

ROPES Version 7.0x LPR Device Setup Guidelines

Here are some helpful guidelines for implementing LPR printers under ROPES. These guidelines document frequently overlooked requirements to implementing the LPR support in ROPES.

The ROPES LPR feature uses CICS Sockets. CICS Sockets in turn uses TCPIP under OS/390. Support for these two protocols must be in place before the ROPES LPR feature can be used. CICS Sockets also has a dependency on the C Language, and so support for CICS Language Environment (LE370) must be installed in CICS.

The LPR feature of ROPES uses CICS Sockets to communicate with a Line Printer Daemon (LPD) server. The LPD server manages the print queues and printers assigned to it. In some cases, the LPD may exist inside of a single remote printer. Communication with the LPD is governed by the protocol described by RFC1179.

If these major components are installed and working in your system, and you are still having trouble with the setup of ROPES, check the guidelines below to verify your installation.

CICS Sockets

CICS Sockets must be available before the LPR feature of ROPES will work. The CICS startup message indicating CICS Sockets has successfully initialized must appear in your CICS output. Here is the text of the message:

EZY1224I 12/14/01 10:10:15 CICS/SOCKETS INITIALIZATION SUCCESSFUL.

If you do not see this message in your CICS output messages, CICS Sockets is not properly installed in your CICS region. Note that CICS Sockets must be available in the region you are running the ROPES LPR function in.

Language Environment

CICS Sockets uses C language for some of its functionality. The Language Environment under CICS must be active in order for these CICS Socket functions to work. The CICS startup message for Language Environment indicates that Language Environment is being initialized in CICS. This message has the following text:

DFHAP1203I CICSn Language Environment/370 is being initialized.

If this message is missing from your CICS startup messages, then LE/370 has not been properly installed. Please make sure you have the necessary LE Libraries in your CICS JCL, and that you have installed the required resource definition group(s) in your CICS region.

CICS JCL

If you were missing either of the startup messages for LE/370 or CICS Sockets, perhaps one or more libraries is missing from the DFHRPL or STEPLIB concatenation for CICS. Please check your libraries against the libraries shown below. Note that the actual names used at your installation may be slightly different.

```
//STEPLIB DD DSN=SYS1.SCEERUN,DISP=SHR
// DD DSN=TCPIP.SEZALINK,DISP=SHR
// DD DSN=TCPIP.SEZACMTX,DISP=SHR

//DFHRPL DD DSN=CEE.SCEECICS,DISP=SHR
// DD DSN=SYS1.SCEERUN,DISP=SHR
// DD DSN=TCPIP.SEZATCP,DISP=SHR

//SYSTCPD DD DSN=TCPIP.TCPIP.DATA,DISP=SHR
```

The SYSTCPD file above allocates the TCPIP profile dataset to CICS. Be sure this file is allocating the active TCPIP profile dataset.

TCPIP Requirements

Please check your TCPIP profile parameters. Please make sure that the default LPD port 515 is available for use by your LPD. If you wish to reserve the port, a statement should appear under the **APORT@**configuration statement for port 515.

Make sure you have one or more ports available for CICS Sockets. The default port number(s) used by the CICS Sockets listener task start at port number 3000. If you wish to reserve one or more of these ports for CICS, then you should add the necessary port numbers to the **APORT@** profile statement.

The active TCPIP profile dataset should be explicitly allocated to your CICS JCL via the SYSTCPD DD statement. Since there is a problem with the dynamic allocation of this file at certain OS/390 maintenance levels, it is best to just allocate the file explicitly.

Security

For LPR devices, the print task (R#O1) does not run attached to a terminal. It is started using an EXEC CICS START command, or by Transient Data trigger level. Since the R#O1 print task is not attached to a terminal, it inherits the authority of the CICS Default Logon Id. In order for the print task to run without security violation, the CICS default logon id must have the authority to run the following commands:

1. EXEC CICS INQUIRE SYSTEM JOBNAME().
2. EXEC CICS INQUIRE TASK() PRIORITY().
3. EXEC CICS CHANGE TASK() PRIORITY().

The CICS default logon id must also have the authority to execute transaction AR#O1", and execute all required ROPES programs including but not limited to ROPEDRV and ROPELPRP. The default logon id must also have the authority to access and update required ROPES files including but not limited to the ROPEPCR and ROPEQBR files. If your installation has more extensive forms of security activated (terminal security, resource checking, etc.), you may have to implement additional permission(s) to the CICS default logon id.

The default CICS logon id must also have an Open Edition MVS segment (OMVS) assigned to it. This will be necessary for access to CICS Sockets and TCPIP. Please consult the appropriate RACF Administrator's Guide for more information on creating the OMVS segment.

ROPES LPR Options

For every LPR printer defined to ROPES there must be one ROPES printer definition, and one ROPES LPR definition.

The ROPES printer definition must be created using transaction ROMT by selecting the Add A Printer option. A CICS terminal-printer definition must not exist for the LPR printer defined to ROPES.

The LPR printer/report definition must be created using ROPES transaction ROLI. At least one DEFAULT entry must exist for the LPR printer. The name (key) of the LPR options definition would consist of the printer name and the constant DEFAULT= (i.e. printerDEFAULT=). If different options are desired for each report assigned to the same printer, then additional entries would be created using ROLI substituting the report name for the constant DEFAULT=.

The LPR options definition is created via the LPR Options Definition Screen. This screen is displayed when you add an LPR option definition via transaction ROLI. Three parameters are of critical importance with regard to making the LPR connection. These are; LPD Port=, TCPIP Task=, and LPD Host At=. If these parameters are not set correctly, it will result in a failure to communicate with your LPD.

The LPD Port= value must almost always be set to 515'. Unless your network administrator is certain you should be using a different port number, enter a value of 515'.

The TCPIP Task= value must specify the name of the MVS started task for TCPIP. Please make sure the spelling of the task name is correct. In most cases, the value supplied here will be the started task name ATCPIP@.

The LPD Host At:= defines the LPD host server name (URL) or IP address. Note that you *must* have ROPES cumulative fix level 2 (CUM70002) applied before you can use an IP address as a value. If you do not have cumulative PTF level 2 applied, then you will need to specify the URL address of the LPD's host server. You will also need to define that URL to your name server (DNS). If you do not have the URL name properly specified you will probably receive an error message that indicates a return code of 0000' on a GETHOSTBYNAME request. In this case, the URL name is either misspelled or has not been defined to the DNS. It is also possible that

the SYSTCPD file is missing from your CICS JCL.

Next in order of importance are the >Type Of Print Request:= and the >Printer Queue:= values. The >Type of Print Request= should almost always be set to the value AF@ unless you have a specific reason for changing it. Please consult the ROPES Administrator's Guide for more information on this parameter. The >Printer Queue= value must match the name of the print queue that is managed by the LPD.

There are some parameters which may be considered LPD dependent. In other words, they will work with some LPD servers and not others. These parameters are >Send CF First= and >Mail Response=. Most LPD servers will accept the Control File first. In a few rare cases, the Control File will have to be sent last. It is recommended that you start with the value set to >Yes=.

Many LPD servers do not support the >Mail Response= option. If you have any doubt, simply turn this option off as a starting point. Some LPD servers will ignore this option if it is not supported. If this option is supported, the e-mail address of the recipient is constructed using the >Req. User= and >Sending Host= parameters. The sending host name is appended to the requesting user name to construct the requesting user's e-mail address.

The >Log Xmits To TDQ= and >Log TD Queue= parameters can be used for diagnostic purposes. If you set the >Log TD Queue= name parameter to the name of your extra-partition CICS message file, and then set the >Log Xmits To TDQ= parameter value to >Y=, ROPES will produce a log of all messages received and sent to the LPD. These log entries will be prefixed with the constants >SOKI-> and >SOKO->. These diagnostic options should only be activated when debugging a problem and should definitely not be activated for every LPR printer.

If You Continue To Have Problems

If you have examined and double checked all of the guidelines mentioned in this document and continue to have a problem, then you may need to apply maintenance to your system. The current and recommended level for ROPES LPR support is ROPES Version 7.0 cumulative fix level 2. If you do not have this maintenance applied, you should contact us and make arrangements to receive it.

Other Helpful Documentation

Here is a list of IBM Manuals which will be helpful reference material for the configuration and implementation of TCPIP, CICS Sockets, and Language Environment.

<u>Document Number</u>	<u>Title Description</u>
SC28-1941-06	Language Environment For OS/390 Customization
SC31-8518-00	OS/390 eNetwork Communications Server IP CICS Sockets Guide
SC31-8513-02	OS/390 eNetwork Communications Server IP Configuration
SC31-8516-02	OS/390 eNetwork Communications Server IP Application Programming Interface Guide

These manuals and their numbers are based on OS/390 Version 2.7.