Dicer

Programmer's Guide and Reference
Licensed Program 2A55DCR V1R6M0

Spooled File Conversion

Edition

Sixth Edition (August 2009)

This edition applies to the licensed program Dicer (Program 2A55DCR), Version 1 Release 6 Modification 0, and to all subsequent releases and modifications until otherwise indicated in new editions. This revision makes all previous editions obsolete. Make sure you are using the proper edition for the level of the product.

This manual is available as option 1 from the DICER menu or in PDF format in directory /Gumbo/Proddata/2A55DCR/doc on your system or on the web.

We welcome your comments. Send them to:

GUMBO
Software, Inc.

```
809 W Howe St
Seattle, WA 98119
United States of America
Phone:  (206) 284-5078
Email:  support2009@gumbo.com
Web:    www.gumbo.com
```

Contents

Chapter 1 Introduction

What's In This Chapter

This chapter introduces you to Dicer. The chapter:

- Describes the features of Dicer.
- Describes what Dicer does.
- Describes Dicer's relationship to other products.
- Outlines future directions for the product.

Dicer Features

Dicer is a software utility that allows you to merge, sort, dice (split), and/or duplicate the content of i5/OS spooled files, creating one or more new spooled files as a result. With Dicer you can reorganize an application's output without modifying the application.

As examples, these capabilities allow you to:

- Merge a spooled file contain customer invoices with a spooled file containing the related packing slips, sorting by customer number. The resulting spooled file will contain each customers' invoice and related packing slip as consecutive pages eliminating the manual effort required to collate the original spooled files.
- Duplicate a spooled file to additional output queues for printing.
- Sort the contents of a spooled file to avoid manual collating steps.
- Split the pages of a large spooled files into multiple spooled files containing only the pages specific to a department, user, store or branch.

Dicer supports the following i5/OS print data streams:

- *SCS (SNA Character String)
- *IPDS (Intelligent Printer Data Stream)
- *AFPDS (Advanced Function Printing Data Stream)

Our Display Page Data (DSPPAGDTA) command is included in the product. The command allows you to display selected data from within a spooled file. The command supports output to a display, to print, and most interestingly to an output file. For example, by displaying the page positions of the customer number in spooled files containing invoices, you can create an index from customer number to the related spooled files that contain their invoices.

Our Retrieve Page Data (RTVPAGDTA) command is included in the product. The command allows you to retrieve data from a specific position spooled file. The requested data is returned in a Control Language (CL) program variable.

For example, by retrieving the page position of the customer number in a spooled file containing an invoice, you can determine the customer number for which the invoice was generated from within a CL program.

Dicer includes a work-a-like for i5/OS's Work with Spooled File (WRKSPLF) command called Work with Gumbo Spooled Files (WRKGSISPLF). It also includes a work-a-like for i5/OS's Work with Output Queue (WRKOUTQ) command called Work with Gumbo Output Queue (WRKGSIOUTQ). These commands provide the same functions as their i5/OS equivalent. In addition they provide an option that allows you to access the function of Dicer by entering an option number.

What Dicer Does

The main function of Dicer is accessed by running the Merge Spooled File (MRGSPLF) command. The command takes one or more existing i5/OS spooled files as input and merges, sorts, dices (splits) and/or duplicates the spooled files' content based on the criteria you specify.

The command creates one or more new spooled files which are placed in the requested output queue.

The merge process is described in detail in Chapter 5 Merge Processing.

Product Positioning

Gumbo Software, Inc. has several i5/OS based products:

Number	Licensed Program
2A55RM1	Report Manager - Monitors output queues and distributes spooled files.
2A55SM1	SpoolMail - Sends spooled files as email.
2A55SAM	Spool-a-Matic - Converts spooled files into PC files.
2A55XL1	Excel-erator - Converts/emails database files into/as Excel spreadsheets.
2A55DCR	Dicer - Merge/sort/split/duplicate spooled files.
2A55RDA	Report Designer - Edit DDS, RPG and ILE/RPG print specifications.
2A55SM2	Gumbo Mail - Sends email from your applications.

There is some overlap between and unique function within the products. Choose the product or combination of products that provide the function you need:

Function	RM1	SM1	SAM	XL1	DCR	RDA	SM2
Monitor an output queue for work	YES	YES	YES	—	—	—	—
Spooled file distribution	YES	—	—	—	—	—	—
Burst (split) spooled files	YES	YES	YES	—	YES	—	—
Merge/sort/dup spooled files	YES	—	—	—	YES	—	—
Convert spool to text PC file	YES	—	YES	—	—	—	—
Convert spool to PDF/RTF/HTML...	—	—	YES	—	—	—	—
Convert database file to Excel	—	—	—	YES	—	—	—
Email spool as text attachment	YES	YES	—	—	—	—	—
Email spool as PDF/RTF/HTML...	—	YES	—	—	—	—	—
Email database file as Excel	—	—	—	YES	—	—	—
Email any IFS file	—	YES	—	YES	—	—	YES
Set up i5/OS SMTP & mail router	YES	YES	—	YES	—	—	YES
Edit DDS, RPG, ILE/RPG source	—	—	—	—	—	YES	—

Future Directions

Future releases of Dicer will include enhanced functionality based on customer feedback. Additionally, enhancements are often added to a current release by Program Temporary Fix (PTF). Candidate enhancements include:

- Additional control over the attributes of the generated spooled files.

Contact Gumbo Software Inc for information on scheduling or to suggest enhancements.

Chapter 2 Installation

What's In This Chapter

This chapter describes

- How to install Dicer.
- How to verify the installation.
- API authority granted during installation
- How to include the DICER library in a job's library list.
- How to determine release dependencies.
- How to test a new release while leaving the old in production.
- How to remove Dicer from the system.
- How to find additional installation information.
- How to contact technical support.
- Hot site installation.

Installing Dicer

Follow these instructions to install Dicer V1R6M0 on your System i:

Note: If you have downloaded this software from the web, instructions specific to installing from the download can be found in the file "readme.htm" which is included in the download.

1. Sign on to the system as the security officer (QSECOFR).
2. Verify that your machine is at i5/OS V5R4M0 or later by running:

   ```
   DSPDTAARA DTAARA(QGPL/QSS1MRI)
   ```

   Note: If you are running a version of i5/OS earlier than V5R4M0 you can not install Dicer V1R6M0 on your machine. You must install an earlier version of Dicer or upgrade the operating system.

3. Verify that user domain objects are allowed in the libraries DICER and QSRV, by running:

   ```
   WRKSYSVAL   SYSVAL(QALWUSRDMN)
   ```

   Take option 5 to display the value. If the value is not *ALL, use option 2 to add libraries DICER and QSRV to the list of libraries where user domain objects are allowed.

   Note: QSRV is required to correctly process PTFs when they are loaded and applied.

4. Insure that i5/OS will be able to verify the signatures that we apply to our product's objects by installing our Signing Certificate and Root CA Certificate using Digital Certificate Manager. Alternately, insure that signature verification will not prevent the restore operation by running:

   ```
   WRKSYSVAL SYSVAL(QVFYOBJRST)
   ```

   Take option 5 to display the value. If the value is 3 or higher, use option 2 to temporarily change the value to 1.

5. Mount the distribution media in the appropriate device.
6. Submit the Restore Licensed Program (RSTLICPGM) command to batch:

   ```
   RSTLICPGM   LICPGM(2A55DCR) DEV(device-name) LNG(2924)
   ```

   Note: "device-name" is the device the media was mounted on and is usually OPT01.

Note: During the restore operation the system operator message queue may receive inquiry message CPA3DE4 "Directory not registered. (C G)". Unless you are using a directory naming convention similar to ours (that is the directory specified in the CPA3DE4's second level text is unrelated to our software), You can safely respond with a "G" to reestablish the relationship between the directory and the product. Typically the message will occur three times.

When the RSTLICPGM command finishes a new library DICER and a new directory '/Gumbo/ProdData/2A55DCR' are on the system. You can access the Dicer menu by entering the following command:

```
GO  MENU(DICER/DICER)
```

You can determine which PTFs were included on the media by entering the following command:

```
DSPPTF  LICPGM(2A55DCR)
```

A list of current PTFs can be found at www.gumbo.com. If there are newer PTFs available, download and install them. The bottom of our PTF web page also includes a listing of any IBM PTFs that affect the product.

Note: Gumbo Software recommends downloading the current cumulative PTF package after installing the software.

Verifying Dicer Installation

You can verify that Dicer has been correctly installed by running the Check Product Option (CHKPRDOPT) command:

```
CHKPRDOPT PRDID(2A55DCR) RLS(V1R6M0) CHKSIG(*NONE)
```

Note: If you have installed our digital certificates, specify CHKSIG(*ALL) instead of CHKSIG(*NONE) and digital signatures will be checked.

If the message 'No errors detected by CHKPRDOPT.' is displayed on the bottom of your display when the command finishes, Dicer is installed correctly.

If the message is not displayed, check your job log messages or see the Recovery Procedures in the Software Installation Problems section of the Trouble Shooting chapter.

API Authority Granted During Installation

The first time Dicer is installed on a system, public authority *USE is granted to the i5/OS supplied spooling APIs. These are QSPOPNSP, QSPCRTSP, QSPGETSP, QSPPUTSP and QSPCLOSP. The APIs are used by Dicer to open, create, write, read and close spooled files. This is required to perform the product's functions.

Security restrictions and authority requirements pertaining to spooled files and output queues remain in effect and are enforced by i5/OS during use of the APIs. However, if you are operating a highly secured environment you may wish to review and revise the authority granted during installation.

No authority is granted during installation if Dicer exists on the system. This prevents new releases from altering changes made after the initial installation.

Library List Considerations

Library DICER must be in the library list of jobs using Dicer commands, or the commands must be qualified with library DICER. Depending on your installation and intended use you can choose to:

- Add library DICER to the system library list. This insures every job in the system has access to Dicer commands. However this introduces problems with installing new releases and is not recommended.
- Add library DICER to the initial library list parameter of job descriptions controlling jobs which will use Dicer commands. (recommended)
- Run a ADDLIBLE DICER command in individual threads requiring Dicer commands.
- Qualify the command names on each use:

```
DICER/CHGDCRAUT
```

Library DICER will be temporarily added to the product portion of the current thread's library list.

Determine the best method for your installation and perform any changes required.

Release Considerations

Dicer operates under i5/OS V5R4M0 or higher. Releases occur on a different schedule than IBM releases. Once Dicer is installed the following considerations apply:

- A new release of i5/OS may be installed without installing a new release of Dicer.

  Dicer uses only published or IBM sanctioned interfaces and is upward compatible with all releases of i5/OS. The Dicer authorization code does not change.

- A new release of Dicer may be installed without installing a new release of i5/OS.

  Any change in the requirements for operating system release level will be noted in the documentation accompanying the Dicer release. The new authorization code must be entered.

- A new release of Dicer may be installed over any prior release of Dicer.

  You can skip "missed" releases.

- More than one release of Dicer may be installed on a system at one time.

  By restoring Dicer to a library other than DICER a new release can be installed for testing while the current release remains in production. Any release to release considerations that may apply will be noted in the documentation accompanying the new release. Additional operational considerations may apply. For more information on renaming a library during licensed program installation see the Restore Licensed Program (RSTLICPGM) command and the New Release Testing section of this chapter.

- When a new release of Dicer is installed in the same library as an old release the following processing is performed in order to preserve data and Dicer authorization information:
    1. The Dicer library is saved to QGPL/DCRVxRyMz. Where VxRyMz is the current release.
    2. Product objects that contain default settings and operational information are copied to library QTEMP.
    3. The Dicer library is cleared.
    4. Dicer is restored.
    5. Default settings and operational information are copied back to the product objects.
    6. All objects duplicated to QTEMP are deleted.
    7. Save file QGPL/DCRVxRyMz is deleted.

Note: Gumbo Software recommends making a backup of the current release before installing a new release of Dicer.

New Release Testing

Unlike IBM licensed programs, Gumbo Software licensed programs are packaged in a way that allows multiple release to be installed on your System i at the same time. This feature allows you to test a new release while the current release remains in production.

The key to new release testing are the LIB() and CODHOMEDIR() parameters of i5/OS's Restore License Program (RSTLICPGM) command which allow you to restore the product to a library name and directory different than the those used during packaging.

To test a new release, follow this procedure:

1. Review the Enhancement Summary for any release to release considerations that could affect your installation.
2. Install the new release in library DCRV1R6M0 and directory '/Gumbo/ProdData/2A55DCRV1R6M0':

```
RSTLICPGM  LICPGM(2A55DCR) DEV(device-name) LNG(2924)
           LIB(DCRV1R6M0) REPLACERLS(*NO)
           CODHOMEDIR('/Gumbo/ProdData/2A55DCRV1R6M0')
```

where device-name is the device the media was mounted on.

3. Perform your new release testing.
4. When testing is complete you must delete the new release.

```
DLTLICPGM  LICPGM(2A55DCR) RLS(V1R6M0) OPTION(*ALL)
```

Note: Do not delete nor rename libraries and directories to move the new release into production. Doing so will corrupt the license program information kept internally by i5/OS. If this has already occurred, see the Software Installation Problems section of the "Trouble Shooting" chapter.

5. Follow the installation instructions to place the new release into production.

Deleting Dicer

Follow these instructions to remove Dicer from your System i:

1. Sign on to the system as the security officer (QSECOFR).
2. Delete the Dicer library by using the Delete Licensed Program (DLTLICPGM) command:

```
DLTLICPGM  LICPGM(2A55DCR) OPTION(*ALL)
```

Additional Installation Information

Additional detailed installation information and instructions can be found in the InfoCenter i5/OS and related software > Install, upgrade, or delete i5/OS and related software SC41-5120.

Technical Support

If you encounter a problem with Dicer you should:

- Review the information in Chapter 7 Trouble Shooting for a description of and solution to common problems.
- Load and apply the current cumulative PTF package for the software. You can obtain the current package by visiting the web site listed below.

If the problem remains unresolved, contact:

GUMBO

Software, Inc.

```
809 W Howe St
Seattle, WA 98119
United States of America
Phone:   (206) 284-5078
Email:   support2009@gumbo.com
Web:     www.gumbo.com
```

If your problem involves spooled file processing, the best method for getting it resolved is to capture the spooled file using the Create Spool Save File (CRTSPLSAVF) command and e-mail the resulting save file along with a description of the problem to the address listed above. Be sure to include contact information.

Note: See Chapter 7 Trouble Shooting for details on creating and sending spool save files.

Hot Site Installation

In the event of a catastrophic system failure, an otherwise properly licensed and authorized copy of our product may be copied to a back up or fail over machine. The product's authorization algorithm will detect that the software is operating on a machine serial number different than the licensed and authorized serial number and automatically create and install a 30 day temporary authorization code for the back up or fail over machine. You do not need to contact Gumbo Software, Inc. in the event of an emergency.

An otherwise properly licensed and authorized copy of this product may be transferred to a back up or fail over machine for the purpose of testing your emergency recovery procedures and the product's automatic temporary authorization function.

The correct sequence of steps is as follows:

1. Install the software and enter the permanent authorization code on your production machine.
2. Save the software from your production machine using the Save Licensed Program (SAVLICPGM) command. This creates an authorized copy, save it with your back ups.
3. When restoring to the back up or fail over machine you must first insure that any previous copies have been deleted. To delete a previous copy use the Delete Licensed Program (DLTLICPGM) command.
4. Restore the authorized copy to the back up or fail over machine using the Restore License Program (RSTLICPGM) command.
5. The first time the software is used on the back up or fail over machine the product's authorization algorithm will create and install a temporary authorization code running for 30 days. This allows you install the authorized copy in advance of a disaster.

Chapter 3 Menu

What's In This Chapter

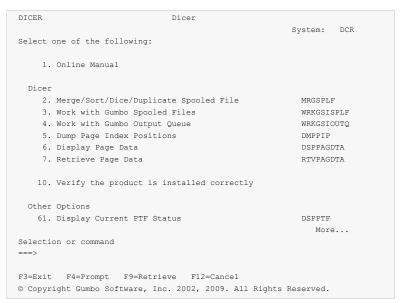This chapter describes how to access the Dicer menu, and reviews the functions that can be performed from the menu.

Accessing The Menu

The Dicer commands and functions that you will use most often are collected on a menu named DICER. To access this menu use the Go To Menu (GO) command:

```
GO  MENU(DICER/DICER)
```

Library DICER is added to the product portion of the current thread's library list while the menu is displayed.

Menu Options

```
DICER                        Dicer
                                                   System:   DCR
Select one of the following:

     1. Online Manual

  Dicer
     2. Merge/Sort/Dice/Duplicate Spooled File         MRGSPLF
     3. Work with Gumbo Spooled Files                  WRKGSISPLF
     4. Work with Gumbo Output Queue                   WRKGSIOUTQ
     5. Dump Page Index Positions                      DMPPIP
     6. Display Page Data                              DSPPAGDTA
     7. Retrieve Page Data                             RTVPAGDTA

    10. Verify the product is installed correctly

  Other Options
    61. Display Current PTF Status                     DSPPTF
                                                        More...
Selection or command
===>

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
© Copyright Gumbo Software, Inc. 2002, 2009. All Rights Reserved.
```

The Dicer (DICER) menu options are summarized below:

Note: See the detailed descriptions in chapters 5 and 6 for a complete explanation of each option.

Option 1. Online Manual

The online manual allows you to view the contents of the Dicer Manual from a work station.

Option 2. Merge Spooled File

The Merge Spooled File (MRGSPLF) command combines the pages of one or more spooled files to create a new spooled file and optionally sorts the pages.

Option 3. Work with Gumbo Spooled Files

The Work with Gumbo Spooled Files (WRKGSISPLF) command works like i5/OS's Work with Spooled Files (WRKSPLF) command but provides additional options to access the functions of Dicer.

Option 4. Work with Gumbo Output Queue

The Work with Gumbo Output Queue (WRKGSIOUTQ) command works like i5/OS's Work with Output Queue (WRKOUTQ) command but provides additional options to access the functions of Dicer.

Option 5. Dump Page Index Positions

The Dump Page Index Positions (DMPPIP) command prints the line and position values, for data found in the spooled file, as calculated by the software. These are used to specify data selection criteria for the spooled file.

Option 6. Display Page Data

The Display Page Data (DSPPAGDTA) command shows the contents of a spooled file's pages at specified locations. The contents can be shown, printed, or directed to database output file (OUTFILE).

Option 7. Retrieve Page Data

The Retrieve Page Data (RTVPAGDTA) command retrieves data from a specific location in a spooled file. The requested data is returned in a Control Language (CL) program variable.

Option 10. Verify the product is installed correctly

Installation verification checks to make sure that Dicer has been correctly installed.

Option 61. Display Current PTF Status

Displays the Dicer PTFs that have been applied to the software.

Option 62. Change Dicer Authorization

The Change Dicer Authorization (CHGDCRAUT) command changes the authorization code for Dicer. The command is used to extend a demonstration period or to permanently authorize Dicer for a system or a partition.

Option 63. Search Help Index

Search help index allows you to access the Dicer help index and search for specific information.

Option 64. Change Dicer Default

The Change Dicer Default (CHGDCRDFT) command changes values used by Dicer to control processing and other activities.

Option 65. Create Spool Save File

The Create Spool Save File (CRTSPLSAVF) command creates a save file containing a spooled file and all its related resources. The save file is suitable for emailing with a problem report.

Option 66. Check Dicer Authorization

The Check Dicer Authorization (CHKDCRAUT) command executes Dicer's authorization verification function. This allows you to determine whether and how the product is authorized for use.

Chapter 4 Implementation

What's In This Chapter

This chapter describes how to implement Dicer in your environment. The chapter:

- Gives an overview of implementation choices.
- Describes changing programs to process spooled files.
- Describes manually processing spooled files.
- Describes a CL coding tip.

Overview

The main function of Dicer is accessed by running the Merge Spooled File (MRGSPLF) command. The command takes one or more existing i5/OS spooled files as input and merges, sorts, dices (splits) and/or duplicates the spooled files' content based on the criteria you specify. To implement Dicer in your environment you have two basic choices:

1. Modify each program that creates spooled files that will be processed to directly run the Merge Spooled File (MRGSPLF) command.

Pros	The spooled files are always processed as soon as they are created.
Cons	Programs must be modified and recompiled.

2. Manually run the Merge Spooled File (MRGSPLF) command from a command line or using option 15 from the Work with Gumbo Spooled Files (WRKGSISPLF) or Work with Gumbo Output Queue (WRKGSIOUTQ) displays.

Pros	Good for casual or on demand use, no program changes required.
Cons	Requires manual operations and scheduling.

See the following sections for a detailed discussion of the choices.

Changing Programs

Dicer can be implemented by changing the programs that create spooled files to process them directly. A typical batch Control Language (CL) program that creates two spooled files, one containing invoices the other containing packing slips would contain the following CL sequence:

```
        .
        .
OVRDBF     FILE(CUSTOMER)  TOFILE(ACGLIB/CUSTOMER)
OVRDBF     FILE(OPNINVOICE)  TOFILE(ACGLIB/OPNINVOICE)
OVRDBF     FILE(SHIPMENTS)  TOFILE(INVLIB/SHIPMENTS)
CALL       PGM(ACGLIB/PRTINVOICE)
CALL       PGM(INVLIB/PRTPACKSLP)
        .
        .
```

If program PRTINVOICE generates spooled file INVOICES and program PRTPACKSLP generates spooled file PACKSLIP then the following changes will merge the 2 spooled files into one new spooled file:

Note: In this example the customer number is 9 positions long and is located at line 2 position 12 in the invoices and at line 15 position 44 in the packing slips.

```
              .
              .
OVRDBF     FILE(CUSTOMER) TOFILE(ACGLIB/CUSTOMER)
OVRDBF     FILE(OPNINVOICE) TOFILE(ACGLIB/OPNINVOICE)
OVRDBF     FILE(SHIPMENTS) TOFILE(INVLIB/SHIPMENTS)
OVRPRTF    FILE(INVOICES) HOLD(*YES) /* Can't let it print */
CALL       PGM(ACGLIB/PRTINVOICE)
OVRPRTF    FILE(PACKSLIP) HOLD(*YES) /* Can't let it print */
CALL       PGM(INVLIB/PRTPACKSLP)
MRGSPLF    MRGFILE((INVOICES * *LAST (2 12 9)) +
                  (PACKSLIP * *LAST (15 44 9))) +
              TOFILE(INVPCKSLP)
RLSSPLF    FILE(INVOICES) SPLNBR(*LAST) /* Now it can print */
RLSSPLF    FILE(PACKSLIP) SPLNBR(*LAST) /* Now it can print */
RLSSPLF    FILE(INVPCKSLP) SPLNBR(*LAST)
              .
              .
```

The 2 spooled files are merged into one new spooled file with the name INVPCKSLP which contains the invoice for customer number 1 followed by the packing slip for customer number 1 then the invoice for customer number 2, etc.

The spooled files are processed as soon as they are generated.

Manually Processing Spooled Files

Dicer can be implemented by assigning an operator the task of manually processing spooled files. The Merge Spooled File (MRGSPLF) command can be run from any command line, from the DICER menu, or from Dicer's Work with Gumbo Spooled Files (WRKGSISPLF) or Work with Gumbo Output Queue (WRKGSIOUTQ) commands.

CL Coding Tip

Many of our commands accept a variable number of values for a given parameter. For example, the Send Spool Mail (SNDSPLMAIL) command accepts up to 300 email addresses on the recipient parameter. When writing CL programs, the problem of how to code for a variable number of email addresses without coding the SNDSPLMAIL command multiple times (once for each address count) arises. The solution is a little known CL trick for coding "no value" in a variable. "No value" is represented in CL by '*N'. Consider the following program fragment:

```
PGM
DCL        VAR(&ADD1) TYPE(*CHAR) LEN(128) VALUE('*N')
DCL        VAR(&ADD2) TYPE(*CHAR) LEN(128) VALUE('*N')
DCL        VAR(&ADD3) TYPE(*CHAR) LEN(128) VALUE('*N')
              .
CHGVAR     VAR(&ADD1) VALUE(NOBODY@GUMBO.COM)
              .
SNDSPLMAIL FILE(QPDSPLIB) TRANSFORM(*TXT) +
              TOSMTPNAME((&ADD1) (&ADD2) (&ADD3))
              .
ENDPGM
```

Since &ADD2 and &ADD3 contain '*N' they are treated as if they weren't specified on the command and the email is sent to only one address.

Chapter 5 Merge Processing

What's In This Chapter

This chapter describes the spooled file merge processing available with Dicer. The chapter:

- Gives an overview of the merging processing.
- Describes the details of merge processing.
- Describes the limitations of merge processing.

Overview

The Merge Spooled File (MRGSPLF) command retrieves each requested spooled file from i5/OS's spool store, merges the contents of the spooled files' print data streams and outputs a new spooled file. Dicer can process spooled files containing the following i5/OS print data streams:

- *SCS (SNA Character String)
- *IPDS (Intelligent Printer Data Stream)
- *AFPDS (Advanced Function Printing Data Stream)

Note: The type of data stream produced for a spooled file is determined by the DEVTYPE parameter of the printer file associated with the application.

The following section describes the processing in more detail.

Merge Processing Details

As described above, the Merge Spooled File (MRGSPLF) command retrieves each requested spooled file from i5/OS's spool store. It then builds an index over each spooled file based on the Page sort key specified. The entries from each index are sorted together and the print data stream for each page is copied from the original spooled file into a new spooled file.

The attributes of the resulting output spooled file are copied from the first spooled file specified in the merge file list. The new spooled file is given the name specified and placed into the output queue specified.

Since the print data stream is copied unaltered, each source spooled file must contain the same data stream type. You can determine a spooled file's print data stream type by running the Work with Spooled File Attr (WRKSPLFA) command and locating the "Printer device type" value. You can change the print data stream generated by a printer file by overriding (OVRPRTF) or changing (CHGPRTF) it's DEVTYPE() parameter.

If Generate multiple files SPLIT(*YES) is specified on the Merge Spooled File (MRGSPLF) command, a new spooled file is created each time the Page sort key data in the index entry changes. Each resulting spooled file has its User data (USRDTA) attribute set to the first 10 characters of the Page sort key data.

Merge Processing Limitations

Dicer imposes the following limitations:

- The spooled files most contain one of the following print data streams types:
    - *SCS (SNA Character String)
    - *IPDS (Intelligent Printer Data Stream)
    - *AFPDS (Advanced Function Printing Data Stream)
- Each spooled file in a single merge must have the same print data stream types.
- The combined sorted index used to process the output spooled file is limited by the current implementation to 16 Meg. Each entry is 32 bytes long and there is overhead of 1K plus and

additional 1K per source spooled file. Therefore the total number of pages of combined output is limited to approximately 750,000 pages.

- The attributes of the output spooled file are copied from those of the first source spooled file specified. If the source spooled files are sufficiently dissimilar in their attributes such as page size, an unprintable spooled file may result.

Chapter 6 Commands

What's In This Chapter

This chapter describes the control language (CL) commands supplied by Dicer. The commands are arranged in alphabetic order by command name (mnemonic). Each description includes environment and threadsafe classification, a brief general description, detailed parameter explanations, examples and message information.

Archive Spooled File (ARCSPLF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Archive Spooled File (ARCSPLF) command creates a spooled file archive which can be saved and restored, and from which the spooled file can be retrieved (recreated).

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*	Required, Positional 1
ARC	Spooled file archive	*Qualified object name*	Optional
	Qualifier 1: Spooled file archive	*Name*, ***GEN**	
	Qualifier 2: Library	*Name*, ***CURLIB**	
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

> **name**   Specify the name of the spooled file.

Spooled file archive (ARC)

Specifies the name of the archive that contains the spooled file.

Element 1: Spooled file archive

> ***GEN**   Generate the archive name from the supplied FILE, JOB, and SPLNBR parameters.
> **name**   Specify the name of the archive.

Qualifier 2: Library

> ***CURLIB**   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
> **name**   Specify the name of the library.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

> *****   The job that issued the command.

Qualifier 1: Job name

> **name**   Specify the name of the job. CHAR(10)

Qualifier 2: User

> **name**   Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999   Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Examples

Example 1:

```
ARCSPLF   FILE(QSYSPRT)
```

This command archives the last spooled file named QSYSPRT. The current job is searched to locate the file. The archive is placed in the job's *CURLIB.

Example 2:

```
ARCSPLF   FILE(QPQUPRFIL) ARC(QGPL/*GEN) SPLNBR(3)
```

The file named QPQUPRFIL which is spooled file number 3 in the job executing this command is archived. The archive is placed in library QGPL.

Change Dicer Authorization (CHGDCRAUT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Change Dicer Authorization (CHGDCRAUT) command changes the authorization code for Dicer. The command is used to extend a demonstration period or to permanently authorize Dicer for a system or a partition.

Parameters

Keyword	Description	Choices	Notes
AUTH	Authorization code	*Hexadecimal value*	Required, Positional 1
EXPDAT	Expiration date (CCYYMMDD)	*Character value*, **<u>*NONE</u>**	Optional, Positional 2
LICTYP	License type	**<u>*SYS</u>**, *LPAR	Optional, Positional 3
PRCMAX	Processor maximum capacity	*Decimal number*	Optional, Positional 4

Authorization code (AUTH)

Specifies the authorization code to use. The authorization code is 8 hex digits that may be entered in upper or lower case.

This is a required parameter.

Expiration date (CCYYMMDD) (EXPDAT)

Specifies the date on which the authorization expires.

<u>*NONE</u>	The authorization is permanent.
date	The date on which the authorization expires in CCYYMMDD format.

License type (LICTYP)

Specifies the type of license that is authorized.

<u>*SYS</u>	The authorization is for a system wide license which enables any and all partitions on the system but is specific to the processor group.
	Note: The authorization code must be entered in each partition.
***LPAR**	The license is specific to one of the partitions on the system and specific to a number of processors within the partition. A partition license must be entered in the partition for which it is intended.

Processor maximum capacity (PRCMAX)

Specifies the maximum processor capacity for which the partition is licensed. The value is expressed in terms of processors where 1.00 is 100% of a processor's capacity or the same as 1 processor, .50 is 50% of a processor's capacity or .5 processors, 2.00 is 200% of a processor's capacity or 2 processors, etc.

Examples

Example 1:
```
CHGDCRAUT   AUTH(01234567)
```

This command changes the authorization code to a permanent system wide license code.

Example 2:

```
CHGDCRAUT  AUTH(01234567) LICTYP(*LPAR) PRCMAX(1.3)
```

This command changes the authorization code to a permanent partition only license code for 1.3 processors in the current partition.

Change Dicer Default (CHGDCRDFT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Change Dicer Default (CHGDCRDFT) command changes values used by Dicer to control processing and other activities.

Parameters

Keyword	Description	Choices	Notes
SIXSIC	Spool Index SCS Control	*ORDINAL, *RELATIVE, **_*SAME_**, 0, 64, -1	Optional, Positional 1

Spool Index SCS Control (SIXSIC)

Specifies the spooled file indexing method for *SCS files in the presence of lines per inch (LPI) changes or font changes within a page. Spooled file indexing occurs when line and position values are required to process a request. Examples are filtering, or specifying page data. This setting can only affect the determination of line numbers if the spooled file contains *SCS and if the LPI or font changes within a page.

*SAME	The value is not changed.
*ORDINAL	This is the recommended value. Line numbers and position numbers are calculated using a deterministic, repeatable method that typically returns line and position values as they were specified in the DDS for the printer file.
*RELATIVE	This value gives the original indexing behavior. The method returns line and position numbers that may vary from page to page for data that otherwise appears in the same position. The variance depends on the data's position relative to preceding data on the page.

Examples

```
CHGDCRDFT  SIXSIC(*ORDINAL)
```

This command changes the Spool Index SCS Control to *ORDINAL.

```
CHGDCRDFT  SIXSIC(*RELATIVE)
```

This command changes the Spool Index SCS Control to *RELATIVE.

Check Dicer Authorization (CHKDCRAUT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Check Dicer Authorization (CHKDCRAUT) command executes Dicer's authorization verification function. This allows you to determine whether and how the product is authorized for use.

Parameters

Keyword	Description	Choices	Notes
MSGQ	Message queue	Single values: ***NONE** Other values: *Qualified object name*	Optional, Positional 1
	Qualifier 1: Message queue	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	

Message queue (MSGQ)

Specifies a message queue that should receive messages if the product is not permanently authorized.

Single values

*NONE   Messages are not sent to an external message queue.

Qualifier 1: Message queue

name   Specify the name message queue that receives messages.

Qualifier 2: Library

*LIBL   All libraries in the thread's library list are searched.
*CURLIB   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name   Specify the name of the library.

Examples

Example 1:

```
CHKDCRAUT
```

This command executes Dicer's authorization verification function to determine whether and how the product is authorized for use.

Example 2:

```
CHKDCRAUT   MSGQ(QSYSOPR)
```

This command executes Dicer's authorization verification function to determine whether and how the product is authorized for use. If the product is not permanently authorized for use a failure message is sent to the system operator's message queue.

Create Spool Save File (CRTSPLSAVF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Create Spool Save File (CRTSPLSAVF) command creates a save file containing a spooled file and all its related resources. The save file is suitable for emailing with a problem report.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*	Required, Positional 1
SAVF	Save file	*Qualified object name*	Required, Positional 2
	Qualifier 1: Save file	*Name*	
	Qualifier 2: Library	*Name*, ***CURLIB**	
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional
SAVRSC	Save resources	***YES**, *NO, Y, N	Optional
MSG	Message	*Character value*, ***NONE**	Optional

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

> **name**   Specify the name of the spooled file.

Save file (SAVF)

Specifies the name of the save file that is used to contain spooled file data. The saved file must not exist and will be created by the command.

This is a required parameter.

Qualifier 1: Save file

> **name**   Specify the save file name.

Qualifier 2: Library

> ***CURLIB**   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
> **name**   Specify the name of the library.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

> *****   The job that issued the command.

Qualifier 1: Job name

> **name**   Specify the name of the job. CHAR(10)

Qualifier 2: User

name   Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999   Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Save resources (SAVRSC)

Specifies if external resource such as overlays and page segments are included in the save file.

*YES	Resources are saved.
*NO	Resources are not saved.

Message (MSG)

Specifies a short message to include in the save file.

*NONE	No message is included.
message	Specify a short message to include in the save file.

Examples

Example 1:

```
CRTSPLSAVF  FILE(QSYSPRT) SAVF(QGPL/PRBRPT)
```

This command creates save file PRBRPT in library QGPL. The last spooled file named QSYSPRT is saved along with its resources. The current job is searched to locate the file.

Example 2:

```
CRTSPLSAVF  FILE(QPQUPRFIL) SAVF(NEWPRB) SPLNBR(3)
```

The file named QPQUPRFIL which is spooled file number 3 in the job executing this command is saved to save file NEWPRB. The save file is placed in job's *CURLIB.

Dump Page Index Positions (DMPPIP)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Dump Page Index Positions (DMPPIP) command prints the line and position values, for data found in the spooled file, as calculated by the software. These are used to specify data selection criteria for the spooled file.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional, Positional 2
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 3
PAGERANGE	Page range to print	*Element list*	Optional, Positional 4
	Element 1: Starting page	*Integer*, **1**, *ENDPAGE	
	Element 2: Ending page	*Integer*, ***END**	

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT	The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.
name	Specify the name of the spooled file.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*	The job that issued the command.

Qualifier 1: Job name

name	Specify the name of the job. CHAR(10)

Qualifier 2: User

name	Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999	Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Page range to print (PAGERANGE)

Specifies the starting and ending pages to process.

Element 1: Starting page

1	Processing begins at page 1.
*ENDPAGE	The starting page to print is the ending page to print. Only the ending page is printed.
integer	Specify the starting page.

Element 2: Ending page

*END	Processing continues until the end of file.
integer	Specify the ending page.

Examples

Example 1:

```
DMPPIP      FILE(QSYSPRT)
              JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command dumps data position information for spooled file number 2, QSYSPRT, from job 033194/QPGMR/MONTHEND.

Example 2:

```
DMPPIP      FILE(QSYSPRT) PAGERANGE(3 4)
```

This command dumps data position information for the last spooled file with name QSYSPRT from the job running the command. Only the data for pages 3 and 4 is dumped.

Display Page Data (DSPPAGDTA)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Display Page Data (DSPPAGDTA) command shows the contents of a spooled file's pages at specified locations. The contents can be shown, printed, or directed to database output file (OUTFILE).

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
PAGDTA	Page data	Values (up to 12 repetitions): *Element list*	Required, Positional 2
	Element 1: Line	1-255, *STRPAGGRP, *DOCIDXTAG, *DOCIDXPAG, *DOCIDXGRP, *STRPAGGRPP, *DOCIDXTAGP, *DOCIDXGRPP	
	Element 2: Position	1-378, 0	
	Element 3: Length	1-64, 0	
JOB	Job name	Single values: *****	Optional, Positional 3
		Other values: *Qualified job name*	
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 4
OUTPUT	Output	*****, *PRINT, *OUTFILE	Optional
OUTFILE	File to receive output	*Qualified object name*	Optional
	Qualifier 1: File to receive output	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
OUTMBR	Output member options	*Element list*	Optional
	Element 1: Member to receive output	*Name*, ***FIRST**	
	Element 2: Replace or add records	***REPLACE**, *ADD	

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT	The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.
name	Specify the name of the spooled file.

Page data (PAGDTA)

Specifies the location (line, position and length), on the page of the spooled file, from which data is retrieved. INT(2), INT(2), INT(2)

This is a required parameter.

Element 1: Line

*STRPAGGRP	Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*DOCIDXTAG	Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file.

	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*DOCIDXPAG	Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "page" level are processed.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*DOCIDXGRP	Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*STRPAGGRPP	Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the keyword was specified directly on each subsequent page in the group.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*DOCIDXTAGP	Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*DOCIDXGRPP	Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
1-255	Specify the line number where the data is located on the page.

Element 2: Position

1-378	Specify the position where the data is located in the line. Valid values range from 1 through 378. The value specified plus the data length should be less than the number of print positions in the spooled file.

Element 3: Length

1-64	Specify the length of the data. The value specified plus the start position should be less than the number of print positions in the spooled file.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*	The job that issued the command.

Qualifier 1: Job name

name	Specify the name of the job. CHAR(10)

Qualifier 2: User

name	Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999	Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Output (OUTPUT)

Specifies the kind of output generated by the command. CHAR(10)

*	The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).
*PRINT	The output is printed with the job's spooled output.
*OUTFILE	The output is directed to the database file specified on the File to receive output prompt (OUTFILE parameter).

File to receive output (OUTFILE)

Specifies the name and library of the database file to which the output of the command is directed. If the file does not exist, the command creates one in the specified library. CHAR(10) CHAR(10)

Qualifier 1: File to receive output

name	Specify the name of the file to which the output of the command is directed.

Qualifier 2: Library

*LIBL	All libraries in the thread's library list are searched.
*CURLIB	Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name	Specify the name of the library.

Data is output in the PDPAGDRF record format which is documented in the appendix.

Output member options (OUTMBR)

Specifies the name of the database file member that receives the output of the command. CHAR(10) CHAR(10)

Element 1: Member to receive output

*FIRST	The first member in the file receives the output. If it does not exist, the system creates a member with the name of the file specified in the File to receive output prompt (OUTFILE parameter). If the member already exists, you have the option to add new records to the end of the existing member or clear the member and then add the new records.
name	Specify the name of the member that receives the output. If it does not exist, the system creates it.

Element 2: Replace or add records

*REPLACE	The system clears the existing member and adds the new records.
*ADD	The system adds the new records to the end of the existing records.

Examples

Example 1:
```
DSPPAGDTA   FILE(QSYSPRT)
            PAGDTA((3 4 10) (*STRPAGGRP))
            JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command displays data from line 3, position 4 for a length of 10 from each page in the spooled file as well as the page group names added using the STRPAGGRP() DDS keyword. The spooled file processed is file number 2, QSYSPRT, from job 033194/QPGMR/MONTHEND.

Example 2:

```
DSPPAGDTA   FILE(INVOICE) PAGDTA((*DOCIDXTAG))
            OUTPUT(*OUTFILE)
            OUTFILE(HISTORY/INVSPLF)
            OUTMBR(*FIRST *ADD)
```

This command retrieves data stored in DOCIDXTAG() DDS keywords for all pages of the spooled file INVOICE found in the current job. The data is added to the first member of the file INVSPLF found in library HISTORY.

Error messages

Parameter dependencies

GCM7014	OUTFILE parameter required with OUTPUT(*OUTFILE).
GCM7015	OUTFILE parameter can only be specified with OUTPUT(*OUTFILE).
GCM7016	OUTMBR parameter can only be specified with OUTPUT(*OUTFILE).

Merge Spooled File (MRGSPLF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Merge Spooled File (MRGSPLF) command combines the pages of one or more spooled files to create a new spooled file and optionally sorts the pages.

Parameters

Keyword	Description	Choices	Notes
MRGFILE	Merge input list	Values (up to 128 repetitions): *Element list*	Required, Positional 1
	Element 1: Spooled file name	*Name*	
	Element 2: Job name	Single values: *****	
		Other values: *Qualified job name*	
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
	Element 3: Spooled file number	1-999999, ***LAST**, *ONLY	
	Element 4: Page sort key	Single values: ***NONE**, *STRPAGGRP	
		Other values: *Element list*	
	Element 1: Line	1-255	
	Element 2: Position	1-378	
	Element 3: Length	1-64	
	Element 5: Page range to print	*Element list*	
	Element 1: Starting page	*Integer*, **1**, *ENDPAGE	
	Element 2: Ending page	*Integer*, ***END**	
TOFILE	To spooled file name	*Name*, ***FIRST**	Optional, Positional 2
TOOUTQ	To output queue	Single values: ***FIRST**	Optional, Positional 3
		Other values: *Qualified object name*	
	Qualifier 1: To output queue	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
SPLIT	Generate multiple files	***NO**, *YES	Optional, Positional 4

Merge input list (MRGFILE)

Specifies an input list to the merge. Each input is made up of 5 elements, a spooled file specification (the first three elements), its page sort key (the fourth element) and page range specification (the fifth element). The spooled file specified participates in the merge. Each page within the page range is sorted with other pages from the same spooled file and with pages from the other spooled files participating in the merge before the merged (output) spooled file is created.

Note: The first spooled file specified supplies the attributes for the spooled file that is created.

Element 1: Spooled file name

name	Specify the name of the spooled file.

Element 2: Job name

Single values	*****	The job that issued the command.
Qualifier 1: Job name	*name*	Specify the name of the job. CHAR(10)
Qualifier 2: User	*name*	Specify the name that identifies the user profile under which the job is run. CHAR(10)
Qualifier 3: Number	*000000-999999*	Specify the system assigned job number. CHAR(6)

Element 3: Spooled file number

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.

1-999999	Specify the number of the spooled file.	

Element 4: Page sort key

Single values	***NONE**	No page sorting is performed.
	*STRPAGGRP	Pages are sorted based on the name of the page group to which they belong. For *AFPDS spooled files page groups can be created and named using the DDS STRPAGGRP and ENDPAGGRP keywords.
Element 1: Line	*1-255*	Specify the line number containing the data by which the page is sorted.
Element 2: Position	*1-378*	Specify the start position within line of the data by which the page is sorted. The value specified plus the length of the data should be less than the number of print positions in the spooled file.
Element 3: Length	*1-64*	Specify the length of the data by which the page is sorted. The value specified plus the start position should be less than the number of print positions in the spooled file.

Element 5: Page range to print

Element 1: Starting page	<u>*1*</u>	Processing begins at page 1.
	*ENDPAGE	The starting page to print is the ending page to print. Only the ending page is printed.
	integer	Specify the starting page.
Element 2: Ending page	<u>***END**</u>	Processing continues until the end of file.
	integer	Specify the ending page.

To spooled file name (TOFILE)

Specifies the name of the merged (output) spooled file.

<u>***FIRST**</u>	The name of the spooled file is that of the first spooled file.
name	Specify the name of the spooled file.

To output queue (TOOUTQ)

Specifies the name of the output queue to receive the merged (output) spooled file.

Single values

<u>***FIRST**</u>	The output queue name is that of the first spooled file.

Qualifier 1: Output queue

name	Specify the name of the output queue.

Qualifier 2: Library

*LIBL	All libraries in the thread's library list are searched.
*CURLIB	Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name	Specify the name of the library.

Generate multiple files (SPLIT)

Specifies whether or not a new spooled file is created each time the Page sort key changes.

<u>***NO**</u>	The combined output of the merge is placed in a single spooled file.
*YES	For each unique value found in the Page sort key a new spooled file is created.

Examples

Example 1:
```
MRGSPLF MRGFILE((QSYSPRT)) TOFILE(NEWFILE) TOOUTQ(PRT01)
```

The last spooled file from the current job with the name QSYSPRT is simply duplicated. The new duplicate is given the name NEWFILE and placed in output queue PRT01.

Example 2:

```
MRGSPLF  MRGFILE((QSYSPRT) (QPRINT))
```

This command combines the contents of the last spooled file named QSYSPRT followed by the contents of the last spooled file named QPRINT with no sorting of pages. The current job is searched to locate the files. The new spooled file has the same attributes as QSYSPRT and is placed on the same output queue.

Example 3:

```
MRGSPLF  MRGFILE((QPQUPRFIL * 3 (2 3 8))
                  (QPRINT * 4 (1 120 6))) SPLIT(*YES)
```

The file named QPQUPRFIL which is spooled file number 3 in the job executing this command is merged with the file named QPRINT which is spooled file number 4 in the job executing the command. The combined set of pages is sorted based on the 8 characters found at line 2 position 3 of each page in QPQUPRFIL and on the 6 characters found at line 1 position 120 of each page in QPRINT. Each time the data at these positions changes, a new spooled file is created.

Retrieve Page Data (RTVPAGDTA)

Where allowed to run:

Batch program (*BPGM)

Interactive program (*IPGM)
Threadsafe: No

The Retrieve Page Data (RTVPAGDTA) command retrieves data from a specific location in a spooled file. The requested data is returned in a Control Language (CL) program variable.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
RTNDATA	CL var for data (1-255)	*Character value*	Required, Positional 2
PAGDTA	Page data	*Element list*	Required, Positional 3
	Element 1: Line	1-255, *STRPAGGRP, *DOCIDXTAG, *DOCIDXPAG, *DOCIDXGRP, *STRPAGGRPP, *DOCIDXTAGP, *DOCIDXGRPP	
	Element 2: Position	1-378, 0	
	Element 3: Length	1-255, 0	
PAGE	Page number	*Unsigned integer*, **1**, *LAST	Optional, Positional 4
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional, Positional 5
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 6

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT   The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.

name   Specify the name of the spooled file.

CL var for data (1-255) (RTNDATA)

Specifies the CL variable which is to receive the data returned by the command. The variable can have a declared length between 1 and 255 and it must be as long as or longer than the requested data length. (CHAR).

This is a required parameter.

Page data (PAGDTA)

Specifies the location (line, position and length), on the page of the spooled file, from which data is retrieved. INT(2), INT(2), INT(2)

This is a required parameter.

Element 1: Line

*STRPAGGRP   Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file.

                 This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the

printed page and the length is derived from the value stored.

*DOCIDXTAG   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file.

                This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXPAG   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "page" level are processed.

                This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXGRP   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file.

                This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*STRPAGGRPP   Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the keyword was specified directly on each subsequent page in the group.

                This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXTAGP   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.

                This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXGRPP   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.

                This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

1-255   Specify the line number where the data is located on the page.

Element 2: Position

1-378   Specify the position where the data is located in the line. Valid values range from 1 through 378. The value specified plus the data length should be less than the number of print positions in the spooled file.

Element 3: Length

1-64   Specify the length of the data. The value specified plus the start position should be less than the number of print positions in the spooled file.

Page number (PAGE)

Specifies the page number from which data is retrieved. INT(4)

1	Data is retrieved from the first page of the spooled file.
*LAST	Data is retrieved from the last page of the spooled file.
integer	Specifies the page from which data is retrieved.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*	The job that issued the command.

Qualifier 1: Job name

name	Specify the name of the job. CHAR(10)

Qualifier 2: User

name	Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999	Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Examples

Example 1:

```
RTVPAGDTA   FILE(QSYSPRT)
            RTNDATA(&CUSTNO) PAGDTA(3 4 10)
            JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command retrieve data from line 3, position 4 for a length of 10 from the first page in the spooled file and places the data in the variable &CUSTNO. The spooled file processed is file number 2, QSYSPRT, from job 033194/QPGMR/MONTHEND.

Work with Gumbo Output Queue (WRKGSIOUTQ)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Work with Gumbo Output Queue (WRKGSIOUTQ) command works like i5/OS's Work with Output Queue (WRKOUTQ) command but provides additional options to access the functions of Dicer.

Parameters

Keyword	Description	Choices	Notes
OUTQ	Output queue	*Qualified object name*	Required, Positional 1
	Qualifier 1: Output queue	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
OUTPUT	Output	*****, *PRINT	Optional, Positional 2

Output queue (OUTQ)

Specifies the name of the Output queue and the library where it resides.

This is a required parameter.

Qualifier 1: Output queue

name   Specify the name of the output queue.

Qualifier 2: Library

*LIBL   All libraries in the thread's library list are searched.
*CURLIB   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name   Specify the name of the library.

Output (OUTPUT)

Specifies the kind of output generated by the command. CHAR(10)

*   The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).
*PRINT   The output is printed with the job's spooled output.

Examples

Example 1:
```
WRKGSIOUTQ  OUTQ(PRT01)
```

This command allows you to work with all of the spooled files on the PRT01 output queue.

Example 2:
```
WRKGSIOUTQ  OUTQ(QGPL/QPRINT)
```

This command allows you to work with all of the spooled files on the QPRINT output queue in library QGPL.

Work with Gumbo Spooled Files (WRKGSISPLF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Work with Gumbo Spooled Files (WRKGSISPLF) command works like i5/OS's Work with Spooled Files (WRKSPLF) command but provides additional options to access the functions of Dicer.

Parameters

Keyword	Description	Choices	Notes
SELECT	Select files for	*Element list*	Optional, Positional 1
	Element 1: User	*Name*, ***CURRENT**, *ALL	
	Element 2: Print device	*Name*, ***ALL**, *OUTQ	
	Element 3: Form type	*Character value*, ***ALL**, *STD	
	Element 4: User data	*Character value*, ***ALL**	
OUTPUT	Output	*****, *PRINT	Optional, Positional 2

Select files for (SELECT)

Specifies the criteria used to further select spooled files for display. Selection criteria consist of 4 elements. Only spooled files that match each of the values are selected.

Element 1: User

*CURRENT	Spooled files created by the user of the current job are selected.
*ALL	All spooled files are selected regardless of the user creating them.
name	Specify a user name. Only spooled files created by the user are selected.

Element 2: Print device

*ALL	All spooled files are selected regardless of the device or output queue.
*OUTQ	All files on any user-created output queue are selected. A user-created output queue is any output queue that is not automatically created by a device. A user-created output queue does not generally have the same name as a device, but if it does, it does not reside in library QUSRSYS.
name	Specify a device name. Only files on the device created output queue for that device are selected. A device created output queue is one that has the same name as a device and resides in the QUSRSYS library. Unless it already exists, it will automatically be created by the system when the device is created. A device created output queue cannot be deleted.

Element 3: Form type

*ALL	All spooled files are selected regardless of their form type.
*STD	Only files that specify the standard form type are selected.
form-type	Specify the form type to select the file.

Element 4: User data

*ALL	All spooled files are selected regardless of their user data.
user-data	Specify the user data to select the file.

Output (OUTPUT)

Specifies the kind of output generated by the command. CHAR(10)

*	The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).
*PRINT	The output is printed with the job's spooled output.

Examples

Example 1:

```
WRKGSISPLF  SELECT(*ALL *ALL *ALL *ALL)
```

This command allows you to work with all of the spooled files on the system.

Example 2:

```
WRKGSISPLF  SELECT(CASMITH *ALL *ALL MEMO)
```

This command allows you to work with all of the spooled files on the system for the user named CASMITH that have MEMO specified in the user data for the spooled file.

Chapter 7 Trouble-Shooting

What's In This Chapter

This chapter provides information and procedures useful for correcting or reporting Dicer problems. The chapter:

- Describes general trouble-shooting.
- Describes software installation problems.
- Describes merge specific problems.
- Describes how to create a spool save file.
- Describes how to email a spool save file.

General Trouble-Shooting

If a command from Dicer fails to run to completion or if the results you receive are different than those expected, perform these items:

- Check the messages in your job log:
    o Run the DSPJOBLOG command.
    o Press F10 to display detailed messages.
    o Locate the messages related to the error.
    o Place your cursor on each message in turn and press F1.
    o Take any corrective actions suggested by the messages.
- Download the current cumulative PTF package from www.gumbo.com.
- Check the bottom of the PTF page at www.gumbo.com for IBM PTFs that may be required.
- Review the detailed trouble shooting procedures in this chapter for solutions related to your problem.

If you are unable to correct the problem, prepare a problem report and contact your service provider.

Software Installation Problems

This sections describes problems, causes, and solutions specific to software installation.

- Installation Generates "Directory not registered. (C G)"

Symptom	During installation inquiry message id CPA3DE4 "Directory not registered. (C G)" is issued.
Cause	i5/OS has lost the relationship between the product and the directory and hence the message.
Solution	You can safely take a "G" to this message. You will receive the message 3 times.

- Installation Fails

Symptom	Installation fails and diagnostic message id CPF9898 "Unable to clear old release. Is the software being used?." appears in the job log. Or, when the installation verification option is run, verification fails with diagnostic message id CPD0C2E appearing in the job log.
Cause	This usually arises from attempting to install a new release over an old release while objects in the old release are in use.
Solution	End the jobs that are holding locks on (using) objects from the old release and perform the installation again.

- Installation Fails or Installation Verification Fails

Symptom	Installation or installation verification fails and messages in the job log do not help in recovering.

Cause	The software is not installed correctly or the installation is damaged. This can be caused for a variety of reasons including renaming of libraries, directories, or objects that make up the product.
Solution	Get the system to a stable, consistent state completely removing the product then re-install the product by performing the following:

1. Delete the licensed program by running:
```
DLTLICPGM  LICPGM(2A55DCR) RLS(*ALL)
              OPTION(*ALL)
```

   Note: It is okay if this fails with diagnostic CPD3D91 "Product 2A55DCR option *ALL release *ALL not installed."

2. Delete the product's library by running:
```
DLTLIB  LIB(DICER)
```

   Note: It is okay if this fails with escape CPF2110 "Library DICER not found."

3. Delete the product's directories by running:
```
RMVDIR  DIR('/Gumbo/ProdData/2A55DCR/doc') RMVLNK(*YES)
RMVDIR  DIR('/Gumbo/ProdData/2A55DCR/tmp') RMVLNK(*YES)
RMVDIR  DIR('/Gumbo/ProdData/2A55DCR') RMVLNK(*YES)
```

   Note: It is okay if these fail with escape CPFA0A9 "Object not found. ...". But if any fail because a directory is not empty, delete the contents using WRKLNK.

   If there are no other **GUMBO** products installed:
```
RMVDIR  DIR('/Gumbo/ProdData')
RMVDIR  DIR('/Gumbo')
```

4. Rebuild i5/OS's internal licensed program information by running:
```
CALL  PGM(QSYS/QSZRECOV)
```

   Note: This takes several minutes depending on machine size.

5. Install the product according to the instructions in the Installation chapter.
6. Enter your authorization code.

Merge Specific Problems

This sections describes problems, causes, and solutions specific to merge processing.

- Pages are in an unexpected order

Symptom	The Merge Spooled File (MRGSPLF) command completes without error however the pages in the resulting spooled file are in an unexpected order.
Cause	The Page sort key value does not select the intended data.
Solution	Use the Dump Page Index Positions (DMPPIP) command to print a dump that shows the line and position values of data in the spooled file. Use the generated listing to correct the Page sort key values specified on the Merge Spooled File (MRGSPLF) command.

Creating a Spool Save File

A save file containing all the information needed to transport and reproduce a spooled file on a Gumbo Software, Inc. development system can be produced using the Create Spool Save File (CRTSPLSAVF) command. To create a spool save file:

- Determine the identity of the spooled file to be saved. A spooled file's identity consists of the file's name, the name/user/number of the job that created it, and the spooled file's number within the job. You can find this information using option 8 from the Work with Spooled Files (WRKSPLF) or Work with Output Queue (WRKOUTQ) commands among others.
- Determine a library to contain the save file. Typically this is your test library. If you do not have a test library, QGPL can be used.
- Determine a name for the save file. It must be a file name that does not exist in the library determined above.

- Run the Create Spool Save File (CRTSPLSAVF) command entering the information from the preceding steps.

  Note: The command allows for a short message to be included in the save file. Use this to describe the reason for the save file and to include contact information such as your name and phone number.

In saving the spooled file the command creates a temporary library. It retrieves the contents and attributes of the spooled file and stores these in a user space. Any resources used (such as page segments or overlays) are duplicated to the temporary library. Data areas containing various system values and the message are placed in the library. After creating the requested save file, the library is saved to it and finally the temporary library is deleted.

Emailing A Spool Save File

Once a spool save file has been created using the Create Spool Save File (CRTSPLSAVF) command you can download it to your PC and email it to Gumbo Software, Inc. by following these steps:

Note: [PC] denotes an operation performed on your PC. [i] denotes an operation performed on your System i.

1. [i] Insure the FTP server is active by running:

   ```
   STRTCPSVR SERVER(*FTP)
   ```

2. [PC] Choose Start > Programs > Accessories > Command Prompt to open a command prompt (DOS session).
3. [PC] Create a temporary directory and change to it:

   ```
   md c:\gumbo
   cd c:\gumbo
   ```

4. [PC] Open an FTP connection to the System i by substituting your system's host name and running:

   ```
   ftp host_name
   ```

5. [PC] Enter a user name and password as prompted.
6. [PC] Change to binary (image) mode by running:

   ```
   binary
   ```

7. [PC] Change to library/file/member mode by running:

   ```
   quote site namefmt 0
   ```

8. [PC] Download the spool save file by running (in this example the save file's name is QGPL/TEST):

   ```
   get qgpl/test
   ```

9. [PC] End the ftp session and the command prompt by running:

   ```
   quit
   exit
   ```

10. [PC] Send email to support2009@gumbo.com after attaching file c:\gumbo\test.

Include in your email a description of the problem encountered and the command parameter values you were using when it happened.

Appendix A Record Descriptions

What's In This Appendix

This appendix provides information on Dicer files and structures. The appendix:

- Describes the display page data record.

Display Page Data Record

The display page data record PDPAGDRF is in model file DCPAGDD which is used by the Display Page Data (DSPPAGDTA) command to generate output files.

PDPAGDRF is made up of several groups of fields that describe an element of the page.

- Spooled file. These fields provide information about the spooled file from which the data was taken.

PDJSYS	Name of the system where the job that created the spooled file ran.
PDJJOB	Name of the job that created the spooled file.
PDJUSR	Name of the user who produced the spooled file.
PDJNBR	Number of the job in the system.
PDJSPF	Name of the spooled file.
PDJSP#	Spooled file number within the job.

- Location. These fields describe the location of the data in the spooled file.

PDPAGE	Page number.	
PDLINE	Line number the data appears on. The possible special values and their meanings are:	
	-53 = *DOCIDXTAG	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at either the page level or group level.
	-54 = *DOCIDXPAG	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the page level.
	-55 = *DOCIDXGRP	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the group level.
	-56 = *STRPAGGRP	The data was added to the spooled file using the DDS STRPAGGRP() keyword.
	-57 = *DOCIDXTAGP	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the page level, group level or was propagated from the group level to all pages in the group.
	-58 = *DOCIDXGRPP	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the group level or was propagated from the group level to all pages in the group.
	-59 = *STRPAGGRPP	The data was added to the spooled file using the DDS STRPAGGRP() keyword or was propagated from the keyword to all pages in the page group.
PDPOS	Position on the line the data starts. When PDLINE contains one of the special values, PDPOS is zero.	

- Data. These fields contain the data.

PDVLEN	Length of data contained in the following field.
PDVDTA	Data retrieved from the page. When PDLINE is one of the special values related to the DDS STRPAGGRP() keyword, PDVDTA contains the "group-name" specified. When PDLINE is one of the special values related to the DDS DOCIDXTAG() keyword, PDVDTA contains the "attribute-value" specified.

PDNLEN   Length of data contained in the following field.

PDNDTA   Name data. When PDLINE is one of the special values related to the DDS DOCIDXTAG() keyword, PDNDTA contains the "attribute-name" specified otherwise it is blank.

Appendix B Notices

Notices

© Copyright Gumbo Software, Inc. 2002, 2009. All Rights Reserved.

Portions of this software are used with permission and:

- Copyright (C) 1991-2, RSA Data Security, Inc. All rights reserved.
- Copyright (c) April 29, 1997 Kalle Kaukonen. All Rights Reserved.
- Copyright International Business Machines, Corp. 1991 All Rights Reserved
- Copyright Lexmark International, Inc. 1991 All Rights Reserved
- Copyright (c) 1990 Adobe Systems Incorporated. All Rights Reserved
- Copyright © 2006 The FreeType Project (www.freetype.org). All rights reserved.

For additional information see file DICER/COPYRIGHT.