RELIABLE FILE TRANSFER

HULFT7e

New Functions and Incompatibility Manual

Note

* Reproduction of this document by any means, in whole or in part, without the prior written consent of the manufacturer, is strictly prohibited by copyright regulations.

* The contents of this document and its corresponding product are subject to change without prior notice.

Preface

This document describes added or improved functions in HULFT7 as well as compatibilities and restrictions on functions between the new release and lower versions. It is for the individuals who engage in upgrading version, level, and revision as well as designing and operating applications or systems that utilize HULFT.

• Product Covered in This Document

The target products of this document are as follows:

	Product Name	Japanese edition	English edition
Main Programs	HULFT main body	✓	✓
Option Products	HULFT ManagerConnection Option	✓	✓
	HULFT Cipher Option	✓	N/A
	HULFT Cipher Option (C4S)	✓	N/A
	HULFT Cipher Option (AES)	✓	N/A
Related Products	HULFT Manager	✓	✓
	HULFT Web Manager	✓	N/A
	HULFT DataLink Edition	✓	N/A
	HULFT Surveillance Edition	✓	N/A

✓ :The product is available

N/A :The product is Not available

[Remarks] This document explains the restrictions of partner products at connection destination in the case where HULFT7 and HULFT family products cooperate.

• Structure of This Document

This document is composed of following chapters:

Chapter 1 Additional Functions

This chapter explains functions newly added to HULFT7.

Chapter 2 Improved Functions

This chapter explains functions improved in HULFT7.

Chapter 3 Incompatibilities with HULFT6

This chapter explains functions changed in HULFT7, which place restrictions on HULFT6.

Chapter 4 Incompatibilities with HULFT5

This chapter explains functions changed in HULFT7, which place restrictions on HULFT5.

Chapter 5 Products That Require Version/Level/Revision Upgrade

This chapter explains the products that require version, level, or revision upgrade when using HULFT7.

Chapter 6 Functional Restrictions of HULFT7

This chapter explains the functional restrictions when using HULFT7.

Chapter 7 Restriction on Cooperation with HULFT-HUB

This chapter explains restrictions on combination with lower version and operational functions as well as points to be noted, when establishing cooperation between HULFT and HULFT-HUB.

Appendix 1 Application of Patches

This appendix explains the patches applied to the lower version of HULFT for Mainframe.

<Version, Level, and Revision of HULFT>

Version information is displayed under following format:

Example: 7. 0. 0

a) b) c)

a): Version

b): Level

c): Revision

Upgrade of the number appeared in a)—Version Upgrade

Upgrade of the number appeared in b)—Level Upgrade

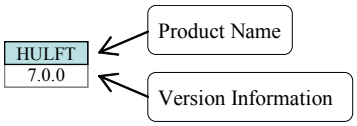
Upgrade of the number appeared in c)—Revision Upgrade

In this document, version range including the minor revision is described as shown below:

- Version x.x.x or higher: Product of the same or higher version
  Example) Ver.6.3.0 or higher: Ver.6.3.0, Ver.6.3.0A, Ver.7.0.0.....
- lower than Version x.x.x : Product of the versions lower than the specified version
  Example) lower than Ver.6.3.0: Ver.6.2.0, Ver.6.2.3, Ver.6.2.3A, ...

• Symbols and Notations

In this document, the target product names and the version information are iconified. The icon is composed of the part that shows the product name and the one that indicates version information.



<Notation of Applicable Product>

Main Programs

HULFT HULFT main body of HULFT

SAN SAN HULFT-SAN

There is no icon for the description of option products. The required option products for using a function are described in remarks of the detailed functional explanation.

<Notation Example of Applicable Version>

7.0.0 Ver.7.0.0

6.3.0 Ver.6.3.0

6.0.5 Ver.6.0.5

<Management Information Settings>

Uppercase characters:	Uppercase characters indicate that uppercase alphabets (A-Z) can be used.
Lowercase characters:	Lowercase characters indicate that lowercase alphabets (a-z) can be used.
Alphabets:	Alphabets indicate that both uppercase (A-Z) and lowercase (a-z) alphabets can be used.
Alphanumeric characters:	Alphanumeric characters indicate uppercase and lowercase alphabets (A-Z, a-z) as well as numeral (0-9) can be used.

Table of Contents

Chapter 1

Additional Functions

This chapter explains newly introduced functions in HULFT7.

1.1 List of Additional Functions

A list of new add-on functions for HULFT7 is given in this section. For the details of each function, refer to the sections after 1.2.

Icons Shown in the Column 'Available in'

- **The additional function with below icon means the function is available in the shown product version or higher. For example, the function with the icon below is available in HULFT Ver.7.0.0 or higher.**

HULFT
7.0.0

Common Additional Functions	
Function	Available in
1.2.1 Security Support Functions	HULFT 7.0.0
1.2.2 Code Conversion	HULFT 7.0.0
Additional Functions Unique to HULFT for Mainframe	
Function	Available in
1.3.1 Enhancement of User Authentication in Connection from HULFT Manager	HULFT 7.0.0
1.3.2 Sending and Receiving of Variable-Length File with Record Descriptor Word (RDW)	HULFT 7.0.0
Additional Functions Unique to HULFT for UNIX/Linux	
Function	Available in
1.4.1 Support for UTF-8 System Locale	HULFT 7.0.0
Additional Functions Unique to HULFT for Windows	
Function	Available in
1.5.1 Alteration in HULFT Management Screen	HULFT 7.0.0
Additional Functions Unique to HULFT Manager	
Function	Available in
1.6.1 User Information	HULFT 7.0.0
1.6.2 Mapping Settings	HULFT 7.0.0
1.6.3 Login Status Management	HULFT 7.0.0
1.6.4 Import of User Information	HULFT 7.0.0
1.6.5 Export of User Information	HULFT 7.0.0
1.6.6 Enhancement in Acquisition and Distribution of Management Information	HULFT 7.0.0
1.6.7 Outputting of Operation Log	HULFT 7.0.0
1.6.8 Outputting Search Conditions in CSV	HULFT 7.0.0
1.6.9 Alteration in HULFT Manager	HULFT 7.0.0

1.2 Common Additional Functions

1.2.1 Security Support Functions

HULFT 7.0.0

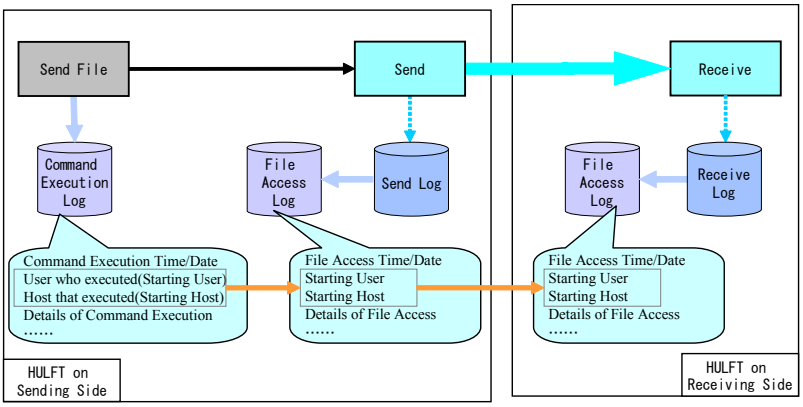
(1) Outputting of operation log

The operation log now becomes available to keep the records that indicate what having been done by whom when updating system files or executing commands. You can have the system output the target records by specifying conditions such as names of user, types of operation, and date of processing concerning the operation logs that are kept.

When suspicious log records of sending or receiving are found, or an improper value is set to management information, you can identify unlawful computer access or the operational mistakes by examining the corresponding operation logs.

In addition, you can have HULFT notify the User ID on OS and the ID of the Management Information Security to the host at the connection destination when issuing requests or executing commands. The notified User ID is kept in the operation log.

You can select whether to notify the user ID or not on a host basis, depending upon operational environment.



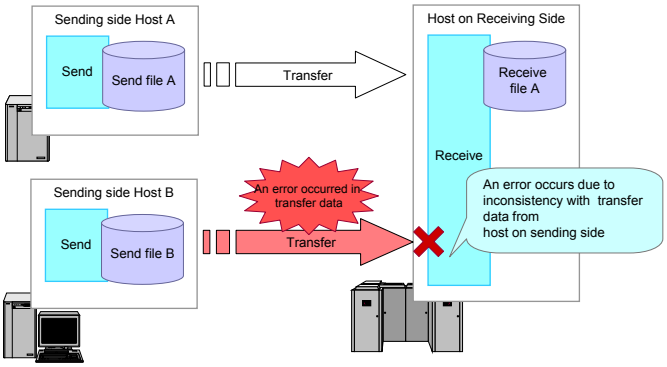
Regarding the starting user and the starting host in sending and receiving, information on the requestor host is taken over.

(2) Verification of consistency in transfer data

In HULFT Ver.7, you can verify the consistency between the data received by the host on the receiving side and those transferred by the host on the sending side.

With the verification function of consistency, the host on the receiving side can detect the errors occurred in the middle of transferring for some reason or other.

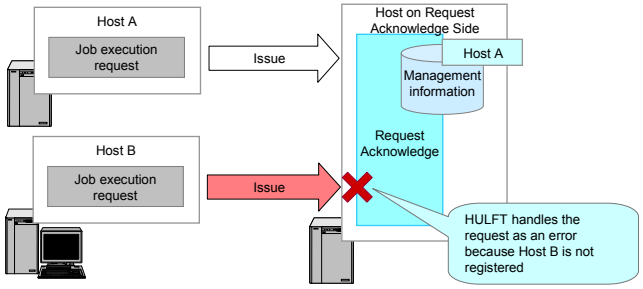
To use the verification function of consistency, the hosts on both sending side and receiving side should install HULFT Ver.7 or higher.



(3) Checking requestor host when acknowledging service request

When the Request Acknowledge system acknowledges the requests of services, the function to check whether the requests are issued by registered hosts or not is now available. This allows users to refuse the connection from unintended host.

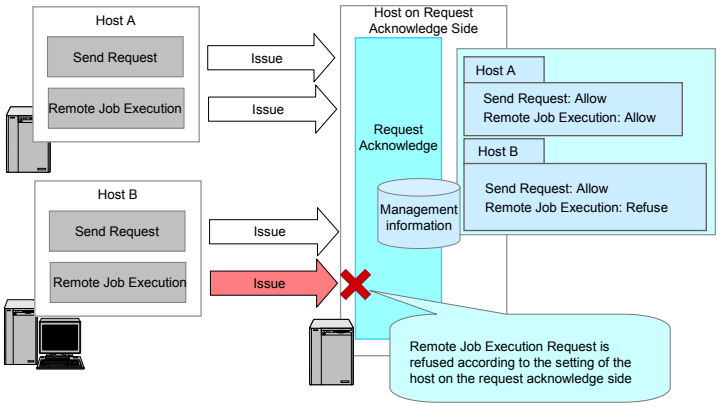
With the requestor host check function, you can refuse the unintended requests from the hosts installed HULFT lower than Ver.7 as well as the undesired connection among the hosts installed HULFT Ver.7.



(4) Setting function to acknowledge requests on service request basis

In acknowledgement of service requests by the Request Acknowledge system, the function to set whether to grant acknowledgement according to service types issued by the host registered in the Host Information of HULFT is now available.

With the request acknowledge setting function according to service types, you can refuse the disallowed service requests from the hosts installed HULFT lower than Ver.7 as well as the connection among the hosts installed HULFT Ver.7.

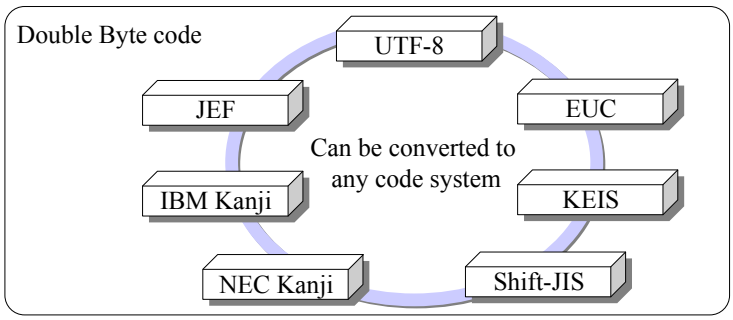


1.2.2 Code Conversion

HULFT 7.0.0

(1) Support for UTF-8

In HULFT Ver.7, UTF-8 is now added to the options for available codes. You can transfer data with the system locale that used UTF-8, which allows you to cope with more various user environments.



[Note]

- **Code conversion to or from UTF-8 is not available on the side of Mainframe.**
- **Specifying UTF-8 as the Kanji Code Type of system is available only on HULFT for UNIX/Linux.**

1.3 Additional Functions Unique to HULFT for Mainframe

1.3.1 Enhancement of User Authentication in Connection from HULFT Manager

HULFT 7.0.0

In HULFT Ver.7, user authentication by using the User ID and the Password registered in RACF (Resource Access Control Facility) is now available. RACF is a function provided by IBM Security Server.

Whether using the conventional user definition file or using RACF can be specified depending upon how you operate the authentication. The enhancement of user authentication in connection from HULFT Manager is available on assumption that RACF is introduced to the target host and it is activated when being connected from HULFT Manager.

1.3.2 Sending and Receiving of Variable-Length File with Record Descriptor Word (RDW)

HULFT 7.0.0

Where the record type of the file to be sent is variable length, transferring the file with the Record Descriptor Word (RDW) is now available. Moreover, you can write the as-is transfer data with the Record Descriptor Word (RDW) to the file to be received as well.

Sending with RDW

In sending a file, sending with RDW adds the Record Descriptor Word (RDW) to the file to be sent to perform sending. (Only when binary transfer is specified) The Sending with RDW is enabled only when the record type of the file to be sent is variable length. To carry out sending with RDW, specify 'Y(Yes)' for the Sending with RDW in the Send Management Information. The length of the Record Descriptor Word (RDW) is 4 bytes per record. The size of the transfer data includes the length of the Record Descriptor Word (RDW).

Receiving with RDW

In receiving a file, receiving with RDW can receive the sent data to which the Record Descriptor Word (RDW) has been added. The Receiving with RDW is enabled only when the record type of the file to be received is variable length. To carry out receiving the transfer data with RDW, specify 'Y(Yes)' for the Receiving with RDW in the Receive Management Information. In receiving, HULFT writes the transfer data to the file to be received by using the Record Descriptor Word (RDW) added to the transfer data. You cannot execute the Receiving with RDW, when the transfer data is not added the Record Descriptor Word (RDW).

1.4 Additional Functions Unique to HULFT for UNIX/Linux

1.4.1 Support for UTF-8 System Locale

HULFT 7.0.0

In HULFT Ver.7, UTF-8 system locale has been added to the operation environment of HULFT for UNIX/Linux. You can use UTF-8 for the screen display as well as input and output file. The users who have been used Shift-JIS or EUC locale in HULFT Ver.6 can change the settings to the UTF-8 system locale when they install HULFT Ver.7.

1.5 Additional Functions Unique to HULFT for Windows

1.5.1 Alteration in HULFT Management Screen

HULFT 7.0.0

HULFT Management screen is thoroughly revised, and following functions have been added:

- Data filtering is now available on list screens.
- Setting of column display is now available on list screens.
- The Descriptions of errors are always displayed on the detail information sections of the log screens.
- Saving and copying of the information on the Console is now available.

1.6 Additional Functions Unique to HULFT Manager

1.6.1 User Information

HULFT 7.0.0

You can specify the users who can use HULFT Manager, and grant permission to access to the intended users or refuse the access by unintended users in accordance with the functions of HULFT Manager.
In addition, setting password is now available as well.

1.6.2 Mapping Settings

HULFT 7.0.0

You can map the users of HULFT Manager with the users of the Management Screen Security specified by HULFT at the connection destination. This function enables you to skip the specification of the User ID and the Password when you connect to HULFT after logging on to HULFT Manager.

1.6.3 Login Status Management

HULFT 7.0.0

The name of users who logged on to HULFT Manager as well as the Login and Logout time/date are now displayed in a list. In addition, the Login Count and the Last Login Date can be displayed as well. This function enables you to examine the access status and frequency on a user basis. You can also utilize this function to delete unnecessary users.

1.6.4 Import of User Information

HULFT 7.0.0

You can import the User Information that manages the access permission from HULFT Manager. This function enables you to switch over from the Trial version to the Product version swiftly.

1.6.5 Export of User Information

HULFT 7.0.0

You can export the User Information that manages the access permission from HULFT Manager. This function enables you to switch over from the Trial version to the Product version swiftly.

1.6.6 Enhancement in Acquisition and Distribution of Management Information

HULFT 7.0.0

You can acquire management information from more than one client at a time, and modify them to re-distribute the altered information to each client. This function enables you to edit management information by using other tools as well as to back up or restore the management information, because you can import or export the collected management information to CSV files.

1.6.7 Outputting of Operation Log

HULFT 7.0.0

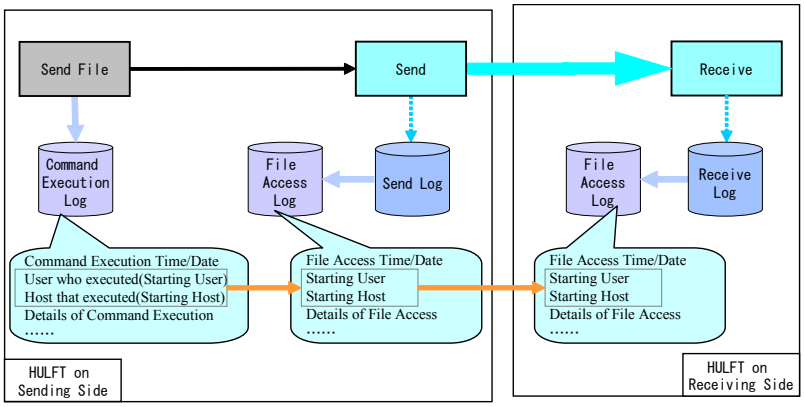
The operation log now becomes available to keep the records that indicate what having been done by whom when updating system files or executing commands. You can have the system output the target records by specifying conditions such as names of user, types of operation, and date of processing concerning the operation logs that are kept.

When suspicious log records of sending or receiving are found, or an improper value is set to management information, you can identify unlawful computer access or the operational mistakes by examining the corresponding operation logs.

In addition, you can have HULFT notify the User ID on OS and the ID of the Management Information Security to the host at the connection destination when issuing requests or executing commands.

The notified User ID is kept in the operation log.

You can select whether to notify the user ID or not on a host basis, depending upon operational environment.



Regarding the starting user and the starting host in sending and receiving, information on the requestor host is taken over.

1.6.8 Outputting Search Conditions in CSV

HULFT 7.0.0

You can select whether to output search conditions in use, when you output management information and logs with CSV Output function.

1.6.9 Alteration in HULFT Manager

HULFT 7.0.0

HULFT Manager is thoroughly revised, and following functions have been added:

- Data filtering is now available on list screens.
- Setting of column display is now available on list screens.
- The Descriptions of errors are always displayed on the detail information sections of the log screens.

~~~~~~~~~~~~~~~~~~~~~~~~ Memo ~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~

Chapter 2

Improved Functions

This chapter explains functions improved in HULFT7.

2.1 List of Improved Functions

A list of functions improved in HULFT7 is given in this section. For the details of each function, refer to the sections after 2.2.

Icons Shown in the Column 'Available in'

- **The improved function with below icon means the function is available in the shown product version or higher. For example, the function with the icon below is available in HULFT Ver.7.0.0 or higher.**

Common Improved Functions	
Function	Available in
2.2.1 Improvement in Transfer Speed by Selecting Data Transfer Method	HULFT 7.0.0
2.2.2 Support for Character Added in Windows Vista	HULFT 7.0.0
2.2.3 Support for External Character in Variable Length	HULFT 7.0.0
Improved Functions Unique to HULFT for Mainframe	
Function	Available in
2.3.1 Outputting of Details of Host Information	HULFT 7.0.0
2.3.2 Extension of Host Name Field in Outputting Receive Management Information	HULFT 7.0.0
2.3.3 Specification of Maximum Value to Determine Successful Termination of Job Execution	HULFT 7.0.0
2.3.4 Provision of setting options to Retry for Accessing JCL Library	HULFT 7.0.0
2.3.5 Sectioning of Management Information Update Screen	HULFT 7.0.0
Improved Functions Unique to HULFT for UNIX/Linux and HULFT for NSK	
Function	Available in
2.4.1 Outputting Trace Log (V7 Header)	HULFT 7.0.0
2.4.2 Modification in Directory That Stores Shared Library	HULFT 7.1.2
Improved Functions Unique to HULFT for Windows	
Function	Available in
2.5.1 Extension in Account Settings	HULFT 7.0.0
Improved Functions Unique to HULFT for i5OS	
Function	Available in
2.6.1 Improvement in Timeout When being Connected from HULFT Manager	HULFT 7.0.0
2.6.2 Improvement in Creation of Log Files	HULFT 7.0.0

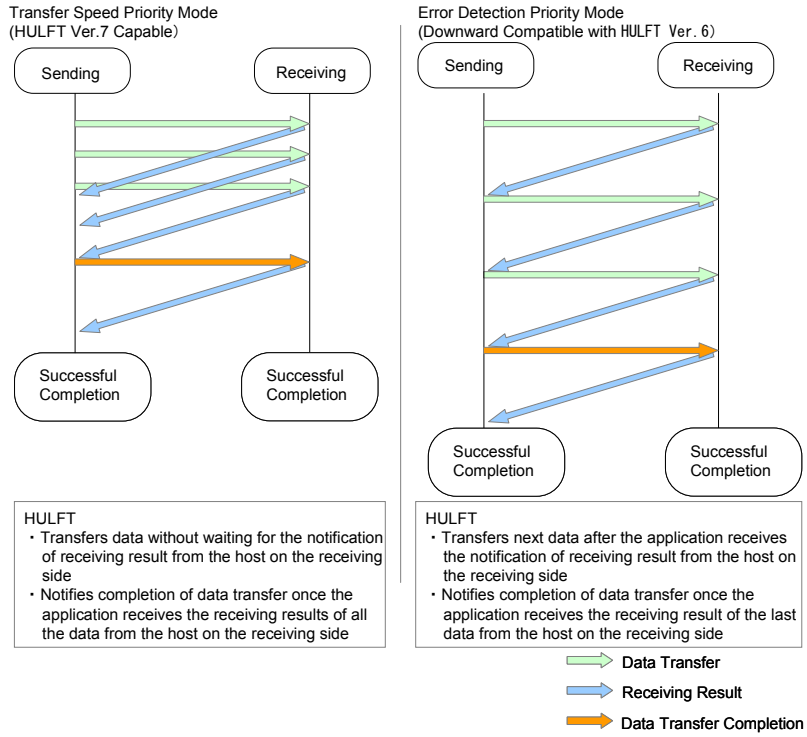
2.2 Common Improved Functions

2.2.1 Improvement in Transfer Speed by Selecting Data Transfer Method

HULFT 7.0.0

In HULFT Ver.7, the Transfer Speed Priority Mode has been added to data transfer method. (Framed Message Transfer) The feature allows you to select the Transfer Speed Priority Mode as well as the conventional Error Detection Priority Mode in accordance with the environment of users. Using the Transfer Speed Priority Mode improves transfer speed in high-speed network environment and large data transfer.

At the time of initial installation of HULFT Ver.7, the Framed Message Transfer Type is set to the Transfer Speed Priority Mode. To improve transfer speed in the Transfer Speed Priority Mode, you should set the Transfer Block Size to the optimum value of the network where HULFT has been running.



To use the Transfer Speed Priority Mode, both sending host and receiving host should use HULFT Ver.7 or higher. In addition, HUB-Server to be routed through should be Ver.2.2 or higher, if these hosts use HULFT-HUB. If you use HULFT of lower version (namely, HULFT Ver.6 or lower), data transfer is performed in the Error Detection Priority Mode.

If there is no improvement in transfer speed despite the specification of the Transfer Speed Priority Mode, you should change the settings on transfer. For details, refer to *Administration Manual*.

2.2.2 Support for Character Added in Windows Vista

HULFT 7.0.0

HULFT now provides support for JIS2004. Among the characters that have been newly added to JIS level 3 and JIS level 4, HULFT offers template sample files of 2642 characters prepared by Shift-JIS/UTF-8. (Available only in HULFT for UNIX/Linux, HULFT for NSK, and HULFT for Windows)

2.2.3 Support for External Character in Variable Length

HULFT 7.0.0

In HULFT Ver.7, you can select either fixed-length mode (compatible with HULFT Ver.6) or variable-length mode (compatible with HULFT Ver.7) for the mode of code conversion. To select a mode, specify the Code Conversion Mode in the System Environment Settings. The default value is set to the mode to carry out code conversion in fixed length. However, if UTF-8 is source or destination code type of conversion, HULFT performs code conversion in variable-length mode.

- Mode to perform code conversion in fixed length (HULFT6 mode)
  - Source code of conversion

    EUC: Fixed length of 2 or 3 bytes

    Other codes: Fixed length of 2 bytes
  - Destination code of conversion

    Fixed length of 2 or 3 bytes
  - In the case of single byte, add a NULL (0x00) at the top of data so as to adjust the data to double bytes.

- Mode to perform code conversion in variable length (HULFT7 mode)

Input Code	Input Size	Output Size
Shift-JIS	2 bytes	1 to 4 bytes
EUC	2 or 3 bytes	1 to 4 bytes
UTF-8	2 to 4 bytes	1 to 4 bytes
IBM	2 bytes	1 to 4 bytes
JEF	2 bytes	1 to 4 bytes
KEIS	2 bytes	1 to 4 bytes
NEC	2 bytes	1 to 4 bytes

[Note] This support is not provided in HULFT for Mainframe.

2.3 Improved Functions Unique to HULFT for Mainframe

2.3.1 Outputting of Details of Host Information

HULFT 7.0.0

In the Host Information List Output program, displaying of all the fields is now available. You can select whether to output the fields in the conventional output mode used in HULFT Ver.6 or lower, or to output the fields in new output mode.

2.3.2 Extension of Host Name Field in Outputting Receive Management Information

HULFT 7.0.0

When outputting the Receive Management Information in which the Transfer Group ID is set, the Host Name field can be output up to 50 bytes.

2.3.3 Specification of Maximum Value to Determine Successful Termination of Job Execution

HULFT 7.0.0

You can now specify the maximum value for HULFT to regard the return code from the job to be started up as successful. (JOB RC Criterion)

2.3.4 Provision of Setting Options to Retry for Access of JCL Library

HULFT 7.0.0

In executing a job, you can now specify the retry count and retry interval where the JCL library is used by other job and an exclusive error has occurred.

2.3.5 Sectioning of Management Information Update Screen

HULFT 7.0.0

Update screens of management screens(Send Management Information, Receive Management Information, or Host Information) have been senctioned into 'Basic' and 'Extension.'

2.4 Improved Functions Unique to HULFT for UNIX/Linux and HULFT for NSK

2.4.1 Outputting Trace Log (V7 Header)

HULFT 7.0.0

Trace Log (V7 Header) is an extended function of the Trace Log, which has been added in HULFT6. In addition to the output information of the conventional Trace Log (V6 Header), outputting more detailed information enables you to examine the cause of an error easily.

The following are the functions that have been added or changed:

- The contents of the message have been added and changed.
- The support for outputting to system log has been provided.
- The members of the Detail code (DTLCODE) and HULFT Identifier (HULCHARACTER) have been added to the common header.
- The name of the Classification (CLASS) has been changed to the Message Level.
- Output contents of the Message Level have been changed as follows:

  N (Successful): I (Information)
  W (Warning): W (Warning)
  E (Error): E (Error)
  R (Retry): W (Warning)
- The function to output message log has been disused.

The conventional outputting method of message log and the Trace Log (V6 Header) is available by specifying '6' for the Trace Output Versopm in the System Environment Settings.

2.4.2 Modification in Directory That Stores Shared Library

HULFT 7.1.2

The directory that stores the shared library used by encryption exit routine has been changed to HULFT execution module storage directory (HULEXEP).

2.5 Improved Functions Unique to HULFT for Windows

2.5.1 Extension in Account Settings

HULFT 7.0.0

The restrictions on the entry of the Account Name, the Domain Name, and the Password have been relaxed.

2.6 Improved Functions Unique to HULFT for i5OS

2.6.1 Improvement in Timeout When being Connected from HULFT Manager

HULFT 7.0.0

Conventionally, HULFT applied the value of the Socket Read Timeout, which is designed for error detection in sending and receiving, to the value of timeout where there had been no connection from HULFT Manager. In HULFT Ver.7, you can set exclusive timeout where there has been no connection from HULFT Manager. With this feature, you can change in the set value of the Socket Read Timeout for sending and receiving does not affect the connection from HULFT Manager.

2.6.2 Improvement in Creation of Log Files

HULFT
7.0.0

The number of log records specified in a resident job and the parameter OUTPUT has been updated to be unlimited. With this feature, you can output the logs without being bothered by the number of output log records.

~~~~~~~~~~~~~~~~~~~~~~~~ Memo ~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~

Chapter 3

Incompatibilities with HULFT6

This chapter explains functions changed in HULFT7, which place restrictions on HULFT6. Read this chapter carefully, when you upgrade the version of the product from HULFT6.

3.1 List of Incompatibilities

A list of functions changed in HULFT7 and place restriction on HULFT6 is given in this section. For the details of each function, refer to the sections after 3.2.

Icons Shown in the Column 'Available in'

- **The icon shows that incompatibility has arisen between the target version or higher and the version lower than target version. For example, when the following icon is specified, it means there is incompatibility between HULFT lower than Ver.7.0.0 and HULFT Ver.7.0.0 or higher.**

HULFT
7.0.0

Common Incompatibilities	
Function	Available in
3.2.1 Modification in File Format	HULFT 7.0.0
3.2.2 Modification in Specification Range of Transfer Block Length	HULFT 7.0.0
3.2.3 Modification in File Name	HULFT 7.0.0
Incompatibilities Unique to HULFT for Mainframe	
Function	Available in
3.3.1 Programs That Require XRSYSIN Definition Card	HULFT 7.0.0
3.3.2 Fields Deleted from Management Information	HULFT 7.0.0
3.3.3 Modification in Specification Range of Timeout in Remote Job Execution	HULFT 7.0.0
Incompatibilities Unique to HULFT for UNIX/Linux	
Function	Available in
3.4.1 Trace Log Function	HULFT 7.0.0
3.4.2 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters	HULFT 7.0.0
3.4.3 Shiftcode Mode	HULFT 7.0.0
Incompatibilities Unique to HULFT for Windows	
Function	Available in
3.5.1 Modification in Default Installation Path	HULFT 7.0.0
3.5.2 Modification in Hierarchy of Program Menu	HULFT 7.0.0
3.5.3 Modification in User Applications	HULFT 7.0.0
3.5.4 Execution Environment of Modules	HULFT 7.0.0
3.5.5 Modification in Function to Save This Task on HULFT Management Screen	HULFT 7.0.0
3.5.6 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters	HULFT 7.0.0

Incompatibilities Unique to HULFT for i5OS	
Function	Available in
3.6.1 Shiftcode Mode	HULFT 7.0.0
3.6.2 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters	HULFT 7.0.0
Incompatibilities Unique to HULFT Manager	
Function	Available in
3.7.1 Modification in Target Host Type for Connection	HULFT 7.0.0
3.7.2 Modification in Connection Method to HULFT Manager	HULFT 7.0.0

3.2 Common Incompatibilities

3.2.1 Modification in File Format

HULFT 7.0.0

Upgrading version from HULFT6 to HULFT7 accompanies addition of the management information files and log files as well as modification in file format.

Therefore, it is necessary to convert the conventional files used in HULFT of lower versions. When you upgrade the version of the product, convert such files with conversion programs made available to you.

The modification in file format may require amendment in user application, if you use the files of HULFT in your business.

The files added or modified by each platform are as follows:

<Table 3.1> Added or Modified Files by Each Platform

Host Type	Added Files	Modified Files
MainFrame	Command Execution Log File File Access Log File	System Environment Settings File Send Management Information File Receive Management Information File Job Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Send Control File
UNIX/Linux	Command Execution Log File File Access Log File Command Execution Log Switch Generation Management File File Access Log Switch Generation Management File	System Environment Settings File Receive Management Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Send Control File <Send Status File> Receive Control File <Receive Status File> HULFT System File
Windows	Command Execution Log File File Access Log File Command Execution Log Switch Generation Management File File Access Log Switch Generation Management File	System Environment Settings File Account File Receive Management Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Resend Queue File Send Control File HULFT System File
i5OS	Operation Log Information File Command Execution Log File File Access Log File	System Environment Settings File Receive Management Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Resend Queue File

3.2.2 Modification in Specification Range of Transfer Block Length

HULFT 7.0.0

In HULFT Ver.7, the specification range of the Transfer Block Length set in the Send Management Information has been modified. The new range is from '128' to '65520.' (Unit: bytes) (The specification range of the Transfer Block Length in HULFT lower than Ver.7 is from '6' to '65520.') In line with this modification, the specification range in the Transfer Block Length of the Unsent Status Queue Modification command has been changed as well. The new range is from '128' to '65520.' (Unit: bytes)

Correct the specified value of the Transfer Block Length, when you continue using the management information and the parameter files used in HULFT lower than Ver.7.

In the version upgrade from HULFT lower than Ver.7, where the Transfer Block Length in the Send Management Information is set to the value ranging from '6' to '127,' the conversion program automatically registers '128' for the field in the Send Management Information instead, as a lower limit value of HULFT Ver.7. Meanwhile, where the Transfer Block Length in the Send Management Information is set to the value ranging from '6' to '127' in batch registration of management information, batch registration utility automatically alters the setting value to '128' and registers the value in the Send Management Information instead, as a lower limit value of HULFT Ver.7.

[Remarks] In the case of HULFT Ver.7 for Mainframe, the specification range of the Transfer Block Length in the Send Management Information is from '128' to '10000.' (The specification range of the Transfer Block Length in HULFT lower than Ver.7: from '6' to '10000')

3.2.3 Modification in File Name

HULFT 7.0.0

The names of the files used in HULFT lower than Ver.7 has been modified in this version as follows:

- i5OS: Send Log File -> Send Status Display file
- UNIX/Linux: Send Status file ->Send Control file
  Receive Status file ->Receive Control file
  Request Log file -> Request Acknowledge Log file
- Mainframe: Send Queue File -> Send Control File

3.3 Incompatibilities Unique to HULFT for Mainframe

3.3.1 Programs That Require XRSYSIN Definition Card

HULFT 7.0.0

As operation log output function has been added, JCL used for the following types of processing requires XRSYSIN definition card:

<Table3.2> Programs That Require XRSYSIN Definition Card

Processing	Program Name
Alert Notification	XRALERT
Joined File Break	XRBREAK
External Character Table Expand	XRECTBL
Format Information List Output	XRFMTLST
Host Information List Output	XRHSTLST
Management Information ID Relationship Display	XRIDLST
Management Information Parameter File Generation	XRINFGEN
Joined File Display	XRJINLST
Multiple File Join	XRJOIN
Send and Receive Log Deletion	XRLOGDEL
Multi Format Information List Output	XRMFMLST
Receive Management Information List Output	XRRCVLST
Request Acknowledge Log List Display Program	XRREQLST
Receive Log List/File Output	XRRLOGL
Request Acknowledge Log Deletion	XRRQLDEL
Resend Queue Deletion	XRRSNDDL
Send Log List/File Output	XRSLOGL
Send Management Information List Output	XRSNDLST
Multiple Receive File Edit	XRSTORE
Management Information Deletion	XRSYSDEL
Management Information Batch Registration	XRSYSINF
Management Screen Security	XRUSRADD

If you execute JCL without adding XRSYSIN definition card, operation logs are not output. In such case, a warning message is output despite the successful completion of the execution.

When you intend to use operation log output function without modifying existing JCL, modify the file name of the System Environment Settings file directly by using the System Environment Settings Default Value Modification program (XRPRMSET).

For the modification of default value of the System Environment Settings, refer to appendix of *Installation Manual*.

3.3.2 Fields Deleted from Management Information

HULFT 7.0.0

In line with version upgrade or level upgrade of HULFT, following fields have been disused:

Receive Management Information: FMTID (Format ID)
Host Information: DOMAIN (Domain Name)

[Remarks] In accordance with the disuse of these fields, the Management Information ID Relationship Display program (XRIDLST) and the Receive Management Information List Output program (XRRCVLST) do not display the Format ID in the Receive Management Information, which used to be output.

3.3.3 Modification in Specification Range of Timeout in Remote Job Execution

HULFT
7.0.0

The specification range of the parameter timeout in the Remote Job Execution has been modified. The new range is from '10' to '259200' (seconds): default value 300 (seconds). With this change, the specification range of the timeout has become the same as those for other platforms.

Specifying the available specification range on HULFT of the lower version contrarily outputs a warning message, yet the processing is completed successfully and the Status code '0' is returned.

3.4 Incompatibilities Unique to HULFT for UNIX/Linux

3.4.1 Trace Log Function

HULFT
7.0.0

Specifying '6' for the Trace Output Version in the System Environment Settings enables you to have the application output conventional message logs or trace logs (with V6 header), yet following incompatibilities arise:

- Some message contents in the trace log have been added or modified
- Switching of output file occurs in the case where the file size exceeds the setting value specified in the Trace Log Output Size (tlogsize)

For the output messages, refer to *Error Codes and Messages*.

3.4.2 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters

HULFT 7.0.0

In HULFT7, checking range of the external character has been enhanced. The improvement provides you different checking range of Kanji in JIS level 1 and JIS level 2 from the one given by HULFT6.

(1) In the case of EUC or KEIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to Shift-JIS, KEIS, or JEF from EUC
- Conversion to Shift-JIS from KEIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table3.3> Range of Characters to be Converted as Kanji (In the case of EUC and KEIS)

Lower than HULFT7

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xa8	■	■	■	■	■	■	■	■	
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf4	■	■	■	■	■	■	■	■	

HULFT7 or higher

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
to					■	■	■	■	
0xa8					■	■	■	■	
0xb0					■	■	■	■	■
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	■
to					■	■	■	■	■
0xf4					■	■	■	■	

JIS78	Low Order Byte									
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00										
to										
0xa1					■	■	■	■	■
0xa2	■	■	■	■	■	■			■
0xa3	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xa6	■	■	■	■	■	■	■	■	■
0xa7	■	■	■	■	■	■	■		
0xa8										
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf3	■	■	■	■	■	■	■	■	

JIS78	Low Order Byte									
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00										
to										
0xa1					■	■	■	■	■
0xa2					■	■			
0xa3					■	■	■	■	
to					■	■	■	■	
0xa6					■	■	■	■	
0xa7					■	■	■		
0xa8										
0xb0					■	■	■	■	■
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	■
to					■	■	■	■	■
0xf3					■	■	■	■	

■:Character range to be handled as JIS Level 1 or JIS Level 2

(2) In the case of Shift-JIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to EUC, IBM, JEF, KEIS, or NEC from Shift-JIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table3.4> Range of Characters to be Converted as Kanji (In the case of Shift-JIS)

Lower than HULFT7

JIS83	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x84	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0x88														■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x9f	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0xea	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xef																				
to																				
0xff																				

HULFT7 or higher

JIS83	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x84			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0x88													■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x9f			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0xea			■	■	■		■	■	■	■	■									
to																				
0xef																				
to																				
0xff																				

JIS78	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x84	■	■	■	■	■	■	■	■	■											
to																				
0x88													■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x9f	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0xea	■	■	■	■	■	■	■	■	■	■	■									
to																				
0xef																				
to																				
0xff																				

■:Character range to be handled as JIS Level 1 or JIS Level 2

3.4.3 Shiftcode Mode

HULFT
7.0.0

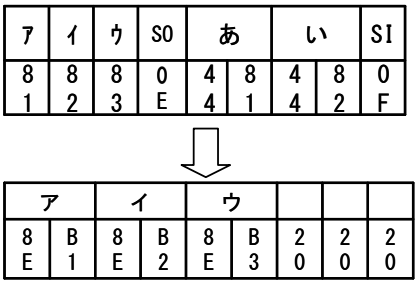
In HULFT Ver.7 or higher, fulfillment of all the following conditions when receiving to HULFT for i5 or HULFT for Mainframe yields different result of code conversion from the one given by HULFT lower than Ver.7:

- Applied code of the host on the sending side is any one of the following: JEF, KEIS, or NEC Kanji
- Applied code of the host on the receiving side is EUC
- Transferred in either Format Transfer or Multi Format Transfer
- Where there is M type in the Format Information and the length after code conversion is longer than field length
- Conversion to space is enabled in the Shiftcode Mode of the Send Management Information

Following example gives you explanation on the difference in the result of conversion from IBM Kanji to EUC between HULFT Ver.7 and higher and HULFT lower than Ver.7:

Example) Difference in the conversion result in the case of conversion from IBM Kanji to EUC

- Behavior of HULFT lower than Ver.7

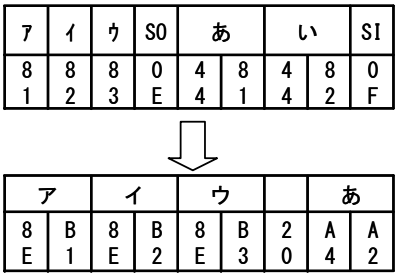


a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) HULFT preferentially replaces SI with 0x20, giving 0X20 priority over 'あ,' because the remaining byte count is 2 bytes. 'あ' is not set.

- Behavior of HULFT Ver.7 or higher



a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) 'あ' is set.

d) HULFT does not set SI, because remaining byte count is limited.

HULFT Ver.7 or higher sets data, giving 0x20 priority over the space converted from SI.

3.5 Incompatibilities Unique to HULFT for Windows

3.5.1 Modification in Default Installation Path

HULFT 7.0.0

The default installation folder has been changed to [%SystemDrive%\HULFT Family\hulft7] from [%ProgramFiles%\hulft6] or [%SystemDrive%\HULFT Family\hulft6].

3.5.2 Modification in Hierarchy of Program Menu

HULFT 7.0.0

The hierarchy of program menu created on installation has been changed to [All Programs] > [HULFT Family] >[arbitrarily-registered name] from [All Programs] > [HULFT for Windows Ver.6] or [All Programs] > [HULFT Family] > [HULFT for Windows Ver.6].

[Remarks] The start menus of OS other than Windows Server 2003, Windows XP, Windows Vista, and Windows Server 2008 display [Programs] instead of [All Programs].

3.5.3 Modification in User Applications

HULFT 7.0.0

As for hulapi.dll of HULFT7, the stored location is different from that of HULFT Ver.6 or lower. When you use the user application of HULFT Ver.6 or lower, either of the following measure is required:

- Load hulftrt.dll in full path first, then correct the user application so that it loads hulapi.dll in full path.
- Set installation folder in the path of environment variable before you execute the user application.

[Remarks] In 64-bit environment, the file names are changed from hulftrt.dll to hulftrt64.dll and from hulapi.dll to hulapi64.dll, respectively.

3.5.4 Execution Environment of Modules

HULFT 7.0.0

In HULFT Ver.7, relocation of the installed module to the folder other than the specified installation folder may cause an error in some cases. Do not relocate the module from the installation folder in HULFT Ver.7.

3.5.5 Modification in Function to Save This Task on HULFT Management Screen

HULFT 7.0.0

The menu of the Save this task has been changed to the Screen Layout of which submenus are the Import and the Export. This modification enables you to have the application output the information on work by specifying a file name.

For this reason, the new function requires loading of the output file when you restore the work state.

3.5.6 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters

HULFT 7.0.0

In HULFT7, checking range of the external character has been enhanced. The improvement provides you different checking range of Kanji in JIS level 1 and JIS level 2 from the one given by HULFT6.

(1) In the case of EUC or KEIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to Shift-JIS from EUC and KEIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table3.5> Range of Character to be Converted as Kanji (In the case of EUC and KEIS)

Lower than HULFT7

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xa8	■	■	■	■	■	■	■	■	
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf4	■	■	■	■	■	■	■	■	

HULFT7 or higher

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	
to					■	■	■	■	
0xa8					■	■	■	■	
0xb0					■	■	■	■	
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	
to					■	■	■	■	
0xf4					■	■	■	■	

JIS78	Low Order Byte									
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
0xa2	■	■	■	■	■	■			■
0xa3	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xa6	■	■	■	■	■	■	■	■	■
0xa7	■	■	■	■	■	■	■		
0xa8									
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf3	■	■	■	■	■	■	■	■	

JIS78	Low Order Byte									
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	
0xa2					■	■			
0xa3					■	■	■	■	
to					■	■	■	■	
0xa6					■	■	■	■	
0xa7					■	■	■		
0xa8									
0xb0					■	■	■	■	
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	
to					■	■	■	■	
0xf3					■	■	■	■	

■:Character range to be handled as JIS Level 1 or JIS Level 2

(2) In the case of Shift-JIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to EUC, IBM, JEF, KEIS, or NEC from Shift-JIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table3.6> Range of Character to be Converted as Kanji (In the case of Shift-JIS)

Lower than HULFT7

JIS83	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x84	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0x88														■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x9f	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0xea	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xef																				
to																				
0xff																				

HULFT7 or higher

JIS83	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x84			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0x88													■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x9f			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0xea			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xef																				
to																				
0xff																				

JIS78

JIS78	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x84	■	■	■	■	■	■	■	■	■											
to																				
0x88													■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x9f	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0xea	■	■	■	■	■	■	■	■	■	■	■									
to																				
0xef																				
to																				
0xff																				

JIS78

JIS78	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■		■	■	■	■	■	■	■	■	■					
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x84			■	■	■		■	■	■	■										
to																				
0x88													■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x9f			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0xea			■	■	■		■	■	■	■	■									
to																				
0xef																				
to																				
0xff																				

■:Character range to be handled as JIS Level 1 or JIS Level 2

3.6 Incompatibilities Unique to HULFT for i5OS

3.6.1 Shiftcode Mode

HULFT
7.0.0

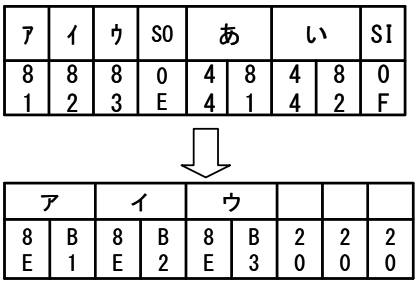
In HULFT Ver.7 or higher, fulfillment of all the following conditions when receiving to HULFT for i5 or HULFT for Mainframe yields different result of code conversion from the one given by HULFT lower than Ver.7:

- Applied code of the host on the receiving side is EUC
- Transferred in either Format Transfer or Multi Format Transfer
- Where there is M type in the Format Information and the length after code conversion is longer than field length
- Conversion to space is enabled in the Shiftcode Mode of the Send Management Information

Following example gives you explanation on the difference in the result of conversion from IBM Kanji to EUC between HULFT Ver.7 and higher and HULFT lower than Ver.7:

Example) Difference in the conversion result in the case of conversion from IBM Kanji to EUC

- Behavior of HULFT lower than Ver.7

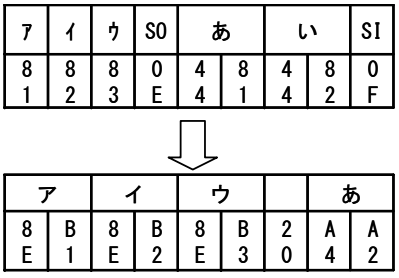


a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) HULFT preferentially replaces SI with 0x20, giving 0X20 priority over 'あ,' because the remaining byte count is 2 bytes. 'あ' is not set.

- Behavior of HULFT Ver.7 or higher



a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) 'あ' is set.

d) HULFT does not set SI, because remaining byte count is limited.

HULFT Ver.7 or higher sets data, giving 0x20 priority over the space converted from SI.

3.6.2 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters

HULFT 7.0.0

In HULFT7, checking range of the external character has been enhanced. The improvement provides you different checking range of Kanji in JIS level 1 and JIS level 2 from the one given by HULFT6.

(1) In the case of Shift-JIS

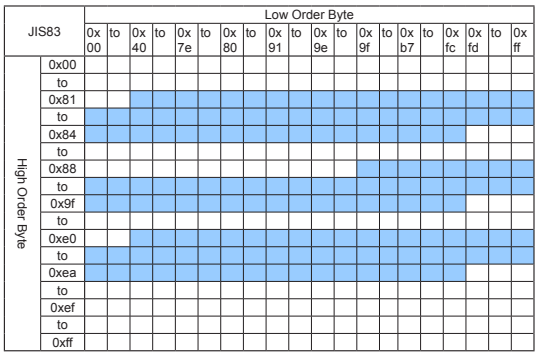
Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to IBM Kanji from Shift-JIS

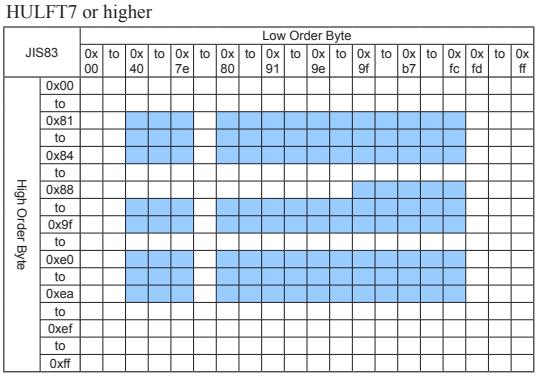
In following illustration, shown in blue is the range of the characters to be converted as Kanji:

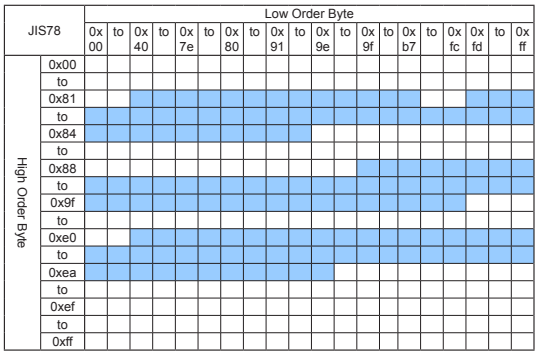
<Table3.7> Range of Characters to be Converted as Kanji (In the case of Shift-JIS)

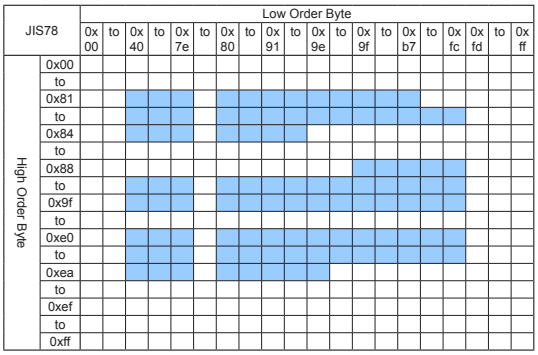
Lower than HULFT7



HULFT7 or higher







:Character range to be handled as JIS Level 1 or JIS Level 2

3.7 Incompatibilities Unique to HULFT Manager

3.7.1 Modification in Target Host Type for Connection

HULFT 7.0.0

In accordance with the version upgrade of HULFT Manager, you cannot connect to following products:

- HULFT for AS/400 Ver.4
- HULFT for Windows Ver.2
- HULFT for Mainframe Ver.4
- HULFT for UNIX Ver.4

3.7.2 Modification in Connection Method to HULFT Manager

HULFT 7.0.0

In accordance with the version upgrade of HULFT Manager, you cannot connect to HULFT via PPP connection.

~~~~~~~~~~~~~~~~~~~~~~~~ Memo ~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~

Chapter 4

Incompatibilities with HULFT5

This chapter explains functions changed in HULFT7, which place restrictions on HULFT5. Read this chapter carefully, when you upgrade the version of the product from HULFT5.

4.1 List of Incompatibilities

A list of functions changed in HULFT7 and place restriction on HULFT5 is given in this section. For the details of each function, refer to the sections after 4.2.

Icons Shown in the Column 'Available in'

- **The icon shows that incompatibility has arisen between the target version or higher and the version lower than target version. For example, when the following icon is specified, it means there is incompatibility between HULFT lower than Ver.6.0.0 and HULFT Ver.6.0.0 or higher.**

HULFT
6.0.0

Common Incompatibilities	
Function	Available in
4.2.1 Modification in File Format	HULFT 6.3.0
4.2.2 Discontinuation of Database Interface	HULFT 6.0.0
4.2.3 System Environment Settings Values	HULFT 6.0.0
4.2.4 Increase of Name Length of Send Files and Receive Files	HULFT 6.3.0
4.2.5 Modification in Specification Range of Transfer Block Length	HULFT 7.0.0
4.2.6 Modification in File Name	HULFT 7.0.0
Incompatibilities Unique to HULFT for Mainframe	
Function	Available in
4.3.1 Load Module Authorization and Unauthorization	HULFT 6.0.0
4.3.2 External Character Conversion Method	HULFT 6.0.0
4.3.3 Prioritization of External Characters during Receive Process	HULFT 6.0.0
4.3.4 Module Patches	HULFT 6.0.0
4.3.5 Handling of XRSYSIN Definition Card	HULFT 6.0.0
4.3.6 Handling of System Environment Value 'PORTNO'	HULFT 6.0.0
4.3.7 Code Conversion Processing of File Name of Joined File	HULFT 6.0.2
4.3.8 TCP/IP Address Space Names of Request Acknowledge Program	HULFT 6.0.3
4.3.9 Specification Whether to Delete Resend Queue File	HULFT 6.0.3
4.3.10 Fields Deleted from Management Information	HULFT 7.0.0
4.3.11 Modification in Specification Range of Timeout in Remote Job Execution	HULFT 7.0.0

Incompatibilities Unique to HULFT for UNIX/Linux and HULFT for NSK	
Function	Available in
4.4.1 Modification of Record Deletion Conditions Where Send File is Issued	HULFT 6.3.0
4.4.2 Obsolete Fields in System Environment Settings	HULFT 6.0.0
4.4.3 Trace Log Function	HULFT 7.0.0
4.4.4 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters	HULFT 7.0.0
4.4.5 Shiftcode Mode	HULFT 7.0.0
Incompatibilities Unique to HULFT for Windows	
Function	Available in
4.5.1 Checking of Job Name at Job Startup	HULFT 6.0.0
4.5.2 Version Information	HULFT 6.1.0
4.5.3 Exclusive Control between HULFT and User Process	HULFT 6.1.1B
4.5.4 Modification in Default Installation Path	HULFT 7.0.0
4.5.5 Modification in Hierarchy of Program Menu	HULFT 7.0.0
4.5.6 Modification in User Applications	HULFT 7.0.0
4.5.7 Execution Environment of Utilities	HULFT 7.0.0
4.5.8 Execution Environment of Modules	HULFT 7.0.0
4.5.9 Modification in Function to Save This Task on HULFT Management Screen	HULFT 7.0.0
4.5.10 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters	HULFT 7.0.0
Incompatibilities Unique to HULFT for i5OS	
Function	Available in
4.6.1 Initialization of Generation File Count	HULFT 6.0.0
4.6.2 Shiftcode Mode	HULFT 7.0.0
4.6.3 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters	HULFT 7.0.0
Incompatibilities Unique to HULFT Manager	
Function	Available in
4.7.1 Modification in Target Host Type for Connection	HULFT 7.0.0
4.7.2 Modification in Connection Method to HULFT Manager	HULFT 7.0.0

4.2 Common Incompatibilities

4.2.1 Modification in File Format

HULFT
6.3.0

Upgrading version from HULFT5 to HULFT7 accompanies addition of the management information files and log files as well as modification in file format.

Therefore, it is necessary to convert the conventional files used in HULFT of lower versions. When you upgrade the version of the product, convert such files with conversion programs made available to you.

The modification in file format may require amendment in user application, if you use the files of HULFT in your business.

The files added or modified by each platform are as follows:

<Table 4.1> Added or Modified Files by Each Platform

Host Type	Added Files	Modified Files
MainFrame	Command Execution Log File File Access Log File	System Environment Settings File Send Management Information File Receive Management Information File Job Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Send Control File
UNIX/Linux /NSK	XML Environment Settings File Command Execution Log File File Access Log File File Access Log Switch Generation File Command Execution Log Switch Generation File	System Environment Settings File Send Management Information File Receive Management Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Post-send Job Execution Log File Post-receive Job Execution Log File CSV Conversion Information File Send Control File (Send Status File) Receive Control File (Receive Status File) HULFT System File
Windows	XML Environment Settings File Command Execution Log File File Access Log File File Access Log Switch Generation File Command Execution Log Switch Generation File	System Environment Settings File Account File Receive Management Information File Host Information File Send Log File Receive Log File Request Acknowledge Log file <Request Log File> Post-send Job Execution Log File Post-receive Job Execution Log File Resend Queue File Send Control File CSV Environment Settings File HULFT System File
i5OS	Operation Log Information File Command Execution Log File File Access Log File	System Environment Settings File Receive Management Information File Send Management Information File Host Information File Send Log File Receive Log File Request Acknowledge Log File <Request Log File> Post-send Job Execution Log File Post-receive Job Execution Log File Resend Queue File Receive Control File Send Control File<Unsent (Status) File>

4.2.2 Discontinuation of Database Interface

HULFT 6.0.0

The database interface function has been removed from Ver.6. In receiving on HULFT for UNIX, HULFT for NSK, and HULFT for Windows of Ver.6 or higher, receiving a file with the specification of the Database Interface ID (the databaseinterface ID) on the receiving side causes an error. (excluding CSV and XML)

4.2.3 System Environment Settings Values

HULFT 6.0.0

The default values and the specification range of each field of the System Environment Settings have been reviewed.

The purpose of this is to unify the values used in resident processes (Send, Receive, and Request Acknowledge) and to clarify the values.

You might as well check the contents of the System Environment Settings. Refer to *Administration Manual* of each host type for details.

a) Changes in Ver.6.0.0

<Table 4.2> HULFT for Windows

Field	Tag Name	Default Value after Modification
Work File Generation Path	tmpdir	.
Socket Read Timeout	socktime	3600
Socket Buffer Size	socksize	12288

<Table 4.3> HULFT for i5OS

Field	Tag Name	Default Value after Modification
Work Library	TMPPATH	blank (*)
Job Process Key	FIFOKEYNUM	0
Send Job Multiplex Level	SNDPSNUM	10
Job Interrupt Severity	JOBSTOPSEV	0
Job Timeout	JOBWTIMEOUT	999999
Connect Retry Interval	RETRYTIME	20
Connect Retry Count	RETRYCNT	5
Socket Read Timeout	SOCKTIME	3600
Socket Buffer Size	SOCKSIZE	12288
Fixed Length Transfer	FIXLEN	N
Space Character Mode	SPCODE	1
Password Check	PASSWDCHECK	0
Dynamic Parameter Specification	DYNPARAM	0
External Character Table Use	GAIJIFILE	0

* When the fields are not specified, an error occurs and resident jobs cannot be started.

b) Changes in Ver.6.3.0

<Table 4.4> HULFT for UNIX, HULFT for Linux, HULFT for Windows, and HULFT for i5OS

Field	Tag Name	Range before Modification	Range after Modification
Socket Buffer Size	socksize	4096 to 65520	from 4096 to 65520, or 0 (none specified)

<Table 4.5> HULFT-SAN for UNIX

Field	Tag Name	Default Value or Range before Modification	Default Value or Range after Modification
Dump File Generation Path	raiddumpdir	Same as Work File Generation Path	/usr/tmp
Dump Level	raiddumplevel	0 to 3	1 to 3

c) Changes in Ver. 7.0.0

<Table 4.6> HULFT for NSK

Field	Tag Name	Range before Modification	Range after Modification
Socket Buffer Size	socksize	6 to 32767	from 4096 to 65520, or 0 (none specified)

4.2.4 Increase of Name Length of Send Files and Receive Files

HULFT 6.3.0

In accordance with the increase in the name length of the Send files and the Receive files, the length of environment variable for file names has been increased to 200 bytes. If the environment variable of file names is used in external programs, the area of 200 bytes must be reserved.

[Remarks] This incompatibility is applicable only to HULFT for UNIX, HULFT for Linux, HULFT for NSK, and HULFT for Windows.

4.2.5 Modification in Specification Range of Transfer Block Length

HULFT 7.0.0

In HULFT Ver.7, the specification range of the Transfer Block Length set in the Send Management Information has been modified. The new range is from '128' to '65520.' (Unit: bytes) (The specification range of the Transfer Block Length in HULFT lower than Ver.7 is from '6' to '65520', while the range in HULFT for NSK lower than Ver.7 is from '6' to '32767.') In line with this modification, the specification range in the Transfer Block Length of the Unsent Status Queue Modification command has been changed as well. The new range is from '128' to '65520.' (Unit: bytes).

Correct the specified value of the Transfer Block Length, when you continue using the management information and the parameter files used in HULFT lower than Ver.7.

In the version upgrade from HULFT lower than Ver.7, where the Transfer Block Length in the Send Management Information is set to the value ranging from '6' to '127,' the convert program automatically registers '128' for the field in the Send Management Information instead, as a lower limit value of HULFT Ver.7. Meanwhile, where the Transfer Block Length in the Send Management Information is set to the value ranging from '6' to '127' in batch registration of management information, batch registration utility automatically alters the setting value to '128' and registers the value in the Send Management Information instead, as a lower limit value of HULFT Ver.7.

[Remarks] In the case of HULFT Ver.7 for Mainframe, the specification range of the Transfer Block Length in the Send Management Information is from '128' to '10000.' (The specification range of the Transfer Block Length in HULFT lower than Ver.7: from '6' to '10000')

4.2.6 Modification in File Name

HULFT 7.0.0

The names of the files used in HULFT lower than Ver.7 has been modified in this version as follows:

- i5OS: Send Log File -> Send Status Display file
- UNIX/Linux/NSK: Send Status file ->Send Control file
  Receive Status file ->Receive Control file
- Mainframe: Send Queue file -> Send Control file
- Windows: Resend List file -> Resend Queue file

4.3 Incompatibilities Unique to HULFT for Mainframe

4.3.1 Load Module Authorization and Unauthorization

HULFT 6.0.0

In Ver.5, only a part of load modules is required registration for authorization. However, the registration becomes mandatory for Ver.6 or higher

.<Table 4.7> Necessity of Load Module Authorization Registration

Ver	Library Provided by HULFT Execution Program	Require Authorization Registration?	Remarks
Ver.4	Load module library	Not required	
Ver.5	Load module library	Only APF load module library requires authorization	Some functions cannot be used unless authorization registration is carried out.
	APF load module library		
Ver.6	Load module library	Required	HULFT will not function normally unless authorization registration is carried out.

4.3.2 External Character Conversion Method

HULFT 6.0.0

In Ver.6 or higher, conversion method in the format of the External Character Table has been added. This method is recommended for Ver.6 or higher.

The method of the external character exit routine in lower version of HULFT, which requires coding, can also be used in Ver.6 or higher. However, the method may not be available in the future improvement. In addition, external character exit routine created in COBOL is not supported.

If you currently use the external character exit routine, kindly consider switchover to the external character conversion in the format of the External Character Table.

4.3.3 Prioritization of External Characters during Receive Process

HULFT 6.0.0

In conventional receiving processing of HULFT, the external character conversion processing can be prioritized by specifying 'KNJALL' in the EXEC parameters of the JCL started up by receiving. In Ver.6 or higher, a change has been made to specify such setting in the System Environment Settings. Refer to *Administration Manual* for more details.

Although there is no difference between the conventional specification and the specification in the System Environment Settings with regard to operation, the feature may not be available in future version. If you currently use the parameter specification, kindly consider switchover to the specification in the System Environment Settings.

4.3.4 Module Patches

HULFT 6.0.0

The module patches, which have been provided for HULFT of lower version, are now offered by external parameters in Ver.6 or higher.

If you have applied module patches, add them to the System Environment Settings parameters. Refer to *Installation Manual* for more details.

4.3.5 Handling of XRSYSIN Definition Card

HULFT 6.0.0

Mandatory fields (the Product Key and the Serial No.) have been added in XRSYSIN definition card.

XRSYSIN definition card is not described in the JCL that is provided with the Ver.5 Receive program (XRRCV). When you upgrade the product version, specify the XRSYSIN definition card with the setting of the Product Key and the Serial No.

4.3.6 Handling of System Environment Value 'PORTNO'

HULFT 6.0.0

The specification of the System Environment Settings value 'PORTNO' has been changed in Ver.6.

<Table 4.8> Handling of System Environment Value 'PORTNO'

Ver.	Meaning of 'PORTNO'	Detailed explanation
Ver.4 Ver.5	Receive port number of the remote host (used when sending from the local host)	When the remote host information is not registered in the Host Information, the port number specified in 'PORTNO' is used as the receive post number of the remote host.
Ver.6	Receive port number of the local host (used when receiving to the local host)	When you specify to have the application displayed the receiving log records in the Transfer Status List by setting the System Environment Settings, 'PORTNO' is used as the receive post number of the local host to connect to the Receive program. In Ver.6, when the remote host is not registered in Host Information, the receive port number of the remote host is fixed to '30000'. If a port number other than '30000' is configured in the remote host, the remote host must be registered in Host Information.

4.3.7 Code Conversion Processing of File Name of Joined File

HULFT 6.0.2

The specifications of code conversion processing when breaking joined file has been changed. The target code of conversion has been changed from IBM Standard to EBCDIC Kana.

This brings following changes when you specify TGTFILE in the Joined File Break program (XRBREAK):

- You can break a source file of which name includes en-size (half-width) Kana, even when you specify TGTFILE.
- Specify the value of TGTFILE in uppercase alphabet, because there is no casesensitivity.
- The character code that indicates path in the specification of TGTFILE has been changed:

  Example: $(xE0) -> (0x5B)

  *Above example shows the case where the characters are displayed in Japanese alphanumeric Kana.

[Remarks] This incompatibility is applied only to HULFT for zOS Japanese edition.

4.3.8 TCP/IP Address Space Names of Request Acknowledge Program

HULFT 6.0.3

In HULFT lower than Ver. 6.0.3, when the Request Acknowledge program (XRACCPT) is started, TCP/IP address space name refers to different address from the one referred during the Request Acknowledge processing. This may cause an error in some cases when a request is acknowledged.

In Ver.6.0.3 and higher, the application uses TCP/IP address space name, complying with the following priority order:

a) Address space name specified in the EXEC parameter

b) The address space name of TCPIP tag in the System Environment Settings (when EXEC parameter is not specified)

c) The default value of the TCPIP (when EXEC parameter and TCPIP tag of the System Environment Settings are not specified)

[Remarks] This incompatibility is applied only to HULFT for zOS.

4.3.9 Specification Whether to Delete Resend Queue File

HULFT 6.0.3

In conventional sending processing, setting the Resend Queue File Deletion Mode (QDEL) in the System Environment Settings specifies whether to delete the Resend Queue file. Starting from Ver. 6.3.0, you can specify the setting in the Criteria to Delete Resend Queue when the Send File is issued (RESENDDEL) of the System Environment Settings. For details, refer to *Administration Manual*.

4.3.10 Fields Deleted from Management Information

HULFT 7.0.0

In line with version upgrade or level upgrade of HULFT, following fields have been disused.

Receive Management Information:	FMTID (Format ID)
Host Information:	DOMAIN (Domain Name)

[Remarks] In accordance with the disuse of these fields, the Management Information ID Relationship Display program (XRIDLST) and the Receive Management Information List Output program (XRRCVLST) do not display the Format ID in the Receive Management Information, which used to be output.

4.3.11 Modification in Specification Range of Timeout in Remote Job Execution

HULFT 7.0.0

The specification range of the parameter timeout in the Remote Job Execution has been modified. The new range is from '10' to '259200' (seconds): default value '300' (seconds). With this change, the specification range of the timeout has become the same as those for other platforms.

Specifying the available specification range on HULFT of the lower version contrarily outputs a warning message, yet the processing is completed successfully and the Status code '0' is returned.

4.4 Incompatibilities Unique to HULFT for UNIX/Linux and HULFT for NSK

4.4.1 Modification of Record Deletion Conditions Where Send File is Issued

HULFT 6.3.0

Transfers under the same File ID with different Host Names are now registered in the Resend Queue as different resending records. However, in HULFT lower than Ver.6.3.0, all the records under the same File ID had been deleted. (*)

In HULFT Ver.6.3.0 or higher, transfer records under the same File ID with different Host Names are not deleted even where the Send File is issued. Instead, the application deletes only the Resend Queue records of which the combination of the File ID and the Host Name are identical with the specification of the Send File. This behavior is the same as the default setting value '1' of the Criteria to Delete Resend Queue when Send File is issued (resenddel).

* If '1' is specified for the tag 'resendhostmatch' of the System Environment Settings, which was added in function improvements of Ver.5.0.7 (The improvement is described only in "Ver.5.0.7 Version Upgrade Notification), the File ID and the Host Name had been able to be deleted when the Send File is issued. However, this tag has been removed in Ver.6.3. Instead, the similar deletion is available by setting '1' (default value) for the Criteria to Delete Resend Queue when Send File is issued (resenddel) in Ver.6.3 and higher.

4.4.2 Obsolete Fields in System Environment Settings

HULFT 6.0.0

Along with version and level upgrade, following fields in System Environment Settings have become obsolete:

<Table 4.9> System Environment Settings that have become obsolete

Field	Tag	Obsolete since	Reason
Attribute Conversion Mode of Receive File	invrcvfilchk	Ver.6.0.0	The timing to modify owner, group, and permission of Receive file has been changed. End users now do not have to specify this tag.
Record Length Check during Format Transfer	fmtcheck	Ver.6.0.2	In the Format Transfer, HULFT checks whether the data of Send file is suitable for the Format ID or not without fail.

For details of the System Environment Settings, refer to *Administration Manual*.

4.4.3 Trace Log Function

HULFT 7.0.0

Specifying '6' for the Trace Output Version in the System Environment Settings enables you to have the application output conventional message logs or trace logs (with V6 header), yet following incompatibilities arise:

- Switching of output file occurs in the case where the file size exceeds the setting value specified in the Trace Log Output Size (tlogsize)

4.4.4 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters

HULFT 7.0.0

In HULFT7, checking range of the external character has been enhanced. The improvement provides you different checking range of Kanji in JIS level 1 and JIS level 2 from the one given by HULFT6.

(1) In the case of EUC or KEIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to Shift-JIS, KEIS, and JEF from EUC
- Conversion to Shift-JIS from KEIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table4.10> Range of Characters to be Converted as Kanji (In the case of EUC and KEIS)

Lower than HULFT7

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xa8	■	■	■	■	■	■	■	■	
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf4	■	■	■	■	■	■	■	■	

HULFT7 or higher

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
to					■	■	■	■	
0xa8					■	■	■	■	
0xb0					■	■	■	■	■
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	■
to					■	■	■	■	■
0xf4					■	■	■	■	

JIS78	Low Order Byte									
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00										
to										
0xa1					■	■	■	■	■	
0xa2	■	■	■	■	■	■			■	
0xa3	■	■	■	■	■	■	■	■	■	
to	■	■	■	■	■	■	■	■	■	
0xa6	■	■	■	■	■	■	■	■	■	
0xa7	■	■	■	■	■	■	■			
0xa8										
0xb0					■	■	■	■	■	
to	■	■	■	■	■	■	■	■	■	
0xde	■	■	■	■	■	■	■	■		
0xdf					■	■	■	■	■	
to	■	■	■	■	■	■	■	■	■	
0xf3	■	■	■	■	■	■	■	■		

JIS78	Low Order Byte									
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00										
to										
0xa1					■	■		■		
0xa2					■	■				
0xa3					■	■	■	■		
to					■	■	■	■		
0xa6					■	■	■	■		
0xa7					■	■	■			
0xa8										
0xb0					■	■	■	■		
to					■	■	■	■		
0xde					■	■	■	■		
0xdf					■	■	■	■		
to					■	■	■	■		
0xf3					■	■	■	■		

■:Character range to be handled as JIS Level 1 or JIS Level 2

(2) In the case of Shift-JIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to EUC, IBM, JEF, KEIS, or NEC from Shift-JIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table4.11> Range of Characters to be Converted as Kanji (In the case of Shift-JIS)

Lower than HULFT7

JIS83	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x84	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0x88													■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x9f	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0xea	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
to																				
0xef																				
to																				
0xff																				

HULFT7 or higher

JIS83	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x84			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0x88													■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x9f			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0xea			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xef																				
to																				
0xff																				

JIS78	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■	■	■	■	■	■	■	■	■	■	■			■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x84	■	■	■	■	■	■	■	■	■											
to																				
0x88													■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0x9f	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
to																				
0xe0			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
0xea	■	■	■	■	■	■	■	■	■	■	■									
to																				
0xef																				
to																				
0xff																				

JIS78	Low Order Byte																			
High Order Byte	0x 00	to	0x 40	to	0x 7e	to	0x 80	to	0x 91	to	0x 9e	to	0x 9f	to	0x b7	to	0x fc	0x fd	to	0x ff
0x00																				
to																				
0x81			■	■	■		■	■	■	■	■	■	■	■	■					
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x84			■	■	■		■	■	■	■										
to																				
0x88													■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0x9f			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to																				
0xe0			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
to			■	■	■		■	■	■	■	■	■	■	■	■	■	■			
0xea			■	■	■		■	■	■	■	■									
to																				
0xef																				
to																				
0xff																				

■ :Character range to be handled as JIS Level 1 or JIS Level 2

4.4.5 Shiftcode Mode

HULFT
7.0.0

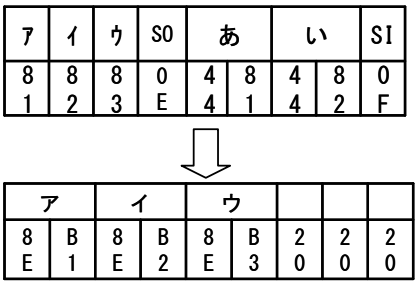
In HULFT Ver.7 or higher, fulfillment of all the following conditions when receiving to HULFT for i5 or HULFT for Mainframe yields different result of code conversion from the one given by HULFT lower than Ver.7:

- Applied code of the host on the sending side is any one of the following: JEF, KEIS, or NEC Kanji
- Applied code of the host on the receiving side is EUC
- Transferred in either Format Transfer or Multi Format Transfer
- Where there is M type in the Format Information and the length after code conversion is longer than field length
- Conversion to space is enabled in the Shiftcode Mode of the Send Management Information

Following example gives you explanation on the difference in the result of conversion from IBM Kanji to EUC between HULFT Ver.7 and higher and HULFT lower than Ver.7:

Example) Difference in the conversion result in the case of conversion from IBM Kanji to EUC

- Behavior of HULFT lower than Ver.7

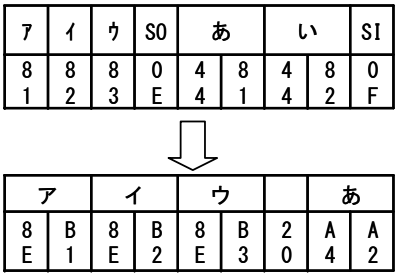


a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) HULFT preferentially replaces SI with 0x20, giving 0X20 priority over ' あ ,' because the remaining byte count is 2 bytes. ' あ ' is not set.

- Behavior of HULFT Ver.7 or higher



a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) ' あ ' is set.

d) HULFT does not set SI, because remaining byte count is limited.

HULFT Ver.7 or higher sets data, giving 0x20 priority over the space converted from SI.

4.5 Incompatibilities Unique to HULFT for Windows

This section explains HULFT for Windows and its related products.

4.5.1 Checking of Job Name at Job Startup

HULFT 6.0.0

When the Pre-send Job, Post-send/Post-receive Jobs and remote jobs are executed, the length of the job name is checked, after the contents of the environment variable are converted. After conversion, if the length of the job name has exceeded the upper limit for job execution, an error occurs and the job is not executed.

4.5.2 Version Information

HULFT 6.1.0

The versions of related products and option products other than Cipher Option is no longer displayed in the Management screen.

4.5.3 Exclusive Control between HULFT and User Process

HULFT 6.1.1B

In revisions lower than HULFT for Windows Ver.6.1.1B, a file operation is processed on HULFT side so that it enters into the waiting state depending on the existence of mutex object, even if the ownership of the mutex object is not acquired.

In HULFT for Windows Ver.6.1.1 and higher, the program has been changed to use WaitForSingleObject (Windows API) when the application holds such process. Due to this modification, if you have created a user program in which the same mutex object name is used to synchronize the program, it is no longer possible to synchronize them unless the file operation is processed after acquiring the ownership of the mutex object.

4.5.4 Modification in Default Installation Path

HULFT 7.0.0

The default installation folder has been changed to [%SystemDrive%\HULFT Family\hulft7] from [%ProgramFiles%\hulft5].

4.5.5 Modification in Hierarchy of Program Menu

HULFT 7.0.0

The hierarchy of program menu created on installation has been changed to [All Programs] > [HULFT Family] > [arbitrarily-registered name] from [All Programs] > [HULFT for Windows Ver.5].

[Remarks] The start menus of OS other than Windows Server 2003, Windows XP, Windows Vista, and Windows Server 2008 display [Programs] instead of [All Programs].

4.5.6 Modification in User Applications

HULFT 7.0.0

As for hulapi.dll of HULFT7, the stored location is different from that of HULFT Ver.6 or lower. When you use the user application of HULFT Ver.6 or lower, either of the following measure is required:

- Load hulftrt.dll in full path first, then correct the user application so that it loads hulapi.dll in full path.
- Set installation folder in the path of environment variable before you execute the user application.

[Remarks] In 64-bit environment, the file names are changed from hulftrt.dll to hulftrt64.dll and from hulapi.dll to hulapi64.dll, respectively.

4.5.7 Execution Environment of Utilities

HULFT 7.0.0

In HULFT Ver.7, relocation of the installed module to the folder other than the specified installation folder may cause an error in some cases. Execute the utilities in the installation folder in HULFT Ver.7.

4.5.8 Execution Environment of Modules

HULFT 7.0.0

In HULFT Ver.7, relocation of the installed module to the folder other than the specified installation folder may cause an error in some cases. Do not relocate the module from the installation folder in HULFT Ver.7 to execute the module.

4.5.9 Modification in Function to Save This Task on HULFT Management Screen

HULFT 7.0.0

The menu of the Save this task has been changed to the Screen Layout of which submenus are the Import and the Export. This modification enables you to have the application output the information on work by specifying a file name.

For this reason, the new function requires loading of the output file when you restore the work state.

4.5.10 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters

HULFT 7.0.0

In HULFT7, checking range of the external character has been enhanced. The improvement provides you different checking range of Kanji in JIS level 1 and JIS level 2 from the one given by HULFT6.

(1) In the case of EUC or KEIS

Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to Shift-JIS from EUC and KEIS

In following illustration, shown in blue is the range of the characters to be converted as Kanji:

<Table4.12> Range of Character to be Converted as Kanji (In the case of EUC and KEIS)

Lower than HULFT7

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xa8	■	■	■	■	■	■	■	■	
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf4	■	■	■	■	■	■	■	■	

HULFT7 or higher

JIS83	Low Order Byte								
High Order Byte	0x00			to	0xa1			0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	
to					■	■	■	■	
0xa8					■	■	■	■	
0xb0					■	■	■	■	
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	
to					■	■	■	■	
0xf4					■	■	■	■	

JIS78	Low Order Byte								
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	■
0xa2	■	■	■	■	■	■			■
0xa3	■	■	■	■	■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xa6	■	■	■	■	■	■	■	■	■
0xa7	■	■	■	■	■	■	■		
0xa8									
0xb0					■	■	■	■	■
to	■	■	■	■	■	■	■	■	
0xde	■	■	■	■	■	■	■	■	
0xdf					■	■	■	■	■
to	■	■	■	■	■	■	■	■	■
0xf3	■	■	■	■	■	■	■	■	

JIS78	Low Order Byte								
High Order Byte	0x00			to	0xa1	0xb9	0xf1	0xfe	0xff
0x00									
to									
0xa1					■	■	■	■	
0xa2					■	■			
0xa3					■	■	■	■	
to					■	■	■	■	
0xa6					■	■	■	■	
0xa7					■	■	■		
0xa8									
0xb0					■	■	■	■	
to					■	■	■	■	
0xde					■	■	■	■	
0xdf					■	■	■	■	
to					■	■	■	■	
0xf3					■	■	■	■	

■ :Character range to be handled as JIS Level 1 or JIS Level 2

(2) In the case of Shift-JIS

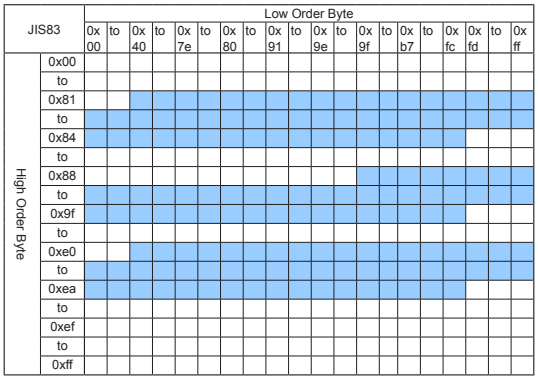
Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion to EUC, IBM, JEF, KEIS, or NEC from Shift-JIS

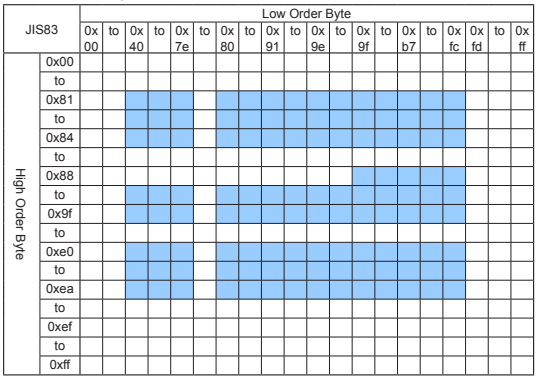
In following illustration, shown in blue is the range of the characters to be converted as Kanji:

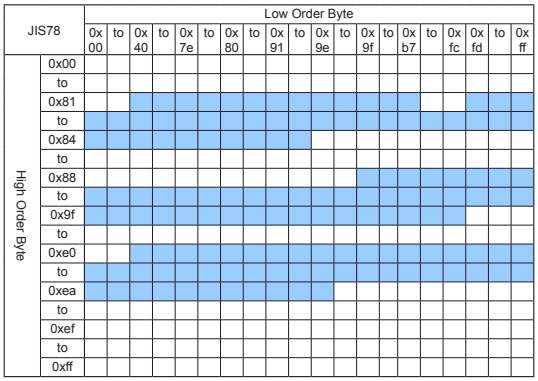
<Table4.13> Range of Characters to be Converted as Kanji (In the case of Shift-JIS)

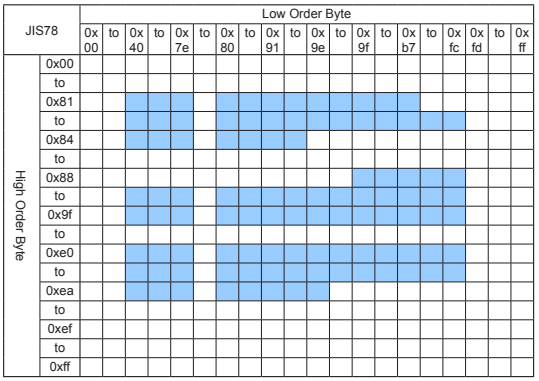
Lower than HULFT7



HULFT7 or higher







:Character range to be handled as JIS Level 1 or JIS Level 2

4.6 Incompatibilities Unique to HULFT for i5OS

4.6.1 Initialization of Generation File Count

HULFT 6.0.0

If you have already been managing receiving files by using generation files, note that the Generation File Count of the receiving files is reset after version upgrade. As a result, the application assigns the sequence number starting with '1.'

4.6.2 Shiftcode Mode

HULFT 7.0.0

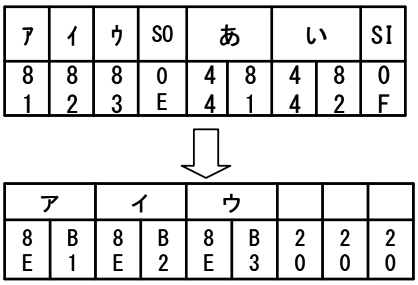
In HULFT Ver.7 or higher, fulfillment of all the following conditions when receiving to HULFT for i5 or HULFT for Mainframe yields different result of code conversion from the one given by HULFT lower than Ver.7:

- Applied code of the host on the receiving side is EUC
- Transferred in either Format Transfer or Multi Format Transfer
- Where there is M type in the Format Information and the length after code conversion is longer than field length
- Conversion to space is enabled in the Shiftcode Mode of the Send Management Information

Following example gives you explanation on the difference in the result of conversion from IBM Kanji to EUC between HULFT Ver.7 and higher and HULFT lower than Ver.7:

Example) Difference in the conversion result in the case of conversion from IBM Kanji to EUC

- Behavior of HULFT lower than Ver.7

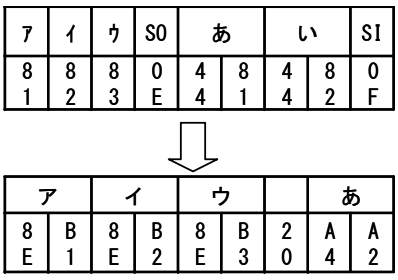


a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) HULFT preferentially replaces SI with 0x20, giving 0X20 priority over ' あ ,' because the remaining byte count is 2 bytes. ' あ ' is not set.

- Behavior of HULFT Ver.7 or higher



a) HULFT converts half width Katakana of EBCDIC to half width Katakana of EUC.

b) HULFT replaces SO with 0x20.

c) ' あ ' is set.

d) HULFT does not set SI, because remaining byte count is limited.

HULFT Ver.7 or higher sets data, giving 0x20 priority over the space converted from SI.

4.6.3 Modification in Specification Range of External Character to Cope with Enhancement in Checking External Characters

HULFT 7.0.0

In HULFT7, checking range of the external character has been enhanced. The improvement provides you different checking range of Kanji in JIS level 1 and JIS level 2 from the one given by HULFT6.

(1) In the case of Shift-JIS

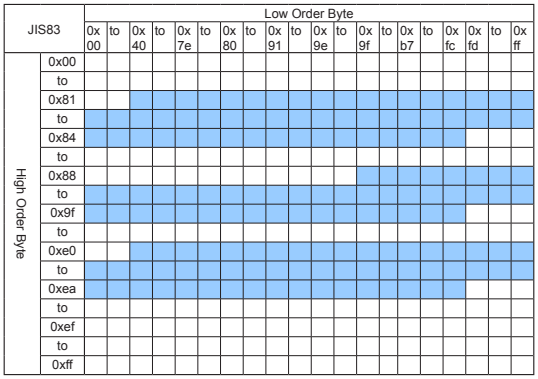
Enhancement in checking range of the external character is effective only when following patterns of conversion is carried out:

- Conversion from Shift-JIS to IBM

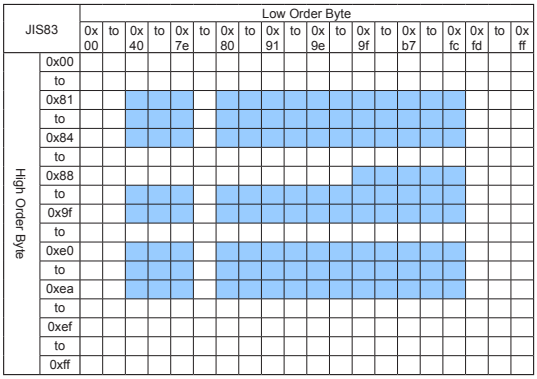
In following illustration, shown in blue is the range of the characters to be converted as Kanji:

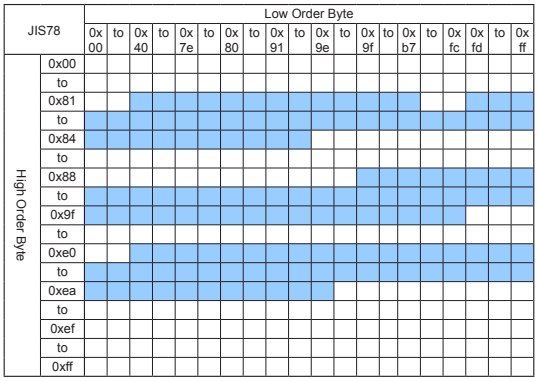
<Table4.14> Range of Characters to be Converted as Kanji (In the case of Shift-JIS)

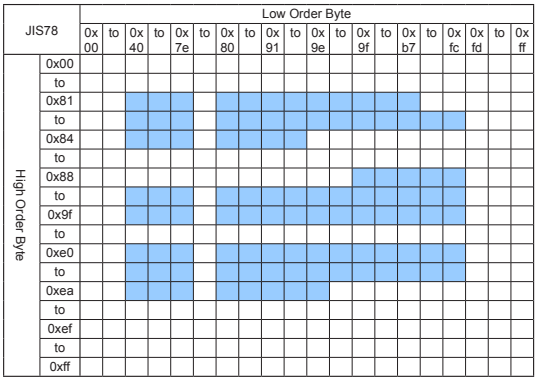
Lower than HULFT7



HULFT7 or higher







:Character range to be handled as JIS Level 1 or JIS Level 2

4.7 Incompatibilities Unique to HULFT Manager

4.7.1 Modification in Target Host Type for Connection

HULFT 7.0.0

In accordance with the version upgrade of HULFT Manager, you cannot connect to following products:

- HULFT for AS/400 Ver.4
- HULFT for Windows Ver.2
- HULFT for Mainframe Ver.4
- HULFT for UNIX Ver.4

4.7.2 Modification in Connection Method to HULFT Manager

HULFT 7.0.0

In accordance with the version upgrade of HULFT Manager, you cannot connect to HULFT via PPP connection.

Chapter 5

Products That Require Version/Level /Revision Upgrade

This chapter explains the products that require version, level, or revision upgrade under the operating environment where multiple HULFT products with different version, level, or revision coexist.

5.1 A List of Products That Require Version/Level /Revision Upgrade

Shown below is a list of the products that require version, level, or revision upgrade under the operating environment where multiple HULFT products of lower version coexist. For details, refer to the sections after 5.2.

<Table 5.1> List of Lower Version Products That Require Version Upgrade

Product Required for Version Upgrade		Connected or Cooperated Product
(1)	HULFT Manager Ver.5, Ver.6	HULFT 7

<Table 5.2> List of Lower Version Products That Require Level Upgrade

Product Required for Level Upgrade		Connected or Cooperated Product
(1)	HULFT-HUB Manager Lower Than Ver2.2	HULFT7
(2)	HULFT-HUB Server Lower Than Ver.2.2	HULFT7
(3)	SIGNAlert Manager Lower Than Ver.3.2.0	HULFT7

<Table 5.3> List of Lower Version Products That Require Revision Upgrade

Product Required for Revision Upgrade		Connected or Cooperated Product
(1)	HULFT for Mainframe Lower Than Ver.5.0.10	HULFT7
(2)	HULFT-SAN for Mainframe(H) Lower Than Ver.5.0.10 HULFT-SAN for Mainframe(F) Lower than Ver.5.0.10	HULFT7
(3)	HULFT for K Lower Than Ver.1.0.3	HULFT7

5.2 Products That Require Version Upgrade

(1) HULFT Manager

HULFT Manager Ver.5 and Ver.6 cannot connect with the host that installed HULFT7. To establish connection, it is necessary to upgrade HULFT Manager to Ver.7.

5.3 Products That Require Level Upgrade

(1) HULFT-HUB Manager

HULFT-HUB Manager lower than Ver.2.2 cannot register the fields newly added in HULFT7. It is necessary to upgrade the level of HULFT-HUB Manager to Ver.2.2.

(2) HULFT-HUB Server

HULFT-HUB Server lower than Ver.2.2 cannot control the clients of HULFT7. It is necessary to upgrade the level of HULFT-HUB Server to Ver.2.2.

(3) SIGNAlert Manager

SIGNAlert Manager lower than Ver.3.2.0 cannot monitor HULFT7. It is necessary to upgrade the level of SIGNAlert Manager to Ver.3.2.0 or higher.

5.4 Products That Require Revision Upgrade

(1) HULFT for Mainframe Ver.5

In the revisions lower than Ver.5.0.10 of HULFT for Mainframe, there are functions that may cause an error in communication with a host of HULFT7.

Products with problems

- HULFT for Mainframe Type MVS/MSP/XSP/VOS lower than Ver.5.0.10

Functions with problems

- Send Request
- Resend Request
- Remote Job Execution
- Job Execution Result Notification
- Post-receive Job Result Reference on the Send Detail Information Inquiry screen

Measures

Carry out either a) or b) to cope with the problems.

a) Upgrade HULFT for Mainframe Ver.5 to the product that fulfills the following condition:
- HULFT for Mainframe Type MVS/MSP/XSP/VOS Ver.5.0.10 or higher

b) Apply the patches. For details, refer to "Appendix 1 Application of Patches."

(2) HULFT-SAN for Mainframe Ver.5

In the revisions lower than Ver.5.0.10 of HULFT-SAN for Mainframe, there are functions that may cause an error in communication with a host of HULFT7.

Products with problems

- HULFT-SAN for Mainframe(H) Type MVS/MSP/VOS Versions lower than Ver.5.0.10
- HULFT-SAN for Mainframe(F) Type MVS/MSP/XSP Versions lower than Ver.5.0.10

Functions with problems

- Send Request
- Resend Request
- Remote Job Execution
- Job Execution Result Notification
- Post-receive Job Result Reference on the Send Detail Information Inquiry screen

Measures

Carry out either a) or b) to cope with the problems.

a) Upgrade HULFT for Mainframe Ver.5 to the product that fulfills the following condition:
- HULFT-SAN for Mainframe(H) Type MVS/MSP/VOS Ver.5.0.10 or higher
- HULFT-SAN for Mainframe(F) Type MVS/MSP/XSP Ver.5.0.10 or higher

b) Apply the patches. For details, refer to "Appendix 1 Application of Patches."

(3) HULFT for K Ver.1

In the revisions lower than Ver.1.0.3 of HULFT for K, issuing the Send Request or the Resend Request to the hosts of HULFT7 is not available. It is necessary to upgrade the revision to Ver.1.0.3 or higher.

5.5 Other Products That Requires Version Upgrade

This section describes the cases where the version upgrade of OS or software and the like is required in line with the version upgrade of HULFT.

(1) Change in OS to be Supported

In HULFT7, operating systems to be supported have been changed. Confirm the version of the OS before you upgrade HULFT to Ver7.

(2) HULFT for Windows Type WIN Ver.5

Provision of Support for Windows 95/98/Me has ended in Ver.5. HULFT7 for Windows is upward version of HULFT for Windows NT Ver.6.' Therefore, it does not provide support for Windows 95/98/Me.

When you use the function provided by HULFT higher than Ver.6 under Windows environment, switchover your OS to Windows 2000 Professional or higher, and your HULFT to HULFT7 for Windows-L, respectively.

5.6 Order of Switchover from Lower Version

Under the environment where multiple HULFT products are used, comply with the following procedure when you switch over HULFT from lower version upon the installation of HULFT7. Regarding the case that falls under "5.5 Other Products That Require Version Upgrade," kindly consider to upgrade the version of the products.

5.6.1 Work before Installation of HULFT7 Main Module

a) When HULFT Manager is used, upgrade the version of HULFT Manager.

b) When HULFT for Mainframe Ver.5 is used, upgrade the version of HULFT for Mainframe Ver.5, or apply the patches in accordance with the procedure in "App1.1.1 Application of Patches."

c) When HULFT-SAN for Mainframe Ver.5 is used, upgrade the version of HULFT-SAN for Mainframe Ver.5, or apply the patches in accordance with the procedure in "App1.1. 1 Application of Patches."

d) When HULFT for K lower than Ver.1.0.3 is used, upgrade the revision of HULFT for K.

Chapter 6

Functional Restrictions of HULFT7

Newly introduced functions may be subject to restrictions under the operational environment in the case where various version of HULFT products coexist.

This chapter explains the functional restrictions when using HULFT7.

6.1 Restrictions in Environment Where HULFT5 and HULFT6 Coexist

6.1.1 Common Restrictions

(1) Intermodel and interversion restrictions on UTF-8 code conversion

a) Restrictions on sending and receiving functions

Interversion file transfer is available, yet there are some restrictions on the code conversion to or from UTF-8, which are placed depending on host types or versions.

Table 6.1 and Table 6.2 shows the restrictions on conversion to UTF-8 and from UTF-8, respectively.

<Table 6.1> Code Conversion to UTF-8 (UNIX/Linux/NSK)

			Sending Side Conversion		Receiving Side Conversion	
			Receiving Side(V7)	Receiving Side(V6/V5)	Receiving Side(V7)	Receiving Side(V6/V5)
Sending Side (V7)	Mainframe	JEF	N/A	N/A	✓	N/A
		IBM	N/A	N/A	✓	N/A
		KEIS	N/A	N/A	✓	N/A
		NEC	N/A	N/A	✓	N/A
	i5OS	IBM	✓	†*	✓	N/A
	Windows	SHIFT-JIS	✓	†*	✓	N/A
	UNIX/Linux /NSK	SHIFT-JIS	✓	†*	✓	N/A
		EUC	✓	†*	✓	N/A
		UTF-8	✓	†*	✓	N/A
Sending Side (V6/V5)	Mainframe	JEF	N/A	N/A	✓	N/A
		IBM	N/A	N/A	✓	N/A
		KEIS	N/A	N/A	✓	N/A
		NEC	N/A	N/A	✓	N/A
	i5OS	IBM	N/A	N/A	✓	N/A
	Windows	SHIFT-JIS	N/A	N/A	✓	N/A
	UNIX/Linux /NSK	SHIFT-JIS	N/A	N/A	✓	N/A
		EUC	N/A	N/A	✓	N/A
		UTF-8	N/A	N/A	†*	N/A

<Table 6.2>Code Conversion from UTF-8 (UNIX/Linux/NSK)

			Sending Side Conversion		Receiving Side Conversion	
			Sending Side(V7)	Sending Side(V6/V5)	Sending Side(V7)	Sending Side(V6/V5)
Receiving Side (V7)	Mainframe	JEF	✓	N/A	N/A	N/A
		IBM	✓	N/A	N/A	N/A
		KEIS	✓	N/A	N/A	N/A
		NEC	✓	N/A	N/A	N/A
	i5OS	IBM	✓	N/A	✓	N/A
	Windows	SHIFT-JIS	✓	N/A	✓	N/A
	UNIX/Linux /NSK	SHIFT-JIS	✓	N/A	✓	N/A
		EUC	✓	N/A	✓	N/A
		UTF-8	✓	N/A	✓	N/A
Receiving Side(V6/V5)	Mainframe	JEF	✓	N/A	N/A	N/A
		IBM	✓	N/A	N/A	N/A
		KEIS	✓	N/A	N/A	N/A
		NEC	✓	N/A	N/A	N/A
	i5OS	IBM	✓	N/A	N/A	N/A
	Windows	SHIFT-JIS	✓	N/A	N/A	N/A
	UNIX/Linux /NSK	SHIFT-JIS	✓	N/A	N/A	N/A
		EUC	✓	N/A	N/A	N/A
		UTF-8	†*	N/A	N/A	N/A

✓ : Conversion is available † : Conversion is available yet subject to restrictions N/A : Conversion is not applicable

* Setting the Kanji Code Type in the Host Information to 'UTF-8' on the side of the host that installed HULFT V7 makes the conversion to or from UTF-8 available. However, the host that installed V5 or V6 cannot specify 'UTF-8' as the Kanji Code Type of the local host. In such case, inconsistency may arise between the character code of actual data and the setting of the Kanji Code Type.

b) Restrictions on multiple file joining function

You can break, display, or additionally join the contents of files that are joined on HULFT of different versions. However, you cannot use the file, in which UTF-8 is joined on HULFT7, on HULFT Ver.6 and HULFT Ver.5.

(2) UTF-8 code conversion restrictions via HULFT-HUB

In the transfer via HULFT-HUB Server, where there is only one host on the receiving side and the Transfer Routing is set to 'Auto arrangement, ' code conversion is performed on the receiving side, except in the case where the Kanji Code Type and the JIS Year on all the hosts on the receiving side including HULFT-HUB Server are consistent.

In conversion on the receiving side, if the host on the receiving side is any one of the following, the conversion to or from UTF-8 is not available: HULFT Ver.5, HULFT Ver.6, or HULFT Ver.7 (Mainframe).

(3) Setting of data transfer method

In HULFT Ver.7, you can set either the Transfer Speed Priority Mode or the Error Detection Priority Mode as data transfer method. If you select the Transfer Speed Priority Mode, following restrictions or incompatibilities arise:

- The timing of the error detection of transfer is different from the one in conventional version, and the detection may become later.
- Timing that the cancellation of the transfer becomes effective is different from the one in conventional version, and it may become later.
- When an error in transfer occurs, inconsistency may occur between the log recod count in the Send Log and those in the Receive Log.
- When transferring, increase in resource volume and network traffic may occur.

To set the data transfer method, both sending host and receiving host should use HULFT Ver.7 or higher. In addition, HULFT-HUB Server to be routed through should be Ver.2.2 or higher, if these hosts use HULFT-HUB. When you use HULFT of lower version, transfer is carried out in the Error Detection Priority Mode.

In the case where you install HULFT Ver.7 or higher, the Transfer Speed Priority Mode is enabled. If you intend to use the Error Detection Priority Mode, it is necessary to modify the setting of the Framed Message Transfer Type to 'N.'

(4) Restrictions on data verification function

To use the data verification function, the hosts on both sending side and receiving side should install HULFT Ver.7 or higher.

If the host on the receiving side is lower than Ver.7, the data verification cannot be performed even if the host on the sending side is Ver.7 or higher. The application returns error if the host on the sending side is lower than Ver.7 due to inability of data verification of the host on the receiving side, even if the host on the receiving side is Ver.7 or higher and the data verification is enabled.

(5) Restrictions in HULFT Manager

HULFT Manager lower than Ver.7 cannot connect to the host of HULFT Ver.7. It is necessary to upgrade the version to HULFT Manager Ver.7.

(6) Restrictions in HULFT-HUB

HULFT-HUB Server lower than Ver.2.2 cannot control the client of HULFT Ver.7. It is necessary to upgrade the version to HULFT-HUB Server Ver.2.2.

(7) Restrictions in HULFT Manager for Web

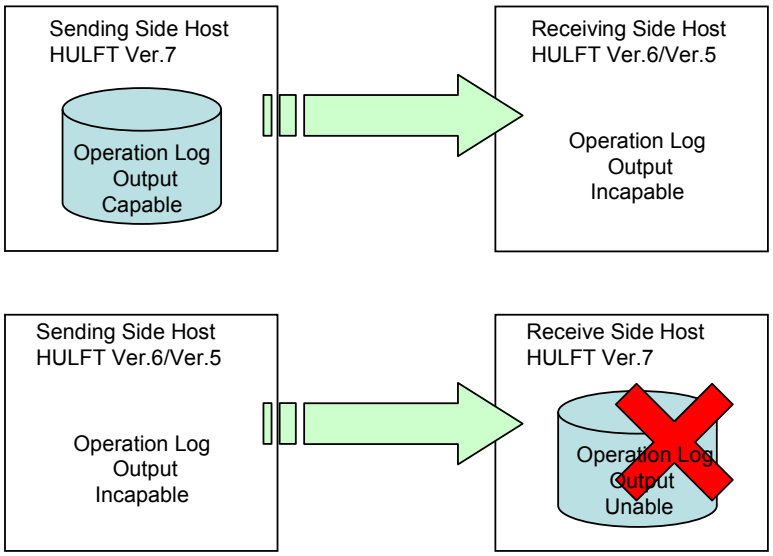
HULFT Manager for Web Ver.6 cannot connect to the host of HULFT Ver.7. HULFT Ver.7 is not available when you use HULFT Manager for Web Ver.6.

(8) Operation Log

The operation log is not output to the host of which version is lower than Ver.7, because it is a newly introduced function in HULFT Ver.7 or higher.

When the host on the sending side is HULFT Ver.7 or higher and the host on the receiving side is lower than HULFT Ver.7, the operation log is output to the host on the sending side.

If the host on the sending side is lower than Ver.7 and the host on the receiving side is Ver.7 or higher, the operation log is not output to the host on the receiving side, because the host on the receiving side cannot acquire the required information for the operation log from the host on the sending side.



<Figure 6.1> Correlationship between HULFT Version on Sending or Receiving Host and Operation Log

6.1.2 Restrictions Unique to HULFT for Mainframe

(1) Restrictions in transfer with RDW

Files to be sent

When sending files, the application adds the Record Descriptor Word (RDW) to transfer data to send them. (Only when the Binary Transfer is specified.) The RDW is applicable only to the variable-length format. The maximum net length per record that can be sent comes to 32752 bytes, which is the remainder of 32756, the maximum gross record length in variable length format, from 4 bytes, the length of the Record Descriptor Word (RDW). The attempt to send the file of 32753 bytes or more in record length by using sending with RDW causes an error.

Files to be received

The RDW is applicable only to the variable-length format.

6.1.3 Restrictions Unique to HULFT for UNIX/Linux

(1) Restrictions on environment variables

You cannot use the terms $STARTTRANSFERID and $NEWTRANSFERID in a job, because they are specified as the reserved word.

(2) Restrictions when using UTF-8 locale

HULFT Scheduler does not provide support for UTF-8 locale. When you use HULFT Scheduler together with HULFT Ver.7, set the locale of HULFT7 and HULFT Scheduler to either Shift-JIS or EUC.

6.1.4 Restrictions Unique to HULFT for Windows

(1) Restrictions on environment variables

You cannot use the terms $STARTTRANSFERID and $NEWTRANSFERID in a job, because they are specified as the reserved word.

(2) Restrictions in HULFT Net Installer

You cannot install HULFT Ver.7 by using HULFT Net Installer.

6.1.5 Restrictions Unique to HULFT for NSK

(1) Restrictions on environment variables

You cannot use the terms $STARTTRANSFERID and $NEWTRANSFERID in a job, because they are specified as the reserved word.

6.2 Restrictions in Coexistence Environment with HULFT5

There may be restrictions on behavior of HULFT in the case where you use newly introduced functions of Ver.6 or higher under the environment where HULFT Ver.6 and HULFT Ver.5 coexist.

(1) XML interface

HULFT does not carry out XML interface except for transfers between the hosts of Ver.6 or higher.

(2) Message transmission

When the host on the sending side is Ver.6 or higher and the host on the receiving side is Ver.5, the messages of the sending side are replaced yet not sent to the receiving side. When the host on the sending side is Ver.5 and the host on the receiving side is Ver.6 or higher, the messages are not replaced.

Meanwhile, when the host issued the Send Request (receiving) is Ver.6 or higher and the host on the Request Acknowledge (sending) side is Ver.5, the messages issued upon the issuance of the Send Request are replaced yet not sent to the Request Acknowledge side. When the host on the Send Request (receiving) side is Ver.5 and the host on the Request Acknowledge (sending) side is Ver.6 or higher, the messages are handled as NULL on the Request Acknowledge side.

(3) Use of Send file name as Receive file name

The name of the Send file cannot be used as the name of the Receive file, except for transfers between the hosts of Ver.6 or higher.

(4) Field attribute and sign part conversion in Format Transfer

Regarding the code conversion on HULFT Ver.6 or higher, the conversion of the attributes and signs is available.

However, when the host on the sending side is Ver.6 or higher and the situation falls under the following conditions, the code conversion is terminated unsuccessfully, bringing about 'version error.'

- When the Pack Zone Conversion is set to 'Mode S' (conversion of sign only), the Sign for ASCII is set to 'Mode 2' (sign positive: 3, negative: 7) and the database interface (including the CSV Interface) is specified.
- In sending on HULFT for Mainframe, the Pack Zone Conversion is set to 'Mode F' (conversion to floating point type) and the data interface (including CSV) is specified.

(5) Retrial when exceeding setting value of Receive Process Multiplex Level

When the host on the sending side is Ver.6 or higher, retrial is available.

(6) Auto Resend when transfer fails

When the host on the sending side is Ver.6 or higher, the Auto Resend is available.

(7) Error when Transfer Group is not registered

When the host on the receiving side is Ver.6 or higher, checking of the Transfer Group is available.

(8) Subsequent Character in fixed-length file

Regardless of sending side or receiving side, processing of subsequent characters is available on the host of HULFT Ver.6 or higher. Available types of processings vary depending upon the platform types, namely HULFT for Mainframe, HULFT for i5OS, HULFT for UNIX, HULFT for NSK, or HULFT for Windows. Availability is given in the following table:

<Table 6.3> Handling of Subsequent Character

	Mainframe/i5OS	UNIX/NSK/Windows
Sending side	Cutting of subsequent space/NULL characters	Setting of subsequent space/NULL characters
Receiving side	Setting of subsequent space/NULL characters	Cutting of subsequent space/NULL characters

(9) Display of Compression Ratio

When the host on the receiving side is Ver.6 or higher, the compression ratio is displayed.

(10) Display of receiving status

When the host on the receiving side is Ver.6 or higher, the receiving status is displayed.

(11) Conversion between EBCDIC Codes

Conversion between EBCDIC codes is not carried out in sending or receiving to HULFT of lower version.

(12) Title output in CSV Interface

When the receiving side is Ver.6 or higher, outputting the title to CSV file is available.

(13) Defaulting attributes of Receive files (HULFT for Mainframe)

Except for transfers between HULFT for Mainframe Ver.6 or higher, creating a Receive file in the same format as the attribute of a Send file is not available.

(14) Measures for communication timeout (On sending and receiving)

The host on both sending side and receiving side should install HULFT Ver.6 or higher.

(15) Setting of Multiplex Level for Each Host

When the host on the sending side is Ver.6.3.0 or higher, setting of multiplex level for each host is available.

(16) Increase of names of Send files and Receive files in Length (HULFT for Windows, HULFT for UNIX, HULFT for Linux, or HULFT for NSK)

Setting to increase the length of file name is available only on the side of sending in the case where the host on the sending side is Ver. 6.3.0 or higher, while the setting is available only on the side of receiving in the case where the host on the receiving side is Ver.6.3.0 or higher, respectively.

(17) Enhancement of resending function

In the case where the host on the sending side is Ver.6.3.0 or higher, using enhanced resending function is available.

(18) Display of Send Acknowledge Time and Date

When the host on the sending side is Ver.6.3.0 or higher, the Send Acknowledge Time and Date is displayed.

(19) Em-size space of Kanji Code KEIS

Selecting em-size space code is available only in the sending side conversion in the case where the host on the sending side is Ver. 6.3.0 or higher, while the setting is available only in the receiving side conversion in the case where the host on the receiving side is Ver. 6.3.0 or higher, respectively.

(20) Countermeasures for communication timeout (When issuing Send Request or executing remote job)

In both synchronous transfer of the Send Request and remote job execution, the hosts on both Send Request side and Request Acknowledge side should be Ver. 6.3.0 or higher.

6.3 Operation Restrictions of Cluster-capble Functions (UNIX/Linux)

This section explains the conditions in the case where you use the cluster-capable functions of HULFT for UNIX/Linux.

(1) Auto Resume Receiving after fail-over

This function is the enhanced version of the Auto Resend that is introduced in Ver.6 or higher. In the case where fail-over on HULFT with cluster-capable function on the receiving side occurs, the auto resume receiving is carried out by executing the Auto Resend on HULFT on the sending side. HULFT with cluster-capable function can use the auto resume receiving function after fail-over only when the following conditions are satisfied:

a) Version of HULFT on sending side

<Table6.4>Versions of HULFT on Sending Side

OS of HULFT on Sending Side	Version of HULFT
UNIX/Linux	Ver.6.0.3 or higher
Windows	Ver.6.0.2 or higher
Mainframe	Ver.6.0.3 or higher
OS400	Ver.6.0.2 or higher

b) Setting of HULFT on sending side

In the case where the value of the Auto Resend Retry Count in the System Environment Settings is more than '0.'

When the conditions mentioned above are not satisfied, the Auto Resume Receiving after fail-over is not carried out. In such case, the transfer is placed on the Resend Queue on the sending side.

~~~~~~~~~~~~~~~~~~~~~~~~ Memo ~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~

Chapter 7

Restrictions on Cooperation with HULFT-HUB

This chapter explains restrictions on combination with lower version and operational functions as well as points to be noted, when establishing cooperation between HULFT and HULFT-HUB.

7.1 Restrictions on Combination with Lower Versions

7.1.1 HULFT7-capable HULFT-HUB Server

HULFT7 can connect with HULFT-HUB Server Ver.2.2 or higher. On the other hand, HULFT7 cannot connect with HULFT-HUB Server lower than Ver.2.2. To establish cooperation, it is necessary to upgrade the level of HULFT-HUB Server to Ver.2.2.

7.1.2 Restrictions in Structure That Includes HULFT or HULFT-HUB of Lower Version

In the structure where the client that is HULFT lower than Ver.7 is included or where a server in which HULFT-HUB lower than Ver.2.2 is installed, there are some restrictions on utilizing new functions of HULFT7 as shown below:

- Operation log
- Data transfer according to the Framed Message Transfer Type
- Data verification

(1) Restrictions on operation log

On the client that is HULFT lower than Ver.7 or on the server on which HULFT-HUB lower than Ver.2.2 is installed, the operation log function is not available.

Meanwhile, if there is a HULFT-HUB Server lower than Ver.2.2 en route, the operation log function is not available even on HULFT-HUB Server Ver.2.2 or higher, or on HULFT Ver.7 or higher, if they lie further than HULFT-HUB Server lower than Ver.2.2.

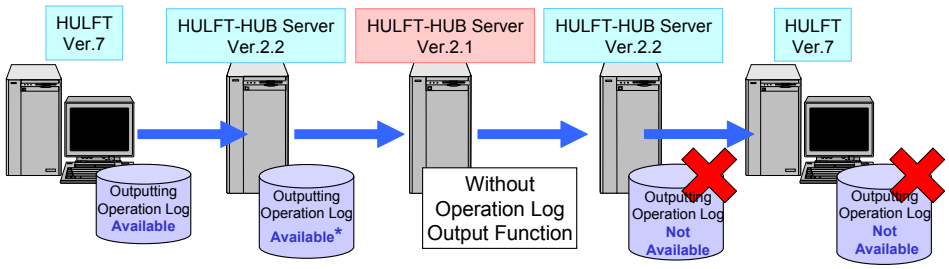


Figure 7.1 Restrictions on Operation Log

(2) Restrictions on Framed Message Transfer Type

When there is HULFT lower than Ver.7 on the sending side or on the receiving side, or when there is HULFT-HUB Server lower than Ver.2.2 en route, the specification of the Transfer Speed Priority Mode of HULFT Ver.7 or higher is ignored and the application transfers data in the Error Detection Priority Mode. Meanwhile, the application applies the transfer according to setting of the Framed Message Transfer Type in the cases explained below.

If all of the following conditions are fulfilled on the way from the client on the sending side through the Accumulation Server, the application applies the transfer according to the setting of the Framed Message Transfer Type, from the client on the sending side through HULFT-HUB Server where the data is accumulated.

- 'Accumulate only' or 'Deliver after accumulation' is specified for the Accumulation Conditions.
- Client on the sending side is HULFT Ver.7 or higher.
- All of HULFT-HUB Servers that exist en route to HULFT-HUB Server where the data is accumulated are Ver.2.2 or higher.

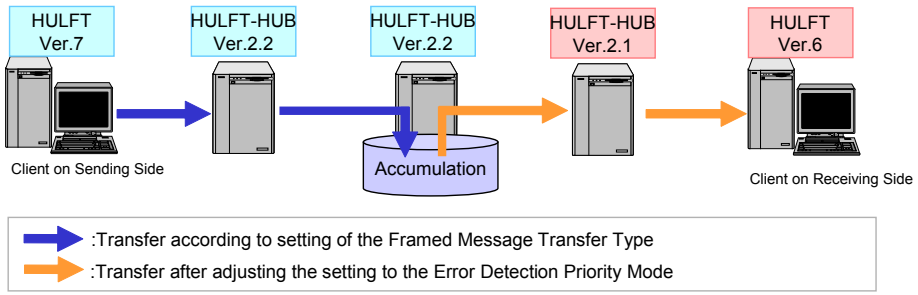


Figure 7.2 Restrictions on Framed Message Transfer Type

(3) Restrictions on data verification

To carry out data verification all the way from the client on the sending side through the client on the receiving side, clients on both sending side and receiving side should install HULFT Ver.7 or higher. In addition, it is necessary to have HULFT-HUB Server Ver.2.2 or higher installed on the transfer routing.

However, in the operation that uses the accumulation function of HULFT-HUB, data verification may become available in some part of the Transfer Routing, even when the client on the receiving side is lower than HULFT Ver. 7 or HULFT-HUB Server en route is lower than Ver.2.2.

The pattern of structure decides the availability of data verification. In any patterns of structure, execution of data verification assumes that the client on the sending side is HULFT Ver.7 or higher.

- Data Verification-capable Structure for Any Transfer Data

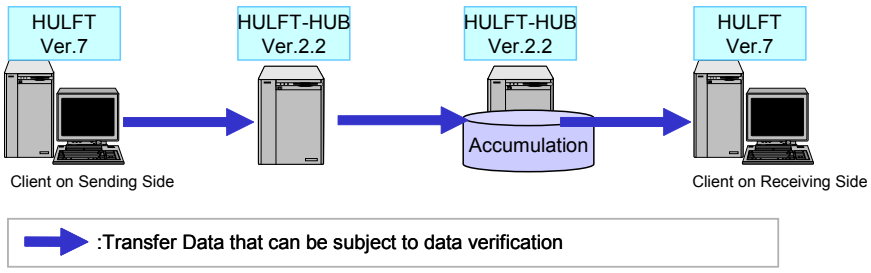


Figure 7.3 Restrictions on Data Verification

- Data Verification-capable Structure in Some Part of Transfer Routing

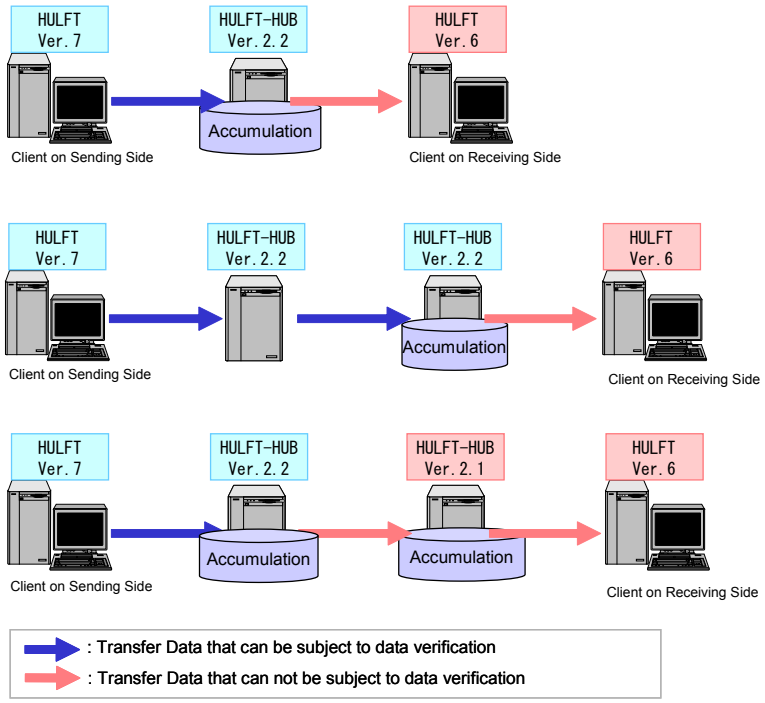


Figure 7.4 Data Verification-capable Structure

- Data Verification-incapable Structure

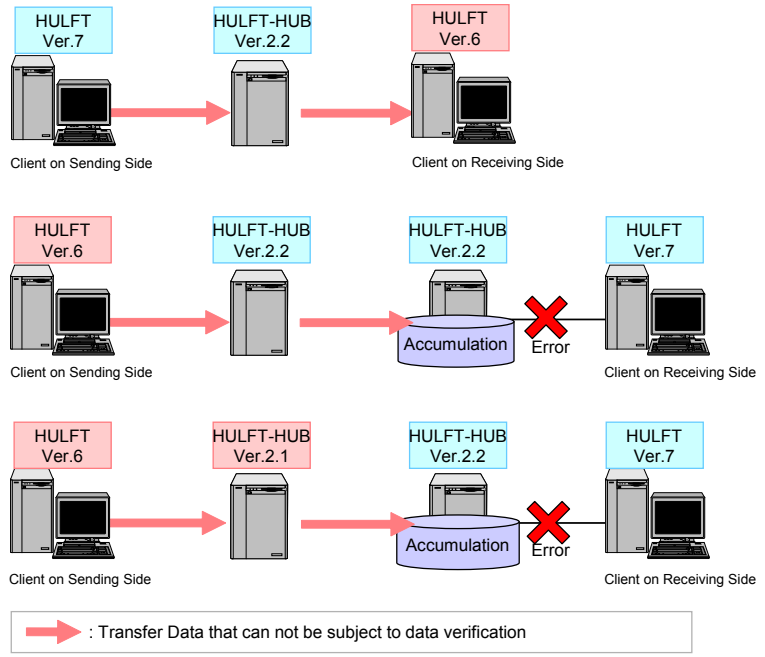


Figure 7.5 Data Verification-incapable Structure

7.2 Functional Restrictions on Cooperation with HULFT-HUB

7.2.1 Operational Restrictions on Functions

This section explains restrictions on functions when you use HULFT and HULFT-HUB.

(1) Restrictions on Host Name

- To use HULFT under the control of HULFT-HUB, the characters of the Host Names should be 44 bytes or less. If 45 bytes or more characters including domain name are used for the Host Name, it is necessary to re-specify the field within 44 bytes.
- When you define the transfer via HULFT-HUB Server, HULFT-HUB adds the Receive Port No. to the original Host Name for management purpose. Therefore, the combined Host Name which consists of the Host Name and the Receive Port No. is displayed in various status display commands and logs.

  (Example)

  Host Name: HOST1 Receive Port No.: 30000

  Host Name used in the transfer via HULFT-HUB: HOST1_30000

  The existing job settings may require adjustment, when HULFT refers to the Host Name of environment variables specified on the side of HULFT in Pre-send Job or Post-Send/Post-receive Job.

(2) Restriction on Multicasting and Accumulation

- When you use multicasting function and accumulation function of HULFT-HUB, the Checkpoint Resend File is not performed. Whenever you specify the Checkpoint Resend File, the application sends the data from the top.
- The specification of 'Sending Side' for the Code Conversion is available only when the settings in the Kanji Code Type and the JIS Year of all HULFT located at the multicasting destinations are consistent with those of HULFT-HUB Server that executes the first multicasting processing. When the situation does not fall under above, it is necessary to select 'No Conversion' or 'Receiving Side' for the File ID specified in multicasting.
- When you issue the Send Request or the Resend Request with the File ID in which multicasting is specified by HULFT-HUB, absence of the target data in the server results in an error on the sending side client.

(3) Restriction on Management Screen Security

Operational restrictions placed by permission setting may not become effective in the case where operational permission is set by using the Management Screen Security on HULFT, even if the setting to log in HULFT via HULFT-HUB is specified. When you use HULFT-HUB, specify the permission settings on the side of HULFT-HUB again.

(4) Restriction on Request Acknowledgement

- The types of the Service that can be used in the transfer via HULFT-HUB are only the Send Request (SEND) and the Resend Request (RESEND).
- Executing the Job Execution Result Notification Request with Post-send or Post-receive jobs in the transfer via HULFT-HUB causes an error. Besides, executing the Job Monitor Request of the Send Log on the Management screen of HULFT that carried out transfer via HULFT-HUB causes an error.

(5) Version of IP protocol

HULFT-HUB does not provide support for IPv6. Therefore, HULFT-HUB cannot communicate with HULFT of which communication method is only IPv6.

7.2.2 Points to be Noted When Using New Functions of HULFT7

This section explains points to be noted when utilizing new functions of HULFT7, in the case where HULFT-HUB Ver.2.2 or higher is used.

(1) Points to be Noted on Framed Message Transfer Type and Data Transfer Method

Although the Transfer Speed Priority Mode is specified both hosts on the sending side and the receiving side, HULFT transfers in the Error Detection Priority Mode depending on the settings of HULFT-HUB. Shown below are the conditions where the transfer is carried out in the Error Detection Priority Mode:

- Multicasting is specified.
- Either 'Accumulate only when unable to transfer' or 'Transfer and accumulate concurrently' is specified for the Accumulation Conditions.

(2) Points to be Noted on UTF-8

In the transfer via HULFT-HUB Server, where there is only one host on the receiving side and the Transfer Routing is set to 'Auto arrangement, ' code conversion is performed on the receiving side, except in the case where the Kanji Code Type and the JIS Year on all the hosts on the receiving side including HULFT-HUB Server are consistent. In conversion on the receiving side, if the host on the receiving side is any one of the following, the conversion to or from UTF-8 is not available: HULFT Ver.5, HULFT Ver.6, or HULFT Ver.7 (Mainframe)

Note that failure in correct code conversion does not cause an error in transfer.

(3) Points to be Noted on Data Verification

This section explains HULFT that requires the setting of data verification function by operation structure of HULFT-HUB.

Refer to *HULFT-HUB Manual* for the data verification on HULFT-HUB and *HULFT-HUB Manager Online Help* for the operation of the setting operation. respectively.

- Relay

  Specify the Verify Data in the Receive Management Information that exists in HULFT on the receiving side client. (Enable the Verify Data)

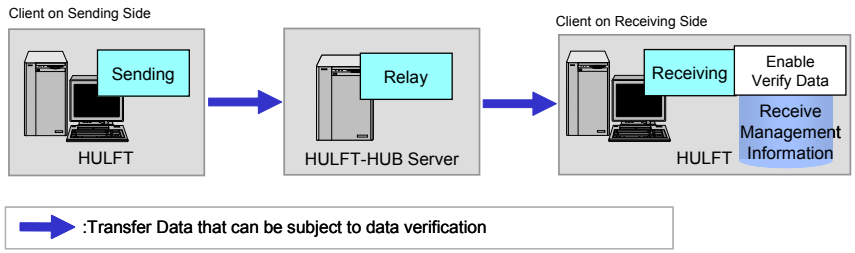


Figure 7.6 Setting of Data Verification When Using HULFT-HUB (Relay)

- Multicasting

  Specify the Verify Data in the Receive Management Information that exists in HULFT on the receiving side client. (Enable the Verify Data)

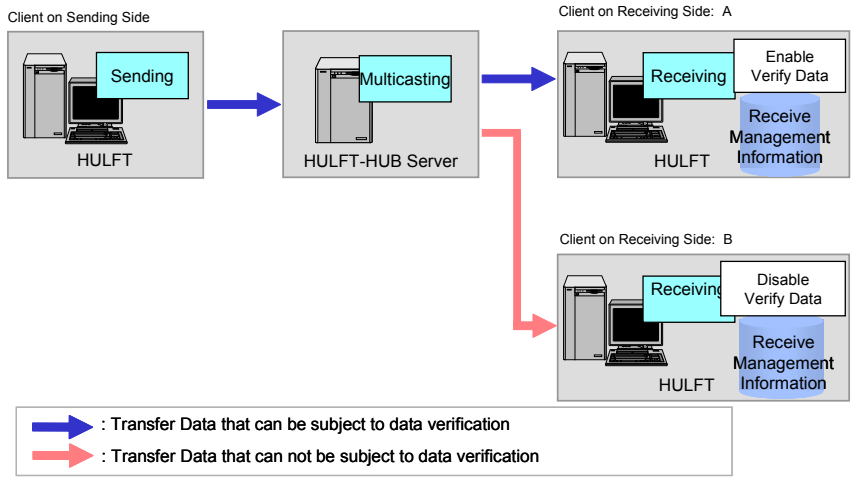


Figure 7.7 Setting of Data Verification When Using HULFT-HUB (Multicasting)

- Accumulation

  The Transfer Information (Accumulation Settings) of the server where the transfer data is accumulated requires settings for data verification. In addition, enable the Verify Data in the Receive Management Information of HULFT on the receiving side client.

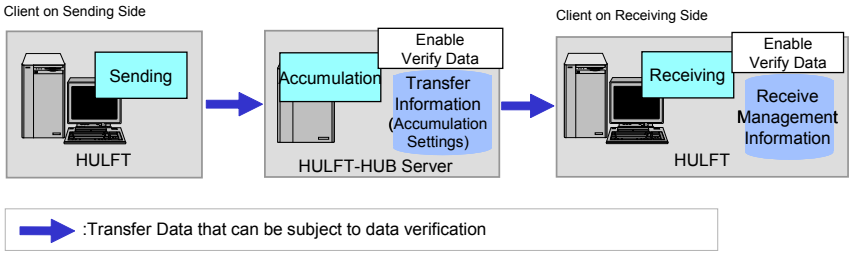


Figure 7.8 Setting of Data Verification When Using HULFT-HUB (Accumulation)

~~~~~~~~~~~~~~~~~~~~~~~~ Memo ~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~

Appendix 1

Application of Patches

App.1.1 HULFT for Mainframe Ver.5

In order to communicate with HULFT Ver.6 or higher, it is necessary to apply following patches. Note that the contents to be applied vary according to the revision number of the installed HULFT.

App.1.1.1 HULFT for MVS

(1) When the version is Ver.5.0.4 or higher and lower than Ver.5.0.10

```
//PATCH JOB
//PATCH EXEC PGM=IMASPZAP
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.V500.LOAD,DISP=SHR
//SYSIN    DD *
NAME XRCONN
VER 0434 4770C456
REP 0434 4740C456
/*
//
```

App.1.1.2 HULFT for MSP

(1) When the version is Ver.5.0.0 or higher and lower than Ver.5.0.2

```
//PATCH JOB
//PATCH EXEC PGM=IMASPZAP
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.V500.LOAD,DISP=SHR
//SYSIN    DD *
NAMEX XRCONN
VER 049A 4770C4BC
REP 049A 4740C4BC
/*
//
```

2) When the version is Ver.5.0.2 or higher and lower than Ver.5.0.4

```
//PATCH JOB
//PATCH EXEC PGM=IMASPZAP
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.V500.LOAD,DISP=SHR
//SYSIN    DD *
NAMEX XRCONN
VER 04A6 4770C4C8
REP 04A6 4740C4C8
/*
//
```

(3) When the version is Ver.5.0.4 or higher and lower than Ver.5.0.10

```
//PATCH JOB
//PATCH EXEC PGM=IMASPZAP
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.V500.LOAD,DISP=SHR
//SYSIN    DD *
NAMEX XRCONN
VER 04FC 4770C51E
REP 04FC 4740C51E
/*
//
```

App.1.1.3 HULFT for XSP

(1) When the version is Ver.5.0.2 or higher and lower than Ver.5.0.10

```
¥ JOB PATCH,LIST=(A,JD)
¥PATCH EX SPZAP
¥ FD ELIB=DA,FILE=HULFT.V500.LOAD
¥ FD LIST=DA,VOL=WORK,TRK=(10,10),SOUT=A
¥ FD COIN=*
NAMEX XRCONN
VER 04AA 4770,C4CC
REP 04AA 4740,C4CC
¥JEND
```

App.1.1.4 HULFT for VOS3

When you use Ver.5.0.0 or higher, or product version lower than Ver.5.0.4, contact us as different procedure will be applied in such case.

(1) When the version is Ver.5.0.4 or higher and lower than Ver.5.0.8

When ManagerConnection Option is installed, apply the patches both a) and b). When the option is not installed, apply only patch a).

a) Patch for HULFT

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRFISS XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRFRCV XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRIFILE XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRCVREQ XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRFILE XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRJOBEX XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRSNDRQ XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRSNDRC XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
//
```

b) Patch for ManagerConnection Option

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRWINPC XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
//
```

(2) When the version is Ver.5.0.8

When ManagerConnection Option is installed, apply the patches both a) and b).

a) Patch for HULFT

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRFISS XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRFRCV XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRIFILE XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRCVREQ XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRFILE XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRJOBEX XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRSNDRQ XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRSNDRC XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
//
```

b) Patch for ManagerConnection Option

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRWINPC XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
//
```

(3) When the version is Ver.5.0.9

When ManagerConnection Option is installed, apply the patches both a) and b). When the option is not installed, apply only patch a).

a) Patch for HULFT

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRFISS XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRFRCV XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRIFILE XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRRCVREQ XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRRFILE XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRRJOBEX XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRRSNDRQ XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
NAME XRSNDRC XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
//
```

b) Patch for ManagerConnection Option

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRWINPC XRCONN
VER 041C 4770,C516
REP 041C 4740,C516
//
```

App.1.2 HULFT-SAN for Mainframe(H) Ver.5

In order to communicate with HULFT Ver.6 or higher, following patches need to be applied. Note that the contents to be applied vary according to the revision number of the installed HULFT-SAN(H).

App.1.2.1 HULFT for MVS

Refer to "App. 1.1.1" and apply the patches.

App.1.2.2 HULFT for MSP

Refer to "App. 1.1.2" and apply the patches.

App.1.2.3 HULFT for VOS3

(1) When the version is Ver.5.0.5 or higher and lower than Ver.5.0.8

When ManagerConnection Option is installed, apply the patches both a) and b). When the option is not installed, apply only patch a).

a) Patch for HULFT-SAN(H)

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRFISS XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRFRCV XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRIFILE XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRCVREQ XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRFILE XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRJOBEX XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRRSNDRQ XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
NAME XRSNDRC XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
//
```

b) Patch for ManagerConnection Option

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRWINPC XRCONN
VER 03E4 4770,C4D6
REP 03E4 4740,C4D6
//
```

(2) When the version is Ver.5.0.8

When ManagerConnection Option is installed, apply the patches both a) and b). When the option is not installed, apply only patch a).

a) Patch for HULFT-SAN(H)

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRFISS XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRFRCV XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRIFILE XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRCVREQ XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRFILE XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRJOBEX XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRRSNDRQ XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
NAME XRSNDRC XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
//
```

b) Patch for ManagerConnection Option

```
//PATCH JOB
//PATCH EXEC PGM=JSPPTCH
//STEPCAT  DD DSN=USERCAT,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DSN=HULFT.LOADLIB,DISP=OLD
//SYSIN    DD *
NAME XRWINPC XRCONN
VER 0414 4770,C506
REP 0414 4740,C506
//
```

(3) When the version is Ver.5.0.9

When ManagerConnection Option is installed, apply the patches both a) and b). When the option is not installed, apply only patch a).

a) Patch for HULFT-SAN(H)

```
//PATCH JOB
NAME XRFISS XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRFRCV XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRIFILE XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRRCVREQ XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRRFILE XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRRJOBEX XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRRSNDRQ XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
NAME XRSNDRC XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
//
```

b) Patch for ManagerConnection Option

```
//PATCH JOB
NAME XRWINPC XRCONN
VER 041C 4770,C516
REP 041C 4740,C516 #(62)
//
```

App.1.3 HULFT-SAN for Mainframe(F) Ver.5

In order to communicate with HULFT Ver.6 or higher, following patches need to be applied. Note that the contents to be applied vary according to the revision number of the installed HULFT-SAN(F).

App.1.3.1 HULFT for MVS

Refer to "App. 1.1.1" and apply the patches.

App.1.3.2 HULFT for MSP

Refer to "App. 1.1.2" and apply the patches.

App.1.3.3 HULFT for XSP

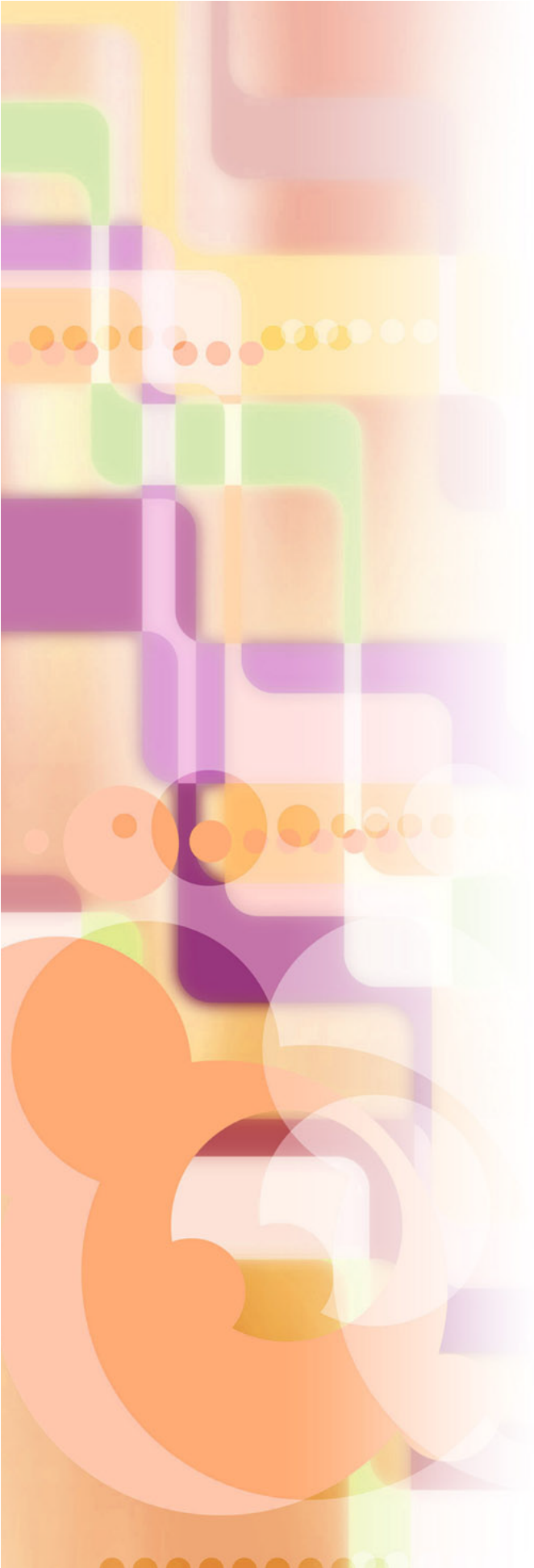
Refer to "App. 1.1.3" and apply the patches.

HULFT7e

New Functions and Incompatibility Manual

First Edition: September 1, 2009
Second Edition: December 1, 2009

SAISON INFORMATION SYSTEMS CO., LTD.



SAISON
INFORMATION
SYSTEMS
CO., LTD.