



# IBM Software Technical Document

## Document Information

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## Document Title

### TSPRWPR Remote Writer Page Range Support Exit Program

## Document Description

**Note:** This document previously was entitled **Page Range Support on Remote Output Queue (LPR)**

The TSPRWPR exit program allows a user to have only a specific page range printed or sent via remote output queues (RMTOUTQs) that are configured with a connection type of \*IP or using the **LPR** or **SNDDCPSPLF** commands. This page range support is provided only for \*SCS or \*AFPDS spooled files that are transformed to ASCII before being sent. The specific page range to use is extracted from the attributes for each spooled file at the time the file is printed or sent. This exit program can also be used on remote output queues that are configured with a connection type of \*IP to provide the same page range function.

This exit program also serves the purpose of providing an example of a Writer Transform Exit, as it is written to the Writer Transform Exit interface as documented in the **AS/400 System API Reference** manual.

This exit program was introduced in the V4R2M0 version of QUSRTOOL but will work with V3R7M0, V4R1M0, and later versions of the operating system. This tool is supplied **as is** without support. Therefore, any assistance with configuring or a remote output queue (RMTOUTQ) that uses the **TSPRWPR** utility must be done through a consulting agreement.

The following methods can be used to get the **TSPRWPR** utility on your operating system:

- o Detach or download the **PAGRANGE.SAVF** file from this document, upload it to an operating system save file using an FTP session, and restore the objects from the save file.
- o Get the source code from the **QUSRTOOL** library on a V4R4M0 or later operating system, and compile the source code using the ILE C/400® compiler (ILE C/400 is product 5769CX2 in V4RxMx and product 5716CX2 in V3R7M0).
- o Call the Rochester Support Center at 1-800-IBM-SERV and ask about opening a consulting PMR to do a remote sign-on, and have the **PAGRANGE** save file sent to you.

## Technical Support

The Remote Writer Page Range (TSPRWPR) program is **not** supported by the Rochester Support Center through Support Line. The TSPRWPR exit program can be used to provide a way to print page ranges with a Remote Output Queue (RMTOUTQ). The Rochester Support Center can provide assistance with restoring the TSPRWPR utility to an IBM® System i® system, or with configuring a RMTOUTQ that uses the TSPRWPR exit program, but will not provide assistance with potential defects in the TSPRWPR utility itself.

**Note:** This document contains a new version of the **TSPRWPR** utility, dated **06/20/2002**. It corrects a problem where the writer will fail with message CPF6DF9 - Transformed data buffer too small, when printing a large spooled file containing image

data and the Page range to print (PAGERANGE) parameter is set to "1 \*END" (so the entire spooled file is to be printed). It is recommended that the **TSPRWPR** utility be restored from the attached save file using the instructions in the section entitled **Getting the Remote Writer Page Range (TSPRWPR) Utility from the Attached Save File**. However, the **TSPRWPR** source code can be edited and the **TSPRWPR** program recompiled using the instructions in the section entitled **Getting the Remote Writer Page Range (TSPRWPR) Utility from the QUSRTOOL Library**.

This document was last updated on 08/02/2006.

### ▼ Getting the Remote Writer Page Range (TSPRWPR) Utility from the Attached Save File Getting the Remote Writer Page Range (TSPRWPR) Utility from the Attached Save File

To restore the **TSPRWPR** utility from the attached save file, a save file must be created on the operating system. Detach the save file from this document and upload the file to the operating system using FTP from an MS-DOS prompt. Then, restore the objects. The resulting **PAGRANGE** save file contains the following objects:

Object	Type	Attribute	Owner	Size
TSPRWPR	*PGM	CLE	QSYS	188416
TSPRWPR	*MODULE	CLE	QSYS	180224
QATTCL	*FILE	PF	QSYS	45056
QATTINFO	*FILE	PF	QSYS	24576
QATTSYSC	*FILE	PF	QSYS	376832

Additionally, the **QATTCL**, **QATTINFO**, and **QATTSYSC** source physical files contain the following members:

File	Member	Type	Text
QATTCL	TSPRWPRC	CLP	Create Remote Writer Page Range Example Program
QATTCL	TSPRWPRD	CLP	Delete Writer Exit Example Program Objects
QATTINFO	TSPRWPRI	TXT	Remote Writer Page Range Support Program
QATTSYSC	TSPRWPR	C	Remote Writer Page Range Support Program



pagrange.savf

Use the following steps to create a save file on the System i™ system, detach or download the **PAGRANGE.SAVF** file to a PC, upload the file to the System i™ system system using FTP and then restore the objects to the QGPL library:

- 1 Create a save file on the System i® system using the following Create Save File (**CRTSAVF**) command:  
**CRTSAVF FILE(QGPL/PAGRANGE) TEXT('Remote Writer Page Range Support')**
- 2 Detach or download the **PAGRANGE.SAVF** file from this document and save it in a folder on your PC.
- 3 Bring up an MS-DOS prompt.
- 4 Use the **CD** command to connect to the folder that contains the **PAGRANGE.SAVF** file. For example, if the **PAGRANGE.SAVF** file was saved in the Temp folder, then type "**CD C:\Temp**".
- 5 Type **FTP <as400-system-name>** in order to start an FTP session to your operating system. Sign on using your operating system user profile and password.
- 6 Type **BIN** at the FTP prompt to force the data transmission to binary data.
- 7 Type **CD QGPL** to change the working directory to the QGPL library (or the library where the save file was generated).

**Note:** If this fails with an error that says the library was not found, it could be caused by the FTP attributes on the System i® system being set up with the Initial name format (NAMEFMT) parameter set to \*PATH rather than \*LIB. Or, in other words, FTP may be set up to connect to the Integrated File System rather than to the library structure. Use the Change FTP Attributes (**CHGFTPA**) command to check on this or even change the setting. Or, try typing **CD /QSYS.LIB/QGPL.LIB**. Another option is to try typing **QUOTE SITE NAMEFMT 0** and then typing **CD QGPL**.

- 8 Type **SEND PAGRANGE.SAVF PAGRANGE** at the FTP prompt to send the **PAGRANGE.SAVF** file from the PC to the **PAGRANGE** save file on the operating system.

**Note:** If using NAMEFMT 1, type **QUOTE SITE NAMEFMT 0** to change to NAMEFMT 0, or type **SEND PAGRANGE.SAVF PAGRANGE.FILE**.

- 9 Type **QUIT** to end the FTP session.  
 10 Type **EXIT** to close the MS-DOS prompt.  
 11 Use the following Display Save File (**DSPSAVF**) command on the iSeries or AS/400 system to verify that the file has been uploaded to the operating system successfully:

#### **DSPSAVF FILE(QGPL/PAGRANGE)**

- 12 If unsuccessful, repeat Steps 3 through 10 above.  
 Once the **PAGRANGE.SAVF** file has been successfully uploaded to the **PAGRANGE** save file on the System i™ system, restore the objects from the **PAGRANGE** save file using the following Restore Object (**RSTOBJ**) command:

```
RSTOBJ OBJ(*ALL) SAVLIB(PAGRANGE) DEV(*SAVF) OBJTYPE(*ALL) +
SAVF(QGPL/PAGRANGE) RSTLIB(QGPL)
```

#### **Getting the Remote Writer Page Range (TSPRWPR) Utility from the QUSRTOOL Library**

#### **Getting the Remote Writer Page Range (TSPRWPR) Utility from the QUSRTOOL Library**

The source code for the remote writer page range utility is in member TSPRWPR in the QATTSYSC file (which is available in the V4R2M0 version of the QUSRTOOL library) and instructions for compiling the source code are in member TSPRWPRI in the QATTINFO file (which is also available in the V4R2M0 version of the QUSRTOOL library).

There are a couple of defects in the TSPRWPR source code that may cause problems when printing OS/400 or i5/OS spooled files through a Remote Output Queue (RMTOUTQ) that is configured to use the TSPRWPR utility. These defects are described below. To avoid these defects completely, use the attached save file instead. For instructions on using the save file, refer to the section entitled **Getting the Remote Writer Page Range (TSPRWPR) Utility from the Attached Save File** above.

#### **Entire Spooled File Prints when Starting Page is Set to 1**

There is a defect in the source code that will cause an entire spooled file to be printed if the page range starts with page 1, even when the ending page is something other than \*END. To correct this defect, search for the following string in the TSPRWPR source member:

```
if (XFrmXtInfo->StartPage != PRT_WHOLE_FILE)
```

and then change it to the following:

```
if ((XFrmXtInfo->StartPage != PRT_WHOLE_FILE) ||
(XFrmXtInfo->EndPage != LAST_PAGE))
```

**Note:** This defect has been fixed in the TSPRWPR source code and program that are contained in the attached save file, so if the attachment is used then this is not a concern. However, the source code should be changed if you will be using the TSPRWPR source code that is included in the QUSRTOOL library on your System i™ system and compiling it yourself using the ILE-C compiler.

#### **Writer Fails with Message CPF6DF9 on Large Spooled Files Containing Image Data**

There is another defect in the source code that will cause the writer to fail with message CPF6DF9 - Transformed data buffer too small, when printing a large spooled file containing image data and the Page range to print (PAGERANGE) parameter is set to "1 \*END" (so the entire spooled file is to be printed).

This problem can be circumvented by changing the attributes of the spooled file to set the Save spooled file (SAVE) parameter to \*YES and then printing the spooled file in two pieces. For example, to print a 1000 page spooled file, set the PAGERANGE parameter to "1 500" to print the first half of the spooled file, then set the PAGERANGE parameter to "501 \*END" and release the spooled file again to print the second half of the spooled file.

The problem was caused by trying to read the entire spooled file in a single buffer. The spooled file contained over a thousand pages of image data, so calling Host Print Transform (HPT) single buffer caused the data returned to exceed the size of the

buffer.

To correct this defect, search for the following lines in the TSPRWPR source member and delete them:

```
if ((XFrmXtInfo->StartPage != PRT_WHOLE_FILE) ||
(XFrmXtInfo->EndPage != LAST_PAGE))
{
```

then search for the following lines in the TSPRWPR source member and delete them:

```
}/* End if Page range is being processed. */
else
{
XFrmXtInfo->Pass_Input_Data = PASS_SPLF_DATA;
}/* Transform will not be reading spooled file data. */
```

This causes the TSPRWPR utility to read the spooled file 1 buffer at a time rather than try to read the entire spooled file in a single buffer.

**Note:** This defect has been fixed in the TSPRWPR source code and program that are contained in the attached save file, so if the attachment is used then this is not a concern. However, the source code should be changed if you will be using the TSPRWPR source code that is included in the QUSRTOOL library on your System i™ system and compiling it yourself using the ILE-C compiler.

### ▼ Limitations of the Remote Writer Page Range (TSPRWPR) Utility Limitations of the Remote Writer Page Range (TSPRWPR) Utility

#### Use of Several Application Programming Interfaces (APIs)

The Remote Writer Page Range (TSPRWPR) program uses several Application Programming Interfaces (APIs) that access the spooled files being sent. Because of this, it must have sufficient authority to the output queue, the output queue library, the printer device description, and the spooled file itself. Refer to the information on the Open Spooled File (QSPOPNP) API in the **System API Reference** manual for the level of authority needed. For more information, refer to the following:

Operating system APIs within the iSeries Information Center, URL  
<http://publib.boulder.ibm.com/series/v5r1/ic2924/index.htm?info/apis/api.htm>  
Print APIs (V5R2), URL <http://publib.boulder.ibm.com/series/v5r2/ic2924/info/apis/print.pdf>

#### Authority Issues

One possible way of insuring this exit program has authority to process all spooled files is to use the Change Program (**CHGPGM**) command to change the TSPRWPR program in order to have it adopt the owner's authority, and change the owner of the program to be a user profile which has sufficient authority, such as QSYS.

#### TSPRWPR is an Unsupported Utility and SETRMTPQ is an Unsupported Command

As stated above, the Remote Writer Page Range (TSPRWPR) program is **not** supported by the Rochester Support Center through Support Line. The TSPRWPR program is an unsupported utility that provides the function of printing a range of pages when sending a spooled files from a Remote Output Queue (RMTOUTQ) to an ASCII printer which is attached to an LPD server. The Rochester Support Center may provide assistance with restoring the TSPRWPR utility to an iSeries system, or with configuring a Remote Output Queue (RMTOUTQ) that uses the TSPRWPR program; however, the Rochester Support Center will not provide assistance with potential defects in the TSPRWPR utility itself.

#### Transformed Data Buffer Size Limit of 2MB

There is a 2MB limit on the amount of transformed data that can be in a single buffer. A single spooled file record is usually 4096 or 512 bytes in size, but the transformed data can be much larger than that and could potentially run into the 2MB limitation if including a number of page segments, or something else that results in a large ratio of transformed data per spooled file data.

### ▼ Using the TSPRWPR Utility with an Existing Remote Output Queue Using the TSPRWPR Utility with an Existing Remote Output Queue

For remote output queues with a connection type of \*IP, specify the name (TSPRWPR)

and library for the User Data Transform parameter in the output queue description and turn off Host Print Transform. To change an existing remote output queue, type the following commands on the OS/400 or i5/OS command line. Press the Enter key after each command:

**ENDWTR WTR(output-queue) OPTION(\*IMMED)**

**CHGOUTQ OUTQ(output-queue-library/output-queue) TRANSFORM(\*NO) +  
USRDTATFM(QGPL/TSPRWPR) MFRTYPMDL(\*SAME) WSCST(\*SAME)**

**Note:** The output queue description's Manufacturer type and model (MFRTYPMDL) and Workstation customizing object (WSCST) parameters will still be used, but the remote writer will no longer call Host Print Transform (HPT) directly to convert the OS/400 or i5/OS spooled file to an ASCII printer data stream. The remote writer will call the TSPRWPR program, and the TSPRWPR program will call Host Print Transform (HPT) to convert only the pages specified in the Page range to print (PAGERANGE) parameter in the attributes for each spooled file.

PMR Number:	
Related APARs:	
Related Public Documents:	

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