested by another VTAM application.

3. Reassemble your tables and recycle your target regions.

Implement the GMM in Target Regions

Complete the following procedure in every target region, or share the same options control file among all target regions. (To share an options control file, define the file—ddname PC@OPTS—as read/write in one region. Then define the file as read only in all other regions. If you are using RDO to define the file as read only, specify NO for Operations: Add, Delete, and Update.)

1. If you are not already there, access the System Administration menu in the target region. (To access the System Administration menu, enter PEXE MENU PIEMADM from a blank screen in the region.)
2. Select Option 10: OPTIONS from the PIE/CICS System Administration menu. The Customization Options screen (page 1) will be displayed.
3. Press PF8 to access page 2.
4. Set **Automatic PIE GMM Tran** to YES.
5. Press PF5 to save your change and PF3 to exit.

For more information about PIE/CICS customization options, see ["Customization Options" on page 65](#) of the *PIE/CICS Customization Guide*.

Set Up Your Profile

The PIE/CICS "good morning transaction" must execute before any other good morning transaction in use at your site. The last step initiated the PIE/CICS' good morning transaction. This step specifies that PIE/CICS executes your transaction immediately after its own.

1. Access the System Administration menu in the target region. (To access the System Administration menu, enter PEXE MENU PIEMADM from a blank screen in the region.)
2. Select Option 8: PROFILE - List/Edit Profiles.
3. Place the cursor in the command area of the SYSTEM.USER profile. Type **S** and press ENTER.
4. Move the cursor to **Initial PIE command** and type `SYSTEM CMD xxxx`, specifying the name of your good morning transaction. Example:

```
Initial PIE command: SYSTEM CMD CSGM
```

5. Move the cursor to **Final PIE command** and type `EXIT LOGOFF`.
6. Press PF5 to save your changes and PF3 to exit.

Step 9: Performance and Testing

Transaction rates and the number of concurrent users usually increase dramatically when you move from a test environment to a production environment. So, for maximum performance in your production environment, we recommend that you perform the following before you put NonStop CICS into production.

1. Contact UNICOM Systems, Inc. Customer Services to determine if any PIE/CICS "HIPER" PTFs need to be applied.
2. Restart the NSCR.
 - a. Check your console log for the NonStop start-up message, PCNM046. It specifies how many errors were encountered when the PNAM file was read.
 - b. If you have errors, check the PIELOG file. It will give a more detailed explanation of where errors were found. You may use your JES output display to view the PIELOG file.
 - c. Correct your errors.
 - d. To put your corrections into effect enter `PNAM STOP` and `PNAM START` on the console.
 - e. Recheck message PCNM046 on the console.
 - f. Sign on to the NSCR as an administrator. Do one of the following:
 - If you are using standard sign ons:
Sign on using a system administrator user ID, as defined in the NSCR's Generic User Directory.
 - **If you are using predefined sign ons:**
Sign on from the terminal ID specified as the system administrator terminal in the NSCR's Generic Terminal Directory.
 - **If you are using predefined sign ons:**
Pass your user ID to the NSCR when you log on from VTAM. For example, enter `LOGON APPLID=NSCR, DATA=JSMITH`.
See ["Step 5: Modify the User Directory," on page 36](#), and ["Step 3: Modify the Terminal Directory," on page 30](#), for more information.
 - g. Use the Group List utility to ensure that your groups and target regions are defined correctly. To do so, from a blank CICS screen enter `PEXE LIST BAL`.
For more information on the Group List utility, see ["PIE/CICS List Utilities" on page 56](#).
3. Log on to the NSCR as a regular user from several terminals. Check to see that these logons are active in PIE/CICS. To do so, from a CICS screen enter `PEXE LIST USER` to view the User List utility.

If there are no users logged on, check your PIE/CICS Customization Options screens and make sure you set up NonStop CICS options correctly.
If you have to make a correction, re-cycle CICS and check the User List again.
For more information on the User List utility, see ["User List" on page 63](#) of the *PIE/CICS Operation and Administration Guide*.
4. Sign on several users to test load balancing. Check your Group List utility (the `Us r s` heading) to make sure that users are being routed according to your plan.

You may simulate having more users on the system with the `PNAM CURUSER`

parameter. For instance, to simulate 500 users on TOR1, enter
PNAM CHANGE,APPLID=TOR1,CURUSER=500

from the console or a CICS blank screen. For more information on the CURUSER parameter, see [“PNAM Online Functions”](#), beginning on page 105 of the *PIE/CICS Operation and Administration Guide*.

Step 10: Divert Logons to the NSCR

Users have to log on to the NSCR to be rerouted by NonStop CICS. You can divert the logons users are currently using to the NSCR so that no user retraining is required.

For each target region, use one of the following methods to route current logons to the NSCR:

- Change the VTAM USSTAB command to point to the NSCR.
- Use a VTAM USERVAR command to point the USSTAB command to the NSCR.
- Have VTAM "LOGAPPL" user terminals to the NSCR.
- If you are using a VTAM menu to access the region, change the menu application to access the NSCR.

Step 11: Recycle Your CICS Regions

To put NonStop CICS into production and to implement all your changes, recycle all your target regions and the NSCR. Make the NSCR available last.

Case Studies

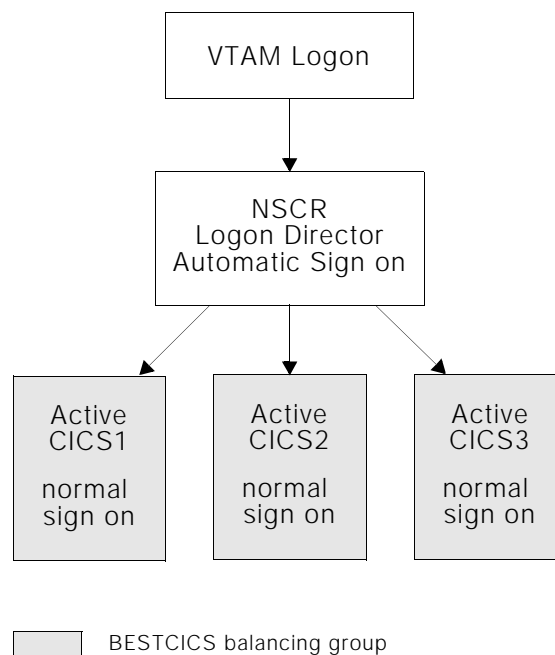
Case Study 1: Using All Active Regions and Predefined Sign ons

We are running CICS without MRO with one standalone CICS region—named CICS1. We want:

- to increase the number of regions to three
- all three regions to serve the same users
- to distribute the user load evenly among the regions
- users to continue using their current sign on procedures

To do this, we add two regions and create one balancing group to handle all three regions—we'll call it BESTCICS. We make all three regions active and give them the same balancing value.

To continue using the same sign on procedures, we set up predefined sign ons.



The figure above shows what our new system will look like.

Implementation

To set up this system, we create our NSCR and install NonStop CICS with either of the installation procedures in [See page 11, "Installing the NSCR"](#). Then we perform the following steps.

☞ The following step numbers correspond to the step numbers for the implementation procedure. The page numbers in parentheses refer to the starting page number for each step. Detail is given only for those steps whose input is different for each case study. Other steps are only stated briefly.

1. Create PNAM file and statements. Our file looks like the following:

```
PNAM ADD GROUP=BESTCICS,LIST=(CICS1,CICS2,CICS3),BALMETH=USER
PNAM ADD APPLID=CICS1,OBJUSER=50
```



```
PNAM ADD APPLID=CICS2,OBJUSER=50
PNAM ADD APPLID=CICS3,OBJUSER=50
```

This file sets up one balancing group called BESTCICS, which lists all three target regions. The ADD APPLID statements define each of those target regions. All OBJUSER values are greater than zero, so all regions are active. The OBJUSER is the same for all, so all receive the same load.

2. Set up NonStop CICS options in PIE/CICS ([page 28](#)).
3. Modify the Terminal Directory to set up predefined sign ons ([page 30](#)).

Our Terminal Directory screen looks like the following. We have inserted an entry for our VTAM terminal ID above the asterisk entry, and we have added a user ID and password of PIEUSER and a logon of (NONE) to the old asterisk entry. All users will be signed on with PIEUSER, PIEUSER.

```
PIE Generic Terminal Directory----- (c) TSC, Inc. 1987
Command ==>                               Scroll ==> CUR
...Terminal Userid..Password Logon... Logoff PIE Dial Opt SLM TRM RST Updated.
___(MODEL)                               PIELMAIN USE   YES NO   FUL NO   FUL NO
___TERM4B5                               05/24/93
___*   PIEUSER PIEUSER (NONE)            05/24/93
___**END**
```

PF: 1 HELp 3 ENd 4 RETUrN 7 UP 8 DOwn

4. Define the profile ([page 33](#)). Since we only have one balancing group, we only need one profile. We change the SYSTEM.USER profile to SYSTEM.PREDEF. We change the **Initial PIE command** field to PASS BESTCICS to route users to our BESTCICS balancing group. (We use the PASS command because we are implementing predefined

sign ons.) Then we change the Final PIE command field to EXIT LOGOFF.

```

PIE Profile (SYSTEM.PREDEF)----- (c) TSC, Inc. 1987
Option  ==>
Profile saved as SYSTEM. PREDEF
          1 Terminal - Specify Terminal Characteristics
          2 Defaults - Specify defaults for PIE (reserved)
          3 Keys     - Specify Global PIE keys
          4 Sessions- Specify Sessions Configuration
Update History
          Name: SD080BB
          Term: PIE10002
          Date: 06/02/93
          Time: 19:53:37

PIE profile group  ==> SYSTEM
PIE profile name   ==> PREDEF
PIE profile title  ==> Sample user profile

Default Application ==>
Initial PIE command ==> PASS BESTCICS
Final PIE command  ==> EXIT LOGOFF

Administrator ==> *           Terminal ==> *
Auditor       ==> *           Terminal ==> *
Generic forms, ?, % and * characters are accepted above.

PF: 1 HELp  3 END  4 RETUrN  5 SAve  6 RETRIEve  9 DElete
    
```

5. Modify the User Directory ([page 36](#)). We change the first asterisk entry to an administrator ID. Next we change the remaining asterisk entry to User id PIEU*. Then we change the User Directory entry to specify the PREDEF profile and Alloc Disc A.
6. Check the start-up options ([page 41](#)).
7. Create the duplicate regions, CICS2 and CICS3 ([page 42](#)).
8. (Skip the special standard sign on procedures.)
9. Enhance performance and test the system ([page 45](#)).
10. Divert Logons to the NSCR ([page 47](#)). For CICS1, CICS2, and CICS3, we use a VTAM USERVAR command to point the USSTAB command to the NSCR.
11. Recycle CICS1, CICS2, CICS3, and then the NSCR ([page 48](#)).



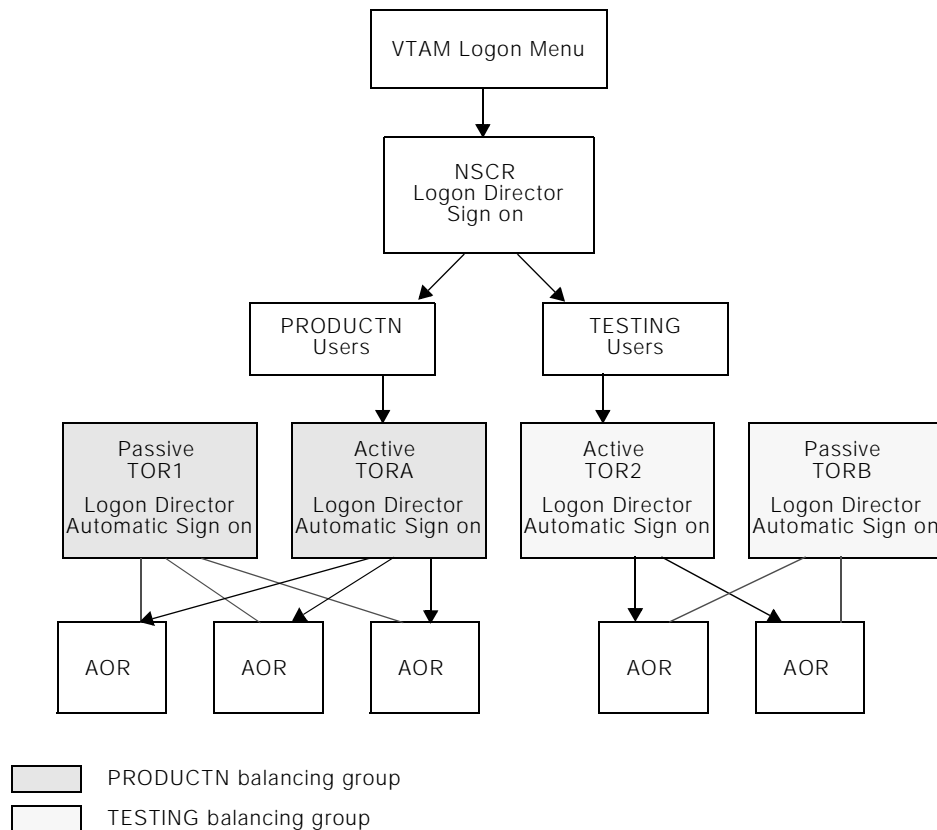
Case Study 2: Balance by Saturation and Use Standard Sign ons

We are running MRO. We have two TORs—TOR1 and TOR2. TOR1 serves production. TOR2 is used for testing. We want

- a backup for each region
- to be able to increase user capacity when the user load is unusually great
- to keep overhead to a minimum
- users to be re-routed to the NSCR in case of failure to save users steps when they log back on

To do this, we set up a duplicate TOR for each of our current TORs. We make our duplicate regions passive and balance by saturation. That way, the duplicate regions are used only if the active region fails or if the active region reaches its maximum users ceiling. We create two balancing groups—PRODUCTN and TESTING—one for the production system and one for the test system, each one containing an active region and its passive backup. We set up standard sign ons so that users are sent to the NSCR sign on screen in case of failure.

The figure below shows what our system will look like.



Implementation

To set up this system, we create our NSCR and install NonStop CICS with either of the installation procedures in [See page 11, "Installing the NSCR"](#). Then we perform the following steps.

☞ The following step numbers correspond to the step numbers for the implementation procedure. The page numbers in parentheses refer to the starting page number for each step. Detail is given only for those steps whose input is different for each case study. Other steps are only stated briefly.

1. Create PNAM file and statements. Our file looks like the following.

```
PNAM ADD GROUP=PRODUCTN,  
      LIST=(TOR1,TORA),  
      BALMETH=USER  
  
PNAM ADD APPLID=TOR1,  
      OBJUSER=100,MAXUSER=1000  
  
PNAM ADD APPLID=TORA,OBJUSER=0  
  
PNAM ADD GROUP=TESTING,  
      LIST=(TOR2,TORB),  
      BALMETH=USER,  
  
PNAM ADD APPLID=TOR2,  
      OBJUSER=100,MAXUSER=500  
  
PNAM ADD APPLID=TORB,OBJUSER=0
```

This file defines both our balancing groups and our four target regions. Since the OBJUSER values are zero for TORA and TORB, they are passive. Since the OBJUSER values are greater than zero for TOR1 and TOR2, they are active. Since TOR1 and TOR2 are the only active regions in their respective balancing groups, they will handle the whole normal loads for those groups.

2. Set up NonStop CICS options in PIE/CICS ([page 28](#)).
3. Modify the Terminal Directory, setting up standard sign ons ([page 30](#)). We verify that the directory contains only defaults. We want our company's logon screen (called COMPANY) to be displayed, so we change PIELMAIN to COMPANY.
4. Define profiles ([page 33](#)). Since we have two balancing groups, we need two profiles. First we create SYSTEM.PRODUCTN. (This would be the equivalent of SYSTEM.STANDARD described in the implementation instructions.) We change the **Initial PIE command** field to:

```
TSWITCH PRODUCTN &ZUSER/&ZPSWD  
to route users to our PRODUCTN balancing group. (We use TSWITCH because we are  
using standard sign ons.) Then we change the Final PIE command field to EXIT  
SIGNOFF.
```

Then we create SYSTEM.TESTING. We change the **Initial PIE command** field to:

```
TSWITCH TESTING &ZUSER/&ZPSWD
```

to route users to our TESTING balancing group. Again, we change the **Final PIE**

command field to EXIT SIGNOFF.

```

PIE Profile (SYSTEM.PREDEF)----- (c) TSC, Inc. 1987
Option  ===>
Profile saved as SYSTEM. TESTING
1 Terminal - Specify Terminal Characteristics
2 Defaults - Specify defaults for PIE (reserved)
3 Keys - Specify Global PIE keys
4 Sessions- Specify Sessions Configuration

Update History
Name: SD080BB
Term: PIE10002
Date: 06/02/93
Time: 19:53:37

PIE profile group  ===> SYSTEM
PIE profile name  ===> TESTING
PIE profile title  ===> Sample user profile

Default Application ===>
Initial PIE command ===> TSWITCH TESTING &ZUSER/&ZPSWD
Final PIE command  ===> EXIT SIGNOFF

Administrator ===> *           Terminal ===> *
Auditor        ===> *           Terminal ===> *
Generic forms, ?, % and * characters are accepted above.

PF: 1 HELp  3 ENd  4 RETUrN 5 SAve  6 RETRIeve  9 DElete

```

5. Modify the User Directory ([page 36](#)). We identify all PIE system administrators. Then we identify all of our test system users. We assign the profile name TESTING to the test system users. For the asterisk entry, we assign the profile name PRODUCTN. For both TESTING and PRODUCTN entries, we set Allow Disc to N.
6. Check start-up options ([page 41](#)).
7. Create TORA and TORB ([page 42](#)).
8. Set up automatic sign ons in the target regions ([page 43](#)). In TOR1, TOR2, TORA, and TORB, we:
 - Set up CICS table entries for PIE/CICS and NonStop CICS
 - Specify Automatic GMM YES in the PIE/CICS Customization Options screen
 - Create a profile specifying our good morning transaction as the PIE Initial Command
9. Enhance performance and test the system ([page 45](#)).
10. Divert Logons to the NSCR ([page 47](#)). We are using a VTAM menu to access our target regions. So we change the menu application to access the NSCR.
11. Recycle TOR1, TOR2, TORA, TORB, then the NSCR ([page 48](#)).



Chapter 4 Running NonStop CICS

This chapter describes general maintenance procedures and online changes after NonStop CICS has been installed and implemented.

Starting NonStop CICS

Start the NSCR last when you cycle your CICS regions. NonStop CICS begins balancing as soon as the NSCR is operational. If any target region is still unavailable when NonStop CICS becomes operational, the balancing system does not distribute users correctly across the designated regions.

NonStop CICS periodically monitors the status of CICS regions. When regions become available, they are added to the balancing system.

Signing On as an Administrator

Sign on to the NSCR as an administrator by any of the following methods:

- If you are using SSI: Sign on using a system administrator user ID, as defined in the NSCR's User Directory.
- If you are using transparent mode: Sign on from the terminal ID specified as the system administrator terminal in the NSCR's Terminal Directory.
- If you are using transparent mode: Pass your user ID to the NSCR when you log on from VTAM. For example, enter `LOGON APPLID=NSCR, DATA=JSMITH`.

Any user ID that does not start with PIEU is a system administrator in transparent mode. To change this, change the first asterisk entry in the User Directory to specify `System Admin: N`. (This field is in the detail screen for the entry.) If you do so, you should add some system administrator user IDs. Refer to the procedure in the SSI section of ["Modify the User Directory"](#), beginning on page 36.

PIE/CICS List Utilities

Three functions of the PIE/CICS List Utility are particularly helpful for NonStop CICS. They are the Balancing Group List, the Systems List, and the User List. The Balancing Group List and the Systems List both display the current status of your target regions. The User List shows the status of individual PIE/CICS users.

This section describes the Balancing Group List and Systems List. For more information about the general operation of the List Utility, see [“User List” on page 63](#) of the *PIE/CICS Operation and Administration Guide*.

List of Balancing Groups

Access the Balancing Group List by any of the following methods:

- Access the PIE/CICS Master menu. Select option 2, the System Management Facility menu. Select option 6, Display of Load Balancing Groups.
- From a CICS blank screen, enter: `PEXE LIST BAL [selection criteria]`
- Access the PIEEXEC facility from certain PIE/CICS menus. Enter:
`LIST BAL [selection criteria]`

You can add selection criteria to your LIST BAL command to select the data shown on the first Balancing Group screen. Otherwise, the first screen shows all balancing groups and regions. See [“Using the LIST Command” on page 42](#) of the *PIE/CICS Operation and Administration Guide* for information about specifying selection criteria to restrict the data displayed from the menu.

Selecting a Target Region

You can select a target region from either the Balancing Group List or System List. Enter the letter of a line command in the `Se1` field next to the name of the target region. You can select several target regions at once.

To open a group for transaction routing after it has been closed, type 0.

To close a group from transaction routing, type C.

For detail information on a region, type I. The screen layout is shown in [“Inquire Screen” on page 57](#).

Screen Layout

See ["Balancing Group List" on page 48](#) of the *PIE/CICS Operation and Administration Guide* for details on the screen layout.

```

PIE Utility list of BALANCE GROUPS -----(C) TSC, Inc 1995
Command ==>                Lines 1 to 4 of 4

Sel. Groupid. LSystem. PSystem. Method Status..... Users.. MaxUsr. ObjUsr. Resp
* * * * * * * * * *
__ 170A  CICSTOR1 170A  USER  AVAILABLE    0  0  50
__ 170A  CICSTOR2 170B  USER  AVAILABLE    0  0  50
__ NONSTOP CICT330A CICT330A USER  UNAVAILABLE  0  0  50
__ NONSTOP CICT321A CICT330A USER  UNAVAILABLE  0  0  50
**END**

F1=Help F3=End F4=RETu F6=REFr F7=Up F8=Down F10=Left F11=Right
    
```

Inquire Screen

To access the Inquire Screen, enter the I line command next to the name of the system. For information on screen fields, see ["Inquire Screen" on page 50](#) of the *PIE/CICS Operation and Administration Guide*. Press ENTER to exit the screen.

```

SYSTEM:      PHYNAME= 170A      STATUS=AVAILABLE      VTAMRC=000000
AOR1        ACCMETH=           DESC=
           BEHAVIOR=           Type=  SYSID           STUB=
                                           TIMEOUT=

Load Balancing Data:
  CURUSER=  000000      OBJUSER=  000001      MAXUSER=  000000
  CURLOAD=  000000      OBJLOAD=  000000      CURNACTV= 000000
  CURRESP=  000982      OBJRESP=  000001      MAXACTV=  000010
  Tran.Rate=000120      TOT.Trans=000377      TIMLOAD=  000060

Virtual Terminal Data:
  Pool Name   Logmode Name   Ext Pool Name   Ext Logmode Name
  MOD2
  MOD3
  MOD4
  MOD5
  MOD6
  MOD7
  MOD8
  MOD9

Misc Data: PNAUSERS=           FILLER1=           FILLER2=

Press enter to continue
    
```



Systems List

The Systems List displays the current status of a target region. Information provided by the Systems List is similar to that of the Load Balancing List.

Accessing the Systems List

Access the Systems List by any of the following methods:

- Access the PIE/CICS master menu. Select option 2, the System Management Facility menu. Select option 5, Display of Systems.
- From a CICS blank screen, enter: PEXE LIST SYSID [selection criteria]
- Access the PIEEXEC facility from certain PIE/CICS menus. Then enter:
LIST SYSID [selection criteria]

You can add selection criteria to your LIST SYSID command to limit the data shown on the first Systems List screen. Otherwise, all regions are displayed. See ["List Screen Commands and PF keys" on page 45](#) of the *PIE/CICS Operation and Administration Guide* for information about specifying selection criteria.

Selecting a Target Region

The line commands of the Balancing Group List and the Systems List are identical. See ["Selecting a Target Region" on page 56](#), for details.

Screen Layout

See ["Applid or Systems List" on page 46](#) of the *PIE/CICS Operation and Administration Guide* for descriptions of screen fields.

```

PIE Utility list of SYSTEMS ----- (C) TSC, Inc 1995
Command ==>                Lines 1 to 7 of 7

Sel. LSystem. PSystem. Type.. Status.... AM. Users.. MaxUsr. ActUsr. MaxAct. T
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
__ (MODEL) (MODEL) APL  AVAILABLE      0  0  0  0
__ CICSTOR1 170A  SYS  AVAILABLE TR    0  0  0  0
__ CICSTOR2 170B  SYS  AVAILABLE TR    0  0  0  0
__ CICT330A CICT330A APL  UNAVAILABLE   0  0  0  0
__ CICT321A CICT330A APL  UNAVAILABLE   0  0  0  0
**END**

F1=Help F3=End F4=REtU F6=REFr F7=Up F8=Down F10=Left F11=Right

```

General Maintenance

NonStop CICS requires little maintenance after it has been implemented. Occasionally, you may need to make changes to the following PIE/CICS facilities that support NonStop CICS.

- Terminal Directory
- User Directory
- User Profiles
- Logon Director
- Post Initialization user exit
- Network Monitor

For more information about any of the first five facilities shown on the preceding list, refer to ["Terminal and User Directories" on page 43](#) of the *PIE/CICS Customization Guide*. For information about the Network Monitor, see ["Network Monitor" on page 103](#) of the *PIE/CICS Operations and Administration Guide*, and ["PNAM Command"](#), beginning on page 22 of this manual.



Appendix A Customer Support

This appendix describes how to get help from Customer Service when you experience a problem with a UNICOM Systems, Inc. product. This appendix includes separate sections that describe several diagnostic suggestions to rule out user errors and the information you should have ready before reporting the problem.

Contacting Customer Service

UNICOM Systems, Inc. Customer Service can be reached by the following methods:

Voice	818-838-0606
Fax	818-838-0776
E-mail	support@unicomsi.com

A Support and Services web page provides Customer Service information about all of UNICOM Systems, Inc.'s products. Use the following URL to browse the Support and Services web page:

<http://www.unicomsi.com/support/index.html>

The Support and Services web page provides an online form to report a problem with a UNICOM Systems, Inc. product. Use the following URL to complete and submit a Technical Support Request form:

<http://www.unicomsi.com/support/index.html>

Normal business hours are from 6:00 a.m. to 5:00 p.m. Pacific Standard Time, Monday through Friday. Emergency customer service is available 24 hours a day, 7 days a week.

An answering service receives customer service calls beyond normal business hours. You may leave a message if it is not an urgent problem. A customer service representative will return your call at the start of the next business day.

Requests for urgent support outside of normal business hours are answered immediately. A customer service representative will be summoned to return your call. Leave a phone number where you can be reached. If you have not received a return call from a Customer Service representative within an hour of reporting the problem, please call back. Our customer service representative may be experiencing difficulties returning your call.

International customers should contact their local distributor to report any problems with a UNICOM Systems, Inc. product.

Troubleshooting Suggestions

This section describes several troubleshooting suggestions to diagnose common errors that can cause PIE/CICS problems. Before calling Customer Service, follow these suggestions to rule out the possibility these errors are causing your PIE/CICS problem.

- Run the Installation Verification Program with the **P#IV** transaction. Browse the PIECIVP temporary storage queue to see if it contains error messages that suggest problems with the allocation of CICS programs, transactions, maps, or files.
- Verify any recent changes to your site's operating system, CICS, or other products are fully compatible with PIE/CICS.
- Verify all load modules are at the same release level if a new release of PIE/CICS was installed over a previous release.
- Check that all modules were reassembled after upgrading PIE/CICS or applying maintenance to CICS.
- Verify all PIE/CICS system tables were reassembled after applying maintenance to CICS or upgrading to another release.
- Verify all users have current PIE/CICS passwords and entered them correctly.
- Examine your CICS logs, MVS console, and PIE/CICS logs for error messages from not only PIE/CICS, but any other product that runs concurrently with PIE/CICS.

Describing the Problem

Gather the following information about your system environment before reporting a problem to UNICOM Systems, Inc. Customer Service:

Operating system release and PUT Level _____

VTAM system release and PUT Level _____

PIE/CICS release _____

Date of PIE/CICS distribution tape _____

Gather the following information about your CICS system before reporting a problem to UNICOM Systems, Inc. Customer Service:

CICS release and PUT Level _____

CICS configuration MRO/ISC etc. _____

Real or virtual terminal _____

Before calling UNICOM Systems, Inc. Customer Service, get answers to the following questions:

What PIE/CICS products were active when the problem occurred?

Availability Plus

Dynamic Menus

MultiCICS

NetGate

NetMizer

NonStop CICS

Is the problem occurring in the TOR or AOR? _____

Is the problem occurring in a production or test region? _____

What is the severity of the problem? _____

What are the major symptoms of the problem? _____

Is the problem re-creatable under specific conditions? _____

Has the problem occurred more than once? _____

Were changes made to CICS or PIE/CICS immediately prior to the occurrence of the problem? _____

What other software products were running when the problem occurred? _____

Is a diagnostic message produced when the problem occurs? If so, what is the ID and text of the messages? _____

Does an abend occur? If so, what are the abend and return codes? _____

Is a dump produced when the problem occurs? If so, what kind of dump is it? _____

Please try to be as accurate and complete as possible in answering these questions. Your problem can be resolved more quickly if a customer service representative has all of the pertinent information needed to find a solution.



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