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This Manual applies to Release 1
Modification 3 or later of E-mail Utilities™

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INTRODUCTION

E-mail Utilities is a product that will perform various E-mail and E-commerce functions. It's main features are:

E-mail data, spool, or IFS files to Internet users **Write data or spool files to IFS directories**

E-mail features allow the users to send AS/400 data via SMTP mail services to Internet users. The AS/400 must have a properly configured TCP interface with SMTP and MSF active. The following CL commands are provided. These commands can be executed from the command line, from our main menu or user written menus, or from user-written CL programs:

EMLDTAF	E-mail a data file
EMLSPLF	E-mail spool files
EMLIFS	E-mail an IFS file

IFS directory features allow the user to place AS/400 data in the Integrated File System. Once in the IFS the data can be accessed by other tasks. For example an OS/400 HTTP Server or network server may also access the target IFS directory, giving Web browsers in your intranet or on the Internet access to the copied files. The following commands are provided. . These commands can be executed from the command line, from our main menu or user written menus, or from user-written CL programs:

DIRDTAF	Write a data file to an IFS Directory
DIRSPLF	Write a spool file to an IFS Directory

E-mail a Data File

The **EMLDTAF** command sends one or more data file members via E-mail to one or more Internet users. Physical files, logical files, source physical files, and save files can be sent. Up to 50 files can be specified. Up to 50 members can be specified for each file. Each file member appears as an attachment to the E-mail message. Each attachment is encoded using Base 64, a standard encoding scheme understood by all E-mail viewers. The user can specify 2-part attachment names (*i.e.* abc.txt) for each member.

The user can specify a subject, from address, and up to 50 recipients. The user can also specify a file which contains the list of recipients. The recipient file can be a physical file, logical file, or source physical file. Addresses can be in one of the following formats:

SMTP addresses in the form of *user@domain.com*.
User profile
SNADS User ID, User Address

For User Profile and SNADS formats, the SMTP address must be defined in the system. Addresses can be specified with a name and address or just an address. Blind Carbon Copy (Bcc) recipients can also be specified. Bcc address recipients will not appear in the message.

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The attachments can be placed into the message in one of the following formats:

Text: Text format converts the EBCDIC data to ASCII and places line separators (CRLF) between the data file's records. The user can optionally truncate trailing blanks from each record and can optionally remove the sequence number and change date fields from source physical files.

Binary: Binary format performs no data conversion. Each record is placed into the attachment without any separators. This format is ideal for sending save files and other data which is meant to be read by computer programs.

CSV and TSV (Spreadsheet, database): CSV (Comma Separated Values) and TSV (Tab Separated Values) formats are standard formats recognized by most commercial Spreadsheet and Database applications. For example Microsoft Excel and Microsoft Access can read data in CSV and TSV formats. The EMLDTAF command will look at each field of the data file and convert it to an ASCII value. The following AS/400 DDS field types will be converted. All others will be treated as character data.

- A Character**
- S Zoned Decimal**
- P Packed Decimal**
- B Binary (2, 4, and 8 byte)**
- F Float**

An optional Note can be specified. The note will appear in the message as inline text. The user can specify up to 50 lines of text and/or specify a file containing the note. The Note file can be a physical file, logical file, or source physical file.

E-mail Spool Files

The **EMLSPLF** command sends one or more AS/400 spool entries via E-mail to one or more Internet users. Up to 50 spool entry attachments can be sent in one E-mail message.

The user can specify a subject, from address, and up to 50 recipients. The user can also specify a file which contains the list of recipients. The recipient file can be a physical file, logical file, or source physical file. Addresses can be in one of the following formats:

SMTP addresses in the form of *user@domain.com*.

User profile

SNADS User ID, User Address

For User Profile and SNADS formats, the SMTP address must be defined in the system. Addresses can be specified with a name and address or just an address. Blind Carbon Copy (Bcc) recipients can also be

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specified. Bcc address recipients will not appear in the message.

For attachments, each attachment is encoded using Base 64, a standard encoding scheme understood by all E-mail viewers. The user can specify 2-part attachment names (*i.e.* abc.txt) for each member.

The spool entry can be placed into the message in one of the following formats:

Inline Text: Text format converts the EBCDIC data to ASCII and places line separators (CRLF) after each print line.

Attachment Text: The report is added as an attachment. The attachment is an ASCII text file.

CSV or TSV (Spreadsheet, database): CSV (Column Separated Values) and TSV (Tab Separated Values) formats are standard formats recognized by most commercial Spreadsheet and Database applications. For example Microsoft Excel and Microsoft Access can read data in CSV or TSV format. The user specifies the rows/columns in the report to correspond to cells in the CSV or TSV format.

Adobe PDF: The report is converted to an Adobe PDF format. Users can read the PDF file using Adobe Acrobat Reader.

Microsoft Excel: The report is converted to an MS Excel Spreadsheet (xlsx). Users can process the spreadsheet using Microsoft Excel or another spreadsheet program.

An optional Note can be specified. The note will appear in the message as inline text. The user can specify up to 50 lines of text and/or specify a file containing the note. The Note file can be a physical file, logical file, or source physical file.

E-mail an IFS File

The **EMLIFS** command sends one or more IFS files (stream files) via E-mail to one or more Internet users. Thus a user can build high quality HTML or PDF attachments via PC applications, move them to the AS/400 IFS as stream files, and send them to Internet users.

Up to 50 IFS files can be specified. Each file can appear as inline text or as an attachment. Attachments are encoded using Base 64, a standard encoding scheme understood by all E-mail viewers. The user can specify 2-part attachment names (*i.e.* abc.txt) for each member.

The user can specify a subject, from address, and up to 50 recipients. The user can also specify a file which contains the list of recipients. The recipient file can be a physical file, logical file, or source physical file. Addresses can be in one of the following formats:

SMTP addresses in the form of *user@domain.com*.

User profile

SNADS User ID, User Address

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For User Profile and SNADS formats, the SMTP address must be defined in the system. Addresses can be specified with a name and address or just an address. Blind Carbon Copy (Bcc) recipients can also be specified. Bcc address recipients will not appear in the message.

The attachment's Content Type and Subtype (text/plain, text/html, etc.) can be specified. Files can be appended to the previous attachments.

Copy a Data File to an IFS Directory

The **DIRDTAF** command sends a data file member to an Integrated File System directory. Physical files, logical files, source physical files, and save files can be sent.

The IFS file can be one of the following formats:

Text: Text format converts the EBCDIC data to ASCII and places line separators (CRLF) between the data file's records. The user can optionally truncate trailing blanks from each record and can optionally remove the sequence number and change date fields from source physical files.

Binary: Binary format performs no data conversion. Each record is placed into the attachment without any separators. This format is ideal for sending save files and other data which is meant to be read by computer programs.

CSV and TSV (Spreadsheet, database): CSV (Comma Separated Values) and TSV (Tab Separated Values) formats are standard formats recognized by most commercial Spreadsheet and Database applications. For example Microsoft Excel and Microsoft Access can read data in CSV and TSV formats. The EMLDTAF command will look at each field of the data file and convert it to an ASCII value. The following AS/400 DDS field types will be converted. All others will be treated as character data.

- A Character**
- S Zoned Decimal**
- P Packed Decimal**
- B Binary (2, 4, and 8 byte)**
- F Float**

Copy a Spool File to an IFS Directory

The **DIRSPLF** command sends an AS/400 spool entry via E-mail to an Integrated File System directory. The spool entry can be placed into the IFS file in one of the following formats:

INTRODUCTION

Text: Text format converts the EBCDIC data to ASCII and places line separators (CRLF) after each print line.

CSV or TSV (Spreadsheet, database): CSV (Column Separated Values) and TSV (Tab Separated Values) formats are standard formats recognized by most commercial Spreadsheet and Database applications. For example Microsoft Excel and Microsoft Access can read data in CSV or TSV format. The user specifies the rows/columns in the report to correspond to cells in the CSV or TSV format.

Adobe PDF: The report is converted to an Adobe PDF format. Users can read the PDF file using Adobe Acrobat Reader.

Microsoft Excel: The report is converted to an MS Excel Spreadsheet (xlsx). Users can process the spreadsheet using Microsoft Excel or another spreadsheet program.

HTML: The report is converted to HTML format.

CSV and TSV (Spreadsheet, database): CSV (Comma Separated Values) and TSV (Tab Separated Values) formats are standard formats recognized by most commercial Spreadsheet and Database applications. For example Microsoft Excel and Microsoft Access can read data in CSV and TSV formats. The EMLDTAF command will look at each field of the data file and convert it to an ASCII value. The following AS/400 DDS field types will be converted. All others will be treated as character data.

Data Encryption

E-mail Utilities has the ability to encrypt data. The following commands support data encryption:

- DIRDTAF
- DIRSPLF
- EMLDTAF
- EMLSPLF
- EMLIFS

E-mail Utilities data encryption uses the Rijndael symmetric algorithm with 128 bit keys, and industry standard strong encryption method. The encrypted data is placed into a self-extracting file that can be executed on a Windows PC. The PC user will be prompted to enter a password to access the encrypted data. The decrypted file can then be opened or saved to disk.

Spool PDF Overlay/400™ Interface

E-mail Utilities can use the features of Spool PDF Overlay/400™ product if it is installed. Spool PDF Overlay/400 is a separate product from BDS that provides the additional features when creating Adobe PDF files, such as:

Overlays

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Images

Multiple Fonts

Refer to Spool PDF Overlay/400 documentation or contact BDS for more information on its features. The following **E-mail Utilities** functions can utilize Spool PDF Overlay/400 features when creating a PDF:

EMLSPLF cmd

DIRSPLF cmd

Refer to the E-mail Utilities documentation for more information.

IASPs and Multiple E-mail Utilities Instances

E-mail Utilities product libraries can be placed onto Basic and Independent ASPs, giving the Administrator great flexibility. Multiple instances of E-mail Utilities can be running within an LPAR. Each E-mail Utilities instance is independent of the other instances.

Acknowledgements

The following third party products have been incorporated into Email Utilities:

Flate - Flate is an industry-standard compress/decompress algorithm written by Jean-loup Gailly and Mark Adler. BDS has adopted their code to run on the AS/400 platform. The Adobe PDF format supports Flate. You can contact them at <http://www.gzip.org/>.

INSTALLATION

Before you begin

- 1) Use these instructions if you are installing a new instance of E-mail Utilities/400. If you are updating your existing E-mail Utilities /400 instance to a new release refer to the document “**E-mail Utilities /400 Update Instructions**” provided with the update package.
- 2) A permanent or temporary password is needed once E-mail Utilities is installed. If you have already have an instance of E-mail Utilities running on this or any other LPAR within this CPU, you can use its permanent password for this instance. Otherwise you will need to contact Broderick Data Systems for a temporary or permanent password. If you plan to install E-mail Utilities after business hours, you may wish to call Broderick Data Systems in advance to get your password.
- 3) If you plan to install more than one instance of E-mail Utilities on this LPAR, or you plan to install E-mail Utilities onto APSs other than the System ASP (ASP 1), refer to Appendix C, “ASP Considerations” prior to performing the install.

Prerequisites

The following hardware and system software is needed to execute E-mail Utilities. Please ensure that all needed system software is installed before beginning the installation.

AS/400:

- + OS/400 Version 6, Release 1, Modification 0 or greater
- + Security level 40 or less

To create encrypted files:

- Cryptographic Access Provider for AS/400 (57xx-AC3)

Decrypt files:

To decrypt E-mail Utilities encrypted files:

- + Windows XP, Windows 2003, or Windows 7, or later
- + DotNet Framework 1.1 or greater

Installation

- 1) Sign on as **QSECOFR**
- 2) Restore the install routines from the media.

Mount the media and enter one of the following:

If you are using Tape:

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**RSTOBJ OBJ(BEMIN*) SAVLIB(EMAL40) DEV(xxxxxx) VOL(*MOUNTED)
RSTLIB(QTEMP)**

If you are using CD-ROM:

**RSTOBJ OBJ(BEMIN*) SAVLIB(EMAL40) DEV(OPT01) VOL(BDS)
RSTLIB(QTEMP) OPTFILE(EMAL40)**

If you are using a Save file:

You should have a save file containing the E-mail Utilities media. Verify the contents and note the library saved:

DSPSAVF FILE(mylib/myfile)

The library saved should be **EMAL40**.

Restore the install objects from the save file containing library **EMAL40** into library QTEMP:

**RSTOBJ OBJ(BEMIN*) SAVLIB(EMAL40) DEV(*SAVF) SAVF(mylib/myfile)
RSTLIB(QTEMP)**

3) Execute the install procedure. Enter one of the following:

Note: If you are planning to install E-mail Utilities into ASPs other than the system ASP (ASP 1), refer to Appendix K, “ASP Considerations” to determine the values for the xxxASP and xxxASPDEV parameters on the following BEMINS command. Refer to the command help text for more information regarding the xxxASP and xxxASPDEV parameters.

Note: If you are planning to install E-mail Utilities into an IASP, verify that the IASP device’s status is **AVAILABLE**. Use the command WRKCFGSTS CFGTYPE(*DEV) CFGD(your-IASP-dev).

If you are using Tape or CD-ROM (Press F4 to prompt):

QTEMP/BEMINS DEV(xxxxx)

If you are using a Save file (Press F4 to prompt):

QTEMP/BEMINS DEV(*SAVF) PGMSAVF(mylib/myfile)
Enter the save file containing library **EMAL40** for mylib/myfile.

You will receive the message “Installation of E-mail Utilities complete”. You may need to call Broderick Data Systems to activate your 30 day trial package.

4) Access the BDS Software Server (optional).

Note: Your AS/400 must be connected to the Internet to perform this procedure.

INSTALLATION

a) If you have not done so previously, access the tailoring options screen:

BRODERICK/BEMSETUP

b) Note the fields “BDS Access Userid” and “Password”. You will need a user ID and password to access some of the server options. If needed, contact BDS administration to get this information. If you add your user id and password, press **ENTER** to enter them and re-enter the setup command.

c) Press F14, E-Comm. The Software Server display will appear. Take note of the options available to you. When you are finished, press F3 to exit

MAIN MENU

To access E-mail Utilities Main Menu, enter the following command:

EMLADM Administrator Main Menu

The following screen should appear:

```

                                E-Mail Utilities (TM)      1/30/02   08:58:32
                                Administrator Main Menu   01 01 0000  QSECOFR

Administration
  1. Tailoring Optons           (BEMSETUP)
  2. Manage CSV/TSV Specifications
  3. Manage PDF Specifications
  4. Manage MS Excel Specifications
  5. Manage Excel Style Specifications
  6. Manage HTML Specifications
  7. Manage Encryption Specifications

Operation
 11. E-mail a data file        (EMLDTAF)
 12. E-mail a spool file       (EMLSPLF)
 13. E-mail an IFS file        (EMLIFSF)
 14. Copy a file to IFS Directory (DIRDTAF)
 15. Copy a spool entry to IFS Dir (DIRSPLF)

90. Sign off

Selection: _____ F3=Exit  F6=Messages  F10=Command Entry
(C) Copyright 1999, 2002 - Broderick Data Systems
```

Administration

Options 1 thru 5 are used to describe various components to E-mail Utilities. The above options have the following definitions:

1. Tailoring Options

Allows the Administrator to enter passwords, set various system options, and define E-mail Utilities Logging options. For more information, refer to Chapter 4, "Define Tailoring Options".

2. Manage CSV/TSV Specifications

Allows the Administrator to define Comma Separated Values (CSV) and Tab Separated Values (TSV) Specifications. CSV/TSV Specs allow E-mail to be in sent in CSV or TSV format, which most PC

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Spreadsheet and Database applications can support.

3. Manage PDF Specifications

Allows the Administrator to define PDF Specifications. PDF Specs allow E-mail to be sent in Adobe PDF format, which most can be read by Adobe Acrobat Reader.

4. Manage MS Excel Specifications

Allows the Administrator to define MS Excel Specifications. Excel is a format owned by Microsoft and is used to display spreadsheets on PC's. E-mail Utilities uses XLS specifications in its E-mail and IFS Directory functions.

5. Manage Excel Style Specifications

Allows the Administrator to define MS Excel Style Specifications. Excel is a format owned by Microsoft and is used to display spreadsheets on PC's. E-mail Utilities refers to Style specifications in its XLS Specifications, allowing the administrator to define groups of cell characteristics that will be used repeatedly.

6. Manage HTML Specifications

Allows the Administrator to define HTML Specifications. PDF Specs allow IFS Directory files to be formatted in HTML.

7 Manage Encryption Specifications

Allows the Administrator to define Encryption Specifications. Encryption Specs are used by E-mail Utilities commands, allowing data to be encrypted.

Operation

Options 11 thru 15 have the following definitions:

11. E-mail a data file

Executes the **EMLDTAF** command, which will E-mail data files to Internet users.

12. E-mail a spool file

Executes the **EMLSPLF** command, which will E-mail a spool entry to Internet users.

13. E-mail an IFS file

Executes the **EMLIFS** command, which will E-mail IFS files to Internet users.

14. Copy a data file to IFS Directory

Executes the **DIRDTAF** command, which copy a data file to an IFS Directory.

15. Copy a spool file to IFS Directory

MAIN MENU

Executes the **DIRSPLF** command, which copy a spool entry to an IFS Directory.

DEFINE TAILORING OPTIONS

This allows the Administrator to define system wide options. To access the Tailoring Options screen, select option 1 from the Menu or enter the following command:

BRODERICK/BEMSETUP

The following screen will appear:

```

                                E-mail Utilities (TM)      5/7/00 10:41:07
                                Setup Display
System Statistics: Rel   Mod   PTF   System Name   CPU Serial   Model
                   01    00    0000   BDS400          00000000     F10
  Passwords: Permanent          Temporary       High Avail
             F1F2F3F4F5F6F7F8   FAFBFCFDFF     F1F2F3F4F5F6F7F8

          EBCDIC CCSID:   37
          ASCII CCSID:   437
          Character Set: us-ascii

          BDS Access Userid: _____ Password: _____

F3=Exit w/o Update F12=Exit w/o Update F14=BDS SwSvr
Copyright 2000, 2001 Broderick Data Systems
```

The above parameters have the following definitions:

System Statistics

Rel, Mod and PTF

This is the Release, Modification and Program Temporary Fix level of E-mail Utilities you have installed.

Note: When the update to E-mail Utilities is done, it will update these fields. If you update E-mail Utilities and these fields do not update, verify you have executed the update procedure in the E-mail Utilities Update Instructions.

System Name

The system name assigned to the AS/400 computer running the E-mail Utilities software.

CPU Serial Number

The CPU serial number assigned to this AS/400 computer.

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Model

The model number of this AS/400 computer.

Passwords

Permanent and Temporary Passwords

Passwords are provided by Broderick Data Systems to allow access to E-mail Utilities. Certain key functions test these passwords before executing. If the password tests fail, a message will appear on the QSYSOPR message queue and the function stops.

High Availability Password

If this machine is being replicated to a High Availability machine, specify the Permanent Password for the HA machine here. This will allow you to cut over to the HA machine without changing passwords. Note: You must purchase an HA license from Broderick Data Systems in order to receive an HA password.

BDS Access User ID and Password

Specifies the user ID and password needed to access the BDS Software Server. Contact BDS Administration for your user ID and password.

Other Options

EBCDIC and ASCII CCSID

Specifies the EBCDIC to ASCII conversion scheme to use. Please note that the AS/400 is an EBCDIC machine and most E-Mail recipients reside on PC's which are ASCII machines. E-mail Utilities will convert the E-mail message to the specified ASCII character set ID before passing the message to OS/400 routines. For more information refer to AS/400 National Language Support, Appendix G.2 "Code Pages and CCSID's"

Notes:

- 1) Specified CCSID's will be checked by issuing a test string to convert. Errors will be reported back to the user. For a list of errors and their meanings refer to "OS/400 National Language API's", Chapter 3.2.2 "CDRCVRT API Feedback Codes and Conditions". No error message does not insure a proper conversion. We recommend you test the conversion by sending a message to a recipient and have the recipient display the sent message.
- 2) CCSIDs 37 and 437 are US English EBCDIC and ASCII.

Character Set

Specifies, for E-mail, the character set to be placed into the message header. This value will appear in the MIME Message Header in the "charset=" parameter. Example values are:

DEFINE TAILORING OPTIONS

us-ascii
iso-8859-1

F3 (Return)

Press F3 to exit without updating.

Access the BDS Software Server

If **F14** is chosen, the screen showing BDS Software Server options is displayed. To access the BDS Software Server the AS/400 must be connected to the Internet. The following display will appear:

```

                                                                 12/03/01   11:45:21
                BDS Software Server Display

Select one of the following:

  1. Check for updates
  2. Download Software Update
  3. Download Software Patch
  4. Upload Captured Problem Data

Option:

F3=Exit  F12=Exit
```

Some of the following options require a user ID and password. If you do not have one, contact BDS Administration. These options use the Internet to connect to a server at Broderick Data Systems. Therefore your AS/400 must be connected to the Internet. If behind a firewall, the firewall must allow outbound sessions through it.

Check for updates

Retrieves the latest available release of the product. Displays the BDS and OS/400 prerequisites releases required to install the latest release of the product.

Download Software Update

Downloads the latest release of the product into save files on your system. The update procedure can then be done using these save files. The product may be active and running while you perform this download.

Download Software Patch

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Downloads objects into a save file on your system. Usually you will use this option while working with BDS tech support.

Upload Captured Problem Data

Uploads a save file on your system (containing objects that you have saved) into a save file on the BDS server. Usually you will use this option while working with BDS tech support.

F3 (Return)

Press F3 to exit.

F12 (Return)

Press F12 to exit.

DEFINE FILE FORMAT SPECIFICATIONS

E-mail utilities allow the user to format output into popular standards such as Adobe PDF. These standards are complex. Placing all available options on the E-mail utilities commands would make them unmanageable. To prevent this, E-mail Utilities places many options in specifications and refers to these specs by name.

CSV /TSV Specifications

E-Mail sent by E-mail Utilities can be placed into Spreadsheet and Database applications. E-mail Utilities supports Part Types CSV (Comma Separated Values) and TSV (Tab Separated Values), which can be loaded or imported by most PC Spreadsheet and Database applications.

E-mail Utilities' spool entry commands use CSV/TSV specifications. Since CSV is a row-column oriented format, the administrator must think of the spool entry's page as columns of data. For each column, the administrator determines the type (character or numeric), and the start/end columns on the page. Up to 30 columns can be specified.

Select **F6** to add a new Specification. Enter the name of the Spec to create and press **ENTER**. The following screen should appear:

E-MAIL UTILITIES/400™

E-mail Utilities			ADD			5/06/00		
Define E-Mail CSV/TSV Specifications						10:16:46		
Name: CSV1								
From Line: _____			To Line: _____					
Text: _____								
Type	FromCol	ToCol	Type	FromCol	ToCol	Type	FromCol	ToCol
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
___	___	___	___	___	___	___	___	___
Starting Page: _____ 1								
Generate Headings: <u>*NO</u>						*NO, *ONCE, *ALL		
From Line: <u>1</u>			To Line: <u>66</u>					
F3=Exit F12=Cancel Current Operation								

The above parameters have the following definitions:

From/To Line

Specifies the line range to include. Only print lines that fall within this range will be included in the CSV file.

Text

Specify up to 30 characters of text that describes the Specification.

Type

Specifies the type of data to create. Specify one of the following:

C: (Character) the column will be character data. Trailing blanks will be truncated.

N: (Numeric) the column will be numeric data. Editing characters such as commas will be removed. An all-blank value will be treated as zero. Negative numbers can be specified as leading minus, trailing minus, trailing CR, or enclosed in parentheses.

DEFINE FILE FORMAT SPECIFICATIONS

Starting Page

Specifies the starting page. This option allows you to skip initial pages such as Specifications pages that do not contain wanted data.

Generate Headings

Specifies if Headings are to be placed into the output. If specified, the same columns specified for the data columns will be used to build the heading lines. Note that heading cells will always be character. If Generate Headings is specified, you will specify From and To lines. Specify one of the following:

*NO: No headings will be generated.

*ONCE: Heading lines will be generated before the first page's data lines are generated.

*ALL: Heading lines will be generated before each page's data lines are generated.

From/To Line

Specifies the line range to include as Headings. Only print lines that fall within this range will be included.

PDF Specifications

E-mail Utilities can generate output in **PDF** format. **PDF** is a format developed by Adobe Systems Inc. and can be read by their Acrobat readers on PC's. Options that control the appearance of the **PDF** output are contained in **PDF** Specifications.

Please note: **PDF** keywords are not fully syntax checked by E-mail Utilities. The administrator should test the generated output. For more information on **PDF** keywords and their valid values, refer to an Adobe **PDF** reference manual.

Press **F6** to enter new specifications and enter a unique name. The following screen will appear:

E-MAIL UTILITIES/400™

Spec: P1	E-mail Utilities™	10/20/10
	Define PDF Specs	15:06:31
Font Keywords:		
Font ID:	<u>Courier</u>	
Font Size:	<u>.000</u>	
Page Keywords		
Measure Method:	<u>*TGTSIZE</u>	(*TGTSIZE, *SPLFILE)
Width:	<u>8.500</u>	
Length:	<u>11.000</u>	
Rotate Column:	<u>80</u>	
Spool PDF Overlay/400 Spec Name: <u>*NONE</u>		
Compress Page Data:	<u>*YES</u>	(*YES, *NO)
Descriptive Text:	<u></u>	
F3=Exit F12=Cancel Current Operation		

Font ID

Specifies the Font **ID** to use. E-mail Utilities uses the Type1 Base Fonts when generating **PDF** output. Select from one of the following Adobe Type1 Base Fonts:

- + Courier
- + Courier-Bold
- + Courier-BoldOblique
- + Courier-Oblique
- + Helvetica
- + Helvetica-Bold
- + Helvetica-BoldOblique
- + Helvetica-Oblique
- + Times-Roman
- + Times-Bold
- + Times-Italic
- + Times-BoldItalic
- + Symbol
- + ZaphDingbats

Font Size

Specifies the size of the font in points. Specify a point size or the following:

0: E-mail Utilities will calculate the font point size based on page width and characters per line values.

DEFINE FILE FORMAT SPECIFICATIONS

Measure Method:

Specifies how E-mail Utilities will calculate the page size. Most AS/400 output is generated to print on 14 by 11 inch paper, and most PC printers are 8.5 by 11 inches. E-mail Utilities can convert the output size if desired. Specify one of the following:

***TGTSIZE:** The size of the target system's paper (specified below) will be used to calculate the page size.

***SPLFILE:** The spool file's attributes will be used to calculate the page size.

Width:

Specifies, if ***TGTSIZE** is specified above, the Page Width in inches.

Length:

Specifies, if ***TGTSIZE** is specified above, the Page Length in inches.

Rotate Column:

Specifies if E-mail Utilities is to rotate output 90 degrees and print in landscape mode. If the spool entry's characters per line attribute is greater than the specified value the output page size will be rotated 90 degrees so that the spool entry will print in landscape mode.

Spool PDF Overlay/400 Spec Name:

Specifies, for Adobe PDF files, if the Spool PDF Overlay/400™ Product will be used to create the PDF file. Spool PDF Overlay/400 is a separate product from BDS that supports Overlays, Images, and multiple Fonts. It must be installed on your machine in order to use this feature. Spool PDF Overlay/400 options will override any PDF options specified in E-mail Utilities. Specify one of the following:

***NONE:** Specifies that Spool PDF Overlay/400 will not be used to create the PDF file.

name: Specifies the Spool PDF Overlay/400 Options Spec name to use. The Options Spec must have been created in the Spool PDF Overlay/400 product. Refer to the Spool PDF Overlay/400 documentation for more information on available features and options.

***DFT:** Specifies the default Spool PDF Overlay/400 Options Spec will be used.

Compress Page Data:

Specifies, for Adobe PDF files, if internal page data will be compressed using the FLATE algorithm. Compressing page data can greatly reduce the size of the output PDF file. Specify one of the following:

***YES:** Page data will be compressed.

***NO:** Page data will not be compressed.

Text

Specify up to **30** characters of descriptive text.

E-MAIL UTILITIES/400™

HTML Specifications

E-mail Utilities can generate output in **HTML** format. Options that control the appearance of the **HTML** output are contained in **HTML Specifications**.

Please note: **HTML** keywords are not fully syntax checked by E-mail Utilities. The administrator should test the generated output. For more information on **HTML** keywords and their valid values, refer to an **HTML** reference manual.

Press **F6** to enter new specifications and enter a unique name. The following screen will appear:

Spec: H1	E-mail Utilities™	10/20/00
	Define HTML Specs	15:06:31
General Keywords:		
Title:	_____	==
Content Type:	text/html	==
Character Set:	iso-8859-1	==
Meta Keywords:		
Keywords:	_____	==
Title:	_____	==
Body Keywords:		
Text Color:	_____	==
Backgr Color:	_____	==
Font Keywords:		
Family:	_____	==
Style:	_____	==
Variant:	_____	==
Weight:	_____	==
Size:	_____	==
Descriptive Text:	_____	==
F3=Exit F12=Cancel Current Operation		

General Keywords

Title

Specifies the *title* keyword, used to give the web page a title. Specify a value or spaces for none.

DEFINE FILE FORMAT SPECIFICATIONS

Meta Keywords

Content Type

Specifies the values placed on the META *content-type* .keyword. For most installations, text/html is recommended. Specify a value or spaces for none.

Note: If Content Type is non-blank, Character Set must be non-blank.

Character Set

Specifies the values placed on the META *character-set* .extension of the *content-type* keyword. For most installations, iso-8859-1 is recommended. Specify a value or spaces for none.

Note: If Character Set is non-blank, Content Type must be non-blank.

Keywords

Specifies the Meta *keywords* keyword, used to assign search keywords to the web page. Specify values separated by commas, or spaces for none.

Title

Specifies the Meta *title* keyword, used to assign a title to the web page. Specify a value, or spaces for none.

Body Keywords

E-mail Utilities generates an imbedded style sheet in the **HEAD** section of the web page. A **BODY** subsection is added to the style sheet, which will make the attributes specified here valid for the entire web page. For more information, refer to Style Sheets in an **HTML** reference manual. The following keywords are placed into the *Body* subsection of the style sheet. **Please note:** that the Font Keywords listed below are also placed into the *Body* subsection of the style sheet.

Text Color

Specifies the *color* keyword, used to assign the color of typed text. Specify a value, or spaces for none.

Background Color

Specifies the *bcolor* keyword, used to assign the color of the background. Specify a value, or spaces for none.

Font Keywords

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The following keywords are part of the font family of keywords and are placed into the **Body** subsection of the style sheet.

Family

Specifies the *font-family* keyword. Specify a value, or spaces for none. Some examples of font families are:

Times New Roman
Courier

Style

Specifies the *font-style* keyword. Specify a value, or spaces for none. Some examples of font styles are:

italic
oblique

Variant

Specifies the *font-variant* keyword. Specify a value, or spaces for none. Some examples of font variants are:

Small-caps

Weight

Specifies the *font-weight* keyword. Specify a value, or spaces for none. Some examples of font weights are:

bold
lighter

Size

Specifies the *font-size* keyword. Specify a value, or spaces for none. Some examples of font sizes are:

xx-small
medium
12pt

Text

Specify up to **30** characters of descriptive text.

E-MAIL COMMANDS

E-mail Utilities has the following commands that can send data via E-mail:

- + **EMLDTAF** E-mail a data file
- + **EMLSPLF** E-mail spool files
- + **EMLIFS** E-mail an IFS file

E-mail a Data File

The **EMLDTAF** command will send one or more data file members via E-mail to one or more Internet users. Physical files, logical files, source physical files, and save files can be sent. Up to 50 files can be specified. Up to 50 members can be specified for each file. Each file member appears as an attachment to the E-mail message. Each attachment is encoded using Base 64, a standard encoding scheme understood by all E-mail viewers. The user can specify 2-part attachment names (*i.e.* abc.txt) for each member.

If the **EMLDTAF** command is prompted using **F4** the following screens will appear:

Send a data file via E-Mail (EMLDTAF)

Type choices, press Enter.

From Address _____

From Name _____

To Address _____

+ for more values

To Name _____

+ for more values

Subject. _____

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

E-MAIL UTILITIES™

Send a data file via E-Mail (EMLDTAF)

Type choices, press Enter.

Attachment Files:

AS/400 file name	_____	Name
AS/400 library name	_____	Name, *LIBL
Member Name	_____	Name, *FILE, *NONE
+ for more values	_____	
Attachment Type	<u>*BIN</u>	*BIN, *TXT, *CSV, *TSV
Attachment File Name	<u>*MBR</u>	
Attachment File Suffix Name . .	<u>*ATCHTYPE</u>	
Options	<u>*NONE</u>	*NONE, *CVTSRC, *TRUNCATE
Encryption Spec Name	<u>*NONE</u>	Character value, *NONE
Encryption Password	<u>*ENCSPC</u>	
+ for more values	_____	

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

E-MAIL COMMANDS

Send a data file via E-Mail (EMLDTAF)

Type choices, press Enter.

```

Optional Note . . . . . *NONE
_____
+ for more values _____
_____
File containing note . . . . . *NONE      Name, *NONE
                               *LIBL      Name, *LIBL
Note file member . . . . . *FILE       Name, *FILE
EBCDIC CCSID . . . . . *DFT          1-65535, *DFT
ASCII CCSID . . . . . *DFT          1-65535, *DFT
File containing Recipient List . *NONE      Name, *NONE
                               *LIBL      Name, *LIBL
Recipient file member . . . . . *FILE       Name, *FILE, *FIRST
_____
Blind Carbon Copy (Bcc) Addr   *NONE
_____
Blind Carbon Copy (Bcc) Name  *BLANK
_____
+ for more values _____
File containing Bcc list . . . . . *NONE      Name, *NONE
                               *LIBL      Name, *LIBL
Bcc file member . . . . . *FILE       Name, *FILE, *FIRST
CSV/TSV Heading Option . . . . . *NONE      *NONE, *TEXT, *COLHDG...
                                                    Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
  
```

E-MAIL UTILITIES™

```
Send a data file via E-Mail (EMLDTAF)

Type choices, press Enter.

Blind Carbon Copy (Bcc) Addr      *NONE
_____

Blind Carbon Copy (Bcc) Name      *BLANK
_____

+ for more values _
File containing Bcc list . . . . . *NONE      Name, *NONE
                                   *LIBL      Name, *LIBL
Bcc file member . . . . . *FILE      Name, *FILE, *FIRST
CSV/TSV Heading Option . . . . . *NONE      *NONE, *TEXT, *COLHDG...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

The EMLDTAF command has the following parameters:

From Address, From Name (FROMADDR) Parameter

Specifies the sender. Specify up to 64 characters for each or the following special value:

***BLANK:** The name portion of the from-address attribute will be omitted.

Note: See “Address Formats” below for allowable address types and values.

To Address, To Name (TOADDR) Parameter

Specifies, with the TONAME parameter, the recipient. Specify up to 64 characters. Specify up to 50 E-mail address/name pairs or one of the following special values:

***FILE:** The recipient list is contained in a physical file specified by the TOFILE and TOMBR parameters listed below.

***BLANK:** The name portion of the recipient will be omitted.

Note: See “Address Formats” below for allowable address types and values.

- 1) Name/Addresses will appear on the message in the form *from-address* or *from-name <from-address>*.
- 2) E-mail Utilities performs minor edit checking of names and addresses. OS/400 will not notify the EMLDTAF command if the recipient list's addresses are found to be invalid. The user must insure the correct name/addresses are entered.

E-MAIL COMMANDS

Subject (SUBJECT) Parameter

Specifies the subject. Specify up to 70 characters, which can include one or more of the following substitution values:

- ***SPLFILE:** The Spool File Name of the spool entry will be substituted.
- ***JOBNAME:** The Job Name of the job that created the spool entry will be substituted.
- ***JOBUSER:** The User Profile Name of the job that created the spool entry will be substituted.
- ***JOBNUM:** The Job Number of the job that created the spool entry, prefixed by 'J' will be substituted.
- ***SPLNUM:** The Spool File Number of the spool entry, prefixed by 'F' will be substituted.
- ***FORMTYP:** The Form Type attribute of the spool entry will be substituted.
- ***USRDTA:** The User Data attribute of the spool entry will be substituted.
- ***OUTQ:** The Outq Name attribute of the spool entry will be substituted.

Attachment File (ATCHFILE) Parameter

Specifies the attachment files to place in the message. Specify up to 50 attachment files. For each attachment file, specify the AS/400 file and library name, up to 50 members, the format type, the attachment name and extension, and options.

Each attachment is encoded using Base 64, a popular encoding method understood by all web browsers.

AS/400 file name Element

Specifies the file on the AS/400 you wish to send. The file must exist on the AS/400.

AS/400 library name Element

Specifies the library where the AS/400 file resides.

Member Name Element

Specifies the members you wish to send. Specify up to 50 members. Each member will appear as a separate attachment in the E-mail message.

***FILE:** The member name is the same as the file name.

***NONE:** No member is specified. This value is only valid for save files, where it is required.

Attachment Type Element

Specifies how the attachment will be formatted. Select one of the following:

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***BIN:** The attachment is a binary file. No EBCDIC to ASCII conversion is performed. No record separators are inserted after each record. This format is useful when sending objects such as save files to other AS/400 machines.

***TXT:** The attachment is a text file. EBCDIC to ASCII conversion is performed. Carriage Return (CRLF) characters are inserted after each record.

***CSV:** The attachment is a Comma Separated Values (CSV) file. CSV is a format understood by most database and Spreadsheet applications including Microsoft Access and Microsoft Excel.

***TSV:** The attachment is a Tab Separated Values (TSV) file. TSV is a format understood by most database and Spreadsheet applications including Microsoft Access and Microsoft Excel.

Attachment File Name and File Suffix Name Elements

Specifies the name of the attachment once it is placed into the E-mail message. Specify a name and optionally a suffix. The attachment name will be generated in the form *name.extention*.

***MBR:** The AS/400 member name is used as the Attachment file name.

***ATCHTYPE:** The Attachment type determines the File Suffix name:

*BIN	(no suffix)
*TXT	.txt
*CSV	.csv
*TSV	.tsv

Attachment Options Element

Specifies various formatting options. Select one or more of the following:

***NONE:** No additional options are specified.

***CVTSRC:** For Attachment types *TXT, *CSV, and *TSV only, specifies that the Sequence Number and Change Date fields are dropped. This parameter is ignored if the AS/400 file is not a source physical file.

***TRUNCATE:** For Attachment type *TXT only, specifies if trailing blanks are to be truncated before inserting the CRLF characters.

Encryption Spec Name Element

Specifies the name of the Encryption Spec to use to encrypt the attachment. The Encryption Spec must already exist. Refer to Chapter 8, Manage Encryption Specifications for more information. Select one of the following:

***NONE:** No encryption will be performed on the attachment.

E-MAIL COMMANDS

Encryption Password Element

Specifies, for encrypted attachments, the password needed to access the attachment. Specify a value or select one of the following:

***ENCSPC:** The password is contained in the Encryption Spec specified above.

Optional Note (OPTNOTE) Parameter

Specifies an optional note that will be placed in the message. Specify up to 5 lines of up to 70 characters or one of the following special values:

***NONE:** No optional note is placed into the message.

***BLANK:** A blank line is to be placed into the optional note.

File containing Note (NOTEFILE) Parameter

Specifies the file that contains an additional note to be placed into the message. The file must be a physical file or source physical file. Each record in the file will be formatted as a line in the message. The note will be placed into the message as inline text. It will be converted from EBCDIC to ASCII and a CRLF will be inserted after each (blank truncated) record.

Specify the file and library names or the following special value:

***NONE:** No file is specified.

Note File Member (NOTEMBR) Parameter

Specifies the member to use. Specify a name or one of the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

EBCDIC CCSID (ECCSID) Parameter

Specifies, if EBCDIC to ASCII conversion is performed, the EBCDIC CCSID to pass to the conversion routine. Specify a number (i.e. 37 is US English) or the following:

***DFT:** The default EBCDIC CCSID, specified on the Tailoring Options screen, is used.

ASCII CCSID (ACCSID) Parameter

Specifies, if EBCDIC to ASCII conversion is performed, the ASCII CCSID to pass to the conversion routine. Specify a number (i.e. 437 is US English) or the following:

***DFT:** The default ASCII CCSID, specified on the Tailoring Options screen, is used.

File containing Recipient List (TOFILE) Parameter

Specifies, if TOADDR(*FILE) is specified, the file which contains the recipient addresses and names.

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The file must exist. The file must be a physical file, logical file, or source physical file. Each record in the file will be processed as a recipient of the message. The record length of the file is optional but 128 bytes is recommended. Place the address in the first 64 characters of the record. Place the name (if desired) in positions 65 thru 128. The name portion can be left blank. Record lengths other than 128 will be padded with blanks or truncated as needed.

Place an * in column 1 to designate a comment record. Comment records will be ignored.

Specify the file and library names or the following special value:

***NONE:** No file is specified.

Recipient File Member (TOMBR) Parameter

Specifies, the member to use. Specify a name or the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

Blind Carbon Copy (Bcc) Address, (BCCADDR) Parameter

Specifies Bcc recipients. Bcc recipients' name/addresses will not appear anywhere in the message.

Specify up to 64 characters. Specify up to 50 E-mail address/name pairs or one of the following special values:

***FILE:** The recipient list is contained in a physical file specified by the **BCCFILE** and **BCCMBR** parameters listed below.

***BLANK:** The name portion of the Bcc recipient will be omitted.

Note: See "Address Formats" below for allowable address types and values.

File containing Bcc Recipient List (BCCFILE) Parameter

Specifies, if **BCCADDR(*FILE)** is specified, the file which contains the Bcc recipient addresses and names. The file must exist. The file must be a physical file, logical file, or source physical file. Each record in the file will be processed as a recipient of the message. The record length of the file is optional but 128 bytes is recommended. Place the address in the first 64 characters of the record. Place the name (if desired) in positions 65 thru 128. The name portion can be left blank. Record lengths other than 128 will be padded with blanks or truncated as needed.

Place an * in column 1 to designate a comment record. Comment records will be ignored.

Specify the file and library names or the following special value:

***NONE:** No file is specified.

E-MAIL COMMANDS

Bcc Recipient File Member (BCCMBR) Parameter

Specifies, the member to use. Specify a name or the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

CSV/TSV Heading Option (HDGOPT) Parameter

Specifies, for part types *CSV and *TSV only, the type of heading records to write prior to writing the data records. The field description for each field will be examined. All generated heading cells will be treated as character text. If no non-blank cells are found, the line will not be generated. Specify one of the following:

***NONE:** No heading records will be generated.

***TEXT:** The TEXT attribute of each field will be used to generate the heading record. One heading record will be generated.

***COLHDG:** The COLHDG (Column Heading) attribute of each field will be used to generate the heading record. One heading record will be generated. If more than one COLHDG value is defined for a field (up to 3 are allowed), the defined values will be blank-concatenated together to make 1 value.

***COLHDG1:** The COLHDG (Column Heading) attribute of each field will be used to generate the heading record. One heading record will be generated. If more than one COLHDG value is defined for a field (up to 3 are allowed), only the first value will be used.

***FLDNAME:** The Field Name attribute of each field will be used to generate heading records. One heading record will be generated.

***AFLDNAME:** The Alternative Name attribute of each field will be used to generate heading records. One heading record will be generated.

Example: The following command will send a data file to an Internet user:

```
EMLDTAF FROMADDR('me@here' 'Me at Here') TOADDR(('you@there' 'You at There'))
SUBJECT('Test subject') ATCHFILE((QGPL/QCLSRC (MBR1) *TXT *MBR
ATCHTYPE (CVTSRC)))
```

E-mail a Spool File

The **EMLSPLF** (E-mail a spool file) command can send a spool entry in an OS/400 outq via E-mail to one or more Internet users. The users can use common E-mail viewers such as Microsoft Outlook or Netscape Communicator to view the sent E-Mail. The spool entry can appear in the mail inline or as an

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attachment. Attachments can be unformatted or can be in Adobe PDF, Microsoft Excel (xlsx), CSV (Comma Separated Values), or TSV (Tab Separated Values) format. The user can specify up to 50 recipients or can specify a data file which contains the list of recipients.

If executed the following screens will appear:

```
Send a spool entry via E-Mail (EMLSPLF)

Type choices, press Enter.

Spool entry's file name . . . . . _____ Name
Spool entry's Job Name . . . . . *CURRENT Name, *CURRENT
  User . . . . . _____ Name
  Number . . . . . _____ 000000-999999
Spool entry's file number . . . *LAST Name, *ONLY, *LAST
From Address . . . . . _____
_____
_____
_____
From Name . . . . . _____
_____
_____
More...
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys
```

E-MAIL COMMANDS

Send a spool entry via E-Mail (EMLSPLF)

Type choices, press Enter.

To Address _____

+ for more values _____

To Name _____

+ for more values _____

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

E-MAIL UTILITIES™

Send a spool entry via E-Mail (EMLSPLF)

Type choices, press Enter.

Subject _____

Optional Note *NONE

+ for more values _____

Attachment Type *INLUNF *INLUNF, *ATHUNF, *PDF, ...

Attachment Name *SPLFILE

Attachment Name suffix *PARTYP

File containing Recipient List *NONE Name, *NONE

*LIBL Name, *LIBL

Recipient file member *FILE Name, *FILE, *FIRST

CSV/TSV or PDF Spec Name *NONE Character Value, *NONE

Encryption Spec Name *NONE Character value, *NONE

Encryption Password *ENCSPC

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

Send a spool entry via E-Mail (EMLSPLF)

Type choices, press Enter.

Blind Carbon Copy (Bcc) Addr *NONE

Blind Carbon Copy (Bcc) Name *BLANK

+ for more values _____

File containing Bcc list *NONE Name, *NONE

*LIBL Name, *LIBL

Bcc file member *FILE Name, *FILE, *FIRST

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

E-MAIL COMMANDS

```

Send a spool entry via E-Mail (EMLSPLF)
Type choices, press Enter.

Addl Spool Entry Atchmnt List:
Spool entry's file name . . . . *PREVENT      Name, *PREVENT
Spool entry's Job Name . . . . *PREVENT      Name, *PREVENT, *CURRENT
  User . . . . .                _____      Name
  Number . . . . .              _____      000000-999999
Spool entry's file number . . . *PREVENT      Number, *ONLY, *LAST...
Job system name . . . . .      *ONLY          Name, *ONLY, *CURRENT,*ANY
Spooled file created:
  Creation date . . . . .      *ONLY          Date, *ONLY, *LAST
  Creation time . . . . .      _____      Time, *ONLY, *LAST
Attachment Type . . . . .      *PREVENT      *PREVENT, *INLUNF, ...
Attachment Name . . . . .      *PREVENT      _____
Attachment name suffix . . . . *PREVENT      _____
CSV/TSV or PDF Spec Name . . . *PREVENT      Character, *PREVENT...
Encryption Spec Name . . . . . *PREVENT      Character, *PREVENT...
Encryption Password . . . . . *PREVENT      _____

+ for more values

Bottom

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

The EMLSPLF command has the following parameters:

Spool entry's file name (SPLFILE) Parameter

Specifies, with the SPLJOB and SPLNBR parameters, the spool entry to E-Mail. OS/400 uses the combination of Job name, spool file name, and spool file number to uniquely identify a spool entry in the system

Spool entry's Job name (SPLJOB) Parameter

Specifies, with the SPLFILE and SPLNBR parameters, the spool entry to E-Mail. Specify the Job name, user, and number. The user may also specify the following special value:

***CURRENT:** The job that issues the EMLSPLF command will be used to identify the spool entry.

Spool entry's file number (SPLNBR) Parameter

Specifies, with the SPLFILE and SPLJOB parameters, the spool entry to E-Mail. Specify the file number or one of the following special values:

***LAST:** The last spool file which the job created will be sent.

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***ONLY:** The only spool file which the job created will be sent.

Job system name (JOBSYSNAME) Parameter

Specifies the system where the job that created the spooled file (JOB parameter) ran. This parameter is considered after the job name, user name, job number, spooled file name, and spooled file number parameter requirements have been met.

This parameter is used if there is more than one spool entry in the system with the same Job Name/User/Number File/num values.

Specify one of the following:

***ONLY:** There is one spooled file with the specified job name, user name, job number, spooled file name, spooled file number, and spooled file create date and time.

***CURRENT:** The spooled file created on the current system with the specified job name, user name, job number, spooled file name, spooled file number, and create date and time is used.

***ANY:** The job system name is not used to determine which spooled file is used. Use this value when the spooledfile create date and time parameter is to take precedence over the job system name when selecting a spooled file.

system-name: Specify the name of the system where the job that created the spooled file ran.

Spooled file created (CRTDATE) Parameter

Specifies the date and time the spooled file was created. This parameter is considered after the job name, user name, job number, spooled file name, spooled file number, and job system name parameter requirements have been met.

This parameter is used if there is more than one spool entry in the system with the same Job Name/User/Number File/num values.

Specify one of the following:

***ONLY:** There is one spooled file with the specified job name, user name, job number, spooled file name, spooled file number, and spooled file create date/time.

***LAST:** The spooled file with the latest create time of the specified job name, user name, job number, spooled file name, spooled file number, job system name, and spooled file create date is used.

date/time: Specify the date/time the spooled file was created.

From Address (FROMADDR) Parameter

Specifies, with the **FROMNAME** parameter, the sender. Specify up to 256 characters.

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From Name (FROMNAME) Parameter

Specifies, with the **FROMADDR** parameter, the sender. Specify up to 256 characters or the following special value:

***BLANK:** The name portion of the from-address will be omitted.

To Address (TOADDR) Parameter

Specifies, with the **TONAME** parameter, the recipient. Specify up to 256 characters. Specify up to 50 E-mail addresses or the following special value:

***FILE:** The recipient list is contained in a physical file specified by the **TOFILE** and **TOMBR** parameters listed below.

To Name (TONAME) Parameter

Specifies, with the **TOADDR** parameter, the recipient. Specify up to 256 characters. Specify up to 50 names or the following special value:

***BLANK:** The name portion of the recipient will be omitted.

Notes:

- 1) Name/Addresses will appear on the message in the form *from-address* or *from-name <from-address>*.
- 2) **TOADDR** and **TONAME** parameters will be paired together when building the recipient list. Care must be taken when specifying a large list of recipients.
- 3) E-mail Utilities performs very little edit checking of names and addresses. OS/400 will not notify the **EMLSPLF** command if the recipient list's addresses are found to be invalid. The user must insure the correct name/addresses are entered.

Subject (SUBJECT) Parameter

Specifies the subject. Specify up to 70 characters:

Optional Note (OPTNOTE) Parameter

Specifies an optional note that can be sent in front of the spool entry. Specify up to 5 lines of up to 70 characters or one of the following special values:

***NONE:** No optional note is placed into the message.

***BLANK:** A blank line is to be placed into the optional note.

Attachment Type (PARTTYPE) Parameter

Specifies the type of formatting to use when building the attachment. Select one of the following:

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***INLUNF:** The spool file is placed in the message as inline, unformatted text.

***ATHUNF:** The spool file is placed in the message as an unformatted text file attachment.

***PDF:** The spool file is placed in the message as a PDF attachment.

***XLS:** The spool file is placed in the message as an Excel (xlsx) attachment.

***CSV:** The spool file is placed in the message as a Comma Separated Values (CSV) attachment.

***TSV:** The spool file is placed in the message as a Tab Separated Values (TSV) attachment.

Attachment Name (ATHNAME) Parameter

Specifies, for Attachment Types *ATHUNF, *PDF, *XLS, *CSV, and *TSV, the file name of the attachment: Specify up to 95 characters or one of the following:

***SPLFILE:** The spool entry's spool file name is used as the attachment name.

***JOBNAME:** The spool entry's Job Name is used as the attachment name.

***JOBUSER:** The spool entry's Job User ID is used as the attachment name.

***SPLNUM:** The spool entry's Spool File Number is used as the attachment name.

***FORMTYP:** The spool entry's form type attribute is used as the attachment name.

***USRDTA:** The spool entry's User Data attribute is used as the attachment name.

***OUTQ:** The spool entry's Outq name attribute is used as the attachment name.

Attachment Name Suffix (ATHTYPE) Parameter

Specifies, for Attachment Types *ATHUNF, *PDF, *CSV, and *TSV, the file name suffix of the attachment: Specify up to 95 characters or the following:

***PARTYP:** The Attachment type is used to determine the suffix:

*ATHUNF	.txt
*PDF	.pdf
*CSV	.csv
*TSV	.tsv
*XLS	.xlsx

File containing Recipient List (TOFILE) Parameter

Specifies, if **TOADDR(*FILE)** is specified, the file which contains the recipient addresses and names.

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The file must exist.

The file must be a physical file. Each record in the file corresponds to a recipient of the message. The record length of the file is optional but 128 bytes is recommended. Place the address in the first 64 characters of the record. Place the name (if desired) in positions 65 thru 128. The name portion can be left blank. Record lengths other than 128 will be padded with blanks or truncated as needed.

Place an * in column 1 to designate a comment record. Comment records will be ignored.

Specify the file and library names or the following special value:

***NONE:** No file is specified.

Recipient File Member (TOMBR) Parameter

Specifies, the member within the To-file to use. Specify a name or one of the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

CSV/TSV or PDF Spec Name (SPECNAME) Parameter

Specifies, for CSV, TSV, PDF, and XLS types, the Specifications name to use. PDF/CSV/XLS specs contain options used when formatting the spool entry. The spec must be defined prior to use. Specify a name or the following.

***NONE:** No Spec will be used.

Encryption Spec Name Parameter

Specifies the name of the Encryption Spec to use to encrypt the attachment. The Encryption Spec must already exist. Refer to Chapter 8, Manage Encryption Specifications for more information. Select one of the following:

***NONE:** No encryption will be performed on the attachment.

Encryption Password Parameter

Specifies, for encrypted attachments, the password needed to access the attachment. Specify a value or select one of the following:

***ENCSPC:** The password is contained in the Encryption Spec specified above.

Bcc Address (BCCADDR) Parameter

Specifies Bcc (Blind Carbon Copy) recipients. Bcc recipients will not appear in the message header. Specify up to 256 characters. Specify up to 50 E-mail addresses or one of the following special values:

***EMLSPC:** The E-Mail specification entered above contains the to-address value to place into the

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message. Please note that the distribution list will not be used. See *EMLDST below.

***EMLDST:** The E-Mail specification entered above contains the to-address and the distribution list to use as the recipient list.

***FILE:** The recipient list is contained in a physical file specified by the **BCCFILE** and **BCCMBR** parameters listed below.

***NONE:** No address is specified.

***USRPRF(XXXXX):** The SMTP address associated with the specified user profile will be used as the address. Use the Work with directory entries command (WRKDIRE) to determine SMTP address associations.

USRPRF(*JOBUSER): The SMTP address associated with the sending job's user profile will be used as the address.

USRPRF(*SPLUSER): The SMTP address associated with the spool entry's user profile attribute will be used as the address.

***SNADSUSR(XXXXX yyyyy):** The SMTP address associated with the specified SNADS User will be used as the address. Use the Work with directory entries command (WRKDIRE) to determine SMTP address associations.

***BLANK:** The name portion of the recipient will be omitted.

File containing Bcc Recipient List (BCCFILE) Parameter

Specifies, if **BCCADDR(*FILE)** is specified, the file which contains the recipient addresses and names. The file must exist.

The file must be a physical file. Each record in the file corresponds to a Bcc recipient of the message. The record length of the file is optional but 128 bytes is recommended. Place the address in the first 64 characters of the record. Place the name (if desired) in positions 65 thru 128. The name portion can be left blank. Record lengths other than 128 will be padded with blanks or truncated as needed.

Place an * in column 1 to designate a comment record. Comment records will be ignored.

Specify the file and library names or one of the following special values:

***NONE:** No file is specified.

Bcc Recipient File Member (BCCMBR) Parameter

Specifies, the member within the Bcc-file to use. Specify a name or one of the following special values:

***FILE:** The member name is the same as the file name.

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***FIRST:** The first member added to the file will be used.

Add Spool Entry Attachment List (ATCHLST) Parameter

Specifies additional spool entry attachments to place into the message. Specify up to 50 entries. For each entry, specify a E-mail Specification, Spool File Name and Number, Job Name User and Number, a PDF/CSV/TSV/XLS Spec name, a File Attachment Name, an Encryption Spec name, and an Encryption Password. See the corresponding attributes described earlier for a complete description of each element. Specify up to 50 entries. Note the following special values:

***PREVENT:** Use the value specified on the previous entry for this entry. If this is the first additional entry, use the value specified on the corresponding first attribute (EMLSPC attr, SPLFILE attr, etc) for this value.

Example: The following command will send a spool entry created by you to an internet user

```
EMLSPLF SPLFILE(ACT0200) SPLJOB(*CURRENT) SPLNBR(*LAST)
FROMADDR('me@here') FROMNAME('Me at Here') TOADDR('you@there')
TONAME('You at There') SUBJECT('Weekly Accounting Report')
```

E-mail an IFS File

The **EMLIFS** command will send one or more IFS (stream) files via E-mail to one or more Internet users. The IFS files can be created via PC applications and transferred to the AS/400, allowing the user to create high quality attachments for their E-mail. An example of creating and sending a formatted HTML message is provided below.

Up to 50 files can be specified. Each file can appear as an attachment to the E-mail message or as inline text. Attachments are encoded using Base 64, a standard encoding scheme understood by all E-mail viewers. Files can be appended to the previous file. The user can specify 2-part attachment names (*i.e.* abc.txt) for each member.

If the **EMLIFS** command is prompted using **F4** the following screens will appear:

E-MAIL UTILITIES™

Send an IFS file via E-Mail (EMLIFSF)

Type choices, press Enter.

From Address _____

From Name _____

To Address _____

+ for more values _____

To Name _____

+ for more values _____

Subject. _____

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display

F24=More keys

E-MAIL COMMANDS

Send an IFS file via E-Mail (EMLIFSF)

Type choices, press Enter.

Attachment Files:

AS/400 IFS Path and File Name .	_____
Attachment Type	<u>*INLINE</u> *INLINE, *ATCHMNT
Attachment Content Type	<u>'text'</u>
Attachment Content Subtype . . .	<u>'plain'</u>
Attachment File Name	<u>*ATCHTYPE</u>
Convert EBCDIC to ASCII.	<u>*FILE</u> *FILE, *YES, *NO
Append to previous attachment .	<u>*NO</u> *YES, *NO
Encryption Spec Name	<u>*NONE</u> Character value, *NONE
Encryption Password	<u>*ENCSPC</u>
+ for more values	_____
Optional Note	<u>*NONE</u>
+ for more values	_____

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

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```

Send an IFS file via E-Mail (EMLIFS)

Type choices, press Enter.

File containing note . . . . . *NONE      Name, *NONE
                               *LIBL      Name, *LIBL
Note file member . . . . . *FILE       Name, *FILE
EBCDIC CCSID . . . . . *DFT         1-65535, *DFT
ASCII CCSID . . . . . *DFT         1-65535, *DFT
File containing Recipient List . *NONE      Name, *NONE
                               *LIBL      Name, *LIBL
Recipient file member . . . . . *FILE       Name, *FILE, *FIRST

Blind Carbon Copy (Bcc) Addr   - *NONE
-----
Blind Carbon Copy (Bcc) Name   *BLANK
-----
                               + for more values _
File containing Bcc list . . . . *NONE      Name, *NONE
                               *LIBL      Name, *LIBL
Bcc file member . . . . . *FILE       Name, *FILE, *FIRST
Primary Content Subtype . . . . 'mixed'

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

The EMLIFS command has the following parameters:

From Address, From Name (FROMADDR) Parameter

Specifies the sender. Specify up to 64 characters for each or the following special value:

***BLANK:** The name portion of the from-address attribute will be omitted.

Note: See “Address Formats” below for allowable address types and values.

To Address, To Name (TOADDR) Parameter

Specifies, with the TONAME parameter, the recipient. Specify up to 64 characters. Specify up to 50 E-mail address/name pairs or one of the following special values:

***FILE:** The recipient list is contained in a physical file specified by the TOFILE and TOMBR parameters listed below.

***BLANK:** The name portion of the recipient will be omitted.

E-MAIL COMMANDS

Note: See “Address Formats” below for allowable address types and values.

- 1) Name/Addresses will appear on the message in the form *from-address* or *from-name <from-address>*.
- 2) E-mail Utilities performs minor edit checking of names and addresses. OS/400 will not notify the **EMLIFSF** command if the recipient list's addresses are found to be invalid. The user must insure the correct name/addresses are entered.

Subject (SUBJECT) Parameter

Specifies the subject. Specify up to 70 characters:

Attachment File (ATCHFILE) Parameter

Specifies the attachment files to place in the message. Specify up to 50 attachment files. For each attachment file, specify the path and file name, the attachment type, and options.

AS/400 Path and file name Element

Specifies the IFS file on the AS/400 you wish to send. The path and file must exist on the AS/400. For example:

/mydir/myfile.html

Attachment Type Element

Specifies how the attachment will be formatted. Select one of the following:

***INLINE:** The IFS file is placed into the message as inline text.

***ATCHMNT:** The IFS file is placed into the message as an attachment. The attachment is encoded using Base 64, a popular encoding method understood by all web browsers.

Attachment Content Type and Subtype Elements

Specifies the type/subtype values to place into MIME Content-Type header attribute. Refer to RFC 2045 thru 2048 for a description of MIME messages.

text/plain: The value text/plain will be placed into the Content-Type header field.

Attachment File Name Element

Specifies the name of the attachment once it is placed into the E-mail message.

***IFSF:** The AS/400 IFS file name is used as the Attachment file name.

Convert EBCDIC to ASCII Element

Specifies if the IFS file data is to be converted to ASCII. The EBCDIC and ASCII CCSID's to use for the conversion are specified below. Select one or more of the following:

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***FILE:** The CCSID of the IFS file is examined. If it is different than the specified ASCII CCSID, conversion will take place. Otherwise no conversion will take place.

***YES:** EBCDIC to ASCII conversion will take place using the EBCDIC and ASCII CCSIDs specified below.

***NO:** No EBCDIC to ASCII conversion will take place.

Append to previous attachment Element

Specifies if this IFS file's data is to be added to the data in the previous file. This parameter is ignored if the previous attachment type (*INLINE, *ATCHMNT) is different. This parameter is also ignored if the Encryption Spec or password is different. The first IFS file can be appended to the note lines or file if they are specified. The note is considered *INLINE. Select one or more of the following:

***NO:** Do not append this file to the previous file.

***YES:** Append this file to the previous file data.

Encryption Spec Name Element

Specifies the name of the Encryption Spec to use to encrypt the attachment. The Encryption Spec must already exist. Refer to Chapter 8, Manage Encryption Specifications for more information. Select one of the following:

***NONE:** No encryption will be performed on the attachment.

Encryption Password Element

Specifies, for encrypted attachments, the password needed to access the attachment. Specify a value or select one of the following:

***ENCSPC:** The password is contained in the Encryption Spec specified above.

Optional Note (OPTNOTE) Parameter

Specifies an optional note that will be placed in the message. Specify up to 5 lines of up to 70 characters or one of the following special values:

***NONE:** No optional note is placed into the message.

***BLANK:** A blank line is to be placed into the optional note.

File containing Note (NOTEFILE) Parameter

Specifies the file that contains an additional note to be placed into the message. The file must be a physical file or source physical file. Each record in the file will be formatted as a line in the message. The note will be placed into the message as inline text. It will be converted from EBCDIC to ASCII and a CRLF will be inserted after each (blank truncated) record.

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Specify the file and library names or the following special value:

***NONE:** No file is specified.

Note File Member (NOTEMBR) Parameter

Specifies, the member to use. Specify a name or one of the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

EBCDIC CCSID (ECCSID) Parameter

Specifies, if EBCDIC to ASCII conversion is performed, the EBCDIC CCSID to pass to the conversion routine. Specify a number (i.e. 37 is US English) or the following:

***DFT:** The default EBCDIC CCSID, specified on the Tailoring Options screen, is used.

ASCII CCSID (ACCSID) Parameter

Specifies, if EBCDIC to ASCII conversion is performed, the ASCII CCSID to pass to the conversion routine. Specify a number (i.e. 437 is US English) or the following:

***DFT:** The default ASCII CCSID, specified on the Tailoring Options screen, is used.

File containing Recipient List (TOFILE) Parameter

Specifies, if **TOADDR(*FILE)** is specified, the file which contains the recipient addresses and names. The file must exist. The file must be a physical file, logical file, or source physical file. Each record in the file will be processed as a recipient of the message. The record length of the file is optional but 128 bytes is recommended. Place the address in the first 64 characters of the record. Place the name (if desired) in positions 65 thru 128. The name portion can be left blank. Record lengths other than 128 will be padded with blanks or truncated as needed.

Place an * in column 1 to designate a comment record. Comment records will be ignored.

Specify the file and library names or the following special value:

***NONE:** No file is specified.

Recipient File Member (TOMBR) Parameter

Specifies, the member to use. Specify a name or the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

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Blind Carbon Copy (Bcc) Address, (BCCADDR) Parameter

Specifies Bcc recipients. Bcc recipients' name/addresses will not appear anywhere in the message. Specify up to 64 characters. Specify up to 50 E-mail address/name pairs or one of the following special values:

***FILE:** The recipient list is contained in a physical file specified by the **BCCFILE** and **BCCMBR** parameters listed below.

***BLANK:** The name portion of the Bcc recipient will be omitted.

Note: See "Address Formats" below for allowable address types and values.

File containing Bcc Recipient List (BCCFILE) Parameter

Specifies, if **BCCADDR(*FILE)** is specified, the file which contains the Bcc recipient addresses and names. The file must exist. The file must be a physical file, logical file, or source physical file. Each record in the file will be processed as a recipient of the message. The record length of the file is optional but 128 bytes is recommended. Place the address in the first 64 characters of the record. Place the name (if desired) in positions 65 thru 128. The name portion can be left blank. Record lengths other than 128 will be padded with blanks or truncated as needed.

Place an * in column 1 to designate a comment record. Comment records will be ignored.

Specify the file and library names or the following special value:

***NONE:** No file is specified.

Bcc Recipient File Member (BCCMBR) Parameter

Specifies, the member to use. Specify a name or the following special values:

***FILE:** The member name is the same as the file name.

***FIRST:** The first member added to the file will be used.

Examples: The following command will send an IFS file to an Internet user:

```
EMLIFSF FROMADDR(tech@broderickdata.com 'Tech Support') TOADDR((you@there.com
'To Name')) SUBJECT('Appendix A') ATCHFILE('/yourdir/appxa.pdf'
*ATCHMNT)) OPTNOTE('Here is appendix A in PDF format.')
```

Address Formats

The E-mail Utilities addresses (from, to, Bcc) can be in the following formats:

SMTP

E-MAIL COMMANDS

User profile
SNADS user

SMTP: SMTP addresses must be in the format:

name@domain

The name and domain values cannot contain special characters (<, [) etc.

User Profile: User profiles must be specified as USRPRF(XXXXX), where XXXXX is a valid user profile and has an SMTP address defined for it in the system directory. E-mail Utilities will look up the SMTP address for the specified user and substitute its SMTP address.

SNADS user: SNADS users must be specified as SNADSUSR(XXXXX yyyyy), where XXXXX yyyyy is a valid SNADS user and has an SMTP address defined for it in the system directory. E-mail Utilities will look up the SMTP address for the specified user and substitute its SMTP address.

Example HTML Attachment

Using E-mail utilities, you can assemble high-quality E-mail messages and send them to desired users. Below is an example of how to do this.

1) On a PC, create a new directory. Use Microsoft's FrontPage or another HTML editor to create an HTML page (page1.htm). Copy any graphics (company logos, etc) used by your page into the new directory.

If your page does not have any referebced files (SRC=, etc) you do not need an HTTP server to serve them and can skip to step 4.

2) Create a subdirectory on an HTTP server that is available to public (or at least available to your recipients) web browsers. Browsers should be able to access a page in this directory using the URL

<http://yourserver.com/yourdir/page1.htm>

Copy the files in your new PC directory to the server's directory.

Note: The AS/400 has an excellent HTTP server. If you use it you may not need to copy files.

3) Edit the HTML page again, changing the file references. Look for 'SRC=' and 'HREF='. For example SRC="graphic1.jpg" must be changed to SRC="<http://www.yourserver.com/yourdir/graphic1.jpg>". You must do this because your recipient's PC will not have your directory and files on it.

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4) Copy the HTML file (page1.htm) to an IFS directory on your AS/400. You do not need to copy the files that your HTML file refers to over to the AS/400.

5) Test the message. Send the file to yourself or your home computer. Verify all files and links are working properly:

```
EMLIFSF FROMADDR(you@you.com 'Tech Support') TOADDR((you@you.com 'To addr'))  
SUBJECT('Test HTML') ATCHFILE('/http/test1/page1.htm' *INLINE 'text'  
'html'))
```

6) Prepare a recipient list. Consider using the BCCADDR parameter instead of the TOADDR parameter. You may build the recipient list into a file.

7) Send the file using the EMLIFSF command, specifying the actual recipients.

IFS DIRECTORY COMMANDS

E-mail Utilities can move data to an IFS Directory. Once moved, other tasks can access the spool entries. For example if OS/400 HTTP server is setup, Internet users can access the spool entries in the IFS directory from web browsers. FTP clients can also access the files written by E-mail Utilities into IFS directories. The following E-mail Utilities commands can write to IFS directories:

- + DIRDTAF command
- + DIRSPLF command

Copy a Data File to IFS Directory

The DIRDTAF command copies data files to an IFS directory. Physical files, logical files, source physical files, and save files can be copied. Files written to IFS directories can be in the following formats:

- + Text
- + Binary
- + CSV (Spreadsheet, database)
- + TSV (Spreadsheet, database)

Enter the DIRSPLF command and press F4. The following screen will appear:

```

                Move a data file to IFS Dir (DIRDTAF)
Type choices, press Enter.

Path and File Name . . . . . _____
_____
AS/400 File name . . . . . _____      Name
AS/400 library name . . . . . *LIBL      Name, *LIBL
Member Name . . . . . *FILE              Name, *FILE, *NONE
Format Type . . . . . *BIN                *BIN, *TXT, *CSV, *TSV
Options . . . . . *NONE                    *NONE, *CVTSRC, *TRUNCATE
_____
EBCDIC CCSID . . . . . *DFT                1-65535, *DFT
ASCII CCSID . . . . . *DFT                1-65535, *DFT
Data Authorities Assigned . . . . . *DFT   *DFT, *IRUSR, *IWUSR...
      + for more values
Encryption Spec Name . . . . . *NONE      Character value, *NONE
Encryption Password . . . . . *ENCSPC
_____
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```


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Path and File Name (FILENAME) Parameter

Specifies the path and file name of the moved spool entry.

Note: Include a leading forward slash.

Note: File System QDLS is not supported.

AS/400 File Name (A400FILE) Parameter

Specifies the file on the AS/400 to copy to the IFS area:

Name Qualifier

Specifies the file name.

Library Qualifier

Specifies the library. Specify a name or the following:

***LIBL:** The job's library list is searched for the file.

Member Name (A400MBR) Parameter

Specifies the member to copy. Specify a name or one of the following:

***FILE:** The member name is the same as the file name.

***NONE:** No member is specified. This value is only valid for save files, where it is required.

File Format (FILETYPE) Parameter

Specifies the format of the output files generated. Specify one of the following:

***BIN:** The IFS file is a binary file. No EBCDIC to ASCII conversion is performed. No record separators are inserted after each record. This format is useful when sending objects such as save files to other AS/400 machines.

***TXT:** The IFS file is a text file EBCDIC to ASCII conversion is performed. Carriage Return (CRLF) characters are inserted after each record.

***CSV:** The IFS file is a Comma Separated Values (CSV) file. CSV is a format understood by most database and Spreadsheet applications including Microsoft Access and Microsoft Excel.

***TSV:** The IFS file is a Tab Separated Values (TSV) file. TSV is a format understood by most database and Spreadsheet applications including Microsoft Access and Microsoft Excel.

EBCDIC CCSID (ECCSID) Parameter

IFS DIRECTORY COMMANDS

Specifies, if EBCDIC to ASCII conversion is performed, the EBCDIC CCSID to pass to the conversion routine. Specify a number (i.e. 37 is US English) or the following:

***DFT:** The default EBCDIC CCSID, specified on the Tailoring Options screen, is used.

ASCII CCSID (ACCSID) Parameter

Specifies, if EBCDIC to ASCII conversion is performed, the ASCII CCSID to pass to the conversion routine. Specify a number (i.e. 437 is US English) or the following:

***DFT:** The default ASCII CCSID, specified on the Tailoring Options screen, is used.

Data Authorities Assigned (DTAAUT) Parameter

Specifies, if the IFS file is created, the data authorities assigned to the IFS file. See “Data Authorities” below for a description of the valid values.

***DFT:** The *IRWXU and *IRWXO values (see below) will be used.

Encryption Spec Name Parameter

Specifies the name of the Encryption Spec to use to encrypt the data. The Encryption Spec must already exist. Refer to Chapter 8, Manage Encryption Specifications for more information. Select one of the following:

***NONE:** No encryption will be performed on the attachment.

Encryption Password Parameter

Specifies, for encrypted files, the password needed to access the data. Specify a value or select one of the following:

***ENCSPC:** The password is contained in the Encryption Spec specified above.

Copy a Spool File to IFS Directory

The **DIRSPLF** command moves a spool to an IFS directory. Files written to **IFS** directories can be in the following formats:

- + Text
- + Adobe PDF
- + Microsoft Excel
- + HTML
- + CSV (Spreadsheet, database)
- + TSV (Spreadsheet, database)

Enter the **DIRSPLF** command and press **F4**. The following screen will appear:

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```

                Move Spool Entry to IFS Directory (DIRSPLF)
Type choices, press Enter.

Spool entry's file name . . . . . _____ Name
File Path and Name . . . . . _____
_____
Spool entry's Job Name . . . . . *CURRENT      Name, *CURRENT
  User . . . . . _____      Name
  Number . . . . . _____      000000-999999
Spool entry's file number . . . . . *LAST      Number, *ONLY, *LAST
Job system name . . . . . *ONLY      Name, *ONLY, *CURRENT, *ANY
Spooled file created:
  Creation date . . . . . *ONLY      Date, *ONLY, *LAST
  Creation time . . . . . _____      Time, *ONLY, *LAST
  File Format . . . . . *TXT      *PDF, *HTML, *CSV, *TXT
PDF, CSV/TSV, or HTML Spec Name *NONE      Character value
Data Authorities Assigned . . . . . *DFT      *DFT, *IRUSR, *IWUSR...
      + for more values
Encryption Spec Name . . . . . *NONE      Character value,
*NONE
Encryption Password . . . . . *ENCSPC
Combine Overprint Lines . . . . . *DFT      *DFT, *YES, *NO
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Spool entry's file name (SPLFILE) Parameter

Specifies the spool file name to move.

File Path and Name (FILENAME) Parameter

Specifies the path and file name of the moved spool entry.

Note: Include a leading forward slash.

Note: File System QDLS is not supported.

Spool entry's Job name (SPLJOB) Parameter

Specifies the Job name to move. Specify Name, User, and Number or the following:

*CURRENT: The current job's job, user, and number will be used.

Spool entry's File Number (SPLNBR) Parameter

Specifies the spool file number to move. Specify a number or one of the following:

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***LAST:** The last file will be used.

***ONLY:** The only file will be used.

Note: The 5 values, *Spool file name*, *Job Name/user/number*, and *spool file number*, uniquely identify a spool entry to OS/400.

Job system name (JOBSYSNAME) Parameter

Specifies the system where the job that created the spooled file (JOB parameter) ran. This parameter is considered after the job name, user name, job number, spooled file name, and spooled file number parameter requirements have been met.

This parameter is used if there is more than one spool entry in the system with the same Job Name/User/Number File/num values.

Specify one of the following:

***ONLY:** There is one spooled file with the specified job name, user name, job number, spooled file name, spooled file number, and spooled file create date and time.

***CURRENT:** The spooled file created on the current system with the specified job name, user name, job number, spooled file name, spooled file number, and create date and time is used.

***ANY:** The job system name is not used to determine which spooled file is used. Use this value when the spooledfile create date and time parameter is to take precedence over the job system name when selecting a spooled file.

system-name: Specify the name of the system where the job that created the spooled file ran.

Spooled file created (CRTDATE) Parameter

Specifies the date and time the spooled file was created. This parameter is considered after the job name, user name, job number, spooled file name, spooled file number, and job system name parameter requirements have been met.

This parameter is used if there is more than one spool entry in the system with the same Job Name/User/Number File/num values.

Specify one of the following:

***ONLY:** There is one spooled file with the specified job name, user name, job number, spooled file name, spooled file number, and spooled file create date/time.

***LAST:** The spooled file with the latest create time of the specified job name, user name, job number, spooled file name, spooled file number, job system name, and spooled file create date is used.

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date/time: Specify the date/time the spooled file was created.

File Format (FILETYPE) Parameter

Specifies the format of the output files generated. Specify one of the following:

***TXT:** Text files will be created.

***PDF:** Adobe PDF files will be created.

***XLS:** The spool file is placed in the message as an Excel (xlsx) attachment.

***HTML:** HTML files will be created.

***CSV:** Comma Separated Values (CSV) files will be created.

***TSV:** Tab Separated Values (TSV) files will be created.

Spec Name (SPECNAME) Parameter

Specifies, for types ***PDF**, ***XLS**, ***HTML**, ***CSV**, and ***TSV**, the specifications name to use. The spec name contains parameters used to create the output file, for example Font point size. This field is required for type ***CSV**/***TSV** and ***XLS**. The spec must exist. Specify a name or the following:

***NONE:** No specification will be used. For types ***PDF** and ***HTML**, default values will be used.

Data Authorities Assigned (DTAAUT) Parameter

Specifies, if the IFS file is created, the data authorities assigned to the IFS file. See “Data Authorities” below for a description of the valid values.

***DFT:** The ***IRWXU** and ***IRWXO** values (see below) will be used.

Encryption Spec Name Parameter

Specifies the name of the Encryption Spec to use to encrypt the data. The Encryption Spec must already exist. Refer to Chapter 8, Manage Encryption Specifications for more information. Select one of the following:

***NONE:** No encryption will be performed on the attachment.

Encryption Password Parameter

Specifies, for encrypted files, the password needed to access the data. Specify a value or select one of the following:

***ENCSPC:** The password is contained in the Encryption Spec specified above.

IFS DIRECTORY COMMANDS

Data Authorities

Specifies, for created IFS Files only, the Data Authorities assigned to the created file. The valid values and their meanings are:

- ***IRUSR**: The creating user will have **read** access to the created file.
- ***IWUSR**: The creating user will have **write** access to the created file.
- ***IXUSR**: The creating user will have **execute** access to the created file.
- ***IRWXU**: The creating user will have **all** access to the created file.
- ***IRGRP**: The creating user's group will have **read** access to the created file.
- ***IWGRP**: The creating user's group will have **write** access to the created file.
- ***IXGRP**: The creating user's group will have **execute** access to the created file.
- ***IRWXG**: The creating user's group will have **all** access to the created file.
- ***IROTH**: The public will have **read** access to the created file.
- ***IWOTH**: The public will have **write** access to the created file.
- ***IXOTH**: The public will have **execute** access to the created file.
- ***IRWXO**: The public will have **all** access to the created file.

Combine Overprint Lines (CMBOVPRT) Parameter

Specifies that overprinted lines (multiple print lines that have the same line number) should be combined into one output print line. For example, it is a programming technique to print a line of data, and then print a line of underlines onto the same print line. Specify one of the following:

- ***DFT**: Use the Email Utilities default. This value is set on the Tailoring Options display.
- ***YES**: Combine overprint lines. The first record of the group is inserted into the output. Additional records on the same print line are inserted only if the characters at their position to be inserted are blank, otherwise the characters are discarded.

Note: The IBM spool entry display shows the last printed characters, not the first.

- ***NO**: Do not combine overprint lines. All overprint records will appear as separate print lines in the output.

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DEFINE ENCRYPTION SPECIFICATIONS

E-mail Utilities can encrypt E-mail attachments and IFS files. The encrypted file is an executable (exe) that can run on a Microsoft Windows PC. See the section "Prerequisites" in Chapter 2 for the supported versions of Windows. Users must specify a password to access the encrypted files. The following E-mail Utilities functions can encrypt data:

EMLDTAF	E-mail a data file
EMLSPLF	E-mail spool files
EMLIFS	E-mail an IFS file
DIRDTAF	Write a data file to an IFS Directory
DIRSPLF	Write a spool file to an IFS Directory

E-mail Utilities encryption uses the Rijndael algorithm with a 128 bit key. Rijndael is considered a strong encryption method by the industry.

To encrypt a file, the E-mail Utilities Administrator first defines an Encryption Specification. Next the administrator refers to the Encryption Spec on the desired function, such as the ENCRSPEC parameter of the EMLSPLF command.

To access the Define Encryption Specifications screen, Select **Option 5**, from the Menu.

Press **F6** to add an Encryption Description and enter a name. The following screen will appear:

```

                                E-mail Utilities/400
7/11/05
                                Define Encryption Specifications                                11:28:49
Spec Name: TEST

                                Password: _____
Save File dft Path:  *MYFAVORITES
Save File Name:     *ATHFILE
Save File Extension: *PARTYP
Attachment Extension: exe
Allow Open option:  *YES
Form Text:  E-mail Utilities Encrypted File
Descriptive Text:  _____

F3=Exit  F12=Cancel Current Operation
                                COPR 1989, 2005 BRODERICK DATA SYSTEMS
```

The above parameters have the following definitions:

Password

Specifies the password the user must provide to access the file. When the encrypted file is executed on

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the Windows PC, a form will appear asking for the password. This value cannot be blank.

Save File Dft Path

Specifies the path to display on the Save dialog if the Save button is selected. Specify a valid Windows path or one of the following:

***MYCOMPUTER:** The path for the MyComputer directory will be displayed

***MYDESKTOP:** The path for the user's desktop directory will be displayed

***MYFAVORITES:** The path for the user's favorites directory will be displayed

***SYSTEMDRIVE:** The path for the system drive will be displayed

***HOMEDRIVE:** The path for the user's home directory will be displayed

Save File Name

Specifies the File Name that will be displayed in the Save Dialog if the user clicks the Save button on the target system. Specify a valid Windows file name or one of the following:

***ATHFILE:** The name of the attach file will appear in the Save Dialog's File Name field.

Save File Extension

Specifies the extension that will be displayed in the Save Dialog if the user clicks the Save button on the target system. Specify a valid Windows file extension.

Note: The extension exe is recommended. However some e-mail servers will block e-mail attachments that have an extension of exe. For most of these servers, this blocking of exe files is an option that can be changed by the e-mail server's administrator. Also note that many e-mail clients (such as Microsoft Outlook) also block incoming attachments of type exe, and the user can change settings to allow incoming attachments of type exe. The E-mail Utilities administrator may elect to specify a different attachment type (i.e. exz) and instruct the user to save the attachment to disk and rename the file to xxx.exe.

Allow Open option

Specifies if the user will see an option to Open the file in addition to an option to save the file to disk. Select *YES or *NO.

Form Text

Specifies the text that will appear on the top of the form displayed when the user executes the file. Specify up to 64 characters.

Descriptive Text

Specify up to 30 characters of descriptive text.

DEFINE MS EXCEL SPECIFICATIONS

E-mail Utilities can generate output in **Microsoft Excel** format (xlsx). Options that control the appearance of the **Excel** output are contained in **MS Excel Specifications**. The following E-mail Utilities functions refer to **MS Excel specs** when generating output:

- + DIRSPLF command
- + DIRSPLF command

For more information regarding the parameters and their syntax, please refer to Microsoft Excel documentation.

Press **F6** to enter new specifications and enter a unique name. The following screen will appear:

```

Name: X1                      E-mail Utilities/400  ™
10/20/21

                                Define MS Excel Specs                                15:06:31

Include Non-column Lines:  *YES   Non-col Style:  *NONE   Height:  1-
      From Line:  1           To Line:  66           Height:  1-
      Starting Page:  1       Ending Page:  0 (number, 0, -1...)
      Generate Headings:  *NO    (*NO, *YES, *ONCE)
      Hdg From Line:  0       Hdg To Line:  0       Hdg Height:  1-
      Sheet Name:  Sheet1    Text:  _____

Column offset:  0  Width:  10  Columns
Typ FrC ToC Width Hdg Style Data Style Typ FrC ToC Width Hdg Sty Data Sty
_  0  0  10 *NONE *NONE  _  0  0  10 *COL1 *COL1
_  0  0  10 *COL1 *COL1  _  0  0  10 *COL1 *COL1
_  0  0  10 *COL1 *COL1  _  0  0  10 *COL1 *COL1
_  0  0  10 *COL1 *COL1  _  0  0  10 *COL1 *COL1
_  0  0  10 *COL1 *COL1  _  0  0  10 *COL1 *COL1

F3=Exit  F12=Cancel Current Operation
    
```

Include Non-column Lines

Specifies if print lines that are not within the from/to line ranges specified below are to be placed in the spreadsheet. Specify one of the following:

***YES:** Print lines not within the from/to line ranges will be placed in the spreadsheet.

***NO:** Print lines not within the from/to line ranges will not be placed in the spreadsheet.

Non-column Lines Style

Specifies, for **Non-column Print Lines**, the **Excel Style Spec** to use to format the generated cells. Font size, cell width, Border/Fill and other attributes can be specified on an Excel Style Spec. Refer to Chapter

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41 Define MS Excel Specifications for more information. Specify one of the following:

***NONE:** No cell formatting will be performed.

<name>: Specify the name of the **Excel Style Spec** to use. The specification must exist.

Non-column Lines Height

Specifies, for **Non-column Print Lines**, the row height in points. Specify one of the following:

-1: The row height is not specified.

<number>: Specify the row height in points. Specify a number that is greater than or equal to zero.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software's Help Documentation for more information.

From Line, To Line

Specifies the range of print lines to include. Print lines with line numbers within the from/to range will be placed into the spreadsheet.

Height

Specifies, for **data Print Lines**, the row height in points. Specify one of the following:

-1: The row height is not specified.

<number>: Specify the row height in points. Specify a number that is greater than or equal to zero.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software's Help Documentation for more information.

Starting Page

Specifies the starting page to include in the spreadsheet. Print lines with page numbers within the from/to page range will be placed into the spreadsheet. Specify a number greater than zero.

Ending Page

Specifies the ending page to include in the spreadsheet. Print lines with page numbers within the from/to page range will be placed into the spreadsheet. Specify one of the following.

0 (zero): Specify zero to indicate the last page to include is the last page of the report.

page number: Specify the ending page number. Specify a number greater than the Starting Page number.

DEFINE MS EXCEL SPECIFICATIONS

-nnn (negative number): Specify a negative number to skip the last nnn pages. For example, specify -1 to skip the last page of the report.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software’s Help Documentation for more information.

Generate Headings

Specifies if certain print lines are to be placed into the spreadsheet as Headings. Specify one of the following:

***YES:** Print lines within the from/to line range will be placed in the spreadsheet as headings.

***NO:** No headings will be placed in the spreadsheet.

***ONCE:** Headings will only be placed into the spreadsheet once.

Hdg From Line, Hdg To Line

Specifies, if Generate Headings *YES or *ONCE is specified, the range of print lines to include as headings. Each print page will be examined. Print lines with line numbers within the from/to range will be placed into the spreadsheet as headings.

Note: The heading line range cannot overlap the data line range.

Hdg Height

Specifies, for **heading Print Lines**, the row height in points. Specify one of the following:

-1: The row height is not specified.

<number>: Specify the row height in points. Specify a number that is greater than or equal to zero.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software’s Help Documentation for more information.

Sheet Name

Specifies the spreadsheet’s Sheet Name. This value cannot be blank.

Text

Specify up to **30** characters of descriptive text. This value cannot be blank.

Column offset

Specifies, for print lines within the data and headings’ from/to line ranges, the starting column id (“A”, “B”, etc.) of the generated columns (see below). Specify 1 to start in column B, 2 to start in column C, and so on. This allows the print line ranges to be centered if desired, and keeps the non-column row data

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in a separate column.

Note: Non-column Lines (see above) will be placed into the leftmost column on the spreadsheet, column “A”.

0 (zero): Specify zero to indicate the generated columns start with “A”.

number: Specify the number of columns to skip. For example, specify 1 to start in column “B”.

Width

Specifies, if **Column Offset** is greater than zero, the width of the inserted columns.

number: Specify the inserted columns’ width in points.

Note: Columns with zero width will not display.

Columns

Specifies the columns to be generated in the spreadsheet. Each Column describes an area of the print line that is to be placed into a spreadsheet cell, and the cell's attributes.

Up to 20 columns may be specified. At least one column must be specified. For each desired column, enter the following:

Typ (Type)

Specifies the data type of the generated column. Specify one of the following:

C: The generated column is a character string.

N: The generated column is a number.

Note: Specify a blank to delete the column definition.

FrC (From Column), ToC (To Column)

Specifies the print line’s column range that contains the value to place into the spreadsheet.

Width

Specifies the generated column’s width in points.

number: Specify the inserted columns’ width in points.

Note: Columns with zero width will not display.

Hdg Style

Specifies, if Generate Headings *YES is specified, the Excel Style Specification to use to create heading

DEFINE MS EXCEL SPECIFICATIONS

cells. Font size, cell width, Border/Fill and other attributes can be specified on an Excel Style Spec. Refer to Chapter 41 Define Excel Style Specifications for more information. Specify one of the following:

***NONE:** No cell formatting will be performed.

name: Specify the name of the **Excel Style Spec** to use. The specification must exist.

***COL1:** Use the Spec defined in column 1.

Data Style

Specifies the Excel Style Specification to use to create data cells. Font, Border and Fill attributes can be defined in Excel Style Spec. Font size, cell width, Border/Fill and other attributes can be specified on an Excel Style Spec. Refer to Chapter 41 Define Excel Style Specifications for more information. Specify one of the following:

***NONE:** No cell formatting will be performed.

name: Specify the name of the **Excel Style Spec** to use. The specification must exist.

***COL1:** Use the Spec defined in column 1.

DEFINE EXCEL STYLE SPECIFICATIONS

E-mail Utilities Excel Style Specifications contain spreadsheet cell attribute definitions. Excel Style Specs are used in MS Excel Specs to describe the attributes of cell ranges. Refer to Chapter 9 Define MS Excel Specifications for more information. Format, align, Font, Color and Border/Fill attributes can be described in Style Specifications.

Press **F6** to enter new specifications and enter a unique name. The following screen will appear:

Name: DFT		E-mail Utilities/400™	
10/20/21			
Define Style Specs		15:06:31	
<u>Number Format</u>		Text: _____	
Code: *NONE	_____		
Id: 0	<u>Font</u>		
<u>Align</u>		Name: *NONE (F4)	
Indent:	Size: 1-	Color: *NONE (F4)	
Horizontal: *NONE (F4)	Weight: *NONE (BCIOSU)		
Vertical: *NONE (F4)			
Wrap Text: *			
<u>Border</u>			
Left		Right	
Style: *NONE (F4)	Color: *NONE (F4)	Style: *LEFT (F4)	Color: *NONE (F4)
Top		Bottom	
Style: *LEFT (F4)	Color: *NONE (F4)	Style: *LEFT (F4)	Color: *NONE (F4)
F3=Exit F4=Prompt F12=Cancel Current Operation			

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Name: DFT	E-mail Utilities/400™	
10/20/21		
Define Style Specs		15:06:31
<u>Fill</u>		
Type: *		
<u>Pattern</u>		<u>Gradient</u>
Type: *NONE	(F4)	Type: *NONE (F4)
Fg Color: *NONE	(F4)	Degrees: 1- Top: .00
Bg Color: *NONE	(F4)	Bottom: .00
		Right: .00
	Stops:	Left: .00
	Color 1: *NONE	(F4) Pos 1: .00
	Color 2: *NONE	(F4) Pos 2: .00
	Color 3: *NONE	(F4) Pos 3: .00
	Color 4: *NONE	(F4) Pos 4: .00
	Color 5: *NONE	(F4) Pos 5: .00
	Color 6: *NONE	(F4) Pos 6: .00
F3=Exit F4=Prompt F12=Cancel Current Operation		

Text

Specify up to 30 characters of descriptive text. This value cannot be blank.

Number Format

Specifies the formatting of numbers (and text) within the cell. Corresponds to the numFmt xml keyword. Specify either an Id, or the actual xml coded text.

Code

Specifies the formatted coded text. Corresponds to the formatCode xml parameter. Specify one of the following:

***NONE:** No number formatting is generated. The **Id** field if specified is ignored.

***ID:** Number formatting is defined by the number contained in the **Id** field.

<code>: Specify the xml coded text to format the value. Specify up to 4 sections separated by semicolons. The 4 sections define formats for positive numbers, negative numbers, zero values, and text, in that order.

Example: To specify 1.2 as 1.200 in black, -1.2 as -1.200 in red, 0 in green and xyz (text) as magenta, specify the following:

DEFINE EXCEL STYLE SPECIFICATIONS

#.00[black];#.00 [red];[green];[magenta]

ID

Specifies, if **CODE *ID** is specified, the predefined Id number to use. Corresponds to the numFmtId xml parameter. There are approximately 160 Ids predefined by MS Excel. Refer to xlsx documentation for a list of predefined Ids.

-1: No predefined Id number is defined.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software’s Help Documentation for more information.

<number>: Specify the predefined Id to use.

Examples: To specify 1.2 as 1.200, specify Id 2. To specify 1234 as 1,234 specify Id 3. To specify the number 123193 as a date as 12-31-93, specify Id 14.

Font

Specifies the font attributes to use when formatting a cell. Corresponds to the font xml keyword.

Note: Only basic syntax checking is performed on the specified font values.

Name

Specifies the font name. Corresponds to the name xml parameter. Press **F4** to select a common font name. You may specify a font name that is not in the list if desired.

***NONE:** No font name is generated. The **Size, Color and Weight** fields if specified are ignored.

Size

Specifies the font size in points. Corresponds to the font’s sz xml parameter. Press Specify the size or one of the following:

-1: No font size is specified.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software’s Help Documentation for more information.

Color

Specifies font’s color. Corresponds to the font’s color xml parameter. See Defining Colors below for more information.

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Weight

Specifies the font's weight attributes. Specify ***NONE**, or one or more of the following:

B: Bold.

C: Condense.

I: Italic.

O: Outline.

S: Strikethrough.

U: Underline.

Align

Specifies the align attributes to use when formatting a cell. Corresponds to the cellxfs borderId alignment xml keyword. Specify the following:

Indent

Specifies the indent value. Corresponds to the indent xml parameter. Specify the indent value or one of the following:

-1: No indent value is specified.

Note: To enter a negative number, enter the desired digits then press the Field-minus key. On most keyboards the field-minus key is the – (minus) key at the far right, on the number pad section of the keyboard. Refer to your 5250 terminal emulator software's Help Documentation for more information.

Horizontal

Specifies the horizontal alignment for the cell. Corresponds to the horizontal xml parameter. Press **F4** to see a list of supported values.

***NONE:** No horizontal alignment value is generated.

<value>: Specify one of the following:

center

centerContinuous

distributed

fill

general

justify

DEFINE EXCEL STYLE SPECIFICATIONS

left
right

Vertical

Specifies the vertical alignment for the cell. Corresponds to the vertical xml parameter. Press **F4** to see a list of supported values.

***NONE:** No vertical alignment value is generated.

<value>: Specify one of the following:

bottom
center
distributed
justify
top

Wrap Text

Specifies the wrap text value. Corresponds to the wrapText xml parameter. Specify one of the following:

***:** No wrap text value is specified.

Y: The cell will wrap text.

N: The cell will not wrap text.

Border

Specifies the border attributes to use when formatting a cell. Corresponds to the border xml keyword. Specify the Left, Right, Top, and Bottom borders' attributes. For each border, specify the following:

Style

Specifies the cell's border style. Corresponds to the style xml parameter. Specify one of the defined styles. Press **F4** to see a list of supported styles.

***LEFT:** The Style and Color values specified for the Left border will be used for this border.

***NONE:** No style is generated. The **Color** field if specified is ignored.

<value>: Specify one of the following:

dashDot
dashDotDot
dashed
dotted
double

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hair
medium
mediumDashDot
mediumDashDotDot
mediumDashed
none
slantDashDot
thick
thin

Color

Specifies style's color. Corresponds to the style's color xml parameter. See Defining Colors below for more information.

Fill

Specifies the fill attributes to use when formatting a cell. Corresponds to the fill xml keyword. Specify a fill type: Pattern or Gradient, then specify the corresponding parameters. For fill type Gradient, specify either Degrees or Type then specify the corresponding parameters.

Type

Specifies the type of fill pattern. Corresponds to the fill xml parameter. Specify one of the following:

***:** No fill is specified.

P: The fill type is Pattern. Corresponds to the patternFill xml keyword. The Gradient Fill parameters will be ignored.

G: The type is Gradient. Corresponds to the gradientFill xml keyword. The Pattern Fill parameters will be ignored.

Pattern - Type

Specifies Type of pattern fill. Corresponds to the patternType xml parameter. Specify one of the following.

***NONE:** No pattern is generated. The foreground and background colors are ignored.

<patternType>: Press **F4** to see a list of supported patterns. Specify one of the following:

darkDown
darkGray
darkGrid
darkHorizontal
darkTrellis
darkUp
darkVertical

DEFINE EXCEL STYLE SPECIFICATIONS

gray0625
gray125
lightDown
lightGray
lightGrid
lightHorizontal
lightTrellis
lightUp
lightVertical
mediumGray
none
solid

Pattern – Fg Color

Specifies pattern's foreground color. Corresponds to the fgColor xml parameter. See Defining Colors below for more information.

Pattern – Bg Color

Specifies pattern's background color. Corresponds to the bgColor xml parameter. Note that some pattern types, for example solid types, do not require you to specify a background color. See Defining Colors below for more information.

Gradient - Type

Specifies Type of gradient fill. Corresponds to the gradientType xml parameter. Specify one of the following.

***NONE:** No type is specified.

<gradienttype>: Press **F4** to see a list of supported types. Specify one of the following:

linear
path

Gradient - Degrees

Specifies, for Gradient Type – linear, the overall rotation of the gradient fill. Corresponds to the degree xml parameter. Specify one of the following.

-1: No degrees value is specified.

<degree>: Specify the number of degrees to rotate the image. Specify a value in the range of 0 to 360.

Gradient – Top, Bottom, Right, Left

Specifies, for Gradient Type – path, the gradient's layout. Corresponds to the top, bottom, left and right xml parameters. These values are ignored if Gradient Type– linear is specified.

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The values represent two pairs, left to right and top to bottom. Think of the spreadsheet cell as 2 rectangles, an inner rectangle and the cell's walls as the outer rectangle. Color changes occur as you transition from the inner rectangle to the outer rectangle. Specify the following.

<number>: Specify a number in the range of 0.00 to 1.00. The specified value corresponds to the percentage distance from left to right or top to bottom.

In the cell, as you move from left to right, the cell's left edge is at 0.00 and the cell's right edge is at 1.00. For values Left = 0.20 and Right=0.80, the inner rectangle's left edge is 20% from the cell's left edge and the inner rectangle's right edge is 80% from the cell's left edge (20% from the right edge). The Top and Bottom parameters work in the same fashion.

Gradient – Stops

Specifies the transition of color changes. Corresponds to the stop xml parameter. Specify up to 6 Stops. For each stop, specify a color and position. If no stops are specified, a solid black background is generated.

Gradient – Stop Color

Specifies the color. Corresponds to the Color xml parameter. See Defining Colors below for more information.

Gradient – Stop Position

Specifies the position where the color change is complete. Specify one of the following.

<pos>: Specify the position, in percentage, in the range of 0 to 1. For example if a value of 0.25 is specified, the color will be completely changed to the specified color at 25% of the total movement.

Defining Gradient Fills

Gradient Fills define a background where the image changes from color to color to color as the gradient “moves” across the cell. There are two supported fill types, **linear** and **path**. The color changes are called stops, and up to 6 stops are supported.

Linear Gradient

A linear gradient starts at the left edge of the cell, and the color changes as it moves to the right. For example: if you specify Stop 1 as red-0.00 and Stop 2 as blue-1.00, the generated fill will be:



The Degrees field rotates the linear gradient. If you specify Degrees as 45 the generated fill will be:

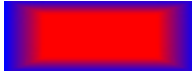


DEFINE EXCEL STYLE SPECIFICATIONS

Specifying Degrees as 90 would make image go from red at the top to blue at the bottom, 180 from red at the right to blue at the left, and so on.

Path Gradient

A path gradient starts at an inner rectangle within the cell, and the color changes as the gradient moves outward to the outer rectangle (cell walls). The inner rectangle is defined by the Top, Bottom, Left, and Right parameters. For example: if you specify Stop 1 as red-0.00 and Stop 2 as blue-1.00, and Top=.020, Bottom=0.80, Left=0.20, Right=0.80, the generated fill will be:



Stop Color and Position

Stops define the change of colors the gradient makes as it “moves” from the starting to ending position. Each Stop defines a certain color at a certain position, where position is defined as a percentage. The gradient is considered to move from 0.00 to 1.00. If the first defined stop is not at position 0.00, a stop with color black is assumed at position 0.00 and the gradient transitions from black to the first color. The gradient proceeds to change to each new color. If the last stop position is not 1.0, an ending stop color black is assumed at 1.0. For example, a line gradient with 3 stops defined (red at .2, green at .5 and blue at .8)

0 - - - - - .2 - - - - - .5 - - - - - .8 - - - - - 1.0
black -> -> red -> -> green -> -> blue -> -> black

would look like:



Notice the color transforms from black to red to green to blue to black.

Defining Colors

Many Excel objects can optionally define a color. For color fields specify one of the following.

***NONE:** No color formatting is generated.

auto: Specifies the color is determined by spreadsheet parameters.

<color>: Specify one of the defined colors. Press **F4** to see a list of supported colors.

RRGGBB: Specify 6 hex digits (0-9, A-F) that correspond to the color's red, green and blue components. For example specify FF0000 for red, 008000 for green (00FF00 is lime), 0000FF for blue, 808080 for gray, etc.

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Note: There are many color picker applications to show the RRGGBB code for selected colors. Search the internet for keywords rgb color picker to find them.

APPENDIX A: ELECTRONIC MEDIA DISTRIBUTION

The user can distribute E-mail Utilities to remote systems electronically. Thus the user can install or update E-mail Utilities on similar remote systems (i.e. AS/400 to AS/400's). A working **APPC/APPN** or **TCP** link to the remote system, and a file transfer program such as **FileXfer3X/400** or **FTP** is needed to do this. The Administrator may also use E-mail Utilities to transfer the save files. Below are the steps you must perform to transmit E-mail Utilities to remote systems. **Please note** that a thorough knowledge of the operating systems involved is suggested.

The **AS/400** media consists of **2** libraries:

EMAL40
EMAL40DATA

The steps to distribute E-mail Utilities are:

Source System

- 1) Restore libraries **EMAL40** and **EMAL40DATA** from the **BDS**. Media. For optical disk, the libraries are contained in optical files **EMAL40** and **EMAL40D**.

Note: You must be signed on as a user with ***SECADM** authority when performing the restores.

- 2) Create two save files **SAVEMAL** and **SAVEMALD**.
- 3) Save library **EMAL40** into save file **SAVEMAL**, and library **EMAL40DATA** into save file **SAVEMALD**.
- 4) Delete the libraries **EMAL40** and **EMAL40DATA**.
- 5) Transmit the save files to the remote system(s).

Remote System(s)

- 1) Create and receive the transmitted save files, if necessary.
- 2) Proceed with the update or install instructions with the following:

When requested to restore the install or update objects into library **QTEMP**, use the save file option. Enter save files **SAVEMAL** and **SAVEMALD**.

When executing the install or update command (**BEMINS** or **BEMUPD**) use the save file option. Enter save files **SAVEMAL** and **SAVEMALD**.

E-mail Utilities will be installed or updated.

OS/400 E-MAIL SETUP

To be able to send spool entries via E-Mail to internet users, OS/400 must be set up properly. Below are some OS/400 setup suggestions for OS/400 version 4. For more information contact your E-Mail server's tech support team or IBM.

Sending Mail

To send mail on the AS/400, verify the following steps have been performed.

- 1) Verify the following OS/400 tasks are active:

TCP/IP	STRTCP
SMTP	STRTCPSVR *SMTP
MSF	STRMSF

- 2) Determine the system name of your installations Mail Server. Verify the AS/400 can communicate to it via TCP/IP. For example:

GO CFGTCP

Select option 10, "Work with TCP host table entries"

Add the E-Mail server if necessary.

PING xxxx (xxxx is the E-Mail server's Host Name)

- 3) Add a special directory entry name:

**ADDIRE USRID(INTERNET GATEWAY) USRD('Send mail') SYSNAME(TCPIP)
MSFSRVLVL(*USRIDX) PREFADR(NETUSRID *IBM ATCONXT)**

- 4) Change your distribution attributes:

CHGDSTA SMTPRTE(INTERNET GATEWAY)

- 5) Change your SMTP attributes:

**CHGSMTPA SYSNAME(TCPIP) MAILROUTER(mail.router.name) FIREWALL(*YES)
FWDHUBSVR(mail.router.name)**

If you have a firewall or proxy server, enter the **mail router** and **firewall** parameters.

mail.router.name is your E-mail server and is in your Host Table (step 2)

Note: The **FWDHUBSVR** parameter applies to V7R1 and later.

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- 6) If changes are made, stop and restart IBM components:

```
ENDTCPSVR *SMTP
ENDMSF
STRTCPSVR *SMTP
STRMSF
```

- 7) Verify your time zone. Enter the following command:

```
WRKSYSVAL QUTCOFFSET
```

Change the value if necessary. Common US time zones are:

	Standard	Daylight Savings
Eastern	-5:00	-4:00
Central	-6:00	-5:00
Mountain	-7:00	-6:00
Pacific	-8:00	-7:00

Note: You must remember to change this value when switching to and from Daylight Savings time.

- 8) To test your setup, use the following OS/400 command to send a test message:

```
SNDDST TYPE(*FILE) TOINET((user@company.com)) DSTD(D1)
      DOCFILE(BDSDATA/BEMHTM) DOCMBR(BEMHTM) DOCTYPE(*FFT)
      SNDFMT(*NOTE)
```

If you do not receive mail as a result of the above command, contact IBM or your network support personnel for assistance.

Preventing Split Messages

As shipped from IBM, OS/400 will split up large outgoing E-mail messages. The split message will appear to most browsers as several messages, each labeled in the message header as message/partial. The problem with this is most E-Mail viewers including Netscape Navigator, Internet Explorer, and Lotus Notes will not properly reassemble message parts back into one large message. To get around this IBM added a POP attribute in version V4R4. Enter the following command:

```
CHGPOPA (Press F4)
```

Change the "Message split size" parameter to *NOMAX. You must end and restart the POP server for the change to take effect (ENDTCPSVR *POP).

For OS/400 versions prior to V4R4, IBM released PTF **SF37157**, which will cause OS/400's POP server

OS/400 E-MAIL SETUP

to not split large messages. PTF SF37157 is very simple; to implement it you only need to create a data area. You may look up PTF SF37157 or enter the following command:

CRTDTAARA QUSRSYS/QTMSNOSPLT TYPE(*CHAR)

You must end and restart the POP server for the change to take effect (ENDTCPSVR *POP).

ASP Considerations

E-mail Utilities supports Basic and Independent Auxiliary Storage Pools (ASPs, or Disk Pools). E-mail Utilities supports multiple instances per LPAR. The administrator has several choices when deciding which ASP to install E-mail Utilities product libraries. This appendix will describe the issues involved in moving E-mail Utilities libraries to different ASPs, and installing multiple E-mail Utilities instances in an LPAR.

The following containers make up the E-mail Utilities product:

- Programs Library (**BRODERICK**) – Programming objects and temporary data.
- Data Library (**BDSDATA**) – User Data objects (files, etc.)
- IFS subdirectory **/BRODERICK/EMAL40** – Programming objects and temporary data.

The administrator should be familiar with ASPs before moving E-mail Utilities libraries to different ASP locations or implementing multiple E-mail Utilities instances. For more information on OS/400 ASP capabilities, visit the IBM Knowledge Center:

<https://www.ibm.com/support/knowledgecenter>

Use IBM's search function; search for "disk pools". There are also excellent IBM Redbooks available. Here is a list of some:

Independent ASPs A Guide to Moving Applications to IASPs	SG24-6802
IBM i 6.1 IASPs: A Guide to Quick Implementation of Independent ASPs	SG24-7811

Setup/System Considerations

When planning your ASP selection for your E-mail Utilities installation, consider the following:

- Moving E-mail Utilities objects to different ASPs is optional. The administrator should consider the advantages and disadvantages before moving. BDS recommends you don't move E-mail Utilities product libraries unless you see a clear advantage to moving them.
- The IFS subdirectory **/BRODERICK** must remain in the *SYSBAS ASP's directory system. It cannot be moved to the IFS directory system in an Independent ASP. Multiple instances will share the one **/BRODERICK** IFS directory.
- Libraries **BRODERICK** and **BDSDATA** can be in the *SYSBAS ASP or an Independent ASP.
- Libraries **BRODERICK** and **BDSDATA** must be in the same ASP Group. Either or both libraries can be in *SYSBAS (ASP 1 – 32). One library can be in *SYSBAS and the other can be in an IASP. Both libraries can be in the same IASP. The libraries can be in different ASP Devices within an IASP. For example library **BRODERICK** can be in the primary ASP Device and **BDSDATA** can be in one of the secondary ASP Devices attached to that primary.

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You cannot put an instance's libraries **BRODERICK** and **BSDATA** into two different IASPs. For example, you cannot put an instance's library **BRODERICK** in **IASP1** and **BSDATA** in **IASP2**. You can, however, put **BRODERICK** in ***SYSBAS** and **BSDATA** in **IASP1**, or visa-versa.

- Check application ASP needs. Please note that the ASP Group setting allows only one non-*SYSBAS IASP to be accessed at a time by a user job. Consider a user application that writes reports to an outq in an IASP. If E-mail Utilities libraries are in a different IASP, E-mail Utilities tasks such as the EMLDTAF command will not be able to access the outq or its spool entries. This includes E-mail Utilities tasks that access spool entries via Job Name/File Name attributes, such as the EMLSPLE command. Only objects and spool entries that reside within the same ASP Group as E-mail Utilities can be accessed by E-mail Utilities.
- ASP IPL startup delay. Some ASP devices may not automatically vary on during IPL. Even if the devices do automatically vary on during IPL, the time it takes for the ASP devices to become AVAILABLE can be significant, and libraries on the ASPs are not accessible until the ASP is available. If you place E-mail Utilities product libraries on ASPs other than ASP 1, you should modify your startup procedures to account for this delay. For example your IPL startup stream should submit a job to start E-mail Utilities processes instead of starting them directly. It should test for the existence of library **BRODERICK** or **BSDATA** (the tested lib should be in an ASP), and delay/loop until the lib is found. Then issue E-mail Utilities commands.
- Entire System Save. The IBM Save All function (option 21) does not save the contents of IASPs. An instance's libraries **BRODERICK** and **BSDATA** that exists on an IASP must be saved after the Save All function completes.

Operational Considerations

When running E-mail Utilities commands, consider the following:

- Set the ASP Group before running E-mail Utilities commands. There are several different ways to do this, including:
 - The IBM SETASPGRP command.
 - User Profile (via Job Description).
 - Submit Job Command
 - Job Description

To determine the ASP Group of an E-mail Utilities asynchronous job (or any job), run the WRKACTJOB command and display the job (option 5). Take option 2 (Display job definition attributes).

Moving Product Libraries to other ASPs

ASP Considerations

To move an E-mail Utilities instance's library to another ASP, be aware of the operational considerations listed above. Also, be aware of the following:

- All BDS products within the library(s) are moved during the move operations.
- You can save and restore multiple libraries of an instance with one **SAVLIB** or **RSTLIB** command in some circumstances. For example you can move libraries **BRODERICK** and **BDSDATA** from ASP 1 to IASP MYIASP with one **SAVLIB** and one **RSTLIB** command.

The procedure to move the E-mail Utilities library(s) is as follows:

- Stop all operations in that instance for all BDS products.
- Back up the library.
- Remove the library from all active jobs' library lists.
- Perform the following operations on the library: **SAVLIB**, **DLTLIB**, **RSTLIB**.
- Restart BDS product operations.

You can also use the **BDSMOVLIB** command, which automates the Save/Delete/Restore operations for you, and performs some checking/verification. See the "BDS Move Lib Utility" below for more information.

BDS Move Lib Utility

The **BDSMOVLIB** command will move Broderick Data Systems product libraries to another ASP. The Pgm objects library (**BRODERICK**), Data objects library (**BDSDATA**), the Base objects library (**BDSBASE**), or any combination can be moved. All Broderick Data Systems functions must be stopped. No object locks can be on any moved library, including the lock that occurs when the library is in a job's library list. The user should verify no job is locking the intended Libraries by using the **WRKOBJLCK** command. It is recommended that QSECOFR, or a user profile with *SECADM authority perform this command.

In order to move libraries, **SAVLIB** and **RSTLIB** commands are performed. The intermediate save media can be a save file or magnetic tapes (including virtual tape devices). It is recommended to use the Save File option unless disk space is a concern.

The **BDSMOVLIB** command and its associated objects reside in library **BRODERICK**. If you wish to move **BRODERICK**, you will need to make a copy of the following objects in another library (i.e. MYLIB), add that library to your library list (and remove **BRODERICK**) and run the **BDSMOVLIB** command from the new library:

BDSMOVLIB	*CMD
BDS13	*PGM
BDSHELP	*PNLGRP

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Following is the screen and parameters of the **BDSMOVLIB** command.

```
Move BDS Libs to other ASPs (BDSMOVLIB)

Type choices, press Enter.

Device . . . . . *SAVF          Name, *SAVF
      + for more values
Volume Identifier . . . . . *MOUNTED      Character value, *MOUNTED
      + for more values
Base Lib (BDSBASE) ASP Number . *SYS      1-32, *SYS, *NOMOVE
Pgm Lib (BRODERICK) ASP Number . *SYS      1-32, *SYS, *NOMOVE
Pgm Lib (BRODERICK) ASP Device . *SYSBAS   Name, *SYSBAS
Data Lib (BRODERICK) ASP Number *SYS      1-32, *SYS, *NOMOVE
Data Lib (BDSDATA) ASP Device . *SYSBAS   Name, *SYSBAS
SAVF for lib objs in transit . . BDSTSAVF  Name, *LIBL
                               QTEMP      *YES, *NO

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Device (DEV) Parameter

Specifies the name of the device used to hold objects in transit during the move operations. Specify up to four devices. The device name must exist on the system.

Note: During the move operations, the specified media contains a full SAVLIB instance of the library being moved. In the event of a failure during the restore phase of the move, the specified media may be used to manually move the library. For this reason, if the **BDSMOVLIB** command is submitted to batch and DEV(*SAVF) is specified, a library other than **QTEMP** should be considered.

The possible values are:

***SAVF:** The move operation is done using the save file specified by the SAVF for lib objs in transit.

device-name: Specify the name of the tape device(s) used for the move operation. Specify up to 4 devices.

Volume Identifier (VOL) Parameter

Specifies, for tape devices, the Volume(s) to check for.

ASP Considerations

The possible values are:

***MOUNTED:** No volume-id checking is performed. The mounted volume is used.

volume-id: Specify the name of the volumes(s) to be checked for during the move operation.
Specify up to 5 volumes.

Note: If a library's data is expected to continue onto more than one tape, it is recommended to specify the actual volume IDs instead of *MOUNTED.

Base Lib (BDSBASE) ASP Number (BASASP) Parameter

Specifies the destination ASP Number for the Base objects library (**BDSBASE**). This value must be different than the Base Lib's existing ASP number.

The possible values are:

***SYS:** The System ASP (ASP = 1) is the destination ASP.

***NOMOVE:** The Base objects Lib is not moved.

number: Specify the destination User ASP number, from 1 to 32.

Pgms Lib (BRODERICK) ASP Number (PGMASP) Parameter

Specifies the destination ASP Number for the Pgm objects library (**BRODERICK**). Use this parameter instead of the PGMASPDEV parameter if you wish to specify a Basic ASP (1 - 32). This value must be different than the Pgm Lib's existing ASP number.

The possible values are:

***SYS:** The System ASP (ASP = 1) is the destination ASP.

***NOMOVE:** The Pgm objects Lib is not moved.

number: Specify the destination User ASP number, from 1 to 32.

Pgms Lib (BRODERICK) ASP Device (PGMASPDEV) Parameter

Specifies the destination ASP Device for the Pgm objects library (**BRODERICK**). Use this parameter instead of the PGMASP parameter if you wish to specify an Independent ASP (33 - 256).

The possible values are:

***SYSBAS:** The value specified in the ASP Number parameter (PGMASP) is used.

name: Specify the ASP Device name. This name must exist and must be in an AVAILABLE status.

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Data Lib (BDSDATA) ASP Number (DTAASP) Parameter

Specifies the destination ASP Number for the Data objects library (**BDSDATA**). Use this parameter instead of the DTAASPDEV parameter if you wish to specify a Basic ASP (1 - 32). This value must be different than the Data Lib's existing ASP number.

The possible values are:

***SYS:** The System ASP (ASP = 1) is the destination ASP.

***NOMOVE:** The Data objects Lib is not moved.

number: Specify the destination User ASP number, from 1 to 32.

Data Lib (BDSDATA) ASP Device (DTAASPDEV) Parameter

Specifies the destination ASP Device for the Data objects library (**BDSDATA**). Use this parameter instead of the DTAASP parameter if you wish to specify an Independent ASP (33 - 256).

The possible values are:

***SYSBAS:** The value specified in the ASP Number parameter (DTAASP) is used.

name: Specify the ASP Device name. This name must exist and must be in an AVAILABLE status.

SAVF for lib objs in transit (SAVF) Parameter

Specifies the name and library of the save file that contains the objects in transit during move operations.

The possible values are:

BDSTSAVF: File BDSTSAVF will be used.

save-file-name: Specify the name of the save file to use when performing the move operations. If the save file does not exist, it will be created.

The possible Library values are:

QTEMP: The library **QTEMP** is used to locate the save file.

library-name: Specify the name of the library to be searched.

Running Multiple E-mail Utilities Instances in an LPAR

Multiple instances of E-mail Utilities can run within an LPAR. Each instance runs independently, though some objects are shared by all instances, including:

ASP Considerations

- Library **BDSBASE** and its objects
 - Subsystem BDS and its subcomponents.
 - The BDS User profile coordinator (BDSUSRPRF).
- IFS subdirectory **/BRODERICK/EMAL40**

All instances can be active and running at the same time. Each instance must contain a copy of libraries **BRODERICK** and **BDSDATA** in its own unique IASP.

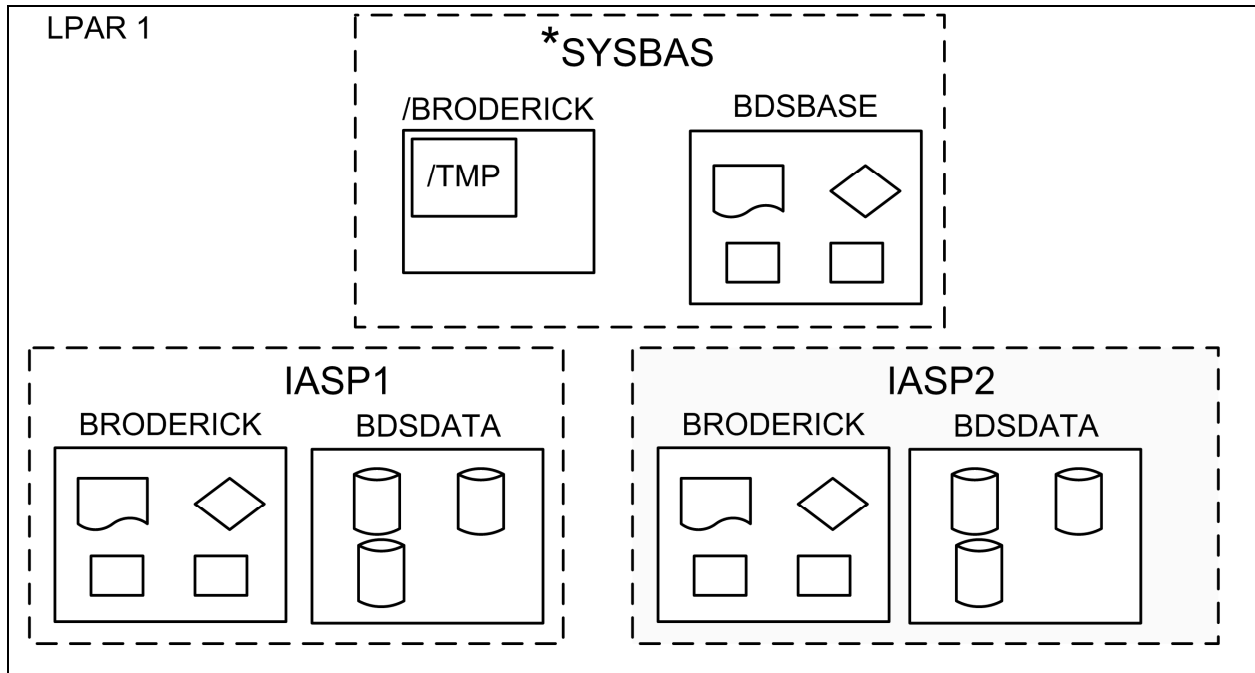


Figure 1-1: Multiple E-mail Utilities Instances

Note: Library **BDSBASE** is not created or used by E-mail Utilities. It may exist on your system because another BDS Product created it.

When running multiple E-mail Utilities instances, consider the following:

- Libraries **BRODERICK** and **BDSDATA** cannot reside in ***SYSBASE**. See “Moving Product Libraries to other ASPs” in this appendix for more information on moving libraries **BRODERICK** and **BDSDATA** to an IASP.
- The IFS subdirectory **/BRODERICK** must remain in the ***SYSBASE** IASP’s directory space.
- You must install and update each instance separately. For example, if you have E-mail Utilities instances installed in IASPs IASP1 and IASP2, you must run the update procedure twice.

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- To update or install an instance of E-mail Utilities, all instances in the LPAR must be stopped.
- For each instance, libraries **BRODERICK** and **BDSDATA** must be backed up and restored as a separate entity. For example if you have 2 instances, you must back up both instances of libraries **BRODERICK** and **BDSDATA** in order to be able to recover data if needed.

Note: You can restore an instance's **BRODERICK** and **BDSDATA** libraries into another IASP to create another instance.

- If you are Mirroring our product, each instance must be mirrored as a separate entity. Please note that we recommend mirroring libraries **BDSBASE** and **BRODERICK** but it is not a requirement. You must, however, mirror ALL objects in **BDSDATA** in order for a recovery to be successful.

To work with an instance of E-mail Utilities, you simply set your job's ASP Group. For example:

```
SETASPGRP IASP1
EMLSPLF ...
SETASPGRP IASP2
EMLSPLF ...
```