ROPES Conversion Guidelines

ROPES V10.0 through V15.0 to V16.0 |
and |
ROPES V9.0 to V16.0 |
     |

Preface

| This document describes the conversion process from ROPES V9.0 through ROPES V15.0 to ROPES V16.0.

This manual is for use by those client personnel responsible for planning or performing ROPES software upgrades. It contains information about the features of the new release and guidelines for planning and scheduling the release upgrade process.

This document contains migration information and instructions which are <u>ROPES Release Dependent</u>. Please take care to use the instructions that are appropriate for your installation.

Please direct your questions and comments to:

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General Introduction

We want your upgrade to ROPES Version 16.0 to go as quickly and smoothly as possible. These instructions |
will guide you through the process of converting your existing ROPES installation to ROPES V14.0. Please |
follow them carefully, and do not hesitate to call us for technical assistance if you have any questions.

Depending on which release you are migrating from, there may be several major enhancements included in this
new release. These enhancements include support for printing reports to e-mail destinations, printing reports
to TCP/IP printers, and a major restructuring of the output driver module. It is important that you test your
production applications and printers with the new release prior to migrating it into the production environment.
It is especially important for you to test output on special forms, where even slight alignment differences will
present serious problems. Numerous changes have also been made to the ROPES Forms Control Block (FCB)
and the Device Characteristics Block (DCB). ***These changes require reassembly of those previously customized***
versions of these control blocks.   The ROPESCOM communication area, used to interface between user
applications and the ROPES Command Processor, ROPEPROP, has changed ***from Version 6 to Version 7 or***
above. User applications using this communication area ***must*** be recompiled.

The number and significance of the changes to your system will depend on the release and maintenance level
you are now running. This is why we have created two sets of instructions within this one document. Please
be sure you follow the instructions that correspond to the ROPES release you are running. Use the ROSS or
RSTS transaction to confirm your ROPES release and maintenance level. The Introduction section of each of
these release-dependent chapters will introduce the changes you must be aware of when upgrading to the new
release.

Product Concurrency

This version of ROPES becomes current as July 1, 2010. Support for ROPES Version 12 continues until |
September 30, 2011. Support for Version 14 continues until September 30, 2011. Support for Version 15 |
continues until September 30, 2012. Support for all versions prior to Version 12 has already been discontinued, |
but we will be glad to assist you in upgrading to a supported release, and we will make every effort to assist you |
in keeping your older release running while you upgrade. |

Converting from ROPES V9.0 or below to V16.0 |

Introduction

These instructions will guide you through the process of converting your existing ROPES V9.0 or lower installation to ROPES V16.0. Please follow them carefully, and do not hesitate to call us for technical |
assistance if you have any questions.

Preparation

We want you to install ROPES V16.0 and test it before you try to put it into production, and we want you to |
be able to fall back to your working ROPES configuration quickly if there are any unforeseen problems. To
do this, it might be a good idea to do some housekeeping on your older ROPES system first.

1. If you are using RDO to maintain your table entries, be sure that the ROPES entries are defined in a group
    of their own.

2. Use RORL, ROAL and ROPN to review the reports and printers defined in your system.

3. Use the ROMT transaction to remove any obsolete Reports or Printers.

4. Review the ROPES Device Characteristics Blocks (RO$Dxxxx modules) and ROPES Forms Control Blocks
    (RO$Fxxxx modules) that you use in your system now. Eliminate any obsolete control blocks so that you
    do not have to convert them needlessly. Be sure you know where the current source code for your control
    blocks is located; you will need to reassemble them.

5. If you are using the ROPES Spool Transfer Utility (RSTU), be sure you know where the source for the
    ROPEXCTM table is located. You may need to reassemble this table.

6. For accounts migrating from your older version there may be new files in the Version 16.0 system. The |
    names of these files (if new to your shop) are; ROPEJOBF, ROPELPRO and ROPEHTML. Please review |
    the File Sizing and Tuning sub-section of the Installation chapter of the ROPES Administrator's Guide for
    information about these files, and for additional planning information regarding the files you are migrating
    from your older version.

7. Finally, use the ROPEPURG utility function to perform a thorough clean-up of your ROPES Queue. Run
    the utility with the command:
        PURGE REPORTS(@ALL),MESSAGES(VERBOSE).
    to insure that your system is as clean as possible.

Creating the Test System - Part 1

| The object of this step is to create a clean ROPES V16.0 system so you can be sure that the software is correctly installed, so you can test your own applications with the new version, and maintain a completely intact production system during this process.

| Find the new ROPES Administrator's Guide. In Version 16.0 the documentation is provided on a CD in ADOBE® PDF (Portable Document Format) format, as part of an e-mail attachment, or can be read at or downloaded from our web site. You can either view the documentation on screen using the Acrobat Reader program (provided on the CD) or you can print copies for yourself. The document is designed to be duplex printed (two-sided) if you have the facilities to do this.

Follow the instructions in the new ROPES Administrator's Guide Installation section to install the new software and installation verification (starter system) files. Note that there may be an addendum to the installation procedure in a "READ ME FIRST" document. If this document is present, fixes may have been issued after the distribution material was created and they may need to be applied either before or after the installation. Be sure to read this document before proceeding. There may also be additional notes regarding changes to or expansions of the documentation included with machine-readable fixes. Please print and review this information as well. Do not reuse or replace any of your existing ROPES libraries or files. Create a new group or new PPT, PCT, FCT and other CICS tables for the new version of ROPES and install them in a TEST CICS.

| ***Be certain that you are able to successfully execute the RUNOPCC opcode compatibility test job when told***
| ***to do so after the product modules are link-edited. Do not proceed if you cannot run that job. Contact***
| ***Technical Support.***

There are several migration steps to perform at this point (all steps are to be performed using the *new* software and files).

1.   There have been numerous changes to the Device Characteristics Blocks and the Forms Control Blocks. If you have created or modified any of these blocks, copy the source code for these blocks into the ROPES.SOURCE library or other library, as desired. Review the Device Characteristics Block and Forms Control Block documentation in the Customization chapter of the Administrator's Guide. Please pay particular attention to the ROPESDEV TYPE=CONTROLS statement and the DEVTYPE= parameter of that statement. Re-compile your control blocks after you have made any additional changes you feel are appropriate. If you created new control blocks, add them to the ROPES PPT or RDO group.

2.   Examine the job stream OBOOKSIN in each of the three source language libraries. These job streams are used to translate the ROPES On Line interface copy books to the current level of your CICS Command Level translator. Edit and execute these job streams to translate the copy books in the new libraries. If you are using COBOL II, be sure to edit the job stream to add the PARM='COBOL2' option to each job step in the ROPES.COBLIB version of OBOOKSIN. Likewise, if you are an Enterprise (LE) COBOL shop (COBOL for MVS & VM or COBOL for OS/390 & VM), be sure to edit the job stream to add the PARM='COBOL3' option to each job step. You must use these members to update the ROPES copy books any time you change CICS or Enterprise (LE) COBOL release levels.

3.   Review any custom changes you have applied to your system, and review the PTF summaries later in this document. You should find each of these custom changes in the new release. Some of these changes are implemented through *exits* defined in the Security section of the User's Guide, others are implemented through the Maintenance panels (transaction ROMT), and the rest are implemented in the FCB, DCB and RSTU XCT tables which are described in the Customization chapter of the Administrator's Guide. Review

these controls and make the appropriate changes.   Reassemble the control blocks using the new
ROPES.SOURCE library in the SYSLIB concatenation of the assembly steps to create the Version 16.0 |
compatible versions of these controls.

4. If you are using the ROPES Spool Transfer Utility, please note that the ROPEINTF program must be
    installed in the STEPLIB concatenation of the CICS job stream.   The ROPES SVC in use in your current
    implementation is completely compatible with Version 16.0 and should not be changed.   There are NO |
    changes to the ROPESVC module in Version 16.0.   A new module has been provided to allow you to |
    dynamically install the ROPES SVC.   Member SVCUPDTE in the ROPES Source library can be run to |
    assemble and link the program SVCUPDTE into any APF authorized library.   You can then execute the |
    program at any time, including your system IPL process, to dynamically install the SVC. |

5. Test the system as it is now installed. When the test system is working satisfactorily with the starter system
    data, proceed to the next step.

Creating the Test System - Part 2

Once you have tested the basic ROPES V16.0 system as tailored in the previous step, it is time to migrate your |
ROPES data into this test system. The migration process used here will be used again to perform the final
conversion to ROPES V16.0, so save the job streams you create. |

The following steps should be performed to migrate your existing data to the new ROPES system.

1. Copy the contents of the ROPERIB, ROPEPCR, ROPEQBR, ROPEALR, ROPEALQ, ROPERDDD,
    ROPERDTD, ROPEHLP, ROPEMSG, ROPEJOB / ROPEJOBF, ROPEJTB, ROPELPRO and ROPEPRM
    files from your production system to the corresponding clusters in the test system. Use the member
    MIGRFILE in the ROPES.SOURCE library to do the copy/convert. Note that in the case of the ROPEJOB
    file, the step to copy this file is actually a step to convert the file using the CONVERT utility function
    described in the Programmer's Guide. Please eliminate any steps to copy files that are not being used by
    your installation. For example, if you are not using the Job Submission Facility, then there is no need to
    convert or copy the ROPEJOB or ROPEJOBF files.

2. Run the ROPERPIB utility program to rebuild the Report-To-Printer Index file to reflect the contents of
    your ROPES configuration. Remember that there is the source library member RUNRPIB with sample JCL
    you can modify. This would also be a good time to use the ROPEALTU (member RUNALTU in the
    ROPES.SOURCE library) utility to bring the Primary and Alternate Facility files into synchronization.

3. Test this "dry run" conversion to be sure that everything in the new release is compatible with your old
    system.

    *At this point, you will need to have access to the same printers or printer types that you use in your
    production environment, and you must be able to generate and print test versions of production reports
    on production special forms in order to properly complete the pre-production testing. You must perform
    this step in order to determine the final parameter settings in the RO$F and RO$D modules.* When done,
    proceed to the next step.

Final Conversion to ROPES V16.0

At this point you have a working ROPES V16.0 system with a copy of your current system's control information as of the date you ran the first migration. To make the final cut-over to version 16.0, proceed as follows:

1. Schedule your conversion for a time when you can freeze all activity on the old ROPES files and libraries. When that time comes:

2. Make a complete backup of all the ROPES libraries and files. Prepare and test JCL to restore your backup files in the event a fall back is necessary.

3. Rerun the steps above under Creating The Test System - Part 2 to perform the final conversion.

4. Review the batch JCL used to run ROPES Utilities for changes between your old release and the new release. If you run the Batch Queue Reorganization Program (ROPEBQOR, job RUNBQOR), there was a change introduced in V12 that was not noted in this manual. The Batch Queue Reorganization program was enhanced to run much faster. This enhancement required the inclusion of the ROPERPI data set in the job's JCL. Compare the V16.0 RUNBQOR JCL with what you are using now and adjust accordingly.

You can now go into production with ROPES Version 16.0. Should any problems arise during the first few hours, you will be able to fall back to your old version by replacing the files and libraries with the backups, remove the Version 16.0 CICS tables and groups, and restore the previous version's tables and groups. This can be done with minimal data loss. Only new data created during this initial period will be in danger. This data can be recovered from the new ROPES Queue by making a sequential (archive) copy of the new ROPEQBR file with the IDCAMS REPRO command. Then the ROPERELO program (either version) or the ROPELRPT program may be used to extract the reports from this archive for the time period in question.

If you wish to use the new e-mail and TCPIP print features of ROPES, please consult the ROPES Administrator's Guide and ROPES Programmer's Guide for more information. Changes required for these new features are beyond the scope of this document.

If you wish to install the ROPES Web Interface, as documented in the Administrator's Guide, you can do so at any time in this process.

Final Notes

We want this conversion process to go smoothly for you. To insure that you have adequate backup support during the critical last phase of your conversion, we would like you to call our technical support group at (631) 864-3666 five business days prior to your planned conversion so we can arrange for dedicated support coverage at that time. We will make this coverage available on week-ends if necessary. And please, call us with any questions that come up during the installation, conversion and testing process; we are anxious to help you as much as possible.

Converting from ROPES V10.0 or above to V16.0 |

Introduction

These instructions will guide you through the process of converting your existing ROPES V10.0 or above |
installation to ROPES V16.0. Please follow them carefully, and do not hesitate to call us for technical |
assistance if you have any questions.

The upgrade from ROPES V10.0 and above to V16.0 is most easily accomplished by applying maintenance to |
the V10.0, V11.0, V12.0, V13.0, V14.0 or V15.0 product. Should you choose **not** to take this approach, you |
must install V16.0 from the full distribution materials, then migrate the prior version's data to the V16.0 files. |
The V9.0 or below to V16.0 conversion process, described earlier in this manual, applies to you in this case. |

Preparation

To prepare for this upgrade you should make sure that your test system (you should do the upgrade there first,
or create a copy of your test system for a practice run) is in good working order, and that it has access to test
printers of the type generally used in the production environment.

You should also arrange to close the ROPES Load Module Library, the ROPES Message file (ROPEMSG) and
the ROPES Parameter file (ROPEPRM) during the execution of the INSTALL job stream if a CICS region with
access to these files will be up when you run this job. These files will be updated from the batch installation
process.

Obtaining the Upgrade Material

The Upgrade Maintenance material is available on our web site at www.axios.com, in the Tech Support ROPES
Download area (free online registration required). Download the indicated Cumulative Maintenance file for |
Version 15.0 (applies to V9.0, V10.0, V11.0, V12.0 V13.0 and V14.0) and the new Version 16.0 documents. |
The Cumulative Maintenance file is a standard zip format file. Unzip the file to reveal a "READ ME FIRST"
file, a SENDROPES.CMD file to illustrate the File Transfer process, a SENDROPES.TXT file containing the
FTP commands, a RECEIVE.JCL job used to perform the initial installation process, and 1 TSO Transmit file
containing the updated libraries and files.

Performing the Upgrade

First, you must upload the RECEIVE.JCL file and the .xmi file to your host. Use the SENDROPES.CMD file
to assist in this process or do it manually. Edit the SENDROPES.TXT file first to configure the new data set
names you wish to use. The .xmi file will be uploaded as binary, to the data set you name in the SENDROPES
text command file. This is essential, since the TSO RECEIVE command invokes IEBCOPY and this utility
expects a very specific data format.

After the .xmi file has been uploaded, edit and run the RECEIVE.JCL job stream. This job will receive
| (convert) the .xmi file, creating the Distribution PDS. Next, make a backup of the ROPES.LOADLIB library.
| Part of the upgrade process will involve the link-editing of all the ROPES modules.   Next, edit and run the
UPGRADE job stream that is in Distribution PDS. This job will 1) receive (restore) the contents of member
in file to DASD, 2) replace the members into your existing libraries adding new and replacing old members,
3) link-edit the object modules to produce a new Load Library with new and replacement load modules, 4)
replace the ROPES Message File contents, and 5) update the ROPES Version identification data. In the event
| of a failure in any step, you will usually be able to correct the error and restart the installation job. Because
| there have been very significant changes to the structure and coding of the modules in this release (16), the
| UPGRADE job includes the execution of a compatibility test program during the upgrade process. ***Be certain***
| ***that you are able to successfully execute that compatibility test program (step RUNOPCC). Do not proceed***
| ***if you cannot run that job step. Contact Technical Support.***

Updating your CICS Region

You should either replace your previous version's ROPES FCT, DCT, PPT and PCT entries or compare, edit
and merge the entries you are using with those provided in the ROPES.SOURCE library members. You can
also upgrade a V9.0 installation by running the RUNADCSD job (in the ROPES Source Library pointing this
job to the ADDCSD10 member. If you are upgrading from V9.0 or V10.0, run the RUNADCSD job pointing
to the ADDCDS11 member. If you are upgrading from V9.0, V10.0 or V11.0, run the RUNADCSD job
pointing to the ADDCDS12. If you are upgrading from V9.0, V10.0, V11.0 or V12.0, run the RUNADCSD
job pointing to the ADDCSD13. If you are upgrading from V9.0, V10.0, V11.0, V12.0 or V13.0, run the
RUNADCSD job pointing to the ADDCSD14. If you are upgrading from V9.0, V10.0, V11.0, V12.0, V13.0
| or V14.0, run the RUNADCSD job pointing to the ADDCSD15. If you are upgrading from V9.0, V10.0,
| V11.0, V12.0, V13.0, V14.0 or V15.0, run the RUNADCSD job pointing to the ADDCSD16. This will insure
that you have picked up all the additions and any changes we have made. Be sure to preserve any changes or
additions you have made, though, of course, you might find it advisable to keep your changes in a separate
group, if you have not already done so. In this release, support for Threadsafe has resulted in the creation of
an additional PPT definition file, CSDPPTTS, with the appropriate Threadsafe or Quasi-reentrant settings as
need.

There are no new VSAM files in this release, nor have any file formats been changed. There is no file data to
be converted.

Updating your ROPES Control Blocks

Content and or format changes have been made to the RO$Dxxxx and RO$Fxxxx modules. Please review the
summary of changes later in this document for a description of the changes and enhancements we have included
| in Versions 10, 11, 12, 13, 14, 15 and 16. You may wish to include your own settings for some of the new
parameters to take advantage of these new features.

The object modules we have provided have been reassembled with the latest versions of the underlying macro
instructions (ROPESDEV and ROPESFRM, respectively). ***You must reassemble all local versions of these***
modules and any others you have created using the V11.0 or earlier macros in the updated ROPES.SOURCE
library. This is essential. If you last reassembled these modules using the V12.0 macros do not have to
reassemble the modules, but you may do so if you wish.

Test the updated ROPES software

You should test this new version of ROPES with your applications and printers to insure that no new features or corrections to the software adversely affect your printed output or other ROPES activities. While we have made every effort to minimize the potential for this impact, there are occasions where an installation has tailored their activities around ROPES behavior that we have later determined to be an error in the product. Our corrections may "break" your installed version, so please, test, and test with real printers if at all possible.

Final Conversion

Once you are satisfied that the new version is running correctly you can upgrade your real test, QA, production or other environments by rerunning the now proven INSTALL job stream (re-tailored as needed) for each such environment.

Final Notes

We want this conversion process to go smoothly for you. To insure that you have adequate backup support during the critical last phase of your conversion, we would like you to call our technical support group at (631) 864-3666 five business days prior to your planned conversion so we can arrange for dedicated support coverage at that time. We will make this coverage available on week-ends if necessary. And please, call us with any questions that come up during the installation, conversion and testing process; we are anxious to help you as much as possible.

Enhancements In ROPES V9.0

Summary for New Release

1. All Prior Fixes Have Been Applied
    All fixes that were introduced in ROPES Version 8.0 PTF have been applied as part of the Version 9.0 base release.

2. The Batch Utility that creates PDF documents from reports has been enhanced to accept sequential data sets with ASA or Machine carriage controls.
    The Batch Utility program, ROPEBPDF, which is invoked by the MAKEPDF command, has been enhanced to support input from a sequential data set or member in addition to input from a ROPES Report.

    A new keyword, INFILE, is now valid on the MAKEPDF command. If present, it defines the DD name of a data set or member containing the data to be processed. The input data set must be defined with fixed or variable length records, and must be defined with ASA or Machine carriage control characters (RECFM=FA | FBA | FM | FBM | VA | VBA | VM | VBM).

    All MAKEPDF requests must contain either the REPORT or the INFILE keyword, but must not contain both keywords.

3. Support has been added for overriding Extended Device Codes (PCL code streams) using pre-existing values from the ROPES system such as number of copies, FCB Characters Per Inch, FCB Lines Per Inch, or FCB Orientation.
    We have added support for overriding Extended Device Code streams (PCL code streams) using pre-existing values from the ROPES system. The existing parameters include number of copies (printer/report), FCB Characters Per Inch, FCB Lines Per Inch, or FCB Orientation.

    PCL code streams are overridden via several new parameters which can be coded in the ROPES DCB on the TYPE=DEVINIT/DEVEXIT macro statements. The new parameters which can be coded on the DEVINIT/DEVEXIT macro statements are; DVCOVRD, DVCOVOF, DVCOVLN, DVCOVDF, and DVCRULE. These parameters determine the type of data to be overridden, the offset, and length of the override. Optionally, a rule may be specified to restrict override values.

    A new optional ROPESDEV macro statement can be coded to restrict or validate the override values. This statement is the TYPE=RULES statement. It contains two parameters RULENME, and RULELST. More information on these new parameters can be obtained from the ROPES Administrators Guide under the section describing the ROPESDEV macro or Device Characteristics Block.

4. Sockets Read/Write timeout override value via the ROPES Device Characteristics Block (DCB) have been added.
    This new feature will permit the SELECT SOCKET call timeout value to be overridden for the type of printer device specified by the ROPES DCB. This new override feature only applies to

DEVTYPE=LPRD/SMTP devices.

A new ROPESDEV macro control statement has been added called the SOCKETS control statement (TYPE=SOCKETS). This statement will be used to affect changes in the handling of CICS Socket calls. With this enhancement, one parameter is being added to provide an override for the SELECT SOCKET call timeout value. This parameter is the SOKTMEO or Sockets Time Out parameter. This override affects any and all ROPES programs that interface with the CICS Sockets API. For now, this includes the LPR TCPIP Remote Printing feature, and the ROPES Electronic Mail Delivery feature or device types LPRD and SMTP.

The SOCKETS statement, and the SOKTMEO parameter is required for any ROPES device type that uses the CICS Sockets Interface. If no TYPE=SOCKETS statement is coded in a DCB for such a device, then ROPES will default to using a 60 second timeout value. If no TYPE=SOCKETS statement is coded in the DCB for such a device and the DCB has been reassembled, then the SOCKETS statement will be automatically generated by the assembly with a default timeout value of 60 seconds.

Source for all LPRD and SMTP type DCBs have been modified with this enhancement to include the new TYPE=SOCKETS statement with a default timeout value of 60 seconds.

5. ROPES translate tables can be used with DEVTYPE=LPRD type ROPES devices.
    This enhancement permits ROPES translate tables to be used with DEVTYPE=LPRD type printer devices. LPR devices which also make use of the Extended Device Code feature will now be able to print reports that contain unprintable characters by making use of the ROPES translate table. Previously, translate tables could not be used as they would cause translation of the Extended Device PCL code streams. This would cause errors in the output of these PCL code streams. With this enhancement, ROPES will suppress translation only for the Extended Device Codes, and will allow translation for the report data.

6. E-mail delivery of attached report as text or PDF files.
    Support has been added to ROPES for the delivery of E-mail attachments using the ROPES Report Mail Delivery Feature. This new enhancement permits ROPES reports to be delivered in an E-mail as text or PDF attached files. This is accomplished through a series of new parameters associated with the SMTP segment of the ROPES Device Characteristics Block (DCB). The presence of these new parameters causes all reports to be "attached" as text/PDF files to the E-mails sent by the ROPES printer.

7. The ROPS transaction has been enhanced to support output to operator consoles.
    When the ROPS command is initiated from an operators console the output cannot be returned to the console because the console is not supported by BMS.

8. JCL example for ROPEBRPU.
     The sample JCL for running the ROPEBRPU utility is now supplied.

9. Enhancement to add a retry option to the DCB TYPE=SOCKETS macro statement.
    This is an enhancement to add a retry option to the Device Characteristics Block (DCB) TYPE=SOCKETS macro statement which will enable failed LPR print requests to be automatically retried using the count established by the new SOKRTRY DCB parameter.

Enhancements In ROPES V10.0

Summary for New Release

1. **All Prior Fixes Have Been Applied**
   All fixes that were introduced in ROPES Version 9.0 PTFs have been applied as part of the Version 10.0 base release.

2. **Support for Threadsafe transactions in CICS.**
   ROPES V10.0 begins the process of making the entire ROPES product eligible for execution in the OTE. In this release we have insured that all ROPES CICS modules are reentrant. Furthermore, we have insured that the transaction interface module, ROPEOSRV and all of the Axios Products supplied exits, are Threadsafe. ***It is your responsibility to insure that the user exits coded by your site are also Threadsafe.***

   You should be aware of the fact that the ROPES interface program uses CICS commands that have not yet been made Threadsafe by IBM. These include, primarily, File Control commands. As a consequence, we strongly recommend that client sites wishing to run DB2 transactions that also use ROPES review their application structure with the goal of eliminating, as much as possible, the interspersing of ROPES calls and SQL. This will help to minimize the number of Change Mode events that occur during transaction processing. Put the ROPES calls after your DB2 work so you can run on the L8 TCB for as long as possible. Once you start the ROPES processing you will return to the QR TCB on the first CICS function that is not Threadsafe. This will minimize the TCB switching overhead.

   It is our intention to continue to review the ROPES modules and we intend that all ROPES CICS modules be eligible for execution in the OTE when this is available to non-DB2 transactions, and that any ROPES module invoked by a client application is Threadsafe. To this end, you are invited to scan the ROPES Online Modules using the IBM supplied Load Module Scanner and the filter tables provided in each release of CICS to review the suitability of this use in your environment. Over time, we expect more of the CICS Basic API to be made Threadsafe by IBM, and we will not introduce any new commands or features to ROPES that are not Threadsafe without clearly documenting this for you.

   In version 10 you will notice that the object module linkage editing for the ROPES software has been broken up to allow the ROPES CICS modules to be linked with the RENT option. The CSDPPT member provided has been supplemented with a CSDPPTTS member in which programs that are Threadsafe are marked with the appropriate concurrency option. It will now be possible for you to prevent storage overlays in ROPES modules if you run with RENTPGM=YES. If you are not already doing so with your own applications, use caution when switching to this environment.

3. **Concurrent ROPES File Access from Batch**
   Version 10.0 introduces the ability to run some ROPES Utility Functions in batch while the ROPES data sets are open and available in CICS. This is accomplished by function shipping the file access to a ROPES Server Program in a CICS region and then accessing the ROPES data sets with CICS File Control. We are using the EXCI mechanism.

It is our intention to provide EXCI based support for all ROPES Batch Utilities to permit full 24 hour availability of ROPES Online activities while allowing batch maintenance to occur with reduced region overhead and with full data integrity.

In this release of ROPES we are implementing this new capability with some new utility functions. These functions provide you with the ability to list information about your ROPES printers and your ROPES reports. This information was not previously available to you in batch.

4. **Business Logic Isolation**

Beginning with Version 10.0 we are starting a process intended to separate the business logic of the ROPES modules from the Presentation Logic. To that end, we have restructured the ROPO and ROPS transaction processor programs ROPEROPO and ROPEROPS to contain only the Presentation Logic and both modules will now obtain the data to display from a new module, ROPEBLPS (Business Logic – Printer Status). The ROPEBLPS module is a Command Level, COMMAREA driven program with a fully documented user interface that is now being made available to all users who wish to provide fully integrated access to the ROPES information within their applications, or, through the various facilities of DPL, ECI, EXCI, the CICS Clients and/or the CICS Transaction Gateway, make this information available to users on non-z/OS platforms as required. You can now begin to tightly integrate ROPES into your environment without having to give up control to ROPES modules that may allow unplanned user interactions.

It is our intention to extend this support to as many modules as is practical, and new ROPEBLxx modules will be introduced, from time to time, in maintenance releases, enhancement releases and in future versions.

5. **Online PDF Creation**

We have included a program and mapset to allow you to quickly implement the creation of PDF documents from ROPES reports in CICS. This facility complements the facility previously released in a batch utility program. The program and mapset are included in source format for your examination and adaptation for your local requirements.

6. **New Manuals**

Two new manuals are provided. The ROPES Messages and Codes manual contains the message and code descriptions formerly found in the ROPES Programmers's Guide. The ROPES Utilities Guide manual contains the descriptions of the ROPES Utilities formerly found in the ROPES Administrator's Guide.

7. Please review the README file for a complete list of fixes and enhancements, or visit our web site at www.axios.com.

Enhancements In ROPES V11.0

Summary for New Release

1. **All Prior Fixes Have Been Applied**
   All fixes that were introduced in ROPES Version 10.0 PTFs or fixes have been applied as part of the Version 11.0 base release.

2. **Enhanced External Interface Client**
   A new feature of ROPES Version 11, called the File Server Program, required enhancement to the ROPES External Interface Client. The enhancement allows the ROPES External Interface to be used to access ROPES files under CICS using the File Server Program. By documenting the interface with the ROPES External Interface Client it becomes possible for your batch application programs or any EXCI compatible interface from non-mainframe platforms, such as CTG or WebSphere, to call the External Interface Client to obtain access to ROPES files (allocated and open to a CICS region) using the File Server Program.

3. **The File Server Program**
   The ROPES File Server program provides a common interface for accessing ROPES files. It eliminates a lot of the repetitive coding required to access ROPES files by providing a flexible interface that does much of the "overhead" work required to access ROPES files through CICS. Most of the standard CICS File Control options are provided by the new File Server interface program. For example, the new File Server program supports the use of Record Level Sharing options, tokens, and request ids. It is also possible to obtain comprehensive information about the file that is being processed. Details on the use and installation of the File Server Program can be found after this chapter in the Programmer's Guide.

    By selecting simple options using a communication area, access to a ROPES file can be accomplished. In many cases, filling in the basic function (i.e. READ), the file name, and the record id is sufficient to retrieve the desired record data. Provided there is enough room in the communication area, a single call can be made to the File Server program to browse a file and return a multiple number of records. For example, a browse can be started on a ROPES file, and then the next 20 records can be read into the communication on a single call to the ROPES File Server Program.

    A sample assembler batch program has been provided to demonstrate and verify the installation of this new feature of ROPES. The sample program is called ROPEXFLE and can be found in the ROPES Distribution Source data set. Sample JCL is also provided to run the sample program. The execution JCL for program ROPEXFLE can be found in member RUNXFLE in the ROPES Distribution Source Dataset.

    It is our intention to provide EXCI based support for all ROPES Batch Utilities to permit full 24 hour availability of ROPES Online activities while allowing batch maintenance to occur with reduced region overhead and with full data integrity.

In this release of ROPES we are implementing this new capability with some new utility functions. These functions provide you with the ability to list information about your ROPES printers and your ROPES reports. This information was not previously available to you in batch.

4. **HTML Files and E-mail Attachments**
In Version 11.0 we have added the ability to send e-mail attachments formatted as HTML documents. Along with that capability, we provided a batch utility program that allows you to convert files or ROPES reports to HTML, and an online transaction to allow you to convert ROPES Reports to HTML.

The conversion programs we use can be invoked by any user application. The interface to the batch and online versions of these conversion programs is documented in the Programmer's Guide.

A batch utility function has been provided to convert ROPES reports into HTML format files. You can transmit these files to end users or store these files on your web server for access through the internet or your intranet.

We have also provided an online sample program and mapset as well, which you may investigate and examine. The ROPES Source Library member ROPEOHTM contains the program and member ROPEHTM contains the mapset.

5. **Improved Trace Output**
The trace output generated for TCP/IP LPR/LPD transmissions, as well as the SMTP traffic created for e-mail report transmission has be significantly improved. The trace will now show all data both in and out of ROPES and is presented in a conventional dump format, with the hexadecimal value of the data on the left and the character values on the right. This improved trace data should make it possible to quickly determine what is contained in the data transmitted by ROPES and the nature of the remote end or SMTP response. The online trace module is ROPETRCE and may be invoked with EXEC CICS LINK using a COMMAREA described by macro ROPETRCM. There is a batch equivalent called ROPEBTRC which can be called dynamically using the same data area map.

6. **Support For Print Servers which Delimit Print Jobs**
A new DCB option is added. FFATEOJ (Form Feed AT End Of Job) will indicate with value Y that the print end point will automatically add a form feed. Option value N, the default, indicates that the print end point does not issue the form feed. The ROPES Print Driver, ROPEDRVR, is modified to recognize this option and to suppress the transmission of the Form Feed for this printer even if Eject When Idle is active. The PCR will be set to reflect the fact that the printer is at the top of form.

Extensions to message ROPES0008 are also provided to show various options in effect when the printer processes a Start command.

7. **Support For Concurrent Online Report Creation Has Been Added**
The ROPES Online Interface program ROPEOSRV now uses the TOKEN() parameter on the READ, REWRITE and DELETE commands where it would be beneficial to allow an application to add data to more than one report in parallel.

8. Please review the README file for a complete list of fixes and enhancements, or visit our web site at www.axios.com.

Enhancements In ROPES V12.0

Summary for New Release

1. **All Prior Fixes Have Been Applied**
   All fixes that were introduced in ROPES Version 11.0 PTFs or fixes have been applied as part of the Version 12.0 base release.

2. **New Business Logic Modules Released**
   New Business Logic modules are released to support ROPN, RORL, ROAL and RORS display information in ROPES and user application programs. The Report Status display module ROPERORS has been split into a Presentation module (ROPERORS) and a Business Logic module (ROPEBLRS). The Network Status display module ROPEROPN has been split into a Presentation module (ROPEROPN) and a Business Logic module (ROPEBLNS). The Report Listing display modules ROPERORL and ROPEROAL have been split into Presentation modules (ROPERORL and ROPEROAL) and a Business Logic module (ROPEBLRL). The Business Logic module returns the data required to produce the ROPO or ROPS display in a COMMAREA, mapped by the copy book ROPEBLCM, available in assembler and COBOL. The copy book released in version 10 (ROPEPSCM) has been withdrawn and replaced by ROPEBLCM. This enhancement is designed to assist clients who wish to integrate ROPES control information into the facilities available in their own SOA implementations.

3. **Business Transaction Services Module Released**
   A new Business Transaction Services module has been released to support ROPN display information in ROPES and user application programs. The Printer Network status display module ROPECLPN has been created as a sample presentation logic module that will use the new CICS BTS-enabled business logic module ROPECNNS. This module uses BTS Process Containers to permit the transfer of data from ROPES to your user application without regard for the CICS imposed 32K COMMAREA size limitation.   This enhancement is designed to assist clients who wish to integrate ROPES control information into the facilities available in their own SOA implementations.

4. **File Server Storage Usage Improved**
   The record storage management routine of the File Server program ROPEFSCP has been enhanced to reduce the storage requirements of the task

5. **Improved Trace Output**
   The trace output generated for TCP/IP LPR / LPD transmissions, as well as the SMTP traffic created for e-mail report transmission has been significantly improved. The trace will now show all data both in and out of ROPES and is presented in a conventional dump format, with the hexadecimal value of the data on the left and the character values on the right. This improved trace data should make it possible to quickly determine what is contained in the data transmitted by ROPES and the nature of the remote end or SMTP response. The online trace module is ROPETRCE and may be invoked with EXEC CICS

LINK using a COMMAREA described by macro ROPETRCM. There is a batch equivalent called ROPEBTRC which can be called dynamically using the same data area map.

6. **Miscellaneous Improvements**

Several diagnostic messages have been improved to provide more information to aid in troubleshooting. Additional error messages have been provided to improve the level of symptom and component detail. The ROPES Device Blocks and Forms Blocks are now marked with the version in which they are generated, allowing upgrades to work with old versions of the control blocks. All fixes released for Version 11 have been incorporated in the new release.

Enhancements In ROPES V13.0

Summary for New Release

1. **All prior fixes have been applied**
   All fixes that were introduced in ROPES Version 12.0 PTFs or fixes have been applied as part of the Version 13.0 base release.

2. **On line Queue Reorganization now can produce a report of its activity**
   The On Line Queue Reorganization program can generate a report of its activities to a Transient Data queue. The generation of the report is controlled from the ROMT transaction. You can select from two report formats: Short and Full. The Short option will generate a report detail for each report processed in which some data is purged. The Full option generates a report with a report detail line for every report in the system. The report format is the same as that generated by the Batch Queue Reorganization program.

3. **Support for IBM 4247, IBM 6400 and other PPDS capable printers is now available**
   Support for printing bar codes using PPDS (Personal Printer Data Streams) controls for printers such as the IBM 4247 or IBM 6400 is now available. These printers can be used by ROPES as either LPR/LPD devices or as Direct Socket printing devices. The bar code request is embedded in the ROPES report using the same strings as are used for IPDS printing. ROPES converts the IPDS information to PPDS information and transmits that data stream to the printer.

4. **Direct printing to an IP socket is now supported**
   ROPES can now print to IP attached printers by printing directly to a socket on the printer. Most such printers can receive data this way on port 9100. The overhead associated with generating an LPR/LPD compliant data stream is removed for printers that support direct socket printing.

5. **Improved Trace Output**
   The trace output generated for TCP/IP LPR / LPD transmissions, the new Direct Socket printing transmissions, as well as the SMTP traffic created for e-mail report transmission has been significantly improved. The trace will now show all data both in and out of ROPES and is presented in a conventional dump format, with the hexadecimal value of the data on the left and the character values on the right. This improved trace data should make it possible to quickly determine what is contained in the data transmitted by ROPES and the nature of the remote end or SMTP response. The online trace module is ROPETRCE and may be invoked with EXEC CICS LINK using a COMMAREA described by macro ROPETRCM. There is a batch equivalent called ROPEBTRC which can be called dynamically using the same data area map.

6. **Batch Queue Reorganization performance greatly improved**
   The Batch Queue Reorganization program has been upgraded to use the ROPES Report to Printer Index

data set to greatly reduce the I/O needed to perform the reorganization process. For each report in the system, the reorganization program had to browse the entire list of defined printers to determine which printer definition needed to be updated. With the changes introduced in this release, all printer records are read directly and substantial I/O overhead has been removed.

7. **Miscellaneous Improvements**
   - Several diagnostic messages have been improved to provide more information to aid in troubleshooting.
   - It is now possible to run the Report to Printer Index rebuild without first deleting and redefining the ROPERPI cluster.
   - The Queue Reorganization Scheduler program has been updated to provide sample code for controlling the scheduling of the on line queue reorganization program based on the day of the week.

   - Additional error messages have been provided to improve the level of symptom and component detail.

Enhancements In ROPES V14.0

Summary for New Release

1. **All prior fixes have been applied**
   All fixes that were introduced in ROPES Version 13.0 PTFs or fixes have been applied as part of the Version 14.0 base release.

2. **Support for new TCP/IP Translation Options is introduced.**
   We have enhanced the data translation options in ROPES for TCP/IP attached printers (LPR and Direct Socket). In addition to the existing translations using the CICS Sockets routines EZACIC04 and EZACIC05, we have added support for EZACIC14, EZACIC15, and EZACICTR, including the EZACIE2A, EZACIA2E and EZACICTR entry points.

   The EZACICTR routine is provided as a sample routine in z/OS Communications Server for z/OS V1R9.0, and is available on the web for earlier releases. The EZACICTR routine and its entry points allow an installation to:
   - select a translation table dynamically;
   - add their own translation tables; or
   - pass the translation table to use to the translation routine.

3. **The CICS Socket APPLDATA value is now generated.**
   We have added the APPLDATA 40 character string to the ROPES Socket connection data. This allows you to have a better understanding of the purpose of the ROPES active sockets connections. The associated application data is made available on Netstat ALL/-A, ALLConn/-a and COnn/-c reports, in SMF 119 TCP Connection Termination records and though the Network Management Interface (NMI) on the GetTCPListeners and GetConnectionDetail poll requests.

   The APPLDATA insertion mechanism is an IOCtl call, introduced in CS V1R9 and rolled back to V1R8 and V1R7. We will add this call as a free-standing call which will follow the successful execution of a connect call. The IOCtl call will be traced. Errors from the call that result from the support for this call being unavailable will not result in an error condition with regards to ROPES processing. It will not be logged or reported back to the user other than in the trace activity. The trace activity will show both the data area prior to the call and the results after the call.

4. **The ROPES Stand-By Facility is introduced.**
   The ROPES Standby Facility provides a place for CICS transactions that store data in ROPES to work seamlessly even if the ROPES Primary Facility data sets are unavailable. This is similar to the ROPES Alternate Facility, but is only available in the CICS environment.

   The user transactions that stores data in ROPES do so as always. The ROPES Interface program, ROPEOSRV, which is invoked by EXEC CICS LINK from the application program, will detect that the ROPES Primary Facility is unavailable, either because ROPES was stopped (the System Control Record

is so flagged in the ROPERIB data set) or because the ROPERIB data set is unavailable to the application.

The ROPEOSRV module will then determine if there is a Standby Facility available by checking for the presence of the ROPESBR data set and that the data set is open, or can be opened. If the Standby Facility is available, ROPEOSRV will hand the request off to the Standby Interface Program, ROPEOSBY, for processing. It is anticipated that each region that needs this support will have its own set of Standby Facility data sets (ROPESBR and ROPESBQ).

If there is no Standby Facility available, or if the application performs any ROPES function that implies or requires that existing report data be retrieved, the application will receive the ROPES NOT AVAILABLE return code ("5") and no Standby Facility processing will occur. This facility is provided for the sole purpose of allowing user on line applications to create report data when the ROPES Primary Facility is not available.

The data stored in each local region's Standby Facility data sets will be processed by the ROPES Primary Facility region once ROPES is available. The Standby Facility Processor will be started, either by command (SSTA) or by running the ROPESSTA program in the regions startup PLT.

A new batch utility command is provided to allow you to configure the SYSIDENT values of the CICS regions that will participate in Stand-By Facility processing.

5. **Support for non-standard SMTP sockets is added.**
    The ROPES SMTP printing process now supports the use of an SMTP server that is not listening on the standard port 25. The ROPES Device Block Sockets segment has had a new field added to accommodate the SMTP server port number to be used when connecting to the server. The ROPESDEV TYPE=SOCKETS macro instruction now accepts the value SOKPORT=NNNNN, where NNNNN is a number in range of 1 - 61439. The default value is still 25, the standard SMTP port number, which will be used if the SOKPORT keyword is not specified, or if the Device Block was created prior to V13. The anticipated use of this is to provide the ability to have different ROPES SMTP printer tasks communicate with different SMTP servers if you have the need to distribute your workload, and to allow you to assign a non-standard port when you have no other way, such as a firewall, to prevent the use of the server for unintended purposes, for example, as an Open Relay mail server for use by spammers and other unsavory types.

6. **The Utility Driver now allows comments in its input.**
    The batch utility driver program, ROPEUTIL, now permits comments in its input stream.

Enhancements In ROPES V15.0

Summary For New Release

1. **All prior fixes have been applied.**
    All fixes that were introduced in ROPES Version 14.0 PTFs or fixes have been applied as part of the Version 15.0 base release.

2. **Business Logic for ROPES System Status is released.**
    A new Business Logic module is released to support ROSS display information in ROPES and user application programs. The System Status display module R51SSTAT has been split into a Presentation module (R51SSTAT) and a Business Logic module (ROPEBLSS). The Business Logic module returns the data required to produce the ROSS display in a COMMAREA, mapped by the copy book ROPEBLCM, available in assembler. This enhancement is designed to assist clients who wish to integrate ROPES control information into the facilities available in their own SOA implementations

3. **A Business Transaction Services module for ROPES Report Status List is released.**
    A new Business Transaction Services module has been released to support RORL display information in ROPES and user application programs. The new CICS BTS-enabled business logic module ROPECNRL uses BTS Process Containers to permit the transfer of data from ROPES to your user application without regard for the CICS imposed 32K COMMAREA size limitation. This enhancement is designed to assist clients who wish to integrate ROPES control information into the facilities available in their own SOA implementations

4. **The ROPES Web Interface is released.**
    The ROPES Web Interface is a basic working example of how ROPES might be presented to the end-user through a Web Browser interface. It can be used as is or tailored to accommodate your installation's needs or preferences. A sample security exit is also provided. It is expected that your installation will modify this exit to meet your own security requirements.

    The current implementation does not permit an end user to edit or alter any ROPES information. This is planned for a future release. However, you should note that unless otherwise restricted, the end user can view any report contents in the system.

    The ROPES Web Interface uses the ROPES Business Logic and Business Transaction Services Container Services modules previously released, and one new module of each type that is being released concurrent with the introduction of the interface (see above). We have released this version of the web interface in source code as well as object code format so that you may use the programs as examples of how this can be done, and it does not require you to directly interface with the internal ROPES controls or require you to process the ROPES data sets directly.

5. **Diagnostic Capabilities Have Been Added to ROPEWAKE (transaction R#WU).**

Additional output diagnostics are available for the R#WU transaction (program ROPEWAKE). This diagnostic information is activated by a control record placed in the ROPEPRM data set. You can select up to five reports and five printers to trigger the additional diagnostics, which are written to the ROPES Message Log Queue.

Enhancements In ROPES V16.0

Summary For New Release

1. All prior fixes have been applied
   All fixes that were introduced in ROPES Version 15.0 PTFs or fixes have been applied as part of
   the Version 16.0 base release.

2. Full support for z/Architecture machines is implemented.
   Much of the ROPES code has been in existence since before the introduction of z/Architecture. In
   order to take advantage of the improvements in maintainability offered by the use of the new
   instructions, all ROPES assembler modules containing executable code have been revised, and
   where appropriate, have been restructured.

3. VSCR Improvements
   Wherever possible, the ROPES modules and work areas have been moved above the line and are
   re-entrant, allowing more favorable storage placement and a reduction of below the line storage
   requirements.

4. The ROPES Web Interface is enhanced.
   The ROPES Web Interface now supports user authentication and rights management using
   TCPIPSERVICES Basic Authentication and SAF support, including RACF support. User identity
   and resource usage are controlled with EXEC CICS VERIFY PASSWORD and EXEC CICS
   QUERY SECURITY services.

5. The ROPES SVC Can Now Be Dynamically Installed.
   The ROPES SVC, if used, required an IPL to install, unless you already had a program available
   to do the install dynamically. ROPES now includes a program that allows the dynamic installation
   or reinstallation of the SVC.

6. The Batch and Online Trace services have been enhanced.
   Trace data formatting now includes the marker "LINES XX/XX - YY/YY SAME AS ABOVE".
   Long areas of replicated trace data results in many unneeded lines trace output. These unneeded
   lines are replace with the marker to indicate the replication.

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