

IBM Education Assistant (IEA) for z/OS V2R3

Unicode: Provide practical tools & samples for z/OS Unicode Services

Agenda

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Trademarks

- **See URL <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.**
- **Additional Trademarks:**
 - **None**

Session Objectives

- **Explain the purpose of providing batch tools for Unicode Services**
- **State how to use the batch tools for Unicode Services**

Overview

- **Problem Statement / Need Addressed**

- **Problem:** There is no way to explore Unicode Services in batch environment
- **Problem:** To send user data to mail recipients in batch environment is limited

- **Solution**

- **The following batch tools are provided**
 - ✓ **CUNMTUNI** ← Unicode Services Batch Client
 - ✓ **CUNMCSMM / CUNMRCSM** ← sending MIME data via SMTP

- **Benefit / Value**

- **Client can access Unicode Service in batch environment**
- **Client can send user data to mail recipients in batch environment**

Usage & Invocation

- **CUNMTUNI: Unicode Services Batch Client**
 - **The following Unicode Services are supported**
 - ✓ Normalization
 - ✓ Case Conversion
 - ✓ Stringprep
 - ✓ Collation
 - ✓ Character Conversion (incl. Bidirectional)

Usage & Invocation

- **CUNMTUNI: Unicode Services Batch Client**
 - Run load module in SYS1.LINKLIB(CUNMTUNI) like following

```
//STEPEXEC PGM=CUNMTUNI
//PARMFILE DD *
*request function 'normalization'
FUNC=N
*ask for type NFC
TYPE=NFC
*input is code page EBCDIC Austrian/German
CCID=1141
*insert X'0D' after reading of an input record
CRLF=1
*insert Byte Order Mark X'FEFF' to indicate UTF-16 BE
UBOM=0
/*
//DATIN DD DISP=SHR, DSN=HLQ.DS.INPUT
//DATOUT DD DISP=SHR, DSN=HLQ.DS.OUTPUT
//SYSOUT DD SYSOUT=*
```

Usage & Invocation

- **CUNMCSMM/CUNMRCSM**: sending MIME data via SMTP
 - **CUNMCSMM** ← to be used when invoked in a program
 - **CUNMRCSM** ← batch interface
- **To send multiple MIME parts in one message to the recipients as text attachments or inline parts**
 - ✓ EBCDIC HTML inline or as attachments.
 - ✓ EBCDIC Text inline or as attachments.
 - ✓ Binary data embedded in HTML or as attachments.
 - ✓ Binary P7M data as attachments
 - ✓ Binary P7S data as attachments

Usage & Invocation

- **CUNMCSMM/CUNMRCSM**: sending MIME data via SMTP
 - Run load module in SYS1.LINKLIB(CUNMRCSM) like following

```
//STEP      EXEC  PGM=CUNMRCSM
//MIMOUT    DD  SYSOUT=(A,SMTP)
//SNAPDUMP  DD  DUMMY      --if needed SYSOUT=*--
//PARMDD    DD  *
HELO
HOST=SMTP.IBM.COM
TRAC=8
SUBJ=TEST MAIL OF CUNMRCSM
ORIG=SENDER@IBM.COM
RECF=RECPT@IBM.COM
DATA=&DATA1DD  CID
//DATA1DD  DD  DISP=SHR,DSN=HLQ.CNTL (DATA1DD)
//MIMOUT    DD  SYSOUT=(A,SMTP)
```

Interactions & Dependencies

- **Software Dependencies**
 - **CUNMTUNI: Accessing different Unicode Services**
 - None
 - **CUNMCSMM/CUNMRCSM: sending MIME data via SMTP**
 - Communications Server SMTP (CSSMTP) application should be started
 - CSSMTP information can be found at: [IBM Knowledge Center](#)
- **Hardware Dependencies**
 - **None**
- **Exploiters**
 - **N/A**

Migration & Coexistence Considerations

- **Migration requirements for moving from machine to machine are beyond the scope of this presentation**

Installation

- **No unique considerations**

Session Summary

- **Unicode Services now provides some tools to allow users in a batch environment to:**
 - **Access the different Unicode Services provided.**
 - **Send MIME data to mail recipients.**
 - **Send HTML embedded multimedia data to mail recipients**

Appendix

Publications:

- **User Manual of Unicode Services Batch tools for z/OS**
 - <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=WH&infoty%20pe=SA&htmlfid=ZSL03388USEN&attachment=ZSL03388USEN.PDF>