

*MERVA ESA Version 4 Release 1  
Migration Information  
Edition 1.2  
24 March 2000*

March 27, 2000





MERVA ESA Version 4 Release 1

**Migration Information**  
**Edition 1.2**  
**24 March 2000**

**Note!**

Before using this information and the product it supports, be sure to read the general information under "Appendix. Notices" on page 47.

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## About This Book

This book contains information needed for a successful migration from MERVA ESA V3.3 to MERVA ESA V4.1.

The first edition of this document, edition 1.0, was published 17 December 1999, the general availability date of MERVA ESA V4.1. This document will be updated as new information becomes available. In particular, the experience from customer installations will be added.

The second update of this document, edition 1.2, was published 24 March 2000. Information about the Traffic Reconciliation component has been added, as well as information about:

- Using MERVA ESA nucleus in batch
- Archiving the journal while MERVA ESA is active
- Automatic transaction initiation at MERVA startup

An online version of this document is located on the Internet at:

<http://www-5.ibm.com/solutions/finance/html/brochures/me41migr.pdf>

MERVA ESA V4.1 is designed to be upwardly compatible with MERVA ESA V3.3. This means that the new release can replace the old release and take over all functions. All applications should run unchanged; existing data is preserved. The few cases where this concept could not be maintained are described in a separate chapter.

In the past a customer was referred to the summary of changes in the books for this type of information. Sometimes this information is not sufficient, or unexpectedly an incompatibility was detected later. This document will be updated regularly to include such information.

Furthermore, special information and hints about new functions are included.

Under what circumstances should you use a new function and in which cases should its use be avoided? What are the prerequisites and restrictions of new functions? What has to be done to activate the new functions and which additional considerations are applicable?

Please be aware that the information in this document cannot completely cover such a topic. It is strongly recommended that you consult the MERVA ESA documentation for the full information.

The following chapters are included in this document:

- Initial Information This chapter presents general migration information. Also last minute information is included which serves as a README file.
- Summary of changes in documentation This chapter is collected from the MERVA ESA documentation and serves as reference information.
- Changed and removed functions This chapter describes the changes which had to be made to existing MERVA ESA V3.3 functions and which eventually could lead to incompatibilities.

- Migrating existing installations This chapter describes some steps needed to migrate an existing MERVA ESA installation to the new version.
- Exploiting the new functions This chapter describes some restrictions and recommendations when using the new MERVA ESA V4.1 functions.
- Workstation based function This chapter describes the aspects of using the workstation based functions with MERVA ESA V4.1, especially the compatibility of existing USE/BKE installations.



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# Chapter 1. Initial Information

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## Installation Preparation

Before installing MERVA ESA V4.1, you should review the current Preventive Service Planning (PSP) information.

If you obtained MERVA ESA V4.1 on a product tape, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

PSP Buckets are identified by UPGRADEs, which specify product levels, and SUBSETs, which specify the FMIDs for a product level. For MVS, the UPGRADE for this product is **MERVAMVS410** and the SUBSET value is **H0B0410**. For VSE, the UPGRADE for this product is **MERVAVSE410**, the SUBSET value is **B294120**, and the retain release is **412**. Refer to the Program Directory for more details.

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## General Migration Information

1. New book *MERVA for ESA V4 System Programming Guide*

Parts related to system programming of the *MERVA for ESA V4 Customization Guide* have been moved to the new *MERVA for ESA V4 System Programming Guide*. The structure of the book is unchanged.

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## READ ME

The following problems have been found in the product after shipment. It is planned to provide fixes to these problems in a PTF.

- Users of the Traffic Reconciliation Telex Link monitor need to apply a PTF before they can use this monitor. When the PTF becomes available further information will be published.
- Module DSLQMGD is not reentrant. For performing direct queue management using DB2, module DSLQMGD and user exits DSLQUMR, DSLQKEY and DSLQTRAB must be reentrant.
- When performing queue management using DB2 transactions are not triggered when QBUSY (queue at end) is encountered on a GETNEXT command.
- When performing queue management using DB2, UMR timestamp is updated when no newumr is created.

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## Maintenance

The following PTFs should be installed before using the product MERVA ESA V4.1:

- none



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## Chapter 2. Summary of Changes - Documentation

This chapter is a collection of all summary of changes of the relevant MERVA ESA documentation. The relevant chapters of the following books are included as reference information:

- Operations Guide
- Messages and Codes
- User's Guide
- Customization Guide
- Installation Guide
- Macro Reference
- Concepts and Components
- Diagnosis Guide
- API Guide
- Advanced MERVA Link
- Workstation Based Functions
- System Programming Guide
- Traffic Reconciliation

The current edition of the manuals reflects the difference between the current version of MERVA ESA (Version 4.1) and the previous version (Version 3.3).

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### Operations Guide

#### New Batch Programs

MERVA ESA V4.1 provides the following new batch utilities:

**DSLSDIR**

Sequential data set input

**DSLSDLR**

Sequential data set load

**DSLSDOR**

Sequential data set output

**DSLSDUR**

Sequential data set unload

**DSLSDYR**

Sequential data set print

**DSLSQB**

Queue batch utility.

DSLSDIR, DSLSDOR, and DSLSDYR provide the functionality of DSLSDI, DSLSDO, and DSLSDY with some additional features and options.

#### Changed Batch Programs

The batch programs DSLSDI and DSLSDO no longer support the SWIFT to EDIFACT conversion of message types 105 and 106. If this function is needed, the conversion transactions DSLCSETR and DSLCESTR should be used.

## Changed Commands

The number of lines supported in the SWIFT Link has been increased from 9 to 30. The layout of the parameter tokens has been changed because the line parameter used in the SWIFT Link commands can have more than one digit. It is important that the definitions in the command table DSLNCMT match the layout of the MERVA ESA V4.1 command execution routines. Therefore the new DWSNCMTC copy book must be used. If changes have been made in this copy book for an earlier MERVA ESA release these changes must be applied to the new DWSNCMTC. The old copy book cannot be used.

The SWIFT Link synonym command codes with the prefix '2' are no longer defined. If needed, you can add the required definitions in the DWSNCMTC copy book.

## New MERVA Commands

The following commands are new:

### **DQSORTED**

Display the queues sorted by the number of messages

**JSET** Set the journal switch status

**JSTAT** Display the journal status

### **JSWITCH**

Switch the journal file from A to B or vice versa

**DLA** SWIFT Link command to display the active LTs in a compact form

### **SWIFTII**

Route SWIFT Link commands to the appropriate server in case parallel processing of multiple SWIFT Link servers is used.

## New MERVA Link Commands

The following new MERVA Link commands are supported by the MSC function:

**DSA** Display information of a specific ASP in panel AC02.

## MERVA Link USS Operating

MERVA ESA now provides a set of MERVA Link functions called MERVA Link USS. These functions execute in the OS/390 UNIX System Services (USS) environment, and provide gateway services for routing MERVA Link conversations from an SNA APPC network to a TCP/IP network, and vice versa.

MERVA Link USS provides an interactive USS shell command interface for operating MERVA Link USS. MERVA Link USS cannot be operated using the MERVA CMD and MSC functions. The MERVA Link USS operating facility and its commands are described in a new chapter in this manual.

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## Messages and Codes

This summary of changes lists all new and all deleted messages and codes in *MERVA for ESA V4 Messages and Codes*.

### **Deleted DSL messages**

DSL1202 .. DSL1204 DSL1208

**New DSL messages**

DSL002I DSL008I DSL013I DSL055I .. DSL056I DSL069I DSL142I DSL147I  
DSL387I DSL480I DSL490E .. DSL499E DSL896I DSL3251 DSL4745 ..  
DSL4746 DSL4800 DSL5101 .. DSL5158 DSL6033 .. DSL6034 DSL6093 ..  
DSL6095

**Deleted DWS messages**

DWS3762 DWS3767 .. DWS3768 DWS3774 .. DWS3775 DWS3855 DWS4837  
DWS4841 DWS4865 DWS4869 DWS4893

**New DWS messages**

DWS508I DWS576I DWS609I DWS1316 DWS1401 DWS4903 DWS4910 ..  
DWS4991

**Deleted EKA messages**

None

**New EKA messages**

None

**Deleted ENL messages**

None

**New ENL messages**

None.

## Base Functions Codes

The return codes of the MQSeries nucleus server have been added.

The return and reason codes of message conversion exits used by the MERVA-MQI attachment and the reason codes of the MQI-to-MERVA receive process transaction have been added.

The feedback codes of the MQI channel message exits DSLKCM1C and DSLKCM1M have been moved from the *MERVA for ESA V4 Customization Guide*.

The return and reason codes of the MERVA ESA timer service program DSLTIMP have been added.

## MERVA Link Codes

The sending process status and diagnostic codes associated with the asynchronous MERVA Link communication protocol have been removed.

The receiving process error type US is no longer supported. The corresponding errors are reported as receiving process errors of the type MT. The corresponding error codes are moved to the Receiving Process Error Type MT error codes.

The receiving process error codes associated with the asynchronous MERVA Link communication protocol have been removed.

## MERVA ESA Field Names

The list of the field names in Appendix A of the book has been updated.

**Deleted S.W.I.F.T. Financial Messages fields**

None

**New S.W.I.F.T. Financial Messages fields**

SW11CUR, SW11ISS, SW11QUAL

SW36CODE

SW69, SW69COD1, SW69COD2, SW69DAT1, SW69DAT2, SW69ISS,  
SW69QUAL, SW69TIM1, SW69TIM2

SW92NAME, SW92QUA1, SW92QUA2, SW92RA, SW92SF4, SW92SF5,  
SW92SF6, SW92SI, SW92STAT, SW92TYPE

SW93, SW93BAL, SW93CODE, SW93ISS, SW93QUAL, SW93SIGN,  
SW93TYPE

SW94CC

SW98NOD, SW98SIGN, SW98TYPE

**Deleted S.W.I.F.T. System Messages fields**

None

**New S.W.I.F.T. System Messages fields**

None

**External line format fields**

The external line format is new with MERVA ESA V4.1. All fields are new.

**New MERVA Link fields**

EKATARQD EKATARSD EKATAACK EKATAMAC EKATAPAC EKADA.

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## User's Guide

This summary of changes contains a description of enhancements to the *MERVA for ESA V4 User's Guide*.

### Authenticator-Key File Maintenance

All authenticator-key file maintenance panels now contain the date in format YYYYMMDD.

### Telex

The Long Answerback is enabled for telex header. Additional fields to display the testkey, testkey flag and the testkey comments are introduced. If you don't want Long Answerback you can disable it (see *Disabling Telex Link Long Answerback* in the *Customization Guide*).

### User File

The following changes have been made to the user file::

- A new field called Last sign-on date has been added. It shows the date when the user last signed on to MERVA.
- The user functions and group ID fields have been enhanced. Now, a wildcard comparison is performed between the assigned functions and the functions defined for the assigned group.

For more information about these fields, refer to "Maintaining the user file" in the *User's Guide*.

---

## Customization Guide

### External line format

In addition to the tokenized form, you can store and process messages in an external line format. This reduces CPU load at the expense of flexibility in routing and message processing.

### Interservice communication using MQSeries

You can now generate multiple MERVA ESA instances and distribute them among different systems within a sysplex environment. MQSeries provides the communication between the MERVA ESA instances.

### Intertask communication using MQSeries

This has been added.

### MERVA Link for CICS and IMS

There has been a major revision to the chapter describing the MERVA Link customization. The support of the asynchronous communication protocol based on LU 6.1 services (MERVA Link MTP TYPE ISC) has been dropped. The only intersystem communication protocol supported by MERVA Link CICS and IMS is APPC based on LU 6.2 services. The new synchronous Back-to-Back service is also described.

### MERVA Link for UNIX System Services (USS)

A chapter has been added to the manual that describes the customization of the new MERVA Link functions provided in the OS/390 UNIX System Services (USS) environment. The MERVA Link USS customization sample used in this chapter is related to and extends the MERVA Link CICS and IMS customization sample.

MERVA Link USS functions provide for SNA APPC communication with all types of partner MERVA Link systems, and for communication with MERVA Link USS, AIX, and NT partner systems based on TCP/IP services.

### MERVA-MQI Attachment for VSE

The attachment allows communication between MERVA ESA under CICS/VSE and MQSeries for VSE/ESA (TM).

### Security Manager for VSE

For VSE/ESA Version 2.4, the signon to MERVA ESA and to the user file maintenance function within MERVA ESA can be controlled by a security manager; for example by the Basic Security Manager (BSM) of VSE.

### SWIFT Link

MERVA ESA allows the customization and activation of multiple SWIFT Link servers running as parallel tasks.

### Transaction table DSLTXTT

This new table defines and extends the characteristics of transactions specified in the function table. These transactions are started by queue events or operator commands.

## IFT

Support for the S.W.I.F.T. IFT has been dropped.

---

## Installation Guide

This summary of changes lists the enhancements described in *MERVA for ESA V4 Installation Guide*.

### Interservice Communication

MERVA ESA interservice communication allows MERVA ESA to be distributed among different systems within a sysplex environment by running multiple MERVA ESA instances. The MERVA ESA resources must be shared. The MERVA ESA instances communicate via MQSeries and cross-system coupling (XCF) services.

### Intertask Communication

Intertask communication between applications and MERVA ESA central services can use MQSeries.

### ISPF Panels for DSLSDIR and DSLSDOR

You can invoke the new batch programs DSLSDIR and DSLSDOR from ISPF panels (MVS only).

### MERVA Link USS Gateway

MERVA ESA now provides a set of MERVA Link functions called MERVA Link USS. These functions execute in the OS/390 UNIX System Services (USS) environment, and provide gateway services for routing MERVA Link conversations from an SNA APPC network to a TCP/IP network, and vice versa.

### MERVA-MQI Attachment for VSE

The attachment provides a communication between MERVA ESA under CICS/VSE and MQSeries for VSE/ESA.

### Queue Data Set on DB2

Messages can be stored in a DB2 database instead of a VSAM data set.

### Queue Test Commands

The queue test command **delx** has been added (is now documented). The queue test command **input** has been dropped. Use the batch programs DSLSDI or DSLSDIR instead.

The EXQUE parameter in the MERVA ESA customizing parameter module DSLPRM can be set to MASTER. This allows (only) master users to use the queue test commands.

### Security Manager for VSE

For VSE/ESA Version 2.4, the signon to MERVA ESA and to the user file maintenance function within MERVA ESA can be controlled by a security manager, for example the Basic Security Manager (BSM) of VSE.



## IFT Connection for MVS

The S.W.I.F.T. IFT support has been dropped.

---

### Macro Reference

This summary of changes contains a description of the new and enhanced macros in the *MERVA for ESA V4 Macro Reference*.

#### DSLTX: Defining the Transaction Table

This is a new macro. The transaction table DSLTXTT defines the specifications and the environment for transactions started by MERVA ESA. The parameter TRAN in the function table refers to an entry in the transaction table.

#### DSLXNT: Defining the Function Table Entry

The following parameters are new:

- PARTID  
For queue management using DB2 only, specifies the partition ID for storing messages.
- XKEYS  
For queue management using DB2 only, specifies that extra keys are stored for a message.

The following parameters have been enhanced:

- KEY1 and KEY2  
The subparameter NOMOD specifies that the queue management uses the key without any modification.
- STATUS  
The subparameter AUTO specifies that the transaction defined for this function is started automatically during MERVA ESA initialization.

#### DSLXPROC: Defining the MERVA-MQI Attachment Process Table

The following parameters are new:

- CCSID  
For CICS/VSE only, the coded character set identifier describes the code page in use on the local MQSeries system.
- CHECK  
The MERVA ESA MFS message checking can be enabled or disabled before a message is mapped from an external network format to the TOF, or from the TOF to an external network format.
- CNVDEST  
For a send process under CICS/VSE only, specifies the name of the destination platform for messages to be converted.
- CONVERT  
For a receive process, specifies whether received messages are to be converted.
- MQIERRQ  
For a receive process, specifies the name of the MQSeries dead-letter queue or a user defined MQI error queue.
- NEXT

For a send process, specifies how to handle an MQI datagram or request message in the next processing step.

- PASC MID

For MVS/ESA only, specifies whether an MQI datagram or request message can demand that an MQI reply and report message passes the CorrelId and MsgId of the datagram or request message.

The following parameter has been enhanced:

- MQFMT

For a send process, an alternate format name can be specified instead of MQSTR.

For the MERVA-MQI attachment under CICS/VSE, the following parameters are not supported or their usage has been restricted:

- ALTUID, EXCEPT, JRNREXC, and PASC MID

These parameters are not supported.

- MQICTLQ

For a send process, MQI control queues cannot be shared.

## **DSL MFS: Defining the Message Format Services**

The formatting of messages in an external line format is supported. The medium code is ELFORM.

## **DSL MSG: Defining the Diagnostic and Error Message Table**

The following parameter has been modified:

- USE

The values CICS and IMS are no longer supported.

## **DSL NCM: Defining a Command Table**

The following parameter is new:

- PERR

Specifies that the command execution routine is called even when MERVA ESA command parsing indicated an error.

## **DSL NPT: Defining the Nucleus Program Table**

The following parameter has been enhanced:

- AUTO

Specifies the environment where the nucleus program is to be started automatically.

## **DSL NSV: Defining the Nucleus Server Table**

The following parameters are new:

- QNAME

Mandatory if you want to use interservice communication via MQSeries. The assigned value is used to form the name of a send queue to which service requests are put if a service is on another MERVA ESA instance.

- SYSNAME and STCNAME

If you want to use interservice communication via MQSeries, and want to automatically start the secondary MERVA ESA instances on another system within a sysplex, you can specify the system name and the MERVA ESA instance cataloged procedure name.

## DSLPRM: Generating the DSLPRM Module

The following parameters are new:

- **CLIENTS**  
Specifies the maximum number of users of the MERVA Message Processing Client allowed to be connected to MERVA ESA at the same time.
- **DB2PLB, DB2SS**  
These parameters define the DB2 plan and the DB2 subsystem name for batch applications when queue management using DB2 has been specified.
- **ISCMQID**  
Mandatory if you want to use interservice communication via MQSeries. You have to specify the MERVA IDs of the primary and the local MERVA ESA instance and whether the QNAME parameter value of the nucleus server table is to be used as a send queue prefix or suffix.
- **ISCMSND, ISCMRCV, ISCMRTQ**  
These parameters define queue names used by the MERVA ESA interservice communication via MQSeries.
- **ISCNUC**  
Mandatory if you want to use interservice communication via MQSeries. You have to specify whether a MERVA ESA instance is to run as primary or secondary.
- **ISCSTART**  
Starts another MERVA ESA, a secondary MERVA ESA instance.
- **ISXCF**  
Specifies MERVA ESA XCF group and member names. Used for XCF event notification.
- **ISXJWT**  
Specifies the time period of a group member to join the MERVA ESA XCF group.
- **ITCMSND, ITCMRCV, ITCMRTQ**  
These parameters define queue names used by the MERVA ESA intertask communication via MQSeries.
- **ITCMWTT**  
Specifies a time period a requestor expects a response from MERVA ESA.
- **JSWITCH**  
Specifies the initial switch mode of the journal data set.
- **MQMNAME**  
Optional if you want to use intertask communication and/or interservice communication via MQSeries.
- **PRTNAME**  
Specifies your institution name. It is shown in the printout of most REXX batch utilities.
- **SDDB2**  
Specifies the direct queue management using DB2 for batch programs.

- WSSEC  
Defines the security level for MERVA Message Processing Client communication.
- WSTSRV  
Defines the port number for TCP/IP based MERVA Message Processing Client communication.

The following parameters have been enhanced:

- EXQUE  
The subparameter MASTER specifies that MERVA ESA queue test commands are allowed for all master users.
- ITC  
The second subparameter which specifies the Inter-region communication method has been enhanced to allow intertask communication via MQSeries.
- QIO  
The subparameter DSLQMDIO specifies that the MERVA ESA queue management using DB2 is requested.

The following parameter has been modified:

- TIER  
Specifies the average monthly number of messages rather than a tier level between 0 and 12.

## **DSLQMG: Defining Queue Management Services**

The following parameters have been enhanced:

- TYPE  
For queue management using DB2 only, request type HOLD is used to set a function to HOLD state.  
For queue management using DB2 only, request type SQLSTAT is used to get SQL Error Status Information from queue management.
- MODIF  
Modifier ALL frees all queue elements in a designated queue.  
Modifier DIRECT initializes queue management using DB2 as a direct service.  
Modifier LAZY requests deferred writing to the queue data set.  
Modifier NOCOMMIT indicates to queue management not to perform any COMMITs to the QDS on DB2.  
Modifier RESTORE indicates to queue management to restore a queue element with a dedicated QSN to a dedicated queue.  
Modifier SFCOMP indicates to queue management that a delayed transaction has been started.

## **DWSPARM: Generating the DWSPRM Module**

The following parameters are new:

- FORMAT  
Specifies which format is used to store a message received from SWIFT. The new external line format allows faster message processing at the cost of less flexibility in message processing.
- TLSTOR  
Specifies the buffer size for the transport layer in kilobytes.

## DWSVLINE: Defining MERVA Extended Connectivity Controlled Lines

Up to 30 lines are now supported by MERVA ESA SWIFT Link.

The following parameter has been enhanced:

- RDTEADR

For a leased line, up to 9 DTE addresses are now supported by MERVA ESA SWIFT Link. MERVA will try them one after the other until it finds an operable one.

## EKAPT TYPE=INITIAL: Generating the PT Header

The following parameter is new:

- SP

The number of the MVS storage subpool that is completely freed at the end of a MERVA Link IMS MPP can now be customized.

## EKAPT TYPE=MTP: Defining a Message Transfer Process

The following parameter is new:

- DEST

Provides an alternative to the LINK and PARTNER parameters for specifying partner system and partner process identifiers. In the CICS environment, the DEST parameter supports CICS CONNECTION and PARTNER definitions. In the IMS environment, the DEST parameter supports an APPC/MVS Symbolic Destination (Side Information profile name). The new MERVA Link Back-to-Back facility (BTB) is supported in the MERVA ESA CICS and IMS environments.

The following parameters have been modified:

- CONNECT

The meaning of the parameter CONNECT=(ACQ,QUEUE) has been modified. An outbound MTP in the CICS environment with this parameter tries to acquire unbound sessions to the partner system at its start, rather than at its end.

- LINK

The support for ISC-type MTPs has been dropped. The support of a synchronous Back-to-Back MTP (BTB) has been added.

- MTPCI

The default sending MT program name is now set according to the MTP type (BTB or APPC), and to the DC environment (CICS or IMS). The default names match the standard MERVA Link program names. The MTPCI parameter can be omitted if the EKAPT is assembled with the correct SYSPARM, and if the applicable standard MERVA Link outbound MT program must be used.

- NAME

The specification of an external local MTP name is now optional. The external local MTP name or its absence must be agreed between the cooperating MTPs.

- PARTNER

The specification of an external partner MTP name is now optional. The external partner MTP name or its absence must be agreed between the cooperating MTPs.

The rules for specifying the TP identifier of the receiving process in the partner system have been modified. This applies only if the new DEST parameter is specified.

## EKAPT TYPE=SCP: Defining a System Control Process

The following parameter is new:

- DEST

Provides an alternative to the LINK and PARTNER parameters for specifying partner system and partner process identifiers. In the CICS environment, the DEST parameter supports CICS CONNECTION and PARTNER definitions. In the IMS environment, the DEST parameter supports an APPC/MVS Symbolic Destination (Side Information profile name).

The following parameters have been modified:

- LINK

Supports an SNA mode name like the LINK parameter of EKAPT TYPE=MTP.

- PARTNER

The rules for specifying the TP identifier of the receiving process in the partner system have been modified. This applies only if the new DEST parameter is specified.

---

## Concepts and Components

This summary of changes lists the enhancements described in the *MERVA for ESA V4 Concepts and Components*.

### Changed Batch Programs

The batch programs DSLSDI and DSLSDO do no longer support the SWIFT to EDIFACT conversion of message types 105 and 106. If this function is needed, the conversion transactions DSLCSETR and DSLCESTR should be used.

### Interservice Communication via MQSeries

MERVA ESA can be divided into multiple MERVA ESA instances. Each MERVA ESA instance providing a distinct service can run on different systems in a multi-system environment providing a single system image with a sysplex.

### Intertask Communication via MQSeries

MQSeries queues can be used for intertask communication between requestor and nucleus server.

### Journal Data Set

The journal data sets can be switched and optionally reset using an operator command. The journal record header format with a 2-digit year is no longer supported. All journal record headers have a 4-digit year.

### Synchronization Point Program

The synchronization point program DSLISYNP can also be used under CICS.

### MERVA Link USS

MERVA ESA now provides a set of MERVA Link functions called MERVA Link USS. These functions execute in the OS/390 UNIX System Services (USS) environment, and provide gateway services for routing MERVA Link conversations from an SNA APPC network to a TCP/IP network, and vice versa.

## MERVA-MQI Attachment for VSE

The attachment provides a communication between MERVA ESA under CICS/VSE and MQSeries for VSE/ESA.

## Queue Data Set on DB2

The messages can be stored on a DB2 database instead of VSAM QDS and LMC data sets.

## Security Manager for VSE

For VSE/ESA Version 2.4, the signon to MERVA ESA and to the user file maintenance function within MERVA ESA can be controlled by a security manager, for example the Basic Security Manager (BSM) of VSE.

## Sequential Data Set Batch Programs

MERVA ESA V4.1 provides the following new batch utilities written in REXX:

### DSLSDIR

Sequential data set input

### DSLSDLR

Sequential data set load

### DSLSDOR

Sequential data set output

### DSLSDUR

Sequential data set unload

### DSLSDYR

Sequential data set print.

## Synchronization Point Program

The synchronization point program DSLISYNP can also be used under CICS.

---

## Diagnosis Guide

This summary of changes contains a description of new enhancements to *MERVA for ESA V4 Diagnosis Guide* in MERVA ESA V4.1.

## MQSeries Queue Handler program (DSLNMQH)

The MQSeries queue handler provides the interface to the message queuing interface (MQI).

## MQSeries nucleus server program (DSLNMQS)

The MQSeries nucleus server is a special nucleus server invoked in case a requested service is available on another system within a sysplex.

## Diagnostic Display and Trace Commands

The DICB command has been extended to support the new intertask communication method via MQSeries queues.

---

## Application Programming Guide

This summary of changes lists the new enhancements described in the *MERVA for ESA V4 Application Programming Interface Guide*.

The MERVA ESA V4.1 API services are fully compatible with MERVA ESA V3.3 API services. Applications that use MERVA ESA V3.3 API services will run unchanged under MERVA ESA V4.1.

Compared to MERVA ESA V3.3 the following improvements and additions have been made to the MERVA API:

### API Runtime Environment

You can use the following DSLAPI variables to customize the API runtime environment:

**APICQBIN**

Enable the use of binary keys

**APICQDIR**

Enable direct DB2 queue management calls

**APICQLAZ**

Deferred write requests

**APICQMIT**

Switch DB2 commit on or off

**APICQWRB**

Suppress the use of the DOUBLE (write-back) indicator

**APICMCLR**

Clear the internal queue buffer before the (next) message read function

**APICMCHK**

Switch message checking on or off.

### Enhanced API Functions

The MSGG and MSGP function support now formatting from and to the internal queue buffer format ('Q').

### New API Functions

Six new API functions have been added:

**PRTI, PRTL, and PRTT**

The PRTx functions can be used to print messages line by line to a system printer or a file.

**PUTR** The PUTR function restores a message to a specified queue and QSN.

**ROUD, ROUN**

The ROUD and ROUN function route a queue element directly from one queue to one or more target queues.

### Batch Utilities in REXX

MERVA ESA V4.1 enhanced the following batch utilities written in REXX:

**DSLBA13R**

Print the MERVA ESA journal



The records of the following journal entries are printed now nicely formatted:

X'14' Command response  
X'19' Routing trace

**DSLBA15R**

Print the MERVA ESA user file

The new user file field USRUDATS, last sign-on date, is supported.

MERVA ESA V4.1 provides the following new batch utilities written in REXX, all of which run under both MVS and VSE:

**DSLBA17R**

Check date fields in the user file

**DSLBA50R**

Print queue status list

**DSLBA51R**

Print queue key list

**DSLBA52R**

Copy or move messages from one queue to another

**DSLBA53R**

Scan a queue for 'old' messages

**DSLSDIR**

Sequential data set input

**DSLSDLR**

Sequential data set load

**DSLSDOR**

Sequential data set output

**DSLSDUR**

Sequential data set unload

**DSLSDYR**

Sequential data set print.

The utilities with names of the form DSLSDxR are described in the *MERVA for ESA V4 Operations Guide*.

The batch utilities written in REXX are distributed:

- For MVS, in the library MERVA.SDLSAM0
- For VSE, in the sublibrary MERVA.LIBS with the extension PROC

All these batch utilities now support a DSLPRM customization parameter *PRTNAME* which can be used to print an institution's name in the header of the printout of the utility.

## Field-Level Access Fields

The list of the fields in the MERVA internal structures that can be accessed using the FLDG and FLDP API services has been updated. You can now read the fields of the function table DSLFNTT with the FLDG function.

---

## Advanced MERVA Link

This summary of changes contains a description of the modifications to the *MERVA for ESA V4 Advanced MERVA Link*.

### What Has Been Added

#### **MERVA Link UNIX System Services**

MERVA ESA now provides a set of MERVA Link functions called MERVA Link USS. These functions execute in the OS/390 UNIX System Services (USS) environment, and provide gateway services for routing MERVA Link conversations from an SNA APPC network to a TCP/IP network, and vice versa. Four new chapters in this manual cover the advanced topics for MERVA Link USS.

### What Has Been Modified

#### **MERVA Link P1 and P2 Protocols**

The MERVA Link P1 and P2 protocols have been extended to provide additional functionality. The protocol definitions and the PDU data element summary have been changed accordingly.

#### **MERVA Link Conversation Trace Events**

A number of CICS commands related to an APPC conversation have been added to the events shown in the MERVA Link conversation trace. The conversation trace description and the conversation trace samples have been changed accordingly.

### What Has Been Removed

#### **MERVA Link Asynchronous Communication**

Support of the asynchronous communication protocol based upon LU 6.1 services has been dropped. The corresponding topics have been removed from this manual.

#### **MERVA Link APPC/MVS Mirror**

Support of the MERVA Link APPC/MVS Mirror has been dropped in MERVA Link. The corresponding topics have been removed from this manual.

#### **MERVA Link Internals**

The description of a number of MERVA Link internal implementation topics has been removed from this book. These topics are:

- MTL and MTP boundary interfaces
- APPC and ISC boundary interfaces
- Internal module and service primitive traces
- Program return codes
- Storage areas in MERVA Link dumps
- Journal entry samples
- MERVA Link IMS APPC considerations
- MSC processing structure

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## Workstation Based Functions

This edition of this manual reflects the following differences between the current version of MERVA ESA (Version 4.1) and the previous version (Version 3.3):

- MERVA USE & Branch for Windows NT has been added.
- The workstation-based functions for OS/2 and AIX have been removed.

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## System Programming Guide

No summary of changes is provided.

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### Traffic Reconciliation

Version 4 of *MERVA for ESA V4 Traffic Reconciliation* supports all the functions available in Version 3, plus several new functions and other enhancements.

#### Functional Enhancements

- All monitors can insert events directly into the DB2 tables bypassing the intermediate “flip-flop” event data set.
- All monitors can alternatively write events to the intermediate event data set (implemented by V3.3 PTF UQ14845 and UQ14846).
- MQI monitor. MQSeries connections using the MERVA-MQI attachment can now be monitored.
- A Row Delete Utility is provided to allow old data to be removed from the DB2 database. Deleted database records can optionally be written to a data set.
- A Financial Message Capture transaction allows S.W.I.F.T. messages at any point in the MERVA routing scheme to be inserted to the Reconciliation SWIFT Link tables. This allows S.W.I.F.T. messages which enter and leave MERVA ESA other than by MERVA SWIFT Link, for example by MERVA-to-MERVA Financial Message Transfer/ESA or MERVA Link, to be recorded by Traffic Reconciliation.
- Users can force the message TRN to be stored in column U\_MUR in the SWIFT FINxHDR tables. Previously, the TRN would only be stored if the message contained no MUR.
- Fields can be extracted from block 3 of SWIFT messages as well as from block 4 (V3.3 PTF UQ23624, UQ23626).
- SWIFT messages wrapped in a x9x envelope by a **G9x** or a **I9x** command are now protected from modification.
- Queues to be monitored can be specified using wildcard characters. For example, “**L1\***”: all L1 queues, or “**\*AI0**”: all message authorization queues.
- A scanner control table can be specified for each queue event. Previously only one scanner control table could be specified for all queue monitor events.
- Insertion from the event data sets:
  - A batch version of the event insertion transaction, **IMRINSP**, is now provided.
  - The event insertion transaction (and the batch version) now switches between flip-flop data sets at end-of-file. Previously it terminated.
  - The nucleus program **IMRNUCP**, the insertion transaction controller, has been renamed **IMRICON** to better convey its purpose. It now accumulates insertion counts and displays them at termination. The insertion transaction no longer displays counts at each transaction termination.
  - **IMRICON** now initiates the **IMRI** transaction immediately on starting up (unless MERVA is not yet ready), rather than first waiting for the TIV interval to expire.
  - **IMRICON** will not re-initiate the transaction until the transaction terminates successfully.
  - If MERVA cannot initiate the transaction an explanatory message is now issued.
- **QRY** panel PF-key settings have been changed to conform to MERVA ESA conventions:

- A query can be selected by cursor either with the **Enter** key or **PF4**. **PF6** is no longer used.
- Having selected a query it can now be run with **PF3**, not **PF4**.
- A selected query can now be escaped from with **PF12**, not **PF3**.
- A query can no longer be run straight from the QRY selection panel using a PF key. It must first be selected, and then run with **PF3**.
- When a query is selected from the Query Selection panel, it is initially displayed in standard (PROMPT) format. From that panel you can display the query in SQL format (NOPROMPT) format by pressing **PF11**. Previously, queries were sometimes initially displayed in PROMPT format and sometimes in NOPROMPT format, depending on the format last chosen.
- The sample scanner control table for MLINK events (IMRMLKT) inserts the fields extracted by sample MCB IMRMLKC into the DB2 tables individually, rather than as a single concatenated string.
- Timestamps are now precise to a millionth of a second (partly implemented by V3.3 PTF UQ21616, UQ22443).
- All Traffic Reconciliation modules now run above the 16MB boundary.
- MERVA ESA on-line help now also includes Traffic Reconciliation error messages.

## Customization Enhancements

Customization has been simplified. A number of changes have been made to aid understanding:

- All DB2 definitions use default values. The intention is to allow new users to install a first, test, system with a minimum of customization of the DDL.
- Foreign keys (referential integrity) are provided as comments in the DDL (however, their use is not recommended).
- Plan names are no longer hard-coded, alternative names can be specified.
- **SET CURRENT SQLID** has been removed from IMRSQLP, the background processor for MCB-based queries. The program's plan can now be bound with **DYNAMICRULES(BIND)**.
- The DB2 language interface module is now always loaded dynamically. Post-installation link editing is no longer required.
- IMRPRM parameters module generation.

The following changes have been made to macro IMRPARM:

- Parameter checking has been improved.
- The separate macros for each monitor have been replaced by macro IMRPARM with **TYPE=EVENT**.
- The **QNAME** parameter, part of the resource name for MVS resource serialization, is no longer used. The **NAME** parameter from the MERVA ESA parameters module, DSLPRM, is used instead.
- Use of the **USER** parameter now results in an error. A MERVA Link exit must be specified in MERVA Link macro EKAPT.
- Parameter **TLXFLDS** replaces **FORMID** and **MSGID** in the Telex Link monitor specification. Specification of formatting for field extraction is thus more consistent across all monitors.
- When specifying a MERVA message identifier, the keyword **MTYPE** is used instead of **MCB**.
- To specify a scanner control table, the parameter **CONTROL** has been renamed to the more expressive **SCANTAB**.

- The name of the parameter for the flip-flop threshold value has been corrected to **FFTHRESH**.
- The **APPC** parameter for MERVA Link monitors is no longer used.
- Scanner control tables:
  - The macros IMRQUS and IMRTXS have been combined and renamed IMRSCAN.
  - **BEG** and **END** tag specifications can combine hexadecimal and character notations. For example, instead of coding:
 

```
BEG=X'0D257A6F6F6F7A',END=X'0D2560'
```

you can now code:

```
BEG=(X'0D25',C':???:') ,END=(X'0D25',C'-' )
```
  - The **LIN** parameter has been renamed **LINE**.
- Table filter, macro IMRTFL:
  - The **TYPE=ENTRY** keyword has been replaced by **TYPE=TABLE**.
  - The IMRFLD macro has been integrated into macro IMRTFL and is invoked with **TYPE=FIELD**.

**Note:** With few exceptions, V3 customization tables can continue to be used in V4 unchanged.

## DB2 Tables

- SWIFT tables containing a MIR or MOR have been expanded to contain the sub-fields of the MIR or MOR as separate columns. This allows these sub-fields to be indexed.
- Views have been defined to provide easier access to the SWIFT LT as a whole in all SWIFT tables containing a logical terminal.
- A new column, EKEY, has been added to the MERVA Link and Telex Link HDR tables (V3 PTF UQ14845, UQ14846).
- The spelling of column MSG\_CATEGORIE in the MERVA Link HDR tables has been corrected to MSG\_CATEGORY.
- Indexes are no longer defined on subordinate table primary keys.

## Others

- SWIFT incoming GPA NAKs were being stored in table GPAOSER instead of GPAISER. This has been corrected.
- All batch programs now pass a return code to the operating system.
- The queue batch utility, IMRQMGB, has been moved to the MERVA ESA base product and renamed DSLSQB. See *MERVA for ESA V4 Operations Guide*.



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## Chapter 3. Changed and Removed Functions

This list contains the removed or deleted functions and important changes to existing functions.

1. Only the 4-digit year format of the journal record is supported. The 2-digit year is never used. Journal record segmentation (large message support) is automatically supported and cannot be switched off. DSLPARM JRNBUF=(,YYYY) specification is forced by the customization macro. When MERVA ESA V4.1 is started with an old journal data set containing records in 2-digit year format starting with a digit greater than 8, the processing is terminated. If this is the case, the 4-digit year format record is not written because the resulting keys would be out of sequence. The existing warning message DSL049I is used to indicate the error.
2. The possibility of automatic EDIFACT conversion of SWIFT message types 105 and 106 has been removed from the batch programs DSLSDI and DSLSDO. The API functions for conversions and the conversion transactions DSLCEST and DSLCSET still exist and can be used for the conversion process, if required.
3. The queue test command INPUT has been dropped. This command does not run in RMODE ANY, and the DSLEUD was not reentrant when using this command. This led to various problems in the past. Instead of using the INPUT command, a batch utility or a REXX Exec can be used to fill in test messages. This is far more flexible than the old INPUT command implementation.
4. The field COMTCTUA in the DSLCOM area is no longer filled with the TCT user area address; the field is reserved. When the TCT user area is needed, an EXEC CICS ADDRESS command should be issued to request the address directly from CICS.
5. The MERVA Link APPC/MVS Mirror Programs (EKATMO1 and EKATMI1) have been removed from MERVA ESA V4.1. The APPC/MVS mirror programs were developed and used to test APPC TPs in the IMS environment when APPC/MVS was not yet available.
6. The support of the MERVA Link Asynchronous Communication Protocol (LU 6.1) has been removed from MERVA ESA V4.1. The MERVA Link asynchronous communication protocol based on an LU 6.1 for inter-system communication had to be used in the IMS environment before APPC/MVS was available. APPC/IMS has been available for some time now, and the synchronous MERVA Link communication protocol based on LU 6.2 is much more efficient than the asynchronous protocol. Therefore, there was no good reason to continue supporting the MERVA Link asynchronous communication protocol.

However, there is a requirement to continue the support of a back-to-back scenario for use in the MERVA Link installation verification and in specific production environments. This requirement is met by a synchronous TP mirror, a new MERVA Link program. The explicit support of a MERVA Link back-to-back scenario (EKAPT customization and the TP Mirror Program) provides significant advantages compared to the current implicit support (asynchronous start of a local transactions).

7. The MERVA Link customization in MERVA ESA V4.1 has been simplified by modifying a number of EKAPT macro parameters. EKAPT source compatibility is maintained with some exceptions. Modifications are required when the asynchronous protocol or a back-to-back MTP was used.

Modified or new EKAPT parameters are, for example:

- MTPCI parameter default according to MTP environment. The name of the standard MERVA Link outbound TP in the IMS APPC environment, EKATPO1, need not to be specified. It is the default for an APPC MTP assembled with SYSPARM IMS.
  - External MTP names are made optional. External MTP names are not required by MERVA Link AIX and NT and are supported by these MERVA Link implementations for compatibility with the other MERVA Link implementations (ESA and OS/2). Thus MTP names are now optional in MERVA ESA V4.1 MERVA Link.
  - New MTP destination name parameter. Destination information for the partner system can be provided in the DEST parameter of an EKAPT TYPE=MTP statement as an alternative to the LINK and PARTNER parameters. APPC/MVS Symbolic Destinations and CICS Partner definitions are supported by the DEST parameter.
8. The SNAP dump of a MERVA Link IMS inbound task is modified in MERVA ESA V4.1. The MERVA ESA and IMS programs are removed from an EKATPI1 SNAP dump. This decreases the typical size of a SNAP dump from 20,000 lines or more to about 1,000 lines. The EKAPT is included in the SNAP dump in front of all user storage.



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## Chapter 4. Migrating Existing Installations

The following considerations apply to a one-to-one migration from an existing MERVA ESA V3.3 installation.

MERVA ESA is intended to be upwardly compatible. This means that the customization used for the previous MERVA ESA release (V3.3) can easily be adapted for use in the new MERVA ESA V4.1. In most cases no additional effort is required, although some tables must be recompiled.

---

### Customization Tables

You can use the source code of most of your tables or table modifications and user exits to customize MERVA ESA V4.1. The following tables should be newly created for MERVA ESA V4.1:

- DSLPRM

The DSLPRM table is installed during the standard MERVA ESA V4.1 installation process. All parameters from MERVA ESA V3.3 can be used.

In the DSLPRM created by the standard installation process using macro DSLINST (see the MERVA ESA Program Directory, GI10-0459-00), the QIO parameter specifies the queue management I/O module DSLQMCNV. This module is compatible with the old one. It is recommended that you use this module, because it provides performance-enhanced queue management services.

The TIER parameter now has a different meaning; instead of indicating a tier number between 1 and 12, it now directly indicates the number of messages. Change the TIER parameter to specify your licensed number of messages.

The CLIENTS parameter has been introduced to specify the maximum number of MERVA Message Processing Client users licensed for your installation. This is a new parameter. Enter the number licensed by your installation; otherwise the MERVA Message Processing Client will not be able to sign-on to MERVA ESA.

The Y2KTEST parameter is no longer supported.

---

### User Exits

You can use your MERVA ESA V3.3 user exits unchanged and run them in MERVA ESA V4.1.

---

### API programs

You can use your MERVA ESA V3.3 DSLAPI programs unchanged and run them against MERVA ESA V4.1. No recompilation is necessary.

---

### Data Sets

MERVA ESA V3.3 files are fully compatible with MERVA ESA V4.1.

You can use the following MERVA ESA V3.3 files **unchanged** with MERVA ESA V4.1:

- User file
- Journal data set

**Note:** You can use your MERVA ESA V3.3 journal data set with MERVA ESA V4.1. However, you should allocate a new journal data set and use the 4-digit year format for the journal record header. It is recommended that you allocate a journal data set with a record length of at least 16000 bytes when large SWIFT messages (up to 10KB) are to be processed with MERVA ESA V4.1.

- Queue data set

**Note:** To use your MERVA ESA V3.3 queue data set with MERVA ESA V4.1, perform one of the following steps using the utility DSLQDSUT:

- Use FORMAT to format your MERVA ESA V3.3 queue data set for MERVA ESA V4.1 if you do not need to keep messages.
- Use MODIFY to copy all messages from your MERVA ESA V3.3 queue data set into your MERVA ESA V4.1 queue data set.

Refer to the *MERVA for ESA V4 Operations Guide* for details about using DSLQDSUT.

- Nicknames file
- Large Message cluster

**Note:** It is recommended that you allocate a new LMC for MERVA ESA V4.1.

- Message Counter Log Data Set

**Note:** This MERVA ESA V3.3 file should be migrated to MERVA ESA V4.1 using the sample job DSLMMCNT. Obsolete entries are deleted by this job.

- SWIFT Correspondents File
- SWIFT Currency Code File
- TELEX Correspondents File
- Authenticator-Key File This file is unchanged.

---

## Communication Links

### MERVA-MQI Attachment

The MERVA-MQI attachment for MVS uses the same protocol as before and will run unchanged. The process table DSLKPROC should be reassembled. It is especially important that the correct SYSPARM for your installation is used, either MVS or VSE.

For binary and EBCDIC-ASCII conversion under MVS, you are recommended to use the new data-conversion exit DSLKDCDM or DSLKCDCC rather than the channel message exit DSLKCM1M or DSLKCM1C. Under CICS/ESA, if you want to convert messages to be sent containing binary length fields,

- Link-edit DSLKDCDM using the ALIAS DSLKCDCC into the library with the CSQXLIB DD statement of the MQSeries channel initiator.
- Specify DSLKCDCC in parameter MQFMT of DSLKPROC TYPE=SEND.

If you want to use the data-conversion exit at the message sending side, specify CONVERT(YES) for the sender channel.

## MERVA Link

### MERVA Link Back-to-Back MTP.

Refer also to the chapter "Changed and Removed Functions" for more information about MERVA Link.

The asynchronous MERVA Link communication protocol available from MERVA ESA V3.3 is not supported by MERVA ESA V4.1. The MERVA Link Back-to-Back MTP that was based on services using the asynchronous MERVA Link communication protocol has been replaced in MERVA ESA V4.1 by a synchronous BTB service.

A MERVA Link Partner Table used in MERVA ESA V3 must be modified in MERVA ESA V4.1 if the MERVA Link BTB scenario is used. A BTB scenario is defined by an ASP that has itself as the partner ASP and an MTP that addresses the local MERVA system. The EKAPT ASP entry need not to be modified. However, the EKAPT MTP entry must be modified. The sample EKAPT MTP entries used in the installation verification of MERVA ESA V3 and MERVA ESA V4.1 are:

```
-----
* BTB          SAMPLE BACK TO BACK MTP  MERVA ESA V3
-----
          SPACE
          EKAPT TYPE=MTP,                MESSAGE TRANSFER PROCESS      *
              NAME=(BTB,N1TN1),          INTERNAL AND EXTERNAL MTP NAME *
              LINK=(ISC,EKAR),           PARTNER SYSTEM INFORMATION   *
              PARTNER=(N1TN1,EKAR),      PARTNER MTP INFORMATION     *
              ASP=A1I                    ASP ASSOCIATED WITH THIS MTP
-----
* BTB          SAMPLE BACK TO BACK MTP  MERVA ESA V4
-----
          SPACE
          EKAPT TYPE=MTP,                MESSAGE TRANSFER PROCESS      *
              NAME=BTB,                   INTERNAL MTP NAME            *
              DEST=BTB,                   SYNCHRONOUS BACK-TO-BACK CONN *
              ASP=A1I                    ASP ASSOCIATED WITH THIS MTP
```

For more information about the MERVA Link BTB facility in MERVA ESA V4.1 refer to section *Customizing the Synchronous Back-to-Back ASP* in the *MERVA for ESA V4 Customization Guide*.

## SWIFT Link

The external interface is unchanged, but the program has been restructured for performance optimization. In particular, the line subtask is now reentrant and runs above the 16MB line to improve storage usage.

The number of lines has been increased; a 2-digit number is used. This means that the copy book DWSNCMTC which contains the definitions of the SWIFT Link commands is changed. If you made modifications to this copy book, for example added command name aliases, these modifications must be redone for MERVA ESA V4.1.



---

## Chapter 5. Exploiting the New Functions

This chapter collects useful information needed to activate some of the new MERVA ESA V4.1 functions.

---

### Migration to Queue Management using DB2

The use of queue management is transparent for all types of MERVA ESA programs, including API programs. All functions are compatible at the macro level.

The installation process is described in the *MERVA for ESA V4 Installation Guide*. All security aspects and size requirements can be found there.

Queue management using DB2 is activated by specifying the following parameters in customization module DSLPRM.

- QIO=DSLQMDIO
- DB2SS= db2\_subsystem\_name
- DB2PLB= db2\_plan\_name

### Queue Management User Exits

- Queue management user exit DSLQPUT is not supported by queue management using DB2.
- Queue management user exit DSLQTRA is replaced by user exit DSLQTRAB when using DB2 and must be adapted accordingly if used by the customer.
- Queue management user exits DSLQKEY and DSLQUMR are called unchanged by queue management using DB2.

When direct queue management using DB2 is used, the user exits must be reentrant.

### Queue Data Set Migration

Use unload utility DSLSDUR and reload utility DSLSDLR (see *MERVA for ESA V4 Operations Guide*) to migrate messages from queues in the VSAM queue data set to DB2. The utilities can also unload from DB2 and restore to the VSAM queue data set, and be used to back-up queues. Note that these utilities do not run under MERVA ESA V3.3.

### Migrating from DB2 back to VSAM

As described above, the utilities DSLSDUR and DSLSDLR can also be used to unload messages from DB2 and restore them to the VSAM queue data set.

### Security Aspects

A DB2 application plan is the control structure used by DB2 to process SQL statements embedded in application programs and is created by the BIND process. In the following it is assumed that the MERVA DB2 plan was named DSLNUCXX.

It is important to assign the appropriate access rights to the MERVA DB2 plan DSLNUCXX:

- Central processing

The program DSLNUC, which contains queue management using DB2 for central processing, must have been granted the execution right on DSLNUCXX. If the user who creates the DB2 objects is the same as the user who submits the MERVA start-up job no other action is necessary; otherwise, you must GRANT EXECUTE ON PLAN DSLNUCXX TO user\_who\_starts\_MERVA or TO PUBLIC.

- Direct processing

Any user who submits batch and API programs that use direct DB2 queue management must have execution right on DSLNUCXX.

## Application Programming

API programs can be used unchanged for queue management using DB2. Request execution is centralized. This is the only option for VSE and is also recommended for existing MVS applications.

In MERVA ESA V4.1 direct queue management with DB2 can be used. Direct queue management enables the running of applications against MERVA ESA queues even when the MERVA ESA nucleus is not active. Transaction triggering is not supported in such a case.

Direct queue management is activated by setting flag APICQDIR to 1 using an API FLDP call. This call must be made after API INIT but before the first queue management function call.

Note that MERVA ESA queue management performs a commit after each queue management call. However, if required, applications can take over control of DB2 commit processing themselves.

MERVA ESA direct queue management commit processing is turned off by setting the flag APICQMIT to 0. This must be done before the first queue management call. The application is then completely responsible for commit processing. The consequences concerning locks must be carefully considered. Other MERVA ESA applications might be blocked when a lock is held unnecessarily long; in some instances, a deadlock can even occur.

## Restrictions

With queue management using DB2, you cannot specify the character '\_' (underscore) in GET by KEY requests. The reason is that the underscore is a DB2 wildcard character (matching any single character). If you do specify the '\_' (underscore), ERRINVK (invalid key) is returned to the calling program. The error message issued by DSLEUD is:

```
DSL1033 064 000 DSLQMG error in program DSLEMSG2
```

With queue management using DB2, the queue management diagnostic return codes QFIRST (X'04') and QTHRESH (X'08') are not returned on PUT/MPUT/ROUTE requests.

## Trouble Shooting

See chapter 'Problem Determination' in the *MERVA for ESA V4 Installation Guide*:

1. DB2 attachment

- Under MVS CICS you must start the CICS DB2 attachment before you start MERVA ESA.

If the message

```
DSL006A MERVA startup failed in program 8, RC is 172
```

is displayed, start the DB2 attachment: `DSNC STRT xx`, where `xx` is the suffix specified with the `SUFFIX` parameter in the `RCT`.

- Under VSE CICS you must start the CICS DB2 attachment before you start MERVA ESA.

If MERVA startup fails with CICS abend code `AEY9`, start the DB2 attachment using the transaction code `CIRB`.

- Under IMS there is no need to start the DB2 attachment. You can check the status of the DB2 attachment with the command `/DIS SUBSYSTEM subsystem-name`.

## 2. If message

`DSL006A MERVA startup failed in program 8, RC is 168`

is displayed, check the journal for SQL errors `DSL491E`. Maybe a (re-) bind is necessary.

## 3. DQ SQLERROR command

Details of the last SQL error can be displayed with the MERVA `dq sqlerror` command. See the *MERVA for ESA V4 Operations Guide* for details.

## 4. DQ STATUS command

The status of the MERVA ESA queue database can be displayed with the MERVA `dq status` command. See the *MERVA for ESA V4 Operations Guide* for details.

---

## Using MERVA Link USS Gateway

The installation input is one file stored in the partitioned data set `MERVA.SDSLUSS0`. This file contains the archive of an OS/390 USS HFS directory. USS shell commands are used to copy the tape archive to the USS environment and to restore the HFS directory. For more information, refer to the *MERVA for ESA V4 Installation Guide*. The details of the MERVA Link USS customization are described in the *MERVA for ESA V4 Customization Guide*.

---

## Using MERVA-MQI Attachment for VSE

The attachment requires MQSeries for VSE/ESA Version 2.1. This version of MQSeries currently contains errors which impact basic functions of the attachment.

These functions are related to the handling of the COA (Confirm on arrival) and COD (Confirm on delivery) reports. The following restrictions apply:

- When messages are to be sent, you can only request a COA report **or** a COD report. You cannot request both report types simultaneously.  
In the process table `DSLKPROC`, you can specify either the parameter `COAWQ` or `CODWQ` when you define a send process (`DSLKPROC TYPE=SEND`).
- When a remote application sends messages to MQSeries for VSE/ESA V2.1, it cannot request a COA or COD report. That is, the application must not specify one of the following generic report options:
  - `MQRO_COA*`
  - `MQRO_COD*`

After intensively changing the set of MQSeries queues (adding, deleting, and modifying) MERVA ESA development observed that MQSeries for VSE V2.1 could not be initialized. That is, typing `MQSE I` on a CICS terminal resulted in an ASRA in the MQSeries program `MQPINIT2`. The solution was to delete and subsequently redefine the `MQF*` VSAM clusters which contain the MQSeries queues. All



messages in all of these queues were lost. This error may not occur in your MQSeries installation, but you should be aware of a potential problem which is more likely related to VSAM than to MQSeries.

MERVA ESA development has raised several APARs against MQSeries for VSE/ESA V2.1. These APARs describe the problems concerning the report options. All of these APARs are currently pending. The MQSeries for VSE/ESA change team is working to provide the required PTFs. As soon as the report option problems are solved, the MERVA ESA change team will provide a PTF for the MERVA-MQI attachment to supply the full support for the COA and COD report options.

Before using MQSeries for VSE/ESA V2.1, it is highly recommended that you install the latest PTF level. If you want to connect MQSeries for VSE/ESA V2.1 with MQSeries for Windows NT V5.1, an invalid FAP level may be indicated. When using SNA, make sure that PTF UQ35891 is installed. When using TCP/IP, the problem may still persist. You can find a list of available PTFs at <http://www-4.ibm.com/software/ts/mqseries/support/apars/mqvse21.html/>.

---

## SWIFT Link Parallel Processing

The *MERVA ESA Customization Guide* contains a separate chapter dedicated to the use of “SWIFT Link Parallel Processing”. Refer to this chapter for more details about this topic.

It is possible to split MERVA ESA installations and the corresponding message volume to achieve more throughput. The disadvantage of this method is that the messages and the infrastructure must be split also. It is complicated to integrate these messages afterwards in an off-line process.

SWIFT Link parallel processing allows the activation of multiple SWIFT Link servers in one MERVA ESA nucleus. The journal and queue data sets are not split over multiple systems.

The X.25 lines can be shared by parallel SWIFT Link servers. Each of these lines is a VTAM connection to MERVA ESA. That is, the lines as seen by SWIFT Link are logical lines which finally end up as SVCs (switched virtual circuits) on a physical X.25 line. The physical X.25 line to the S.W.I.F.T. network is controlled by MERVA Extended Connectivity. It is possible to run multiple SVCs on one physical X.25 line. Thus, the parallel SWIFT Link servers can share one physical X.25 line.

The SWIFT Link server program DWSDGPA is defined in the MERVA ESA nucleus program table DSLNPTT. One or more servers with the DWSDGPA program can be specified. Each of these servers uses a different descriptive name (DESC parameter). The descriptive name of the main SWIFT Link server is SWIFTII. The parallel servers must be defined as SWIFTIIx, where x stands for a letter A, B, or C. The additional SWIFT Link servers with the names SWIFTIIx must be defined in the nucleus server table (DSLNSVT) to run as subtasks.

## Restrictions

The parallel processing performance option should be considered only for large MVS installations with a high SWIFT message volume. If this option is chosen, the MERVA ESA nucleus should not run as a CICS transaction but as an MVS batch program or as an IMS BMP. In CICS installations the MERVA ESA nucleus can run



in a separate batch region. Starting of transactions in the CICS region is done by exploiting the CICS batch interface via the MERVA ESA transaction table.

Before multiple servers for the SWIFT Link are activated, a detailed trade-off analysis should be performed. The overall throughput of a system fulfilling the prerequisites can be expected to be higher than with a single SWIFT Link server. On the other hand, the logical terminals must be distributed over different logical terminal tables (DWSLTT). When only one single logical terminal with a high throughput requirement is logged-in, multiple SWIFT Link servers are not useful.

As the parallel servers share the MERVA ESA centralized resources, there is a limit to the number of these servers; it is not useful to have more than three additional SWIFT Link servers defined.

The operating and controlling of multiple SWIFT Links within one MERVA ESA system is more complicated. The SWIFT Link command router has to be used for operator commands to address the correct SWIFT Link server.

Nevertheless, the operation can be done from a single point of control, a CMD or MSC function, which is probably simpler than with multiple and split MERVA ESA systems, where commands are submitted from different sessions.

## Customization Hints

If you customize the DSLNSVT to use SWIFT Link parallel processing, you must specify PARM=SLPT in the DSLNUC entry in addition to the other definitions shown in the sample table DSLNSVT.

```
DSLNSV NAME=DSLNUC,SERVER=MAIN,PARM=SLPT
```

Note that this parameter cannot be used for parallel processing (subtasking) in a DSLNUC running as a CICS task. Also its use in an environment with primary and secondary nucleus instances is inhibited. This means that SWIFT Link parallel processing can only be exploited in a batch environment where the nucleus runs in a single batch region.

Each SWIFT Link server needs its own logical terminal table DWSLTTx. It is recommended to define the main logical terminal table DWSLTT, containing all the LTs used in the installation. Since DWSLTT is used by the authentication function, this allows maintenance of all records in the authenticator key file.

The other logical terminal tables DWSLTTx used by the parallel SWIFT Link servers should define only the logical terminals actually used by this server.

---

## Aspects of MERVA ESA V4.1 in a sysplex environment

MERVA ESA enables underlying subsystems to exploit facilities provided by a sysplex.

Enabling sysplex exploitation of subsystems used by MERVA ESA permits:

- The removal of any restrictions or constraints which prevent the underlying subsystem from exploiting sysplex.
- Dividing MERVA ESA into small entities which can be managed by different systems controlled by the MVS workload manager.
- Improved MERVA ESA availability
- Support of dynamic workload balancing between systems
- Support of data sharing between systems.

This is being realized in a staged approach.

The stage provided in this release is:

- Allow the use of DB2 for the MERVA ESA queue data set. Native DB2 features like restart/recovery, backup, etc., can be exploited.
- MERVA Intertask Communication via APPC/MVS or MQSeries queues to support the distribution of MERVA applications (batch programs, APIs) in a sysplex environment.  
The MERVA nucleus runs in one system; the applications can run in any other system within a sysplex.
- Allow distribution of MERVA ESA in a sysplex. In this case MERVA ESA consists of one primary and one secondary instance. The various MERVA ESA nucleus servers are unbundled and enable each MERVA ESA instance to provide the distinct service as defined in the nucleus server table (DSLNSVT). The MERVA ESA instances communicate via MERVA interservice communication using MQSeries.

To reach an acceptable performance level for the distributed nucleus servers, it is a requirement that MQSeries exploit shared queues using the coupling facility. Please note that the current MQSeries version does not yet support shared queues.

Applications such as batch jobs (DSLSDI, DSLSDO etc.), end-user interface (DSLEUD), and application programs (IMS TX, CICS TX etc.) which trigger MERVA ESA services or use MERVA ESA programs access MERVA ESA programs and services via the sysplex exploitable subsystems APPC/MVS (VTAM) or MQSeries ESA.

Application programs such as transactions are invoked with interfaces provided by the sysplex exploitable subsystem (IMS/ESA, CICS/ESA, APPC/MVS). It is up to the workload manager to assign the system in which the subsystem schedules the transaction.

MERVA ESA is still a long running task. Therefore, the system in which MERVA ESA runs is determined by the system parameters at MERVA ESA start time and is not yet subject to dynamic workload balancing. If multiple MERVA ESA instances are created, they must run in different systems.

The most heavily accessed data set is the MERVA ESA queue data set (QDS). The QDS under control of DB2 allows batch programs and API programs direct access from all systems within a sysplex (and even outside) without the need to access it via MERVA ESA.

---

## Intertask communication via MQSeries

If MERVA ESA runs as a BMP under IMS, the related server (DSLNTSM) which provides this facility must run under direct control of the nucleus (DSLNSVT: SERVER=MAIN). SERVER=TASK does not work because the MQSeries stub code for IMS (CSQQSTUB) does not run if invoked from a subsequent subtask.

Hints and Tips:

- If the requesting application indicates that intertask communication via MQSeries (DSLNICTM) recognizes MERVA NOT READY, note the following:
  - If it runs on the same system as MERVA ESA, then the name defined in parameters ITCMSND and ITCMRCV must be one send/receive queue. This

- means that no transmission queue is used, and the send/receive queue must be enabled for put and get. Choose a name which reflects this attribute.
- If it runs on a different system than MERVA ESA, then the name defined in parameter ITCMSND must be a send queue, and the name defined in parameter ITCMRCV must be a receive queue. A transmission queue is then used. A channel must be defined and started by the administrator between the requesting and the serving system. To test the connection between the message queue managers (MQMs) on both system, use the MQI ping command.
- If a requesting application continues issuing message DSL387I after message DSL008I, then no message has arrived either on the local receive queue or on the local reply-to queue. Check the messages issued on SYSPRINT on both the requesting and the responding side. Compare the printed queue names with those defined during MQI queue resource definition, checking especially to see that the local definition of the remote send queue (QREMOTE) corresponds to the remotely defined local receive queue (QLOCAL). If a mismatch is found, either correct the queue name definition in DSLPRM or the MQI queue resource definition.

---

## Interservice Communication via MQSeries

Interservice communication should only be used if the underlying MQSeries subsystem supports shared queues residing on a coupling facility and communicates via XCF. Otherwise, serious performance degradation may arise.

When defining the related MQI queues, the MAXMSGL parameter should have a minimum value of 65535. This value is sufficient for a message length of 65244 bytes. It should not be decreased unless there is an urgent need as this leads to frequent message segmentation and consequently poorer performance.

Only one primary and one secondary nucleus is currently allowed. This is a restriction to avoid possible deadlock or abend situations.

The only central service provided by MERVA ESA which can run on a secondary MERVA ESA instance is the user-file maintenance. Customer-provided central services can also be run if the standard interfaces provided by MERVA ESA are used.

Servers which execute the queue management calls TYPE=SET and TYPE=RESET must run in the same address space as DSLQMGT. This means that all these servers must be moved together with DSLQMGT in case the server is moved to a secondary nucleus. The servers which use the ECB services TYPE=SET and TYPE=RESET include the SWIFT Link programs DWSDLK and DWSDGPA as well as the telex station program ENLSTPL.

The MQSeries server (DSLNMQS) which provides this facility must run as a subtask. It cannot run under an IMS BMP because the MQSeries stub code (CSQQSTUB) cannot be used in a program which runs as a subtask. You can run MERVA ESA as a batch job to use interservice communication.

Diagnostic commands related to a certain MERVA ESA instance such as the DR, DRR, DRQA, and NTRC commands must be entered on the appropriate system since they are not routed by the primary MERVA ESA instance.

Hints and Tips:

- Carefully design MERVA ESA with multiple instances. Each instance needs one local receive queue and one local reply-to queue. Each instance needs as many remote send queues as it has partners (instances) to communicate with. Choose queue names which reflect the path, for example:
  - DSL.ISC.SYS1.SEND.NUC2 indicates that this MQI queue is for MERVA ESA using interservice communication which runs on system 1 to send request and datagram type messages to a MERVA ESA instance named NUC2.
  - DSL.ISC.SYS1.RECEIVE indicates that this MQI queue is for MERVA ESA using interservice communication which runs on system 1 to receive request and datagram type messages from any MERVA ESA instance.
  - DSL.ISC.SYS1.REPLY\_TO indicates that this MQI queue is for MERVA ESA using interservice communication which runs on system 1 to receive reply and report type messages from any MERVA ESA instance.
- Verify that a MQI sender channel and a MQI receiver channel are defined and started on each system. For communication tests, use the MQI ping command on each system.
 

It is this channel definition which connects the requesting MQI send queue with the corresponding MQI receive queue. Responses are sent back directly to the reply-to MQI queue of the requestor.
- Before starting any activity, verify that each MERVA ESA instance has reached its ready state. Also, check the printout issued on SYSPRINT on all instances.
- If an error message is issued or if you suspect a processing error even if no error message is issued, check the printout issued on SYSPRINT on all instances for possible extended hints and trace data.

---

## Batch Nucleus

If the MERVA ESA nucleus running in a batch region is to initiate transactions, the MERVA ESA transaction table DSLTXTT is mandatory. It extends the TRAN specification in a function table entry to allow transactions to be started in a separate CICS or IMS MPP region.

### Starting CICS transactions

- Specify an entry in DSLTXTT for each transaction to be initiated by the nucleus. METHOD must be CICSBATCH. Here is an example:

```

TXTT      TITLE 'MERVA ESA - SAMPLE Transaction Definition Table'
          COPY  DSLSYSET
DSLTXTT   DSLTXT TYPE=INITIAL
          DSLTXT NAME=DSLH,METHOD=CICSBATCH,SYSID=IVJACIFH
          DSLTXT NAME=DSLX,METHOD=CICSBATCH,SYSID=IVJACIFH
          DSLTXT NAME=EKAS,METHOD=CICSBATCH,SYSID=IVJACIFH
          DSLTXT NAME=EKAR,METHOD=CICSBATCH,SYSID=IVJACIFH
          DSLTXT NAME=DSLRL,METHOD=CICSBATCH,SYSID=IVJACIFH
          DSLTXT NAME=DSLRS,METHOD=CICSBATCH,SYSID=IVJACIFH
          DSLTXT TYPE=FINAL
          END

```

The end-user driver transaction DSLE is not started by the nucleus, therefore it does not appear in DSLTXTT.

- Specify CINTER=YES in DSLPRM. This allows inter-task communication to use inter- rather than intra-region communication. The ITC parameter is irrelevant and can remain unchanged.
- The RDO specifications for CICS External Interface, DFH\$EXCI, must be appended to the RDO group named in the GRPLIST parameter in the CICS startup JCL.

- In the SIT override parameters in the CICS startup JCL specify ISC=YES and IRCSTRT=YES.
- In the batch nucleus JCL add the CICS SDFHEXCI library to the STEPLIB concatenation.

## Starting IMS transactions

IMS transactions started by a batch nucleus are started using APPC/MVS. The necessary LU and TP names are specified in the DSLTXTT.

- In DSLTXTT, METHOD=APPCMVS must be specified for each transaction to be started by the nucleus.
- When transactions are initiated in the IMS region in this way the TUCB is prefixed by the transaction code; this means, the TUCB is at a different offset than when initiated by a MERVA nucleus running in an IMS BMP. Therefore, when starting user-written transactions, specify the MERVA provided mapping transaction DSLCIMAP in the DSLTXTT TPNAME parameter, and the user transaction name in parameter TPNMAP. DSLCIMAP extracts the TUCB and inserts it directly into the local IMS message queue of the transaction specified by TPNMAP.

To avoid unnecessary overhead, do not specify DSLCIMAP if your transaction does not refer to the TUCB.

There is no need to use DSLCIMAP with MERVA ESA transactions, except the ENLS transaction. All other MERVA ESA transactions can process a TUCB prefixed by the transaction code correctly.

Refer to “Defining the Transaction Table DSLTXTT” in *MERVA for ESA V4 Installation Guide* where these examples are discussed:

```
DSLTXT NAME=DSLH,METHOD=APPCMVS,SYMDEST=SYS1DEST,TPNMAP=USRH,LTERM=PRT7
DSLTXT NAME=DSLH,METHOD=APPCMVS,LUNAME=FD00IMS,TPNAME=DSLCLMAP,TPNMAP=USRH,LTERM=PRT7
```

---

## Journal Switching

In order to take advantage of the RESET parameter of the new JSWITCH command, the journal data sets must be allocated with the REUSE parameter. This parameter is omitted from the allocation JCL, member DSLAJOR in library SDSLINS0.

Add REUSE to the DEFINE CLUSTER statements in DSLAJOR like this:

```
...
DEFINE CLUSTER -
    (NAME(MERVA.JOURNAL.A) -                MODI
    REUSE -
    ERASE SHAREOPTIONS ( 2 3 ) -
    KEYS(20 1) RECSZ(1024 16000)) -
...
DEFINE CLUSTER -
    (NAME(MERVA.JOURNAL.B) -                MODI
    REUSE -
    ERASE SHAREOPTIONS ( 2 3 ) -
    KEYS(20 1) RECSZ(1024 16000)) -
...
```

Sample JCL DSLBJJ02 in library SDSLSAM0 is an example of how to automate archiving of the journal while MERVA ESA is active. Step 6 of this job will fail if the journal data sets have not been defined with REUSE as described here.

You may also need to add //SYSIN DD DUMMY to the IEBGEN step of the JCL procedure REXX in this sample JCL to avoid an IEBGENER error.

The sample JCL DSLBJJ02 contains job steps which execute the authorized command JSWITCH via REXX API. For successful execution of this authorized command, the API userid parameter APIUID in DSLPRM must start with the same three characters as the OPID parameter. The default for APIUID is MASAPI.

If the master operator status is administered in user file records, the OPID parameter must be coded as ///. In this case, the APIUID parameter should be changed to ///API.

---

## Automatic Transaction Initiation at MERVA Startup

A new option of the DSLFNT macro STATUS parameter called AUTO that allows transactions associated with a MERVA ESA function to be initiated automatically during MERVA ESA initialization.

This is useful, for example, with MQI Attachment connections. Adding STATUS=AUTO to the DSLMRSTR function causes the MQI receive process to be automatically started at MERVA ESA startup, importing into MERVA ESA any messages received by the local MQ Series Queue Manager while MERVA ESA was inactive.

---

## REXX execs: removing sequence numbers

A number of REXX execs are provided in MERVA ESA. Sequence numbers are generated in these procedures during the product build process. These sequence numbers will cause errors if the procedures are copied to libraries that do not use fixed-block 80 records, or have NUMBER OFF in the profile.

To remove sequence numbers, use the ISPF editor CHANGE command:

```
c all p=' ' 72 80
```

---

## Chapter 6. Workstation Based Functions

You can use your existing MERVA OS/2 V3.3 USE/BKE workstation with MERVA ESA V4.1.

However, it is highly recommended that you to migrate your MERVA OS/2 installation to MERVA USE & Branch for Windows NT using the migration import and export programs. MERVA USE & Branch for Windows NT is part of the product MERVA ESA Components V4, program number 5648-B30.

Migration is described in the book *MERVA USE & Branch for Windows NT Migration Guide*, SH12-6393. An online version of this book with the latest changes is located on the Internet. You can access it via a link on the MERVA homepage.





---

## Chapter 7. Migrating Traffic Reconciliation V3.3 to V4

When migrating a V3.3 Traffic Reconciliation installation to V4, consider the following:

- All customization tables must be regenerated. These are IMRPRM, the scanner control tables, the table filter table, and the query table.  
A number of detailed changes have been made to the customization macro parameters but, since V3.3 tables can be processed by the V4 macros, conversion to the new and changed parameters is not necessary. It is nonetheless recommended.
- When regenerating IMRPRM, assembler errors are possible due to the improved consistency and completeness checks in macro IMRPARM. Your IMRPRM module must be changed accordingly. The following parameters are no longer accepted:
  - QNAME
  - SRVSQLID
  - USER
- DB2 tables.
  - V3.3 PTFs UQ14845 and UQ14846 added column EKEY to the Telex Link and MERVA Link HDR tables. If you have not applied these PTFs, you will need to:
    - Unload the tables concerned
    - Add the EKEY column to the tables
    - Reload the tables, adding the PKEY column value also to the EKEY column

The JCL needed to unload and reload a DB2 table is discussed in the next section.

- SWIFT tables containing a MIR or MOR must be expanded to hold the MIR or MOR sub-fields. You need to:
  - Use the SQL ALTER statement to define the new columns. Samples IMRAFIN and IMRAGPA contain the necessary statements.
  - If you want to access existing rows using the new columns, you must update the modified tables by copying the MIR and MOR values to the new columns. Samples IMRUFIN and IMRUGPA contain the necessary SQL UPDATE statements.

Alternatively, if the tables contain large amounts of data, you may prefer to use the unload and reload. This is described below.

Traffic Reconciliation itself does not reference these new columns so does not require this step.

- Column MSG\_CATEGORIE in the MERVA Link HDR tables must be renamed to MSG\_CATEGORY. Any queries or programs you have written that refer to this column must be changed.
- Flip-flop data sets. The event record formats have changed, so the flip-flop must be completely processed by V3.3 before migration. After MERVA ESA V3.3 has terminated for the last time, the insertion transaction should be initiated manually twice from a CICS or IMS terminal to ensure all events from both flip-flop data sets are inserted to DB2.

- MERVA ESA customization tables are regenerated during the installation process.
- Users of MCB-based queries should be informed of the changed PF-key usages.

---

## Migrating DB2 tables

To unload and then reload DB2 tables, use the DB2 sample program DSNTIAUL together with the DB2 load utility. DSNTIAUL is described in *DB2 for OS/390 Installation Guide*, and the load utility in *DB2 for OS/390 Utility Guide and Reference*.

For example, to unload the TLXIHDR table, add the new EKEY column to the table, and reload the data, adding the PKEY column to the EKEY column, proceed as follows:

1. Unload the TLXIHDR table.

The DB2 sample program runs under the control of the TSO terminal monitor program IKJEFT01. Here is an example of the JCL required to unload TLXIHDR using DSNTIAUL:

```
//UNLOAD EXEC PGM=IKJEFT01,DYNAMNBR=20,COND=(4,LT)
//STEPLIB DD DSN=SYS1.DSNDB2.LOADLIB,DISP=SHR
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
    DSN SYSTEM(DB2)
    RUN PROGRAM(DSNTIAUL) -
        PARM('SQL') -
        LIB('SYS1.DSNDB2.LOADLIB')
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSREC00 DD DSN=h1q.TLXIHDR.SYSREC00,
//          UNIT=SYSDA,SPACE=(104,(1000,100)),DISP=(,CATLG)
//SYSPUNCH DD DSN=h1q.TLXIHDR.SYSPUNCH,
//          UNIT=SYSDA,SPACE=(80,(10,10)),DISP=(,CATLG)
//SYSIN DD *,DLM=$$
    SET CURRENT SQLID = uid;
    LOCK TABLE TLXIHDR IN SHARE MODE;
    SELECT * FROM TLXIHDR;
$$
/*
```

The unloaded table is written to SYSREC00, and the LOAD utility control statements to SYSPUNCH.

2. Add column EKEY to table TLXIHDR.

You can drop the TLXIHDR table and re-define it using the CREATE TABLE statement provided by Traffic Reconciliation, or you can use the SQL ALTER TABLE statement to add a column to your existing table. Refer to “Altering Your Database Design” in *DB2 for OS/390 Administration Guide* for a discussion on the merits of dropping tables versus the use of the ALTER statement.

You can execute SQL statements in batch using the DB2 sample program DSNTDP2. DSNTDP2, like DSNTIAUL, runs under the TSO terminal monitor program IKJEFT01. The following JCL would add column EKEY using ALTER TABLE:

```
//DSNTEP2 EXEC PGM=IKJEFT01,DYNAMNBR=20
//STEPLIB DD DSN=SYS1.DSNDB2.LOADLIB,DISP=SHR
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSTSIN DD *
    DSN SYSTEM(DB2)
    RUN PROGRAM(DSNTDP2) PLAN(DSNTDP2) LIB('SYS1.DSNDB2.LOADLIB')
END
```

```

/*
//SYSIN DD *
SET CURRENT SQLID = uid;
ALTER TABLE TLXIHDR ADD EKEY TIMESTAMP;
/*

```

3. Modify the load utility control statements.

DSNTIAUL in the first step generates the necessary control statements for the DB2 load utility to reload the unloaded data. The statements are written to the DSNTIAUL SYSPUNCH data set. They look something like this:

```

LOAD DATA LOG YES INDDN SYSREC00 INTO TABLE
uid.TLXIHDR
(
PKEY                                POSITION(      1      )
TIMESTAMP EXTERNAL(    26) ,
DKEY                                POSITION(     27      )
TIMESTAMP EXTERNAL(    26) ,
UMR                                 POSITION(     53      )
CHAR(                               28) ,
APDU_ID                             POSITION(     81      )
CHAR(                               6) ,
STATION                             POSITION(     87      )
CHAR(                               8) ,
SESSION                             POSITION(     95      )
CHAR(                               4) ,
SEQUENCE                            POSITION(     99      )
CHAR(                               4) ,
O_SESSION                           POSITION(    103      )
CHAR(                               4) ,
O_SEQUENCE                           POSITION(    107      )
CHAR(                               4) ,
ACK_ID                              POSITION(    111      )
CHAR(                               3) ,
ACK_REASON                           POSITION(    114      )
CHAR(                               4) ,
EXCEPTION                           POSITION(    118      )
CHAR(                               1)
)

```

These statements must be changed so that the PKEY column is also added to the EKEY column. To do this add the following 2 lines to the above statements immediately before the DKEY line:

```

EKEY                                POSITION(      1      )
TIMESTAMP EXTERNAL(    26) ,

```

4. Re-load the TLXIHDR data.

The following is an example of the JCL needed to run the load utility to reload the TLXIHDR table unloaded by DSNTIAUL. SYSIN specifies the control statement data set modified in the previous step.

```

//LOAD EXEC DSNUPROC,PARM='DB2'
//STEPLIB DD DSN=SYS1.DSNDB2.LOADLIB,DISP=SHR
//DSNTRACE DD SYSOUT=*
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01 DD UNIT=SYSDA,SPACE=(104,(1000,100),,,ROUND)
//SYSUT1 DD UNIT=SYSDA,SPACE=(104,(1000,100),,,ROUND)
//SORTOUT DD UNIT=SYSDA,SPACE=(104,(1000,100),,,ROUND)
//SYSMAP DD UNIT=SYSDA,SPACE=(104,(1000,100),,,ROUND)
//SYSERR DD UNIT=SYSDA,SPACE=(104,(1000,100),,,ROUND)
//SYSREC00 DD DSN=h1q.TLXIHDR.SYSREC00,
// DISP=(OLD,KEEP)
//SYSIN DD DSN=h1q.TLXIHDR.SYSPUNCH,
// DISP=(OLD,KEEP)
/*

```

---

## Converting IMRPRM

Changes to your V3.3 IMRPRM parameter module may be necessary because of the improved checking. In addition a number of simplifications have been incorporated.

To convert a V3.3 IMRPRM to V4:

- Replace each occurrence of macro **IMRPxxx** by **IMRPARM**. Since **EVENT** is the default value for the IMRPRM parameter **TYPE**, **TYPE** can be omitted. Note that all **TYPE=EVENT** entries must immediately follow the corresponding **TYPE=MONITOR** specification.
- Remove the **QNAME** parameter. The DSLPRM **NAME** parameter is used instead of **QNAME**.
- Remove the **SRVSQLID** parameter. You are recommended to bind the IMRSQLP plan with **DYNAMICRULES=BIND**.
- Change **FFTRESH** to **FFTHRESH**.
- Replace the **MSGID** and **FORMID** parameters in the telex monitor specification by **TLXFLDS**.
- In the queue and telex monitor specifications, change **CONTROL** to **SCANTAB**.
- In the MERVA Link specifications change any **MCB** keyword to **MTYPE**.
- The first subparameter of the **EVENT** parameter in a MERVA Link **TYPE=EVENT** specification is now mandatory.
- Remove the **USER** parameter. You must specify both the MERVA Link MFS exit and the Traffic Reconciliation MFS exit to extract MERVA Link events in the MERVA Link partner table.
- Remove the **APPC** parameter.

---

## Converting Scanner Control Tables

Like IMRPRM the use of the scanner control macros **IMRQUS** and **IMRTXS** has been simplified to one macro, **IMRSCAN**.

To convert V3.3 scanner control tables to V4 it is only necessary to:

- Replace all occurrences of “**IMRQUS**” by “**IMRSCAN**”.
- Replace all occurrences of “**IMRTXS**” by “**IMRSCAN**”.
- Change any **LIN** parameter to **LINE**.

To improve readability, you can change any EBCDIC characters in hexadecimal **BEG** or **END** tags to character notation.

---

## Converting the Table Filter

The **IMRFLD** macro has been replaced in V4 by macro **IMRTFL** with **TYPE=FIELD**.

To convert your V3.3 table filter to V4:

- Change each occurrence of **IMRFLD** to **IMRTFL**. Because **FIELD** is the default **TYPE**, you do not need to add a **TYPE=FIELD** parameter.
- Change the **TYPE=** specification for each table from **ENTRY** to **TABLE**.

---

## Queue Management Batch Utility

The V3.3 Queue Management Batch Utility, IMRQMGB, has been incorporated into the MERVA ESA base product and renamed DSLSQB. If you use this utility, you must change the program name and the STEPLIB in your JCL.

---

## Errors and mis-prints in the manual

The following errors and mis-prints have been found in the Traffic Reconciliation manual, SH12-6392-00.

- page iv, Summary of Changes: Under QRY panel, the bullet beginning “The sample access control table...” should read “The sample scanner control table...”.
- page 63, Chapter 8 Customizing, IMRTFL Macro, INSERT parameter: The default is YES, not NO as indicated in the figure.
- page 69, Chapter 8 Customizing, IMRSCAN macro, SECTION parameter: In both places where the text reads “...the buffer generated by the telex MCB” it should read “...the buffer generated by the TLXFLDS MCB”.
- page 87, Chapter 8 Customizing, Financial Message Capture, in the section “Differences from SWIFT Link Monitor”: Delete the second sentence. Acknowledgements are not captured. Only SWIFT messages containing an application header are captured.



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## Appendix. Notices

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