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
> **EMLIFSF**   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 **EMLIFSF** 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 definded 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:

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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
- EMLIFSF

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/.