

BIC ISO Standards Manual

BASE24[®]



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Preface

The ***BASE24 BIC ISO Standards Manual*** contains specifications for the BIC ISO external message. It includes a general overview of the message, explanations of the external message types used by the BIC ISO Interface, a set of message defaults for each BASE24 product, a description of each data element contained in the message, and descriptions of the message flows between BASE24 and a co-network.

Audience

This manual is intended as a reference source for persons responsible for the message interface between a co-network and BASE24 using the BIC ISO Interface message format. A co-network can be another BASE24 network or any transaction processing network that conforms to the standards set forth in this manual for message formats and processing.

Prerequisites

The structure and content of the BIC ISO external message are patterned after the standard external message developed by the International Organization for Standardization (ISO) and described in the ISO 8583:1987 standard, ***Bank Card Originated Messages—Interchange Message Specifications—Content for Financial Transactions***. Because of the similarity between the BIC ISO external message and the ISO standard, familiarity with this document, commonly referred to as *ISO 8583*, is recommended. There are several differences between the BIC ISO external message and the ISO standard that may be of interest to readers familiar with the ISO standards. These differences are described in section 1.

Additional Documentation

The BASE24 documentation set is arranged so that each BASE24 manual presents a topic or group of related topics in detail. When one BASE24 manual presents a topic that has already been covered in detail in another BASE24 manual, the topic is summarized and the reader is directed to the other manual for additional

information. Information has been arranged in this manner to be more efficient for readers who do not need the additional detail and at the same time provide the source for readers who require the additional information. This manual contains references to the following BASE24 publications:

- The ***BASE24 BIC ISO Interface Manual*** describes how the BIC ISO Interface process uses the ISO-based external message.
- The ***BASE24 External Message Manual*** describes how data element values are handled internally by BASE24.
- The ***BASE24 Logical Network Configuration File Manual*** contains the assigns and parameters used in the BASE24 system.
- The ***BASE24 Transaction Security Manual*** provides detailed information about key management.
- The ***BASE24 Tokens Manual*** provides detailed information about the tokens used in the BASE24 system.

In addition to the above BASE24 publications, this manual contains references to the following ISO publications:

- The ISO 7813 standard, ***Identification Cards—Financial Transaction Cards*** provides specifications on the standard ISO requirements for Track 2 data.
- The ISO 4909 standard, ***Magnetic Stripe Data Content for Track 3*** provides specifications on the standard ISO requirements for Track 3 data.
- The ISO 4217 standard, ***Codes for the Representation of Currencies and Funds*** lists valid values for currency codes.

Software

This manual documents standard processing as of its publication date. Software that is not current and custom software modifications (CSMs) may result in processing that differs from the material presented in this manual. The customer is responsible for identifying and noting these changes.

Manual Summary

The following is a summary of the contents of this manual.

“Conventions Used in this Manual” follows this preface and describes notation and documentation conventions necessary to understand the information in the manual.

Section 1, “Introduction,” provides a general overview of the BIC ISO external message.

Section 2, “External Message Types,” describes the external message types supported by the BIC ISO Interface.

Section 3, “External Message Defaults,” describes the external message defaults as defined for the BIC ISO Interface.

Section 4, “External Message Data Elements,” describes the ISO standards for the external message data elements.

Section 5, “BIC ISO Data Elements,” describes the data elements of the BIC ISO external message.

Section 6, “Transaction Handling,” describes how the BIC ISO Interface process handles various types of messages.

Appendix A, “BASE24-atm/ISO Conversion Tables,” contains conversion tables for BASE24-atm response codes, reversal codes, and adjustment codes that must be converted to and from ISO standard codes by the BIC ISO Interface.

Appendix B, “BASE24-pos/ISO Conversion Tables,” contains conversion tables for BASE24-pos response codes, reversal codes, and adjustment codes that must be converted to and from ISO standard codes by the BIC ISO Interface.

Appendix C, “Previous Release ISO Messages,” contains descriptions of data elements where the structure for the previous release format is different from the current release format.

Appendix D, “System Configuration Options,” describes the system configuration options that are available when setting up a co-network.

Appendix E, “Reconciliation Totals,” describes the reconciliation totals maintained by BASE24.

A glossary that contains definitions of terms used in this manual follows the last appendix.

Publication Identification

Three entries appearing at the bottom of each page uniquely identify this BASE24 publication. The publication number (for example, SW-DS004-02 for the *BASE24 BIC ISO Standards Manual*) appears on every page to assist readers in identifying the manual from which a page of information was printed. The publication date (for example, Dec-2009 for December, 2009) indicates the issue of the manual. The software release information (for example, R6.0v10 for release 6.0, version 10) specifies the software that the manual describes. This information matches the document information on the copyright page of the manual.

Conventions Used in This Manual

This section explains how data elements and blank characters are documented in this manual.

Documentation Template

The data elements used in the BIC ISO external message are described in detail in section 5. A standard format has been used for describing these data elements. The standard format is as follows:

Note: There may be more than one description for a single data element position in those cases where different BASE24 products define the same private use data element for different purposes.

Format: States the attributes for the data element. The values used to represent the attributes are based on the ISO 8583 standards:

A = Alphabetic characters
N = Numeric characters
S = Special characters
AN = Alphabetic and numeric characters
AS = Alphabetic and special characters
NS = Numeric and special characters
ANS = Alphabetic, numeric, and special characters

For fixed-length fields, the above characters are followed by the number of characters in the field (e.g., *N 10* indicates that the field is a fixed-length, 10-position, numeric field).

For variable-length fields, the above characters are followed by two dots and the maximum number of characters that can be carried in the field (e.g., *A ..21* indicates that the field is a variable-length, alphabetic field, which can be from zero to 21 characters in length).

X+ is used with some amounts to indicate that they must be preceded by a capital *C* if the amount is a credit or a capital *D* if the amount is a debit. This adds one to the given length of the field.

Date and time formats are shown using the following values:

YY = Year
MM = Month
DD = Day
hh = Hour
mm = Minute
ss = Second
hh = Millisecond

Used by: States the BASE24 products that use the data element.

The phrase *Not used by BASE24* indicates that the data element is not used by any of the BASE24 products.

A description explaining how the data element is used immediately follows the information provided in the USED BY field.

General information concerning the data element that is the same for all BASE24 products is presented first.

Information that varies by BASE24 product is presented, by product, following the general information.

If the data element is not used by BASE24 products, no description is provided. For information on these data elements, refer to ISO 8583 standards.

Blank Characters

Field descriptions for internal and external messages, tokens, files maintenance screens, and reports often include lists of valid values. When the value contains a blank character, this manual uses the symbol *b* to indicate the blank character.

Unlabeled Fields on Screens

Angle brackets (< >) indicate an unlabeled field on a screen. An unlabeled field is a field that is present on a screen but is not preceded by an identifying literal label. For the purposes of documenting the field, a label has been assigned and appears inside the angle brackets. A multiple line unlabeled field is displayed as a shaded area and also has a label in angle brackets.

In the field descriptions for the screen, the unlabeled field appears according to its place on the screen and is identified by the same label.

Unlabeled fields are not included in the index by field name; they appear by subject in the main index.

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1: Introduction

This section provides an introduction to the BIC ISO external message. It includes an overview of message components and structure, the handling of rejected messages, and how the BIC ISO external message differs from the ISO standard.

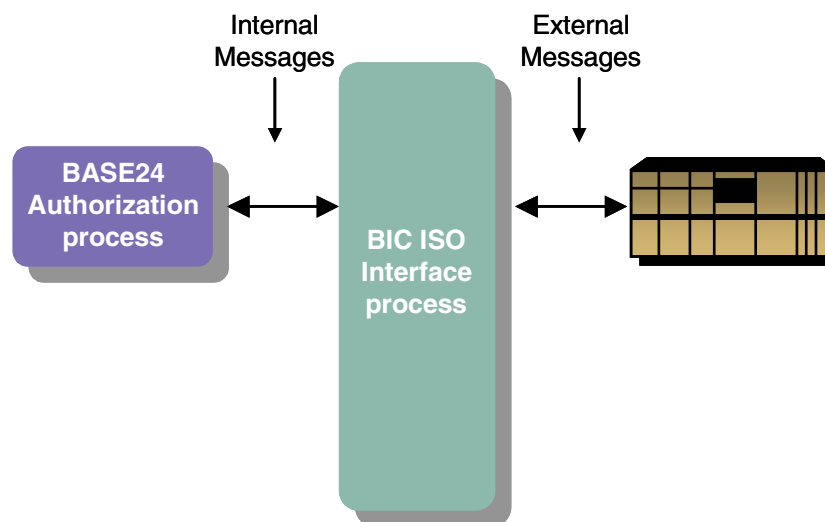
The BIC ISO External Message

The BIC ISO external message is based on the ISO 8583:1987 standard published by International Organization for Standardization (ISO). It is a variable-length, variable-content message that can be configured differently, based on the type of message being sent.

The BIC ISO Interface process is responsible for translating incoming and outgoing BIC ISO external messages to and from the BASE24-atm and BASE24-pos internal message formats. The BIC ISO Interface processes create and interpret external messages according to the specifications in this manual. The BIC ISO external message allows incoming and outgoing messages to be configured individually by a co-network, depending on the information the co-network chooses to send and receive.

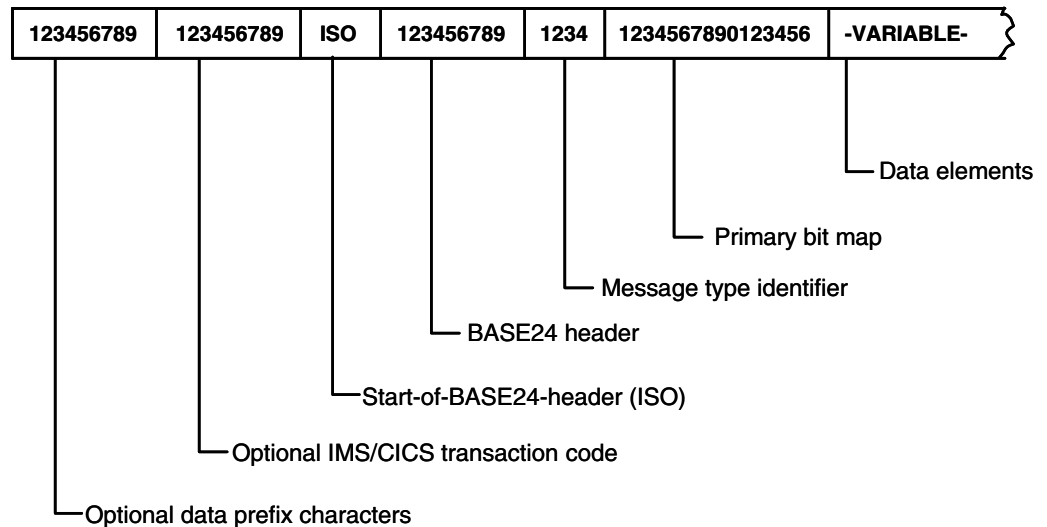
Throughout this manual, *incoming* refers to messages being received by the BASE24 system and *outgoing* refers to messages being sent by the BASE24 system.

The following graphic illustrates that the BIC ISO Interface process translates messages between the BASE24 internal message format and an external format recognizable to co-networks.



BIC ISO External Message Components and Structure

The BIC ISO external message is made up of the following elements, structured as shown below. Some of these elements are mandatory, others are optional. Each is discussed in depth on the following pages.



BIC ISO External Message Components		
Component	Length	Required
Data prefix characters	0–9 bytes	No
IMS/CICS transaction codes	0–9 bytes	No
ISO literal	3 bytes	Yes
BASE24 header	9 bytes	Yes
Message type identifier	4 bytes	Yes
Primary bit map	16 bytes	Yes
Data elements	variable length	N/A

Data Prefix Characters

BASE24 products allow co-networks to define certain characters they want included in front of the messages they receive from BASE24. These additional characters, called data prefix characters, are optional and are only included in the BIC ISO external message if the BASE24 system is set up to include them.

A co-network can specify up to nine characters to precede their messages. Each time the BASE24 system creates an external message, it checks for the presence of data prefix characters. If data prefix characters are present, the BASE24 system places these characters at the front of the message.

Note: Because BASE24 products do not support *transparent* data communications, protocol characters cannot be used as data prefix characters. These include the following:

Hex	ASCII Display	Hex	ASCII Display	Hex	ASCII Display
01	SOH	02	STX	03	ETX
04	EOT	05	ENQ	06	ACK
10	DLE	15	NAK	16	SYN
17	ETB	1F	ITB		

IMS and CICS Transaction Codes

For IMS or CICS co-networks that use different transaction codes than are used by the BASE24 system, BASE24 products allow for inclusion of transaction code equivalents in the front material of its external messages.

These IMS or CICS transaction codes can be specified at the message-level to allow users to enter up to nine characters for each transaction code supported by the BASE24 system. For example, CICS and IMS transaction code values could be similar to those in the following table:

Transaction	BASE24	CICS	IMS
Withdrawal from checking	100100	W001	W0000001
Withdrawal from savings	101100	W002	W0000002
Withdrawal from credit card	103100	W003	W0000002
Deposit to checking	200001	D001	D0000001
Deposit to savings	200011	D002	D0000002
etc. ...			

Note: the values in the table are examples only; the actual IMS or CICS transaction codes depend on the co-network. The co-network programming staff should provide any IMS or CICS codes that need added.

When the BIC ISO Interface process creates an external message, it checks to determine whether an equivalent is specified for the transaction code of the message being sent. If an equivalent is specified, the BIC ISO Interface process adds that transaction code equivalent to the front material of the message.

ISO Literal—Start-of-BASE24-Header Indicator

The BASE24 system uses, and requires, the literal *ISO* as its start-of-BASE24-header indicator for external messages. These three characters signal the start of the BASE24 header. For outbound messages, they are always present; for inbound messages, they are always required.

For inbound messages, the BIC ISO Interface process strips off any characters up to and including this start-of-BASE24-header indicator and discards them.

When message authentication is configured, the ISO literal is always included in generating the message authentication code. For more information on message authentication, see the topic “Message Authentication Code Support” later in this section.

BIC ISO External Message Header

The BIC ISO external message header is required for all messages. It must immediately follow the ISO start-of-BASE24 header indicator. The external message header is nine positions in length and contains the following fields:

Position	Length	Description
1–2	2	Product Indicator Indicates the BASE24 product with which the message is associated. Valid values are as follows: 00 = Base (network management messages) 01 = BASE24-atm 02 = BASE24-pos
3–4	2	Release Number The current release of the external message format to be used. This field is verified at logon to make sure the co-network is set up correctly. In a release 4.0 BASE24 network, the value of this field must be set to 00. In a release 5.x BASE24 network, the value must be set to 00 or 01. The value cannot be set to 60. In a release 6.0 BASE24 network, the value can be set to 00, 01 or 60. The BASE24 co-networks must use the value of the message format of the oldest release of BASE24 used by the two co-networks. The message format is specified in the VERSION field of the Enhanced Interchange Configuration File (ICFE). The table below shows the VERSION field setting and the resulting value for this field. Valid values are as follows 00 = Release 4.0 format 01 = Release 5.x format 60 = Release 6.0 format

Position	Length	Description
5–7	3	<p>Status</p> <p>Indicates whether there was a problem with the interpretation of the message.</p> <p>If the message was rejected because of a security failure, this field indicates the reason. Valid values are as follows:</p> <p>196 = Key synchronization error 197 = Invalid message authentication code (MAC) error 198 = Security operation failed 199 = Security device failure</p> <p>If the message was rejected because of bad data in the message, the BIC ISO Interface process loads the bit map element number of the offending data element into this field and returns the message to the co-network.</p>
8	1	<p>Originator Code</p> <p>Indicates the network entity that introduced the transaction to the BASE24 system. Valid values are as follows:</p> <p>0 = Undetermined 1 = Device controlled by the BASE24 system 2 = Device Handler 3 = Authorization process 6 = Interchange Interface process 7 = Interchange</p>
9	1	<p>Responder Code</p> <p>Indicates the network entity that created the response. Valid values are as follows:</p> <p>0 = Undetermined 1 = Device controlled by the BASE24 system 2 = Device Handler 3 = Authorization process 6 = Interchange Interface process 7 = Interchange</p>

When message authentication is configured, the BASE24 header is always included in generating the message authentication code. For more information on message authentication, see the topic “Message Authentication Code Support” later in this section.

Message Type Identifier

The message type identifier is a four-digit code identifying the general function of the message. It is required in all messages. The external message types supported by BASE24 products are described in section 2.

When message authentication is configured, the message type identifier is always included in generating the message authentication code. For more information on message authentication, see the topic “Message Authentication Code Support” later in this section.

Primary Bit Map

The primary bit map is a 16-position field required in all messages. It represents 64 bits of data used to identify the presence (denoted by 1 or bit on) or absence (denoted by 0 or bit off) of the first 64 data elements in the message.

Sixty-four bits are converted to and from 16 bytes of display data using hexadecimal (hex) equivalents:

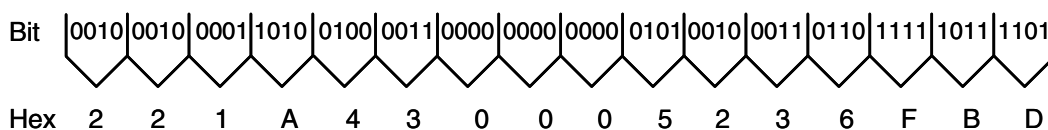
Conversion Table			
Bit Value	Hex Value	Bit Value	Hex Value
0000	0	1000	8
0001	1	1001	9
0010	2	1010	A
0011	3	1011	B
0100	4	1100	C
0101	5	1101	D

Conversion Table			
Bit Value	Hex Value	Bit Value	Hex Value
0110	6	1110	E
0111	7	1111	F

To convert 64 bits to 16 bytes, the 64 bits are first divided into 16 groups of four. Then, each group of four bits is assigned a hexadecimal equivalent according to the table shown above.

The hexadecimal equivalents are carried in the bit map of the BIC ISO external message.

The following is an illustration of how 64 bits are converted to 16 bytes for placement in the BIC ISO external message. Bits are numbered from left to right, starting with 1.



In the example, the bit map would contain 221A430005236FBD.

Two bit maps are used in the BIC ISO external message: the primary bit map and the secondary bit map. The primary bit map controls the presence or absence of data elements 1 through 64. The secondary bit map controls the presence or absence of data elements 65 through 128. The primary bit map precedes the data elements in a message. The secondary bit map is itself a data element (P-1) and its existence is controlled by the primary bit map. When present, it immediately follows the primary bit map.

When message authentication is configured, the primary bit map is always included in generating the message authentication code. For more information on message authentication, see the topic “Message Authentication Code Support” later in this section.

Data Elements

The BIC ISO external message allows for the transmission of all 128 data elements that are a part of the ISO 8583 standard. Not all of these data elements are used for processing by BASE24 products, however. In fact, many times only a small number are required. For example, when message authentication is configured, the Message Authentication Code data element P-64 or S-128 contains the message authentication code (MAC). Only one of these data elements is present in the external message depending on whether secondary data is present. If secondary data is not present, the primary Message Authentication Code data element (P-64) contains the MAC. If secondary data is present, the secondary Message Authentication Code data element (S-128) contains the MAC. For more information on message authentication, see the topic “Message Authentication Code Support” later in this section.

A primary advantage of the BIC ISO external message is that a data element need not be included in the external message if it is not needed for processing. Co-networks are given the option of configuring the data elements in their messages—within the bounds of BASE24 and ISO requirements—such that only those elements needed are included.

BASE24 products have a standard set of defaults that it uses for determining which of the 128 data elements are to be included in each external message. These defaults are established to provide the BASE24 system with the standard data elements it needs for processing transactions.

These defaults can be overridden by a co-network to include or exclude other data elements in a message. The External Message File (EMF) allows a co-network to alter the combinations of data elements that are included in its messages.

Altering the EMF should be done with the utmost care, since an incorrect setting could eliminate a data element needed for processing. Section 5 describes each data element individually, indicating its function and format and whether it is used by the BASE24 system for processing. Before eliminating any default data element from a message, a co-network should check to determine whether it is required by the BASE24 system for processing.

Rejected Messages

If the BIC ISO Interface process receives an external message that it cannot process or reformat for internal use (because of bad data or a security-related failure), it rejects the message as follows:

1. Changes the first position of the message type to 9 (for example, a 0200 message would be changed to a 9200 message, and a 0420 message would be changed to a 9420 message.)
2. Indicates the reason the message was rejected in the status field of the BIC ISO external message header. If the message was rejected because of a security failure, the status field is set to a value between 196 and 199. If the message was rejected because of bad data, this field is set to the bit number of the data element causing rejection (for example, if the Track 2 data in data element P-35 cannot be parsed, the status field in the header would be set to 035).
3. Returns the message to the co-network.

The above actions are taken on any message type that cannot be processed, not just those that require a response.

Discretionary Data Suppression

Two data elements in the BASE24 external message contain consumer data identified by the Payment Card Industry (PCI) Data Security Standard (DSS) for the protection of sensitive consumer data (e.g., PIN-related data) in acquirer and consumer transactions. Track 1 Data (data element 45) and Track 2 Data (data element 35) contain the information encoded on the magnetic stripe of a card or on the chip used to originate the transaction.

BASE24-atm and BASE24-pos offer the option to suppress track 1 and track 2 discretionary data from the STM and PSTM response and reversal messages. Discretionary data is data other than the primary account number (PAN) and the card expiration date. Many interchanges may also suppress the track 1 and track 2 discretionary data. BASE24-atm and BASE24-pos BIC ISO ISO Interface customers may prefer to send the card details in the same format in which they were received (i.e., just the PAN and expiration date). This can be accomplished by modifying the appropriate EMF settings for the impacted message types.

External Message File (EMF) Impacts

The suppression of discretionary data can affect the content of messages exchanged between co-networks. This is true whether the data has already been suppressed in response messages that BASE24 receives from an interchange or co-network or the data is suppressed by BASE24. The BIC ISO Interface may have to construct the Track in the internal message using PAN (P-2) and Expiration Date (P-14) data elements if the Track 2 Data (P-35) data element is not received. Users that prefer to send the card details in the same format in which they were received should consider configuring EMF records that include the Primary Account Number (P-2) and Expiration Date (P-14) data elements and modify the default settings for the Track 2 (P-35) data element. Refer to the “External Message Defaults” section for additional information on using the EMF.

Outbound Messages

The following table shows possible EMF settings for outbound messages. These are messages that are acquired on BASE24 and sent to the co-network.

Data Element		Message Handling
P-2	P-35	
Blank	M/C	This is the EMF default for advice messages. Data element P-35 is sent with data from the internal Track 2 field. Data element P-2 is not sent because it is not configured.
C	M	All messages include data element P-35, and also include data element P-2 if internal Track 2 field has been constructed.
C	C	Messages include data element P-2 or data element P-35, but not both. Data element P-2 is included if the internal Track 2 field has been constructed. Data element P-35 is included when the Track 2 has not been constructed.
M/C	Blank	All messages include data element P-2 without data element P-35 because data element P-35 is not configured.
M	M	All messages contain both data element P-2 and data element P-35.
M	C	All messages contain data element P-2, and also include data element P-35 if Track 2 has not been constructed.

Inbound Messages

The following table shows possible EMF settings for inbound messages. These are messages that are acquired by the co-network and sent to BASE24. The co-network can transmit data as follows:

Data Element		Message Handling by BASE24
P-2	P-35	
Present or Not Present	Present	Track data is preferred so BASE24 uses data element P-35 to populate the Track 2 field in the internal message.
Present	Not Present	BASE24 uses data element P-2 to create the Track 2 field in the internal message and starts the Track 2 field with a value of M to indicate that the field contents have been constructed.

BIC ISO Variations from the ISO Standard

The BIC ISO external message varies from the ISO standard in several respects, which are discussed in the following paragraphs.

Front Material

BASE24 products precede all messages with certain pieces of required and optional information. This front material is described earlier in this section. The front material elements that precede the message type identifier are not part of the ISO standard message.

Binary Data Transmission

The BIC ISO external message varies from the ISO standards in that it does not use binary data fields. Several elements in the ISO external message have been standardized as binary fields; however, the BIC ISO external message is sent entirely in display format.

The reason for this is that the BASE24 system does not support transparent communications with its co-networks, and consequently, the use of binary data could cause the unintentional introduction of control characters into the data transmission stream.

Also, a predominant number of co-networks expect their data in EBCDIC code, but the HP NonStop native code is ASCII. With the message entirely in display format, the translation from ASCII to EBCDIC and back can be performed by a communications controller. If some data fields in the message were binary, the translation would have to be performed by the BIC ISO Interface process (requiring CPU rather than controller resources).

The ISO data elements affected by this are as follows:

- The primary and secondary bit maps
- The Message Authentication Code data elements (P-64 and S-128)
- The PIN data element (P-52)

Fixed-Length Data Elements Option

A number of elements in the ISO message are defined as variable-length, meaning that the size of the element itself can vary depending on the data contained in the element. The BASE24 product supports an option that allows certain variable-length fields to be made fixed-length. Under this option, the variable-length elements are simply considered by the BIC ISO Interface process to be fixed-length, with the size of the element equal to the maximum-length set for the variable data.

This fixed-length option does not affect how the elements are identified. They are still defined as variable-length elements, and they still require prefixes to indicate their lengths. However, the data in the element is always left-justified and padded out to the maximum allowed length of the data element. For more information on how this option affects BIC ISO external messages, see section 4.

Text-Level Acknowledgments

ISO requires text-level acknowledgments (0130, 0230, 0430, 0530, and 0830 messages) in response to repeat messages (0121, 0221, 0421, 0521, and 0821 messages). The generation of text-level acknowledgments is controlled by settings in the Enhanced Interface Configuration File (ICFE). For information on how text-level acknowledgments are controlled by BASE24 products, refer to the external message type descriptions in section 2.

Rejected Messages

The BIC ISO Interface process identifies rejected messages—external messages that cannot be translated into internal format—by changing the first position of the message type to a 9, placing the bit number of the data element that caused the translation problem or a value indicating a security-related failure in the status field of the BIC ISO external message header, and returning the message to the co-network.

Primary Account Number (P-2) and Extended Primary Account Number (P-34) Elements

ISO requires the Primary Account Number (P-2) data element or the Extended Primary Account Number (P-34) data element for all authorization, financial transaction, and reversal messages. The P-2 data element is required when primary account numbers (PANs) do not begin with the digits 59. The P-34 data element is required when PANs do begin with the digits 59.

Default external message values for BASE24 products use the primary account number present in the Track 2 Data (P-35) data element. BASE24 products may have to construct the contents of data element P-35 as a result of discretionary data suppression. Co-networks should consider configuring messages that include the Primary Account Number (P-2) and Data Expiration (P-14) data elements and modify the default settings for the Track 2 (P-35) data element.

BASE24 products do not use the P-34 data element since they do not support PANs beginning with 59.

Card Acceptor Terminal Identification (P-41)

The Card Acceptor Terminal Identification (P-41) data element value is 16 positions in length rather than the eight positions prescribed by ISO. This allows for the 16 position terminal IDs supported by BASE24 products.

Additional Amounts (P-54)

ISO defines the Additional Amounts (P-54) data element as a variable-length data element containing a currency code and up to six amounts. BASE24 products define data element P-54 as a fixed-length data element carrying a single 12-character amount.

Original Data Elements (S-90)

For reversal and adjustment transactions, the BASE24 product defines the Original Data Elements (S-90) data element differently from the ISO standard.

BASE24 Message Tokens

The BIC ISO Interface process can send and receive token data in the external message. Most tokens are sent in one of the following data elements:

- The BASE24-pos Additional Data (P-63) data element carries BASE24-pos message tokens
- The BASE24-atm Additional Data (S-126) data element carries BASE24-atm message tokens

When the BIC ISO Interface process creates an external message, it must determine which tokens in the internal message are sent to the co-network, and the order in which the tokens are placed in the external message. To send tokens in data element P-63 or S-126, the BIC ISO Interface process performs as follows:

1. Locates the token record for the type of message being sent. If a token record cannot be found, no tokens are sent in the external message.
2. Sorts the tokens in the internal message into the order specified in the token record. The sorted tokens are stored in a temporary buffer (that is, this step does not change the order in which tokens appear in the internal message).
3. Converts each token from binary format to ASCII format.
4. Adds each token configured to be sent to the data element. When the first token is added, a Header token is created and added to the data element, immediately following the field length indicator. This Header token is updated with a new token count and total token data length as each subsequent token is added to the data element. Each token that is added to the message has its own token header, which identifies the individual token and specifies the length of the token.
5. After all tokens configured to be sent in the message have been added to the data element, the BIC ISO Interface process updates the field length indicator with the sum of the length of the Header token and the lengths of each message token (including the length of each token header.)

Refer to the ***BASE24 Tokens Manual*** for a full listing and detailed description of BASE24 tokens.

Message Authentication Code Support

Message authentication ensures transaction messages are received exactly as created by the legitimate originator. Message authentication protects messages against accidental or deliberate alteration.

The message authentication code (MAC) is generated by the originator of the message, based upon message elements identified in advance by the originator and recipient, and included with the message. The MAC is verified by the recipient, based on the same criteria as was used in its generation. Message authentication is done prior to normal processing of the message.

The BIC ISO Interface process supports message authentication. The BASE24 product has a standard set of defaults that it uses for determining which of the 128 data elements are to be included when authenticating each external message.

These defaults can be overridden using settings in the EMF and settings in the Key File (KEYF). These settings allow the host to include or exclude data elements when authenticating the message. The EMF allows a host to alter the combinations of data elements that are included when authenticating messages. BASE24 also offers the options of authenticating all data elements in an individual message, or of authenticating all data elements in all messages. Full message authentication is specified in the EMF for individual messages. If an EMF record for the specific message type does not exist, the BIC ISO Interface process checks the KEYF to determine whether all of its messages should use full message authentication.

In addition to using the data elements in the MAC generation, the BIC ISO Interface process uses the ISO literal, BASE24 header, message type identifier, and primary bit map when it generates a MAC. **These message components are always used in MAC generation, regardless of the EMF or KEYF settings.**

Overall System Requirements and Assumptions

This subsection contains some requirements and system-processing information that apply to all external messages. Information pertaining to a specific message type can be found in section 2.

- BASE24 does not reject duplicate message requests. They are logged and discarded without notice to the originator. This is done because BASE24 assumes that the original request is either currently being processed or has already been processed; therefore, there is no reason to process the duplicate request.
- When a message is changed to a repeat, only two items in the entire message are changed. The message type identifier is changed to its repeat equivalent, and the Transmission Date and Time (P-7) data element is updated.
- As a general rule, an acquirer or issuer must accept (i.e., cannot decline) an advice, a reversal, or a credit adjustment. These types of messages are sent in conjunction with transactions that have already completed.
- BASE24 does not support the sending of a completion message after an approved transaction response has been received.

Supported Transactions

The BIC ISO Interface process supports both BASE24-atm and BASE24-pos transactions. In addition, the BIC ISO Interface process functions on behalf of both issuers and acquirers.

An issuer processes transactions on behalf of the card-issuing financial institution. In the case of the BIC ISO Interface process, this means that the BIC ISO Interface process can accept transactions from the co-network and perform routing or transaction authorization.

An acquirer accepts transaction requests that must be sent to another network for authorization. In the case of the BIC ISO Interface process, this means that BIC ISO Interface process can send transactions to the co-network for authorization.

Supported BASE24-atm Transactions

If the BASE24-atm product is installed, the following transactions are supported by the BIC ISO Interface process. These transactions are supported for checking, savings, and credit accounts. The BIC ISO Interface process also supports certain transactions for which no account type has been specified such as log-only, messages to financial institutions, and payment enclosed transactions.

- Balance inquiries
- Deposits
- Deposits with cash back
- EMV PIN Unblock transactions
- Log-only transactions
- Messages to financial institutions
- Transfers
- PIN change
- Payments enclosed
- Payments from/to
- Split deposits
- Withdrawals

Supported BASE24-pos Transactions

If the BASE24-pos product is installed, the following transactions are supported by the BIC ISO Interface process. These transactions are supported for checking, savings, and credit accounts.

- Balance inquiries
- Card verifications
- Cash advances
- Cash advance adjustments
- Check guarantee
- Check verification
- Mail or telephone orders
- Merchandise returns
- Merchandise return adjustments
- Normal purchases
- Preauthorizations
- Preauthorization completions
- Purchase adjustments
- Purchase adjustments with cash back (debit cards only)
- Purchases with cash back

Network and Key Management Messages

Network management messages are used to manage the operational status of the communications lines between the BASE24 system and the co-network. Key management messages are used when dynamic key management (DKM) is supported.

The BASE24 product supports four types of network management messages: logon messages, echo test messages, logoff messages, and cutover messages. Logon messages, echo test messages, and logoff messages are sent as 0800 messages and require 0810 messages in response. Cutover messages are sent as 0800 messages and require 0810 messages in response. If failed or rejected, the message is sent as an 0820 message (i.e., from the SAF).

The BASE24 product supports four types of key management messages: change key, new key, repeat key, and verify key. These messages are sent as 0800 messages and require 0810 messages in response.

PIN and MAC Encryption

The BIC ISO Interface process supports three PIN encryption options. These options are as follows:

Clear PIN processing	All PINs handled by the co-network are in the clear.
Encrypted PINs	Security module accessed for PIN processing. All PINs are managed under the secure keys of a security module.
Encrypted PINs	Software DES PIN processing. All PIN encryption is managed by software, using the DES algorithm. No security module is in use.

The BIC ISO Interface process also supports security module MAC processing when message authentication is being used.

PIN Blocks

During encryption, a PIN is not simply fed into the encryption routines as is. Rather, it is presented to the routines in what is called a PIN block.

A PIN block is a 16-digit series of hexadecimal characters, of which the PIN is a part.

The DES algorithm accepts only 8-byte or 16-hexadecimal-digit blocks of data for input, and since PINs can be from 4 to 12 digits in length, the PIN block type defines what to do with the gap between the PIN length and DES input requirements.

Thus, when encrypting a PIN, the routines are really encrypting a clear PIN block. Likewise, when decrypting a PIN, what is really being decrypted is an encrypted PIN block. This is true, regardless of whether the encryption or decryption is being performed in software by BASE24 or by a hardware module.

The BIC ISO Interface process supports two types of PIN blocks—PIN/PAN PIN blocks and PIN/PAD PIN blocks.

Note: A third type of PIN block—derived unique key per transaction (DUKPT) PIN blocks—is supported only by the BASE24-pos Standard POS Device Handler (SPDH) module and BASE24-pos Hypercom Device Handler (HPDH) module with or without the Transaction Security Service process. Both the SPDH and HPDH modules translate DUKPT PIN blocks into PIN/PAN PIN blocks before they are sent to the Router/Authorization module.

PIN/PAN PIN Blocks

BASE24 supports three PIN/PAN PIN blocks, including one commonly known as the ANSI PIN block. The ANSI PIN block is the standard PIN block prescribed by the ANSI X9.8 standard, *American National Standard for Personal Identification Number (PIN) Management and Security*. ANSI PIN blocks also are called Format 0 PIN blocks by the ISO 9564 standard, *Banking—Personal Identification Number Management and Security*.

Within BASE24, references to an ANSI PIN block (e.g., ANSI PAN FORMAT or ANSI OFFSET field) actually refer to all three PIN/PAN PIN block formats, not just the ANSI standard. A particular PIN/PAN PIN block format is identified by stating which PAN digits are used to create the PIN block.

Building PIN/PAN PIN blocks is a multistep process. Two strings—a PIN string and a PAN string—must first be created. BASE24 uses the PIN, the PIN length, and the pad character F to create a PIN string. BASE24 then uses a subset of the PAN to create a PAN string. Finally, these strings are combined using an exclusive-OR operation to obtain the final PIN/PAN PIN block.

To build a PIN/PAN PIN block, BASE24 performs the following steps:

1. Builds a 16-character PIN string.
 - a. Places a zero in the first, left-most position.
 - b. Places a hexadecimal representation of the PIN length in the second position. (For example, if a PIN is 10 digits in length, the length is specified by the hexadecimal value A.)
 - c. Places the clear PIN in the string, starting in the third position.
 - d. Pads (fills in) the remaining positions to the right with the hexadecimal value F.

Example: A PIN of 8051 (4 digits in length) would result in a PIN string of 048051FFFFFFFFF.

2. Builds a 16-character PAN string.
 - a. Enters zeros in the first four positions, starting from the left.
 - b. Selects 12 digits from the PAN of the card involved in the transaction being processed.

The ANSI standard uses the right-most 12 digits of the PAN, excluding the check digit. Therefore, BASE24 always uses these 12 digits when forming PIN/PAN PIN blocks to use within the BASE24 system when external processors are not involved.

When building PIN blocks for external processors, BASE24 uses the value in the ANSI PAN FORMAT field on KEYF or KEY6 screen 1 to determine the 12 digits used by the external processor to form the PIN block. Valid values are as follows:

- 0 = Use the 12 right-most digits, excluding the check digit (ANSI standard).
- 1 = Use the 12 right-most digits, including the check digit.
- 2 = Use the 12 left-most digits.

If the PAN does not contain enough significant digits to provide the 12 digits specified by the ANSI standard or the value in the ANSI PAN FORMAT field on KEYF or KEY6 screen 1, BASE24 uses leading zeros to reformat the PAN used in creating the PAN string.

- c. Places the selected 12 digits from the PAN in the right-most positions of the PAN string.

Example: Using the 12 right-most digits, excluding the check digit, a PAN of 1040000533921277526 results in a PAN string of 0000053392127752.

- 3. Combines the PIN string and PAN string through an exclusive-OR operation.
 - a. Converts each hexadecimal digit in the PIN and PAN strings into its binary representation. As an example, a hexadecimal 2 has a binary representation of 0010 and a hexadecimal A has a binary representation of 1010.
 - b. Combines, using the exclusive-OR operation, the binary representation (four bits) for the first digit in the PIN string with the binary representation (four bits) for the first digit in the PAN string so that the result is still a binary representation. This exclusive-OR operation is also known as modulo 2 addition. For each bit, if the values are the same (both 0 or both 1), the resulting bit is 0, and if the values are different (one is 0 and the other is 1), the resulting bit is 1. As an example, 0010 plus 1010 equals 1000.

BASE24 then repeats this process for each digit of the two strings.
 - c. Converts the binary representations obtained in step b back to their hexadecimal equivalents. As an example, the binary representation of 1000 converts to a hexadecimal 8.

The following is an example of the creation of a PIN/PAN PIN block using the 12 right-most PAN digits, excluding the check digit:

INPUTS:

PIN: 8 0 5 1

PAN: 1 0 4 0 0 0 0 5 3 3 9 2 1 2 7 7 5 2 6

STRINGS:

PIN STRING: 0 4 8 0 5 1 F F F F F F F F F F

PAN STRING: 0 0 0 0 0 5 3 3 9 2 1 2 7 7 5 2

RESULTING PIN BLOCK: 0 4 8 0 5 4 C C 6 D E D 8 8 A D

PIN/PAD PIN Blocks

PIN/PAD PIN blocks are another form of PIN block that can be used in PIN encryption.

The PIN and a hexadecimal pad character of A through F are used to build a PIN/PAD PIN block.

To build a PIN/PAD PIN block, BASE24 performs the following steps:

1. Places the PIN in the left-most positions.
2. Pads each of the remaining positions after the PIN with the hexadecimal pad character specified in the PIN PAD CHARACTER field on KEYF or KEY6 screen 1.

Note: The Thales e-Security security module restricts the pad character to hexadecimal F. For other security module pad character requirements, refer to the vendor documentation for the security module being used.

The following is an example of the creation of a PIN/PAD PIN block:

INPUTS:

PIN: **8 0 5 1**

PAD CHARACTER: **F**

RESULTING PIN BLOCK: **8 0 5 1 F F F F F F F F F F F F**

Data Communication Lines

The BIC ISO Interface process supports the following protocol types for communications between the BASE24 system and the co-network:

- Bisync Multipoint Supervisor
- Bisync Multipoint Tributary
- Bisync Point-to-Point
- SNA—Primary LU Type 0 (PLU)
- SNA—Secondary LU Type 0
- SNA—Secondary LU Type 2
- X.25 Host Support

Logon Options

The following list identifies the options that the BASE24 system verifies at logon to determine whether logon is successful.

- Whether the acquirer or issuer is allowed to stand in on behalf of the partner to authorize transactions.
- How cutover and settlement occurs.
- What version of software is currently in use.
- What type of dynamic key management key processor the BIC ISO Interface process is (i.e., co-network, main, secondary, or DKM is not supported).
- What type of MAC encryption is used, if MACs are supported.
- What type of MAC data is used (ASCII or EBCDIC).
- What type of PIN encryption is used.
- Whether text-level acknowledgments are required in response to repeat messages.
- Whether the inbound and outbound PIN and MAC keys are combined or separate.
- Whether single- or double-length Key Exchange Keys (KEKs) are used with this co-network. This value is used when PIN and MAC keys are exchanged using DKM.

These options are defined by the BASE24 product. In addition, the co-network must be set up so that its settings are compatible with the BASE24 settings. If these settings are not compatible, logon is disallowed until the settings are corrected. For a discussion of how to specify these logon options, as well as other options that must be determined by the BASE24 system and the co-network, refer to appendix D.

Defining Responsibilities

Implementing the BIC ISO Interface requires the cooperation of three separate parties in the ATM or POS environment. These three parties are ACI, the BASE24 customer, and the co-network (which may be a BASE24 customer). Each of these parties have certain responsibilities when implementing the BIC ISO Interface. However, the BASE24 customer and the co-network are primarily responsible for selecting the options available with the BIC ISO Interface that are applicable to the particular ATM or POS environment in which the interface is operating. Responsibilities are outlined below.

Responsible Party			Task
Customer	Co-network	ACI	
✓		✓	License BIC ISO Interface. The customer must contract with ACI to license the BIC ISO software.
	✓	✓	Sign a nondisclosure agreement with the co-network. ACI sends the co-network a nondisclosure agreement if the co-network is not a BASE24 customer. The co-network must sign the nondisclosure agreement and return it to ACI.
✓		✓	Receive the <i>BASE24 BIC ISO Standards Manual</i>. The customer must order the <i>BASE24 BIC ISO Standards Manual</i> from ACI for the co-network.
✓	✓		Review functionality of the BIC ISO Interface. The customer and the co-network must read the manual and understand the BIC ISO options.

Responsible Party			Task
Customer	Co-network	ACI	
✓	✓		Develop a specification. Both the customer and the co-network must outline the features supported by the customer's BIC ISO Interface. The following items should be considered: <ul style="list-style-type: none"> • Transaction set • Message formats for requests and responses • Standard header values and a mechanism for changing values • PIN encryption requirements • Store-and-forward processing procedures • Message authentication code (MAC) requirements • Dynamic key management (DKM) requirements
✓			Determine protocol requirements. The customer must decide the type of line to be used in communication with the co-network and whether the line is to be leased, dial, or network.
✓	✓		Develop network operating procedures. The customer and the co-network must develop procedures for operating the network.
	✓		Determine personnel needs for operating the interchange. The co-network must assign an interchange manager and develop a team for handling the operation of the interchange.
✓	✓		Develop a test script. The customer and the co-network must develop a test script for certification that is acceptable to both parties.

Responsible Party			Task
Customer	Co-network	ACI	
✓			Install the BIC ISO Interface. The customer must take the necessary steps to properly install the BIC ISO Interface software.
✓	✓		Complete testing of the interface. The customer and the co-network must test the interface to make sure it meets their specifications.
✓	✓		Put the system into production. The customer and the co-network must take the final steps necessary to put the system into a production mode.

2: External Message Types

This section describes the various BIC ISO external message types.

Supported Message Types

Message type codes are used to identify the general function of messages, and one type code is required in each message.

The BIC ISO Interface process supports the message types shown in the following table for both incoming and outgoing messages. The message types in the table are divided according to ISO standard message classes, and notations appear for each message type to indicate its use or availability by BASE24 products.

Message Class: Authorization

Type	Description	BASE24 Product	
		ATM	POS
0100	Authorization Request		✓
0110	Authorization Request Response		✓
0120	Authorization Advice		✓
0121	Authorization Advice Repeat		✓
0130	Authorization Advice Response		✓

Message Class: Financial Transaction

Type	Description	BASE24 Product	
		ATM	POS
0200	Financial Transaction Request	✓	✓
0210	Financial Transaction Request Response	✓	✓
0220	Financial Transaction Advice	✓	✓
0221	Financial Transaction Advice Repeat	✓	✓
0230	Financial Transaction Advice Response	✓	✓

Message Class: Reversal

Type	Description	BASE24 Product	
		ATM	POS
0402	Card Issuer Reversal Request		3
0412	Card Issuer Reversal Request Response		3
0420	Acquirer Reversal Advice	3	3
0421	Acquirer Reversal Advice Repeat	3	3
0430	Reversal Advice Response	3	3

Message Class: Reconciliation Control

Type	Description	BASE24 Product	
		ATM	POS
0500	Acquirer Reconciliation Request	✓	✓
0502	Issuer Reconciliation Request	✓	✓
0510	Acquirer Reconciliation Request Response	✓	✓
0512	Issuer Reconciliation Request Response	✓	✓
0520	Acquirer Reconciliation Advice	✓	✓
0521	Acquirer Reconciliation Advice Repeat	✓	✓
0522	Issuer Reconciliation Advice	✓	✓
0523	Issuer Reconciliation Advice Repeat	✓	✓
0530	Acquirer Reconciliation Advice Response	✓	✓
0532	Issuer Reconciliation Advice Response	✓	✓

Message Class: Network Management

Type	Description	BASE24 Product	
		ATM	POS
0800	Network Management Request	✓	✓
0810	Network Management Request Response	✓	✓
0820	Network Management Advice	✓	✓
0821	Network Management Advice Repeat	✓	✓
0830	Network Management Advice Response	✓	✓

Issuers and Acquirers

The message routing described in this section is documented in terms of issuer and acquirer, rather than BASE24 and co-network. The reason for this is that the BASE24 product can serve on behalf of a card issuer or a transaction acquirer.

For example, when the BASE24 system sends a transaction to a co-network for authorization, BASE24 represents the acquirer in the message exchange, and the co-network represents the issuer. On the other hand, when a transaction is sent to the BASE24 system for authorization, the sending co-network represents the acquirer, and BASE24 represents the issuer.

An issuer is the party in a message exchange representing the transaction authorizer (who is, or is acting on behalf of, the institution that issued the card).

An acquirer is the party in a message exchange representing the card acceptor (who originally initiated the transaction).

Authorization Messages

This subsection contains descriptions of the authorization messages supported by the BIC ISO Interface process.

0100 — Authorization Request

Routing: From acquirer to issuer

Used By: BASE24-pos

An Authorization Request (0100) message requests approval authorization or guarantee for the transaction to proceed. It is not intended to permit the application of this transaction to the cardholder's account for the purpose of issuing a bill or statement.

An Authorization Request Response (0110) message is expected in return for the 0100 message, either approving or denying the request.

0110 — Authorization Request Response

Routing: From issuer to acquirer

Used By: BASE24-pos

An Authorization Request Response (0110) message is returned in response to an Authorization Request (0100) message to approve or deny the request.

0120 — Authorization Advice

Routing: From acquirer to issuer

Used By: BASE24-pos

An Authorization Advice (0120) message advises of a transaction authorized on behalf of the card issuer. It is not intended to permit application of the transaction to the cardholder's account for the purpose of issuing a bill or statement.

If the BASE24 system is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0120 message with a 0130 message. If the BASE24 system is configured to send text-level acknowledgments to the co-network, BASE24 acknowledges each 0120 message with a 0130 message.

The BASE24 system changes a 0120 message to a 0121 message under the following conditions. A 0121 message, Authorization Advice Repeat, is identical to a 0120 message, except that it denotes to the receiver that the message is a possible duplicate.

- If the BASE24 system is configured to expect, but does not receive, a 0130 message as an acknowledgment to a 0120 message
- If the BASE24 system is not configured to expect a 0130 message as an acknowledgment to a 0120 message and it is unsuccessful in attempting to send a 0120 message to the co-network

The BASE24 system stores 0120 messages in its database to be sent to the co-network during store-and-forward processing.

0121 — Authorization Advice Repeat

Routing: From acquirer to issuer

Used By: BASE24-pos

An Authorization Advice Repeat (0121) message is identical to a 0120 message, except that it denotes to the receiver that the message is a possible duplicate. A 0121 message is used when an acknowledgment was expected to a 0120 message but never received.

The BASE24 system changes a 0120 message to a 0121 message under the following conditions:

- If the BASE24 system is configured to expect, but does not receive, a 0130 message as an acknowledgment to a 0120 message
- If the BASE24 system is not configured to expect a 0130 message as an acknowledgment to a 0120 message and it is unsuccessful in attempting to send a 0120 message to the co-network

The BASE24 system stores the 0121 message in its database and sends it to the co-network during store-and-forward processing. The BASE24 system continues to send the 0121 message until it receives an acknowledgment or until a specified maximum number of tries is reached. If the maximum number of tries is reached, the BASE24 system sends the 0121 message to the network log and deletes it from the BASE24 database.

0130 — Authorization Advice Response

Routing: From issuer to acquirer

Used By: BASE24-pos

An Authorization Advice Response (0130) message acknowledges the receipt of a 0120 or 0121 message.

If the BASE24 system is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0120 or 0121 message with a 0130 message. If the BASE24 system is configured to send text-level acknowledgments to the co-network, the BASE24 system acknowledges each 0120 or 0121 message with a 0130 message.

Financial Transaction Messages

This subsection contains descriptions of the financial transaction messages supported by BASE24 products.

0200 — Financial Transaction Request

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

A Financial Transaction Request (0200) message requests approval for a transaction, which if approved can be immediately applied to the cardholder's account for billing or statement purposes.

A Financial Transaction Request Response (0210) message is expected in return for the 0200 message, either approving or denying the request.

0210 — Financial Transaction Request Response

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

The Financial Transaction Request Response (0210) message is returned in response to a Financial Transaction Request (0200) to approve or deny the request.

0220 — Financial Transaction Advice

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

A Financial Transaction Advice (0220) message advises of a previously completed financial transaction.

The BIC ISO Interface process sends 0220 messages to the co-network when the BASE24 system stands in to authorize a transaction for an unavailable co-network. If the transaction is approved, the BIC ISO Interface process generates a 0220 message to be sent to the co-network during store-and-forward processing.

A 0220 message may also be sent by a co-network to the BASE24 system. In this case, it is regarded as a *force post* transaction.

If the BASE24 system is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0220 message with a 0230 message. If the BASE24 system is configured to send text-level acknowledgments to the co-network, the BASE24 system acknowledges each 0220 message with a 0230 message.

The BASE24 system changes a 0220 message to a 0221 message under the following conditions:

- If the BASE24 system is configured to expect, but does not receive, a 0230 message as an acknowledgment to a 0220 message
- If the BASE24 system is not configured to expect a 0230 message as an acknowledgment to a 0220 message and it is unsuccessful in attempting to send a 0220 message to the co-network

The BASE24 system stores 0220 messages in its database to be sent to the co-network during store-and-forward processing.

0221 — Financial Transaction Advice Repeat

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

A Financial Transaction Advice Repeat (0221) message is identical to a 0220 message, except that it denotes to the receiver that it is a possible duplicate message. A 0221 message is used when an acknowledgment was expected to a 0220 message but never received.

The BASE24 system changes a 0220 message to a 0221 message under the following conditions:

- If the BASE24 system is configured to expect, but does not receive, a 0230 message as an acknowledgment to a 0220 message
- If the BASE24 system is not configured to expect a 0230 message as an acknowledgment to a 0220 message and it is unsuccessful in attempting to send a 0220 message to the co-network

The BASE24 system stores the 0221 message in its database and sends it to the co-network during store-and-forward processing. The BASE24 system continues to send the 0221 message until it receives an acknowledgment or until a specified maximum number of tries is reached. If the maximum number of tries is reached, the BASE24 system sends the 0221 message to the network log and deletes it from the BASE24 database.

A 0221 message may be sent by a co-network to the BASE24 system. It is regarded as a *force post* transaction.

0230 — Financial Transaction Advice Response

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

A Financial Transaction Advice Response (0230) message acknowledges the receipt of a 0220 or 0221 message.

If the BASE24 system is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0220 or 0221 message with a 0230 message. If the BASE24 system is configured to send text-level acknowledgments to the co-network, the BASE24 system acknowledges each 0220 or 0221 message with a 0230 message.

Reversal Messages

This subsection contains descriptions of the reversal messages supported by BASE24 products.

0402 — Card Issuer Reversal Request

Routing: From issuer to acquirer

Used By: BASE24-pos

A Card Issuer Reversal Request (0402) message reverses, either partially or wholly, an earlier authorization or transaction.

If BASE24 is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0402 message with a 0412 message. If BASE24 is configured to send text-level acknowledgments to the co-network, BASE24 acknowledges each 0402 message with a 0412 message.

BASE24 changes a 0402 message to a 0403 message under the following conditions:

- If BASE24 is configured to expect, but does not receive, a 0412 message as an acknowledgment to a 0402 message
- If BASE24 is not configured to expect a 0412 message as an acknowledgment to a 0402 message and it is unsuccessful in attempting to send a 0402 message to the co-network

BASE24 stores 0402 messages in its database to be sent to the co-network during store-and-forward processing.

0412 — Card Issuer Reversal Request Response

Routing: From acquirer to issuer

Used By: BASE24-pos

A Card Issuer Reversal Request Response (0412) message acknowledges the receipt and disposition of a 0402 message.

If BASE24 is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0402 or 0403 message with a 0412 message. If BASE24 is configured to send text-level acknowledgments to the co-network, BASE24 acknowledges each 0402 or 0403 message with a 0412 message.

0420 — Acquirer Reversal Advice

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

An Acquirer Reversal Advice (0420) message reverses, either partially or wholly, an earlier transaction or authorization.

BASE24 sends 0420 messages in two circumstances:

- A 0100 or 0200 message was approved by a co-network, but the transaction did not complete as approved.
- A 0120 or 0220 message was sent to a co-network to notify it of a completed transaction, but the transaction did not actually complete as the co-network was advised.

If BASE24 is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0420 message with a 0430 message. If BASE24 is configured to send text-level acknowledgments to the co-network, BASE24 acknowledges each 0420 message with a 0430 message.

BASE24 changes a 0420 message to a 0421 message under the following conditions:

- If BASE24 is configured to expect, but does not receive, a 0430 message as an acknowledgment to a 0420 message
- If BASE24 is not configured to expect a 0430 message as an acknowledgment to a 0420 message and it is unsuccessful in attempting to send a 0420 message to the co-network

BASE24 stores 0420 messages in its database to be sent to the co-network during store-and-forward processing.

0421 — Acquirer Reversal Advice Repeat

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

An Acquirer Reversal Advice Repeat (0421) message is identical to a 0420 message, except that it denotes to the receiver that it is a possible duplicate message.

BASE24 changes a 0420 message to a 0421 message under the following conditions:

- If BASE24 is configured to expect, but does not receive, a 0430 message as an acknowledgment to a 0420 message
- If BASE24 is not configured to expect a 0430 message as an acknowledgment to a 0420 message and it is unsuccessful in attempting to send a 0420 message to the co-network

BASE24 stores the 0421 message in its database and sends it to the co-network during store-and-forward processing. BASE24 continues to send the 0421 message until it receives an acknowledgment or until a specified maximum number of tries is reached. If the maximum number of tries is reached, BASE24 sends the 0421 message to the network log and deletes it from the BASE24 database.

A 0421 message can also be sent by a co-network to BASE24. It is treated the same as a reversal.

0430 — Reversal Advice Response

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

A Reversal Advice Response (0430) message acknowledges a 0420 or 0421 message.

If BASE24 is configured to expect text-level acknowledgments from the co-network, the co-network must acknowledge each 0420 or 0421 message with a 0430 message. If BASE24 is configured to send text-level acknowledgments to the co-network, BASE24 acknowledges each 0420 or 0421 message with a 0430 message.

Reconciliation Control Messages

This subsection contains descriptions of the reconciliation control messages supported by BASE24.

0500 — Acquirer Reconciliation Request

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

An Acquirer Reconciliation Request (0500) message requests confirmation of acquirer totals in order to bring about settlement between the parties.

An Acquirer Reconciliation Request Response (0510) message is expected in return for the 0500 message.

0502 — Issuer Reconciliation Request

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

An Issuer Reconciliation Request (0502) message requests confirmation of issuer totals in order to bring about settlement between the parties.

An Issuer Reconciliation Request Response (0512) message is expected in response to a 0502 message.

0510 — Acquirer Reconciliation Request Response

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

An Acquirer Reconciliation Request Response (0510) message denotes the disposition of or answer to an Acquirer Reconciliation Request (0500) message.

0512 — Issuer Reconciliation Request Response

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

An Issuer Reconciliation Request Response (0512) message denotes the disposition of or answer to an Issuer Reconciliation Request (0502).

0520 — Acquirer Reconciliation Advice

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

An Acquirer Reconciliation Advice (0520) message advises of totals in order to bring about settlement between the parties.

A 0530 message is expected as an acknowledgment to a 0520 message.

If BASE24 does not receive a 0530 message as an acknowledgment to a 0520 message, it changes the 0520 message to a 0521 message and stores it in the BASE24 database to be sent to the co-network during store-and-forward processing.

0521 — Acquirer Reconciliation Advice Repeat

Routing: From acquirer to issuer

Used By: BASE24-pos

An Acquirer Reconciliation Advice Repeat (0521) message is identical to a 0520 message, except that it denotes to the receiver that it is a possible duplicate message. A 0521 message is for use when an acknowledgment was expected to a 0520 message but was never received.

A 0530 message is expected as an acknowledgment to a 0521 message.

If BASE24 does not receive a 0530 message as an acknowledgment to a 0520 message, it changes the 0520 message to a 0521 message, stores it in the BASE24 database, and sends the 0521 message to the co-network during store-and-forward processing. BASE24 continues to send the 0521 message until it receives a 0530 message or until a specified maximum number of tries is reached. If the maximum number of tries is reached, BASE24 sends the 0521 message to the network log and deletes it from the BASE24 database. If this occurs, manual reconciliation must be performed.

0522 — Issuer Reconciliation Advice

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

An Issuer Reconciliation Advice (0522) message advises of totals in order to bring about settlement between the parties.

A 0532 message is expected as an acknowledgment to a 0522 message.

If BASE24 does not receive a 0532 message as an acknowledgment to a 0522 message, BASE24 changes the 0522 message to a 0523 message and stores it in the BASE24 database to be sent during store-and-forward processing.

0523 — Issuer Reconciliation Advice Repeat

Routing: From issuer to acquirer

Used By: BASE24-atm
BASE24-pos

An Issuer Reconciliation Advice Repeat (0523) message is identical to a 0522 message, except that it denotes to the receiver that it is a possible duplicate message. A 0523 message is for use when an acknowledgment was expected to a 0522 message but was never received.

A 0532 message is expected as an acknowledgment to a 0523 message.

If BASE24 does not receive a 0532 message as an acknowledgment to a 0522 message, BASE24 changes the 0522 message to a 0523 message, stores it in the BASE24 database, and sends the 0523 message to the co-network during

store-and-forward processing. BASE24 continues to send the 0523 message until it receives a 0532 message or until a specified maximum number of tries is reached. If the maximum number of tries is reached, BASE24 sends the 0523 message to the network log and deletes it from the BASE24 database. If this occurs, manual reconciliation must be performed.

0530 — Acquirer Reconciliation Advice Response

Routing: From issuer to acquirer

Used By: BASE24-pos

An Acquirer Reconciliation Advice Response (0530) message acknowledges the receipt of a 0520 or 0521 message.

A 0530 message is expected as an acknowledgment to a 0520 or 0521 message.

0532 — Issuer Reconciliation Advice Response

Routing: From acquirer to issuer

Used By: BASE24-atm
BASE24-pos

An Issuer Reconciliation Advice Response (0532) message acknowledges the receipt of a 0522 or 0523 message.

A 0532 message is expected as an acknowledgment to a 0522 or 0523 message.

Network Management Messages

This subsection contains descriptions of the network management messages supported by BASE24.

0800 — Network Management Request

Routing: Between any two communicating parties (acquirer, issuer, or intermediate network facility)

Used By: BASE24-atm
BASE24-pos

A Network Management Request (0800) message is used to perform dynamic key management, echo-tests, cutovers, logons, and logoffs.

BASE24 only sends 0800 messages if it is configured to allow it for network management messages or dynamic key management (DKM) messages.

An 0800 message always requires an 0810 message in response.

0810 — Network Management Request Response

Routing: Between any two communicating parties (acquirer, issuer, or intermediate network facility)

Used By: BASE24-atm
BASE24-pos

A Network Management Request Response (0810) message is returned in response to a Network Management Request (0800).

BASE24 always responds to an 0800 message with an 0810 message.

0820 — Network Management Advice

Routing: Between two communicating parties (acquirer, issuer, or intermediate network facility)

Used By: BASE24-atm
BASE24-pos

A Network Management Advice (0820) message advises of cutover in order to start settlement between the parties.

An 0830 message is expected as an acknowledgment to an 0820 message.

If BASE24 does not receive an 0830 message as an acknowledgment to an 0820 message, BASE24 changes the 0820 message to an 0821 message and stores it in the BASE24 database to be sent during store-and-forward processing.

0821 — Network Management Advice Repeat

Routing: Between two communicating parties (acquirer, issuer, or intermediate network facility)

Used By: BASE24-atm
BASE24-pos

A Network Management Advice Repeat (0821) message is identical to an 0820 message, except that it denotes to the receiver that it is a possible duplicate message. An 0821 message is for use when an acknowledgment was expected to an 0820 message but was never received.

An 0830 message is expected as an acknowledgment to an 0821 message.

If BASE24 does not receive an 0830 message as an acknowledgment to an 0820 message, it changes the 0820 message to an 0821 message, stores it in the BASE24 database, and sends the 0821 message to the co-network during store-and-forward processing. BASE24 continues to send the 0821 message until it receives an 0830 message or until a specified maximum number of tries is reached. If the maximum number of tries is reached, BASE24 sends the 0821 message to the network log and deletes it from the BASE24 database.

0830 — Network Management Advice Response

Routing: Between two communicating parties (acquirer, issuer, or intermediate network facility)

Used By: BASE24-atm
BASE24-pos

A Network Management Advice Response (0830) message acknowledges the receipt of an 0820 or 0821 message.

An 0830 message is expected as an acknowledgment to an 0820 or 0821 message.

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3: External Message Defaults

The data elements included in each incoming and outgoing BIC ISO external message can be configured individually for each external message type. In addition, the data elements included in message authentication for BIC ISO external messages can be configured individually for each external message type. This configuration is accomplished using the External Message File (EMF), which specifies the combinations of data elements to be included in the external messages for each BIC ISO Interface process.

Data elements included in messages can be configured uniquely, based on the co-network handling the message, the BASE24 product involved in the transaction, the message type, and whether the message is incoming or outgoing. This gives co-networks the flexibility to modify the external message according to the data elements they need and those they do not.

BASE24 has established a set of default messages, which it uses for processing. These defaults prescribe the data elements that BASE24 and ISO require for processing. The BIC ISO external message defaults can be left as is, or changed by a BASE24 customer as required in the EMF, based on the requirements of the co-network or the customer.

In addition, BASE24 has established a set of defaults for message authentication codes (MACs), which it uses for processing. These defaults prescribe whether data elements present in the external message are used in message authentication.

Whether data elements present in messages are included in the MAC calculation can be configured uniquely in the EMF, based on the co-network handling the message, the BASE24 product involved in the transaction, the message type, and whether the message is incoming or outgoing. This gives co-networks the flexibility to authenticate messages based on their requirements.

Keep in mind that these message defaults do not imply fixed-length messages, only fixed groupings of data elements in each message. The data elements themselves may be fixed or variable-length.

This section documents the BIC ISO external message defaults. These defaults are documented in the following order:

- BASE24-atm
- BASE24-pos
- Reconciliation control
- Network management and dynamic key management
- Message authentication code (MAC) defaults

BIC ISO External Message Codes

BASE24 uses the following codes to denote how data elements are to be handled in its external message. These codes are used throughout this section.

M = Mandatory. The element is required in the message.

C = Conditional. The element is mandatory under certain conditions.

b = Not used (*b* represents a blank character). The element is not included in the message.

Mandatory

On incoming messages, a mandatory data element must always be present. If a mandatory element is not present in a message from a co-network, the message is rejected and returned to the co-network.

On outgoing messages, a mandatory data element is always present. If BASE24 does not have the appropriate information for the element, BASE24 fills the field with zeros or blanks or sets the length indicator to zero.

Conditional

Inclusion of the element is determined by BASE24, message-by-message, based on conditions cited in section 5. A co-network must be prepared to send and receive conditional elements.

On incoming messages, a conditional data element must be present if BASE24 requires the conditional element for processing. If it is not present in a message from a co-network when required by BASE24, the message is rejected and returned to the co-network. The data element descriptions indicate when a conditional element is required by BASE24.

On outgoing messages, a conditional element is only included if it is required for the particular type of message being sent. If the element contains blanks, it is not sent. If the element contains data and the data is valid, BASE24 includes the element in the external message.

Not Used

Under certain conditions, a blank can be changed to an M or a C if a co-network wants to receive the element. However, the ability of BASE24 to carry the value internally may dictate whether an element can be included in the message. Refer to the ***BASE24 External Message Manual*** for more information on how individual element values are handled internally by BASE24.

Message Direction

The incoming and outgoing versions of a particular message type can use different sets of data elements. For example, the data elements used in an incoming 0200 message may be different than the data elements used in an outgoing 0200 message. However, all messages described in this manual use the same set of data elements for both the incoming and outgoing versions of the messages.

BASE24 Message Authentication Codes

Whether data elements present in the external message are used in message authentication can be configured on EMF screen 2. However, BASE24 has established a set of defaults for message authentication, which it uses for processing if not overridden in the EMF. These defaults prescribe whether data elements present in the external message are used in calculating message authentication codes (MACs). The message authentication tables in the remainder of this section show all of the data elements that are included (by default) in the message. A value of Y in the table indicates that the particular is included in the MAC calculation if the data element is present in the external message. If the table is blank for a particular data element, that element is not included in the MAC calculation.

Data elements Primary Message Authentication Code (P-64) and Secondary Message Authentication Code (S-128) are not used in message authentication. These data elements hold the result of message authentication, and therefore cannot be used in the calculation.

BASE24-atm Message Defaults

This subsection identifies the elements that are included or expected by default in BASE24-atm messages. Those elements that are included by default in message authentication are also identified.

Data Element Defaults

The following table summarizes the BIC ISO external message element defaults established for BASE24-atm external messages.

Data Element		Message Class					
		Financial Transaction				Reversal	
		0200	0210	0220/1	0230	0420/1	0430
P-1	Secondary Bit Map	C	M	C	C	M	M
P-3	Processing Code	M	M	M	M	M	M
P-4	Transaction Amount	M	M	M	M	M	M
P-7	Transmission Date and Time	M	M	M	M	M	M
P-11	Systems Trace Audit Number	M	M	M	M	M	M
P-12	Local Transaction Time	M	M	M		M	
P-13	Local Transaction Date	M	M	M		M	
P-15	Settlement Date		M	C		M	
P-17	Capture Date	M	M	M		M	
P-23	Card Sequence Number	C					
P-32	Acquiring Institution Identification Code	M	M	M	M	M	M
P-35	Track 2 Data	M	M	M	M	M	M
P-37	Retrieval Reference Number	M	M	M	M	M	M

Data Element		Message Class					
		Financial Transaction				Reversal	
		0200	0210	0220/1	0230	0420/1	0430
P-38	Authorization Identification Response		M	M		M	
P-39	Response Code		M	M	M	M	M
P-41	Card Acceptor Terminal Identification	M	M	M	M	M	M
P-42	Card Acceptor Identification Code	C	C	C		C	
P-43	Card Acceptor Name/Location	M		M	C	M	
P-44	Additional Response Data		C				
P-48	Additional Data	M					
P-49	Transaction Currency Code	M	M	M	M	M	M
P-52	Personal Identification Number (PIN) Data	C					
P-54	Additional Amounts	C	C	C		C	
P-60	Terminal Data	M	M	M		M	
P-61	Card Issuer and Authorizer Data			C			
P-63	PIN Offset	C	C	C		C	
P-64	Primary MAC Code	C	C	C	C	C	C
S-90	Original Data Elements			C		M	M
S-95	Replacement Amounts					C	C
S-100	Receiving Institution Identification Code		M	C		M	
S-102	Account Identification 1		C	C	C	C	C
S-103	Account Identification 2		C	C	C	C	C
S-122	Card Issuer Identification Code		C	C		C	

Data Element		Message Class					
		Financial Transaction				Reversal	
		0200	0210	0220/1	0230	0420/1	0430
S-123	Deposit Credit Amount		C	C		C	
S-124	Depository Type	C	C	C		C	
S-125	Account Indicator/Statement-Print Data						
S-126	Additional Data	C	C	C	C	C	C
S-128	Secondary MAC Code	C	C	C	C	C	C

MAC Defaults

The following table summarizes the BIC ISO external message MAC defaults established for BASE24-atm external messages.

Data Element		Message Class					
		Financial Transaction				Reversal	
		0200	0210	0220/1	0230	0420/1	0430
P-1	Secondary Bit Map	Y	Y	Y	Y	Y	Y
P-3	Processing Code	Y	Y	Y	Y	Y	Y
P-4	Transaction Amount	Y	Y	Y	Y	Y	Y
P-7	Transmission Date and Time	Y	Y	Y	Y	Y	Y
P-11	Systems Trace Audit Number	Y	Y	Y	Y	Y	Y
P-12	Local Transaction Time	Y	Y	Y		Y	
P-13	Local Transaction Date	Y	Y	Y		Y	

Data Element		Message Class					
		Financial Transaction				Reversal	
		0200	0210	0220/1	0230	0420/1	0430
P-15	Settlement Date						
P-17	Capture Date						
P-23	Card Sequence Number						
P-32	Acquiring Institution Identification Code	Y	Y	Y	Y	Y	Y
P-35	Track 2 Data	Y	Y	Y	Y	Y	Y
P-37	Retrieval Reference Number	Y	Y	Y	Y	Y	Y
P-38	Authorization Identification Response		Y	Y		Y	
P-39	Response Code		Y	Y	Y	Y	Y
P-41	Card Acceptor Terminal Identification	Y	Y	Y	Y	Y	Y
P-42	Card Acceptor Identification Code						
P-43	Card Acceptor Name/Location						
P-44	Additional Response Data						
P-48	Additional Data						
P-49	Transaction Currency Code	Y	Y	Y	Y	Y	Y
P-52	Personal Identification Number (PIN) Data	Y					
P-54	Additional Amounts	Y	Y	Y		Y	
P-60	Terminal Data	Y	Y	Y		Y	
P-61	Card Issuer and Authorizer Data						
P-63	PIN Offset						
P-64	Primary MAC						

Data Element		Message Class					
		Financial Transaction				Reversal	
		0200	0210	0220/1	0230	0420/1	0430
S-90	Original Data Elements						
S-95	Replacement Amounts					Y	Y
S-100	Receiving Institution Identification Code						
S-102	Account Identification 1		Y	Y	Y	Y	Y
S-103	Account Identification 2		Y	Y	Y	Y	Y
S-122	Card Issuer Identification Code						
S-123	Deposit Credit Amount		Y	Y		Y	
S-124	Depository Type						
S-125	Account Indicator/Statement-Print Data						
S-126	Additional Data						
S-128	Secondary MAC						

BASE24-pos Message Defaults

This subsection identifies the elements that are included or expected by default in BASE24-pos messages. Those elements that are included in message authentication are also identified.

Data Element Defaults

The following table summarizes the BIC ISO external message element defaults established for BASE24-pos external messages.

Data Element		Message Class											
		Authorization				Financial Transaction				Reversal			
		0100	0110	0120/1	0130	0200	0210	0220/1	0230	0402/3	0412	0420/1	0430
P-1	Secondary Bit Map	M	M	M	C	M	M	M	C	M	M	M	M
P-3	Processing Code	M	M	M	M	M	M	M	M	M	M	M	M
P-4	Transaction Amount	M	M	M	M	M	M	M	M	M	M	M	M
P-7	Transmission Date and Time	M	M	M	M	M	M	M	M	M	M	M	M
P-11	Systems Trace Audit Number	M	M	M	M	M	M	M	M	M	M	M	M
P-12	Local Transaction Time	M	M	M		M	M	M		M	M	M	
P-13	Local Transaction Date	M	M	M		M	M	M		M	M	M	
P-14	Expiration Date	C	C	C		C	C	C		C		C	
P-15	Settlement Date		M				M					M	
P-17	Capture Date	M	M	M		M	M	M		M		M	
P-22	Point of Service Entry Mode	C	C	C	C	C	C	C	C	C	C	C	C
P-23	Card Sequence Number												
P-25	Point of Service Condition Code					C	C	C	C			C	C

Data Element		Message Class											
		Authorization				Financial Transaction				Reversal			
		0100	0110	0120/1	0130	0200	0210	0220/1	0230	0402/3	0412	0420/1	0430
P-27	Authorization ID Response Length	C		C		C		C					
P-32	Acquiring Institution ID Code	M	M	M	M	M	M	M	M	M	M	M	M
P-35	Track 2 Data	M	M	M	M	M	M	M		M	M	M	M
P-37	Retrieval Reference Number	M	M	M	M	M	M	M	M	M	M	M	M
P-38	Authorization ID Response		M	M			M	M				M	
P-39	Response Code		M	M	M	C	M	M	M	M	M	M	M
P-41	Card Acceptor Terminal ID	M	M	M	M	M	M	M	M	M	M	M	M
P-42	Card Acceptor ID Code	C	C	C		C	C	C		C		C	
P-43	Card Acceptor Name/Location	M		M		M		M		M		M	
P-44	Additional Response Data					C	C	C					
P-48	Additional Data Retailer Data	M	M	M		M	M	M		M		M	
P-49	Transaction Currency Code	M	M	M	M	M	M	M	M	M	M	M	M
P-52	PIN Data	C				C							
P-54	Additional Amounts					C	C	C				C	
P-60	Terminal Data	M	M	M		M	M	M		M		M	
P-61	Card Issuer-Category-Response Code	M	M	M	M	M	M	M	M	M	M	M	M
P-63	Additional Data	C	C	C	C	C	C	C	C	C	C	C	C
P-64	Primary MAC Code	C	C	C	C	C	C	C	C	C	C	C	C
S-90	Original Data Elements					C	C	C		C		M	M

Data Element	Message Class											
	Authorization				Financial Transaction				Reversal			
	0100	0110	0120/1	0130	0200	0210	0220/1	0230	0402/3	0412	0420/1	0430
S-95 Replacement Amounts					C	C	C		C		C	
S-100 Receiving Institution ID Code	M	M	M		M	M	M		M		M	
S-102 Account ID 1		C	C	C		C	C	C	M	M	C	C
S-121 CRT Authorization Data	M	M	M		M	M	M		M	M	M	M
S-122 Card Issuer ID Code		C	C			C	C		M		C	
S-123 Invoice Data	C		C		C		C		M		M	
S-124 Batch and Shift Data	M		M		M		M		M		M	
S-125 Settlement Data	M	M	C		M	C	M		M		M	
S-126 Preauthorization and Chargeback Data	M	C	M	C	M	C	M	C	M	M	M	M
S-128 Secondary MAC Code	C	C	C	C	C	C	C	C	C	C	C	C

MAC Defaults

The following table summarizes the BIC ISO external message MAC defaults established for BASE24-pos external messages.

Data Element		Message Class											
		Authorization				Financial Transaction				Reversal			
		0100	0110	0120/1	0130	0200	0210	0220/1	0230	0402/3	0412	0420/1	0430
P-1	Secondary Bit Map	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-3	Processing Code	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-4	Transaction Amount	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-7	Transmission Date and Time	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-11	Systems Trace Audit Number	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-12	Local Transaction Time	Y	Y	Y		Y	Y	Y		Y	Y	Y	
P-13	Local Transaction Date	Y	Y	Y		Y	Y	Y		Y	Y	Y	
P-14	Expiration Date												
P-15	Settlement Date												
P-17	Capture Date												
P-22	Point of Service Entry Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-23	Card Sequence Number												
P-25	Point of Service Condition Code												
P-27	Authorization ID Response Length												
P-32	Acquiring Institution ID Code	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-35	Track 2 Data	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-37	Retrieval Reference Number	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Data Element		Message Class											
		Authorization				Financial Transaction				Reversal			
		0100	0110	0120/1	0130	0200	0210	0220/1	0230	0402/3	0412	0420/1	0430
P-38	Authorization ID Response		Y	Y			Y	Y				Y	
P-39	Response Code		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-41	Card Acceptor Terminal ID	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-42	Card Acceptor ID Code												
P-43	Card Acceptor Name/Location												
P-44	Additional Response Data					Y	Y	Y					
P-48	Additional Data Retailer Data	Y		Y		Y		Y		Y		Y	
P-49	Transaction Currency Code	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-52	PIN Data	Y				Y							
P-54	Additional Amounts					Y	Y	Y				Y	
P-60	Terminal Data	Y	Y	Y		Y	Y	Y		Y		Y	
P-61	Card Issuer-Category-Response Code	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P-63	Additional Data												
S-90	Original Data Elements												
S-95	Replacement Amounts					Y	Y	Y		Y		Y	
S-100	Receiving Institution ID Code												
S-102	Account ID 1		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y
S-121	CRT Authorization Data	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y
S-122	Card Issuer ID Code												

Data Element	Message Class											
	Authorization				Financial Transaction				Reversal			
	0100	0110	0120/1	0130	0200	0210	0220/1	0230	0402/3	0412	0420/1	0430
S-123 Invoice Data												
S-124 Batch and Shift Data												
S-125 Settlement Data												
S-126 Preauthorization/Chargeback Data												

Reconciliation Control Message Defaults

This subsection identifies the elements that are included or expected by default in reconciliation control messages. Those elements that are included in message authentication are also identified.

Reconciliation Control Message Summary

The following table summarizes the BIC ISO external message defaults established for reconciliation control external messages.

Data Element		0500	0502	0510	0512	0520/1	0522/3	0530	0532
P-1	Secondary Bit Map	M	M	M	M	M	M	M	M
P-7	Transmission Date and Time	M	M	M	M	M	M	M	M
P-11	Systems Trace Audit Number	M	M	M	M	M	M	M	M
P-15	Settlement Date	M	M	M	M	M	M	M	M
P-50	Settlement Currency Code	M	M	M	M	M	M	M	M
P-64	Primary MAC Code	C	C	C	C	C	C	C	C
S-66	Settlement Code			M	M			M	M
S-74	Number Credits	M	M	C	C	M	M	C	C
S-75	Reversal Number Credits	M	M	C	C	M	M	C	C
S-76	Number Debits	M	M	C	C	M	M	C	C
S-77	Reversal Number Debits	M	M	C	C	M	M	C	C
S-78	Number Transfer	M	M	C	C	M	M	C	C
S-79	Reversal Number Transfer	M	M	C	C	M	M	C	C
S-80	Number Inquiries	M	M	C	C	M	M	C	C
S-81	Number Authorizations	M	M	C	C	M	M	C	C

Data Element		0500	0502	0510	0512	0520/1	0522/3	0530	0532
S-86	Amount Credits	M	M	C	C	M	M	C	C
S-87	Reversal Amount Credits	M	M	C	C	M	M	C	C
S-88	Amount Debits	M	M	C	C	M	M	C	C
S-89	Reversal Amount Debits	M	M	C	C	M	M	C	C
S-97	Net Settlement Amount	M	M	C	C	M	M	C	C
S-99	Settlement Institution Identification Code	M	M	M	M	M	M	M	M
S-128	Secondary MAC Code	C	C	C	C	C	C	C	C

MAC Defaults

The following table summarizes the BIC ISO external message MAC defaults established for reconciliation control external messages.

Data Element		0500	0502	0510	0512	0520/1	0522/3	0530	0532
P-1	Secondary Bit Map	Y	Y	Y	Y	Y	Y	Y	Y
P-7	Transmission Date and Time	Y	Y	Y	Y	Y	Y	Y	Y
P-11	Systems Trace Audit Number	Y	Y	Y	Y	Y	Y	Y	Y
P-15	Settlement Date	Y	Y	Y	Y	Y	Y	Y	Y
P-50	Settlement Currency Code	Y	Y	Y	Y	Y	Y	Y	Y
S-66	Settlement Code			Y	Y			Y	Y
S-74	Number Credits	Y	Y	Y	Y	Y	Y	Y	Y
S-75	Reversal Number Credits	Y	Y	Y	Y	Y	Y	Y	Y
S-76	Number Debits	Y	Y	Y	Y	Y	Y	Y	Y
S-77	Reversal Number Debits	Y	Y	Y	Y	Y	Y	Y	Y
S-78	Number Transfer	Y	Y	Y	Y	Y	Y	Y	Y
S-79	Reversal Number Transfer	Y	Y	Y	Y	Y	Y	Y	Y
S-80	Number Inquiries	Y	Y	Y	Y	Y	Y	Y	Y
S-81	Number Authorizations	Y	Y	Y	Y	Y	Y	Y	Y
S-86	Amount Credits	Y	Y	Y	Y	Y	Y	Y	Y
S-87	Reversal Amount Credits	Y	Y	Y	Y	Y	Y	Y	Y
S-88	Amount Debits	Y	Y	Y	Y	Y	Y	Y	Y
S-89	Reversal Amount Debits	Y	Y	Y	Y	Y	Y	Y	Y
S-97	Net Settlement Amount	Y	Y	Y	Y	Y	Y	Y	Y
S-99	Settlement Institution Identification Code								

Network and Key Management Message Defaults

This subsection identifies the elements included or expected by default in network management and dynamic key management messages. Those elements included in message authentication are also identified.

Data Element Defaults

The following table summarizes the BIC ISO external message element defaults established for network management and dynamic key management external messages.

Data Element		0800	0810	0820	0830
P-1	Secondary Bit Map	M	M	M	M
P-7	Transmission Date and Time	M	M	M	M
P-11	Systems Trace Audit Number	M	M	M	M
P-15	Settlement Date	C	C	M	M
P-39	Response Code		M		M
P-48	Additional Data—Network Management	C	C		
P-53	BASE24 Security Information	C	C		
P-64	Primary MAC Code	C	C	C	C
S-70	Network Management Information Code	M	M	M	M
S-120	BASE24 Key Management	C	C		
S-123	BASE24 Cryptographic Service Message (CSM) Information	C	C		
S-128	Secondary MAC Code	C	C	C	C

MAC Defaults

The following table summarizes the BIC ISO external message MAC defaults established for network management and dynamic key management external messages. Logon, logoff, echo test, and MAC key change messages do not use MACs.

Data Element		0800	0810	0820	0830
P-1	Secondary Bit Map	Y	Y	Y	Y
P-7	Transmission Date and Time	Y	Y	Y	Y
P-11	Systems Trace Audit Number	Y	Y	Y	Y
P-15	Settlement Date				
P-39	Response Code		Y		Y
P-48	Additional Data—Network Management	Y	Y		
P-53	BASE24 Security Information	Y	Y		
S-70	Network Management Information Code	Y	Y	Y	Y
S-120	BASE24 Key Management	Y	Y		
S-123	BASE24 Cryptographic Service Message (CSM) Information				

4: External Message Data Elements

Except for those data elements noted in section 1, the data elements used in the BIC ISO external message conform to those defined by the ISO standard. The private use data elements have been uniquely defined for each BASE24 product.

This section explains the format and structures used in describing the BIC ISO external message data elements.

Data Element Structures

The following paragraphs describe how data elements in the BIC ISO external message must be structured. These guidelines are followed by BASE24 and must be adhered to by co-networks sending messages to the BASE24 system.

Fixed-Length Data Elements

Data placed in numeric, fixed-length data elements must be right-justified, with leading zeros. Data placed in all other fixed-length data elements must be left-justified, with trailing blanks.

Variable-Length Data Elements

Data placed in variable-length data elements can vary in length from zero positions up to the individual maximum length stated for the data element.

The actual length of the data placed in a variable-length data element must always be specified in a fixed-length prefix immediately preceding the data. This fixed-length field is known as the *field length indicator*.

For variable-length data elements with a maximum length of less than 100 characters, a two-position field length indicator containing the length of the data in the field precedes the data element.

For variable-length data elements with a maximum length greater than 99 and less than 1000 characters, an additional three-position prefix containing the length of the data in the field must precede the data element.

These prefixes must be right-justified and zero filled. For example, if a variable-length data element could be up to 200 characters, but only seven characters were actually to be loaded into the element, the required fixed-length prefix would be 007. In this case, if the seven characters were 1234567, the entire data element to be included in the external message would be 0071234567—ten positions in all.

Had the data element been limited to a maximum of less than 100 characters, the fixed-length prefix would be 07, and the entire data element would be 071234567—nine positions in all.

Documentation of Field Length Indicators

All variable-length data elements must be preceded by a field length indicator, and users must allow for this. Some variable-length data elements contain data structures while others contain a single field. In sections 5 and 6 of this manual, variable-length data elements with data structures explicitly include the field length indicator in the contents of the data element, while data elements with a single field do not include the field length indicator in the contents of the data element.

When the field length indicator is included, the phrase, “includes an *n*-position field length indicator,” is added to the FORMAT tag for the data element. In these cases, users need not allow for an additional field length indicator preceding the data element. For example, the BASE24-pos Additional Data (P-63) data element is variable length up to 600 characters. In this case, the maximum length of 600 includes a 3-position field length indicator, which is explicitly documented—the user need not allow for another 3-position field length indicator preceding this 600-character element.

When the field length indicator is not included, the value shown with the FORMAT tag for the data element is the length of the data field only. The length of the field length indicator must be added to the value shown with the FORMAT tag for the data element and users must allow for the field length indicator preceding the data element. For example, the Track 2 Data element (P-35) is variable length up to 37 characters. In this case, the user must allow for a 2-position field length indicator preceding this 37-character element, for a total of up to 39 characters.

Zero-Length Data Elements

BASE24 can include zero-length data elements if a co-network has inadvertently made mandatory a data element that BASE24 does not support. If BASE24 has no data to place in a mandatory data element, it sets the data element prefix to zeros (00 or 000) and sends the prefix.

Making Variable-Length Data Elements Fixed-Length

BASE24 has the capability of making certain variable-length data elements in the BIC ISO external messages fixed-length. This capability is intended to enable co-networks to receive messages made up entirely of fixed-length data elements.

If BASE24 has been configured to make variable-length data elements fixed-length, BASE24 simply uses the maximum lengths defined for the affected data elements whenever they are sent. This option is configured in the FIXED LENGTH FORMAT field on ICFE screen 2.

For example, the Account Identification 1 data element (S-102) is defined as a variable-length data element with a maximum length of 28 characters. In this case, it would always be sent as a 28-character data element (preceded by the required two-digit prefix). BASE24 would start with whatever data it had to send and pad that data to the right with blanks, out to a total of 28 characters. It would then create a prefix stating the length of the data element as 28 and attach that to the front of the data element, for a total of 30 characters.

By ISO definition, the data elements are still being sent as variable-length data elements. However, they are always being sent as the same size.

Note: Other data elements are defined as variable-length in the BIC ISO external message besides those listed on the following pages; however, only those listed above are affected by this option.

The fixed format option affects the way that the BIC ISO Interface process handles token data in the BASE24-pos Additional Data (P-63), BASE24-teller Additional Data (S-124), and BASE24-atm Additional Data (S-126) data elements. When the format is fixed, the BIC ISO Interface process reads the TKN to determine what tokens are included in the external message for the message type. For each token configured to be sent in the message, the BIC ISO Interface process checks the internal message for the token. Depending on whether the token is found in the internal message, and whether the token is fixed length or variable length, the BIC ISO Interface process performs as follows:

- If the token is present in the internal message and the token is fixed-length, the BIC ISO Interface process sends the token in the external message.
- If the token is present in the internal message and the token is variable length, the BIC ISO Interface process determines whether the token includes enough data to be the maximum length for the token. If the token includes enough data to be the maximum length for the token, the BIC ISO Interface process sends the token. If the token data does not fill the token to its maximum length, the BIC ISO Interface process pads the unused positions with spaces (alphanumeric fields) and zeros (numeric fields) before sending the token.
- If the token is not present in the message, the BIC ISO Interface process creates an *empty* token for the maximum size of the token, and sends the empty token. To create the empty token, the BIC ISO Interface process pads the token with spaces (alphanumeric fields) and zeros (numeric fields).

Note: Fixed format does not mean that all messages sent to the co-network are the same length, or even that all messages of a specific type are the same length. Rather, with the fixed-length option, certain key variable fields are sent for their maximum length. To create a fixed-length message, ensure that no variable length fields are configured to be sent in the message, and that no fields are specified as conditional.

The data elements in the BIC ISO external message affected by this option depend on the product being used. The following pages identify the data elements affected by product.

Network Management Messages

The data elements in BASE24 network management external messages affected by this option are as follows:

- P-48 Additional Data—BASE24 Network Management Data
- S-120 BASE24 Key Management
- S-123 Cryptographic Service Message

BASE24-atm

The data elements in BASE24-atm external messages affected by this option are as follows:

- P-2 Primary Account Number
- P-32 Acquiring Institution Identification Code
- P-33 Forwarding Institution Identification Code
- P-35 Track 2 Data
- P-36 Track 3 Data
- P-44 Additional Response Data
- P-52 Personal Identification Number (PIN) Data ¹
- P-54 Additional Amounts
- S-99 Settlement Institution Identification Code
- S-100 Receiving Institution Identification Code
- S-102 Account Identification 1
- S-103 Account Identification 2
- S-122 BASE24 Card Issuer Identification Code
- S-123 BASE24-atm Deposit Credit Amount
- S-124 BASE24-atm Depository Type
- S-125 BASE24-atm Account Indicator ²
- S-126 BASE24-atm Additional Data ³

- ¹ The Personal Identification Number (PIN) data element (P-52) is normally a 16-position fixed-length field. If data element P-52 contains PIN data, this field is not affected by the setting. If data element P-52 contains blanks, the BIC ISO Interface process replaces the blanks with the PIN PAD character. This ensures that data element P-52 is sent in the message.
- ² The BIC ISO Interface process sets the field length for data element S-125 to 001 (the length of the account indicator information).
- ³ BASE24-atm Additional Data (S-126) carries tokens. The tokens to include in the external message configured by the co-network are specified in the Token File (TKN). When the FIXED LENGTH Format field on ICFE screen 13 contains the value 1, the BIC ISO Interface process sets the length of data element S-126 to the sum of the maximum lengths of all tokens configured to be sent in the message.

BASE24-pos

The data elements in the BASE24-pos external messages affected by this option are as follows:

P-2	Primary Account Number
P-32	Acquiring Institution Identification Code
P-33	Forwarding Institution Identification Code
P-35	Track 2 Data
P-36	Track 3 Data
P-52	Personal Identification Number (PIN) Data ¹
P-54	Additional Amounts
P-63	BASE24-pos Additional Data ²
S-99	Settlement Institution Identification Code
S-100	Receiving Institution Identification Code
S-102	Account Identification 1
S-122	BASE24 Card Issuer Identification Code

- ¹ The Personal Identification Number (PIN) Data (P-52) is, by definition, a 16-position fixed-length field. If data element P-52 contains PIN data, this field is not affected by the setting. If data element P-52 contains blanks, the BIC ISO Interface process replaces the blanks with the PIN PAD character. This ensures that data element P-52 is sent in the message.

- ² BASE24-pos Additional Data (P-63) carries tokens. The tokens to include in the external message configured by the co-network. When the FIXED LENGTH FORMAT field on ICFE screen 13 contains the value 1, the BIC ISO Interface process sets the length of P-63 to the sum of the maximum lengths of all tokens configured to be sent in the message.

Private Use Data Elements

The ISO 8583 standard includes several private use data elements, which can be defined in any manner by an organization implementing the standard.

BASE24 uses a number of these data elements to carry pieces of information that are required for processing by BASE24 but are not specifically defined by the ISO 8583 standard.

Some of these private use data elements are defined differently depending on the BASE24 product to which a message applies. An example is data element S-123, which is defined as the following:

- Cryptographic Service Message (CSM) information for network management key management messages
- Deposit credit amount for BASE24-atm messages
- Invoice data for BASE24-pos messages

In this case, the name and the function of the data element is different for network management, BASE24-atm, and BASE24-pos messages.

Where the same private use data element is given a different name and function for different BASE24 products, separate documentation is included for each version of the data element. In the above example, the S-123 data element is documented three times, once for network management messages, once for BASE24-atm, and once for BASE24-pos.

5: BIC ISO Data Elements

This section contains descriptions for the data elements of the BIC ISO external message. The data elements controlled by the primary bit map are described first, followed by descriptions of the data elements controlled by the secondary bit map.

Primary Bit Map Data Elements

The table below lists the data elements controlled by the primary bit map of the BIC ISO external message, sequenced by their bit map positions. The data elements listed here are described on the pages following this table.

Position	Data Element Name
P-1	Secondary Bit Map
P-2	Primary Account Number
P-3	Processing Code
P-4	Transaction Amount
P-5	Settlement Amount
P-6	Cardholder Billing Amount
P-7	Transmission Date and Time
P-8	Cardholder Billing Fee Amount
P-9	Settlement Conversion Rate
P-10	Cardholder Billing Conversion Rate
P-11	Systems Trace Audit Number
P-12	Local Transaction Time
P-13	Local Transaction Date
P-14	Expiration Date
P-15	Settlement Date
P-16	Conversion Date
P-17	Capture Date
P-18	Merchant's Type
P-19	Acquiring Institution Country Code
P-20	Country Code Primary Account Number Extended

Position	Data Element Name
P-21	Forwarding Institution Country Code
P-22	Point of Service Entry Mode
P-23	Card Sequence Number
P-24	Network International Identifier
P-25	Point of Service Condition Code
P-26	Point of Service PIN Capture Code
P-27	Authorization Identification Response Length
P-28	Transaction Fee Amount
P-29	Settlement Fee Amount
P-30	Transaction Processing Fee Amount
P-31	Settlement Processing Fee Amount
P-32	Acquiring Institution Identification Code
P-33	Forwarding Institution Identification Code
P-34	Extended Primary Account Number
P-35	Track 2 Data
P-36	Track 3 Data
P-37	Retrieval Reference Number
P-38	Authorization Identification Response
P-39	Response Code
P-40	Service Restriction Code
P-41	Card Acceptor Terminal Identification
P-42	Card Acceptor Identification Code
P-43	Card Acceptor Name/Location

Position	Data Element Name
P-44	Additional Response Data—BASE24-atm
P-44	Additional Response Data—BASE24-pos
P-45	Track 1 Data
P-46	Additional Data—ISO
P-47	Additional Data—National
P-48	Additional Data—BASE24-atm Data
P-48	Additional Data—BASE24-pos Retailer Data
P-48	Additional Data—BASE24 Network Management Data
P-49	Transaction Currency Code
P-50	Settlement Currency Code
P-51	Cardholder Billing Currency Code
P-52	Personal Identification Number (PIN) Data
P-53	Security Related Control Information
P-54	Additional Amounts
P-55	Reserved ISO
P-56	Reserved ISO
P-57	Reserved National
P-58	Reserved National
P-59	Reserved National
P-60	BASE24-atm Terminal Data
P-60	BASE24-pos Terminal Data
P-61	BASE24-atm Card Issuer and Authorizer Data
P-61	BASE24-pos Card Issuer-Category-Response Code Data

Position	Data Element Name
P-62	BASE24 Postal Code
P-63	BASE24-atm PIN Offset
P-63	BASE24-pos Additional Data
P-64	Message Authentication Code Field

P-1 Secondary Bit Map

Format: AN 16

Used By: BASE24-atm
BASE24-pos

Identifies the presence or absence of data elements 65 through 128 in the BIC ISO external message. It functions the same as the primary bit map, except that the primary bit map identifies the presence or absence of data elements 1 through 64 and the secondary bit map identifies the presence or absence of data elements 65 through 128.

The Secondary Bit Map data element is required if any of data elements 65 through 128 are included in the message. Otherwise, it is not used.

The presence or absence of the Secondary Bit Map data element is identified by bit position 1 in the primary bit map. If the Secondary Bit Map data element is absent from the primary bit map, data elements 65 through 128 cannot be included in the message.

P-2 Primary Account Number

Format: N ..19

Used By: BASE24-atm
BASE24-pos

The primary account number (PAN) of the cardholder account involved in the transaction or update request being processed.

BASE24 does not require this data element in its external messages because it uses the PAN from the Track 2 Data (P-35) data element or the Track 1 Data (P-45) data element. However, this data element is available, and can be included in messages in addition to the Track 2 data.

If this data element is present and the Track 2 Data (P-35) data element is not, BASE24 sets the start sentinel for Track 2 in the internal message to M.

On incoming BASE24 messages, the PAN from the Track 2 Data (P-35) data element or the Track 1 Data (P-45) data element is used if it is present; Otherwise the PAN from this data element is used if it is present.

On outgoing BASE24 messages, the PAN for this data element is derived from the Track data in the internal message.

P-3 Processing Code

Format: N 6

Used By: BASE24-atm
BASE24-pos

A series of digits that describes the type of transaction and the accounts affected by the transaction. This element is sometimes referred to as the transaction code.

This element is mandatory for all messages except network management messages.

P-4 Transaction Amount

Format: N 12

Used By: BASE24-atm
BASE24-pos

The amount of funds requested (either for debit or credit) in the currency of the source location of the transaction.

Decimalization of the amount is implied by the value in the Transaction Currency Code (P-49) data element. For example, if the currency code indicates U.S. dollars, 000000001000 would indicate \$10.00. However, if the currency code indicates lire, the amount would be 1000 lire.

BASE24-atm

The Transaction Amount data element is mandatory for all financial transaction and reversal messages. Although a transaction amount does not apply to some transaction types (e.g., balance inquiries), the element must be present in the message, zero-filled where not applicable.

If the BASE24-atm user supports adjustment transactions and has chosen to accept them in the external message set, BASE24 must calculate the amount of the adjustment.

If the result of the calculation is negative, the first two positions of the Processing Code element (P-3) are set to 02 to indicate a debit adjustment. If the result of the calculation is positive, the first two positions of the Processing Code element (P-3) are set to 22 to indicate a credit adjustment. The value of the Transaction Amount element in these cases is the absolute value of the result.

BASE24-pos

The Transaction Amount data element is mandatory for all authorization, financial transaction, and reversal messages.

P-5 Settlement Amount

Format:	N 12
Used By:	BASE24-atm BASE24-pos

The settlement amount of the transaction if multiple currencies are involved. The position of the decimal is implied by the Settlement Currency Code data element (P-50).

P-6 Cardholder Billing Amount

Format: N 12

Used By: BASE24-atm
BASE24-pos

The billing amount associated with this transaction if multiple currencies are involved. The position of the decimal is implied by the Cardholder Billing Currency Code data element (P-51).

P-7 Transmission Date and Time

Format: N 10 (MMDDhhmmss)

Used By: BASE24-atm
BASE24-pos

The date and time the message entered into the interchange system. It is reset for each outgoing message and is expressed in Greenwich mean time.

The Transmission Date and Time data element is mandatory for all message types.

BASE24-atm:

On incoming BASE24-atm messages, the Transmission Date and Time element is not processed.

On outgoing BASE24-atm messages, the Transmission Date and Time element is set to the current Greenwich Mean Time.

BASE24-pos:

On incoming BASE24-pos messages, the Transmission Date and Time element is not processed.

On outgoing BASE24-pos messages, the Transmission Date and Time element is set to the current Greenwich mean time. On outgoing 0200 messages, the Transmission Date and Time element is saved so that, if a 0420 reversal message must be sent later, it can be included in the Original Data Elements (S-90) data element.

P-8 Cardholder Billing Fee Amount

Format: N 8

Used By: Not used by BASE24

P-9 Settlement Conversion Rate

Format: N 8

Used By: Not used by BASE24

P-10 Cardholder Billing Conversion Rate

Format: N 8

Used By: Not used by BASE24

P-11 Systems Trace Audit Number

Format: N 6

Used By: BASE24-atm
BASE24-pos

A number used for matching responses to messages. This number must be set by a message sender and echoed by a message receiver. It is used for matching responses to original messages and is not intended to remain the same throughout the life of a transaction (e.g., a reversal cannot have the same number as the original transaction).

The Systems Trace Audit Number data element is mandatory for all messages to and from the BASE24 system.

In network management messages, the Systems Trace Audit Number element is used to match the network management request with its response. The BASE24 system generates the number on outgoing 0800 messages and expects it to be returned in the corresponding 0810 messages. On outgoing 0810 messages, the BASE24 system echoes the number sent in the corresponding 0800 messages.

In reconciliation messages, the Systems Trace Audit Number element is used to match the reconciliation request with its response. The BASE24 system generates the number on outgoing 0500 messages and expects it to be returned in the corresponding 0510 messages. On outgoing 0510 messages, the BASE24 system echoes the number sent in the corresponding 0500 messages. This applies to all 0500-series request and response messages.

P-12 Local Transaction Time

Format: N 6 (hhmmss)

Used By: BASE24-atm
BASE24-pos

The local time at which the transaction began at the card acceptor location.

Since a terminal can be geographically removed from the BASE24 system by one or more time zones, BASE24 maintains time zone offsets for terminals defined to the system. These offsets allow BASE24 to compute local transaction times and dates for transactions originating at BASE24 terminals. The terminal time zone offset is applied to the system date and time to derive the local date and time for the transaction.

When a transaction originates at an acquirer co-network, it is assumed that the content of this data element is the terminal local time.

BASE24-atm

The Local Transaction Time element is mandatory for 0200, 0210, 0220, 0221, 0420, and 0421 messages.

BASE24-pos

The Local Transaction Time element is mandatory for 0100, 0110, 0120, 0121, 0200, 0210, 0220, 0221, 0402, 0403, 0420, and 0421 messages.

P-13 Local Transaction Date

Format: N 4 (MMDD)

Used By: BASE24-atm
BASE24-pos

The local month and day that the transaction began at the card acceptor location.

Since a terminal can be geographically removed from the BASE24 system by one or more time zones, BASE24 maintains time zone offsets for terminals defined to the system. These offsets allow BASE24 to compute local transaction times and dates for transactions originating at BASE24 terminals. The terminal time zone offset is applied to the system date and time to derive the local date and time for the transaction.

When a transaction originates at an acquirer co-network, it is assumed that the content of this data element is the terminal local date.

BASE24-atm

The Local Transaction Date element is mandatory for 0200, 0210, 0220, 0221, 0420, and 0421 messages.

BASE24-pos

The Local Transaction Date element is mandatory for 0100, 0110, 0120, 0121, 0200, 0210, 0220, 0221, 0402, 0403, 0420, and 0421 messages.

P-14 Expiration Date

Format: N 4 (YYMM)

Used By: BASE24-atm
BASE24-pos

The year and month after which a card expires. This element is conditional for 0100, 0110, 0120, 0121, 0200, 0210, 0220, 0221, 0402, 0403, 0420, and 0421 messages, based on availability.

If the Expiration Date element is available for a transaction, BASE24 sends it. Otherwise, BASE24 does not include it in the external message. Likewise, if the Expiration Date element is sent from a co-network, BASE24 accepts it. However, BASE24 does not reject a message if this element is not present.

BASE24-atm

On incoming BASE24-atm messages, the date from this data element is used to construct the track data in the internal message if the Track 2 Data (P-35) data element is not present.

On outgoing BASE24-atm messages, the date for this data element is taken from the track data in the internal message.

BASE24-pos

On incoming BASE24-pos messages, the date from this data element is moved to the TRAN.EXP-DAT field in the PSTM and is also used to construct the track data in the internal message if the Track 2 Data (P-35) data element is not present.

On outgoing BASE24-pos messages, the date for this data element is taken from the TRAN.EXP-DAT field in the PSTM or from the track data in the internal message.

P-15 Settlement Date

Format: N 4 (MMDD)

Used By: BASE24-atm
BASE24-pos

The date the transaction is to be settled by the co-network. The Settlement Date element is used by BASE24 to hold the acquirer's settlement date.

In reconciliation messages, the Settlement Date element is the date to which the totals figures apply. The Settlement Date element is mandatory for all reconciliation messages.

In network management messages, the Settlement Date element is mandatory for 0820 and 0830 messages and conditional for 0800 and 0810 messages. When the value in the Network Management Code (S-70) element is set to 201 for cutover, the date in the Settlement Date element is the business date for the processing day just ended.

BASE24 checks 0830 messages with data element S-70 set to a value of 201. If the date is not equal to the previous date for BASE24, the message is dropped. BASE24 does not check this for 0820 messages.

BASE24-atm

The Settlement Date element is mandatory for 0210, 0420, and 0421 messages.

BASE24-pos

The Settlement Date element is mandatory for 0110, 0210, 0412, 0420, and 0421 messages.

P-16 Conversion Date

Format: N 4 (MMDD)

Used By: Not used by BASE24

P-17 Capture Date

Format: N 4 (MMDD)

Used By: BASE24-atm
BASE24-pos

The month and day the transaction was processed by BASE24.

This date equates to the date of the BASE24 transaction log file to which the transaction is logged.

BASE24 moves to a new processing date each day at logical network cutover.

BASE24-atm

The Capture Date element is mandatory for 0200, 0210, 0220, 0221, 0420, and 0421 messages.

BASE24-pos

The Capture Date element is mandatory for 0100, 0110, 0120, 0121, 0200, 0210, 0220, 0221, 0402, 0403, 0412, 0420, and 0421 messages.

P-18 Merchant Type

Format: N 4

Used By: BASE24-pos

The Standard Industrial Classification (SIC) code of the retailer involved in the transaction.

P-19 Acquiring Institution Country Code

Format: N 3

Used By: Not used by BASE24

P-20 Country Code Primary Account Number Extended

Format: N 3

Used By: Not used by BASE24

P-21 Forwarding Institution Country Code

Format: N 3

Used By: Not used by BASE24

P-22 Point of Service Entry Mode

Format: N 3

Used By: BASE24-pos

The Point of Service Entry Mode element consists of two codes. The first code is two digits in length and indicates the method by which Track data was entered into the system. The second code is one digit in length and indicates the entry capabilities available at the point of service.

This element is conditional for all authorization, financial transaction, and reversal messages.

On incoming BASE24-pos messages, if the Point of Service Entry Mode element is included in the message, BASE24 checks the element for a value of 010. If the element contains a value of 010, BASE24 places an M in the start sentinel position of the Track data sent in data element P-35.

On outgoing BASE24-pos data messages, BASE24 determines whether the start sentinel position in Track is equal to M. If it is equal to M, BASE24 places a value of 010 in the Point of Service Entry Mode element and includes the element in the message. If the start sentinel position in Track data is not equal to M, BASE24 does not include the element in the message.

Note: A value of 010 in the Point of Service Entry Mode element indicates that the Track data was entered manually and that the PIN entry capabilities at the point of service are unknown.

P-23 Card Sequence Number

Format: N 3

Used By: BASE24-atm
BASE24-pos

The BASE24 member number for the card that initiated the transaction. Member numbers are used by BASE24 to differentiate multiple cards issued with the same card number.

The Card Sequence Number element must be right-justified and zero filled, or must contain three zeros.

P-24 Network International Identifier

Format: N 3

Used By: Not used by BASE24

P-25 Point of Service Condition Code

Format: N 2

Used By: BASE24-pos

Identifies the condition under which the transaction is taking place at the point of service.

This element is conditional for 0200, 0210, 0220, 0221, 0230, 0420, and 0430 messages.

On incoming BASE24-pos messages, if the Point of Service Condition Code element is included in the message, BASE24 places it in its internal message.

On outgoing BASE24-pos messages, BASE24 first determines whether the transaction is a preauthorization completion and whether the condition code represents a preauthorized request. If these two conditions are met, BASE24 sets the value of the Point of Service Condition Code element to 06 and includes it in the message. Otherwise, BASE24 does not include the Point of Service Condition Code element in the message.

P-26 Point of Service PIN Capture Code

Format: N 2

Used By: Not used by BASE24

P-27 Authorization Identification Response Length

Format: N 1

Used By: BASE24-pos

The length of the authorization code.

This element is conditional for 0100, 0120, 0121, 0200, 0220, and 0221 messages. The Approval Code (P-38) element is only six bytes. Therefore, the maximum value is six.

On a request from the co-network to BASE24, if the Authorization Identification Response Length element is included in the message, BASE24 sets the length of the authorization code to the value in this element. Otherwise, BASE24 obtains the length of the authorization code from its data base.

On a request from BASE24 to the co-network, BASE24 includes the Authorization Identification Response Length element in the message only if the length is less than six. Otherwise, BASE24 does not include the Authorization Identification Response Length element in the message.

P-28 Transaction Fee Amount

Format: X + N 8

Used By: BASE24-atm

The Transaction Fee Amount data element contains the amount of an acquirer fee (surcharge or incentive) assessed on an ATM transaction. If the amount is negative (i.e., an incentive), the sign indicator is set to a minus sign (credit). If the amount is positive (i.e., a surcharge), the sign indicator is not needed.

Processing by Message Type

BASE24 processes the value from this optional data element as follows:

Incoming 0200 and 0220 messages. If this data element is present, the value it contains is placed in both the TRAN-FEE and ORIG-FEE fields of the Surcharge Data token.

Outgoing 0200 and 0220 messages. This data element is set to the amount in the TRAN-FEE field of the Surcharge Data token. The external message does not contain this data element if the token does not exist or the TRAN-FEE field of the token is zero.

Incoming 0210 messages. BASE24 uses the 0200 message token information unless the external 0210 message also contains the token. In this case, the token from the external message is used.

Outgoing 0210 messages. This data element is set to the amount in the TRAN-FEE field of the Surcharge Data token. The data element is not sent in the message if the token does not exist or the TRAN-FEE field of the token is zero.

Incoming 0420 and 5400 messages. BASE24 uses the sum of the amount in this data element plus the amount in the TRAN-FEE field of the Surcharge Data token to set the ORIG-FEE field of the Surcharge Data token. If this data element is not present or the value is zero, the ORIG-FEE field is set to the same value as the TRAN-FEE field.

Outgoing 0420 and 5400 messages. For full reversals, this data element is set to the amount of the surcharge that needs to be reversed (the ORIG-FEE field of the Surcharge Data token), the sign indicator is set to a minus sign (credit), and the value in the Transaction Fee field in the Replacement Amounts (S-95) data element is set to zero.

For partial reversals, this data element is set to the amount of the surcharge that needs to be reversed. This is the amount in the TRAN-FEE field of the Surcharge Data token minus the amount in the ORIG-FEE field of the token. The sign indicator is set to a minus sign (credit) for negative values. The value in the Transaction Fee field in the Replacement Amounts (S-95) data element is set to the actual surcharge to be applied to the transaction (the TRAN-FEE field of the Surcharge Data token).

P-29 Settlement Fee Amount

Format: X + N 8

Used By: Not used by BASE24

P-30 Transaction Processing Fee Amount

Format: X + N 8

Used By: Not used by BASE24

P-31 Settlement Processing Fee Amount

Format: X + N 8
Used By: Not used by BASE24

P-32 Acquiring Institution Identification Code

Format: N ..11
Used By: BASE24-atm
BASE24-pos

Identifies the acquiring institution for the transaction, or its agent, who may also be the card acceptor.

In a transaction acquired by the co-network, the acquiring institution ID is moved to the internal message from the data element. If the ID is zeros and LCONF parameter OVRRD-INST-ID-FLDS indicates to override the acquiring institution ID, the value in the ACQ-ID-NUM is moved to the internal message. If LCONF parameter OVRRD-INST-ID-FLDS does not indicate to override the acquiring institution ID, the value in the ICFE SWI-ID field is used as the acquiring institution ID.

When a transaction originates at a terminal directly connected to BASE24, BASE24 sets the value in the Acquiring Institution Identification Code element from its terminal records. In the United States, this value is normally used for a U.S. Federal Reserve routing number which uniquely identifies financial institutions within the country.

BASE24-atm

This element is mandatory for all financial transaction and reversal messages.

BASE24-pos

This element is mandatory for all authorization, financial transaction, and reversal messages.

P-33 Forwarding Institution Identification Code

Format: N ..11

Used By: BASE24-atm
BASE24-pos

Identifies the BASE24 service provider. This element contains a routing and transit number representing BASE24.

The forwarding institution ID from the internal is moved to this data element. If LCONF parameter OVRRD-INST-ID-FLDS specifies to override the forwarding institution ID, the ICFE SWI-ID field is moved to this data element.

P-34 Extended Primary Account Number

Format: NS ..28

Used By: Not used by BASE24

P-35 Track 2 Data

Format: ANS ..37 (defined by ISO 7813)

Used By: BASE24-atm
BASE24-pos

The information encoded on Track 2 of the magnetic stripe of the plastic card being used for the transaction, excluding start and end sentinel and LRC characters.

Data items within the Track 2 Data element that may be needed by BASE24 include primary account number, card sequence (member) number, PIN verification data, and expiration date.

For specifications on the standard ISO requirements for Track 2 data, refer to the ISO 7813 standard, *Identification Cards —Financial Transaction Cards*.

BASE24-atm

BASE24-atm does not require this data element in its external messages because it can use this data element or it can construct the track data in the internal message using the PAN from the Primary Account Number (P-2) data element and Expiration Date (P-14) data element. However, this data element will be used if it is available.

On incoming BASE24-atm messages, the content of this data element is placed in the RQST.TRACK2 field in the STM.

On outgoing BASE24-atm messages, the information for this data element is taken from the RQST.TRACK2 field in the STM.

BASE24-pos

BASE24-pos does not require this data element in its external messages because it can use this data element or it can construct the track data in the internal message using the PAN from the Primary Account Number (P-2) data element and Expiration Date (P-14) data element. However, this data element will be used if it is available.

On incoming BASE24-pos messages, the content of this data element is placed in the TRAN.TRACK2 field in the PSTM.

On outgoing BASE24-pos messages, the information for this data element is taken from the TRAN.TRACK2 field in the PSTM.

P-36 Track 3 Data

Format: ANS ..104 (defined by ISO 4909)

Used By: BASE24-atm

The information encoded in Track 3 of the magnetic stripe on the back of the card originating the transaction.

BASE24-atm does not use Track 3 in its processing; however, if Track 3 data is sent from a terminal or from an acquirer co-network, BASE24-atm carries the information internally.

For specifications on the standard ISO requirements for Track 3 data, refer to the ISO 4909 standard, *Magnetic Stripe Data Content for Track 3*.

P-37 Retrieval Reference Number

Format: AN 12

Used By: BASE24-atm
BASE24-pos

A number assigned by a message initiator to uniquely identify a transaction. This number remains unchanged for all messages throughout the life of a transaction.

When a transaction originates from BASE24, the number is generated as shown below for the different BASE24 products. When the transaction originates from an acquirer co-network, the number comes from the original 0200 message from that acquirer.

BASE24-atm

The Retrieval Reference Number element is mandatory for financial transaction and reversal messages.

When a transaction originates at a terminal directly connected to BASE24-atm, this element contains the ATM sequence number, or receipt number, for the transaction, assigned either by the ATM itself or by the BASE24-atm Device Handler.

BASE24-pos

The Retrieval Reference Number element is mandatory for authorization, financial transaction, reversal, and reconciliation control messages.

When a transaction originates at a terminal directly connected to BASE24-pos, the value is originally set either by the POS device itself or by the BASE24-pos Device Handler module.

P-38 Authorization Identification Response

Format: AN 6

Used By: BASE24-atm
BASE24-pos

A response identification number assigned by the authorizing institution. Although BASE24 allows for these numbers internally, it does not generate them. They can, however, be generated by an interchange.

BASE24-atm

The Authorization Identification Response element is mandatory for 0210, 0220, 0221, 0420, and 0421 messages.

BASE24-pos

The Authorization Identification Response element is mandatory for 0110, 0120, 0121, 0210, 0220, 0221, 0420, and 0421 messages.

P-39 Response Code

Format: AN 2

Used By: BASE24-atm
BASE24-pos

A code that indicates the disposition of a message. The Response Code element is mandatory in 0810 and 0830 messages. In 0810 and 0830 messages, this element indicates that a logon request has been denied.

BASE24-atm

The Response Code element is mandatory in all financial transaction and reversal messages, with the exception of 0200 messages.

In a 0210 message, this element either indicates that a request has been approved or gives a reason for denial.

In a 0220 or 0221 message, this element is used to indicate the transaction completion status.

In a 0230 message, this element is echoed from the 0220 or 0221 message.

In a 0420 or 0421 message, this element is used to indicate the reason for the reversal.

In a 0430 message, this element is echoed from the 0420 or 0421 message.

The ISO response codes for BASE24-atm transactions are listed in appendix A.

BASE24-pos

The Response Code element is mandatory in all authorization, financial transaction, and reversal messages, with the exception of 0100 and 0200 messages. It is conditional for all 0200 messages.

On outgoing BASE24-pos 0200 messages, BASE24 determines whether the transaction is an adjustment. If it is an adjustment, BASE24 translates the response code from the internal message and places it in the message. If the transaction is not an adjustment, BASE24 does not include the element in the message.

The ISO response codes for BASE24-pos transactions are listed in appendix B.

P-40 Service Restriction Code

Format: AN 3

Used By: Not used by BASE24

P-41 Card Acceptor Terminal Identification

Format: ANS 16

Used By: BASE24-atm
BASE24-pos

A unique code identifying the terminal at the card acceptor location.

Note: BASE24 uses 16 bytes for terminal identification, instead of the 8 bytes specified by the ISO 8583 standard.

BASE24-atm

This element is mandatory in all financial transaction and reversal messages.

BASE24-pos

This element is mandatory in all authorization, financial transaction, and reversal messages.

P-42 Card Acceptor Identification Code

Format: ANS 15

Used By: BASE24-atm
BASE24-pos

Identifies the card acceptor in a transaction if the card acceptor is different from the acquiring institution.

BASE24-atm

The Card Acceptor Identification Code element is conditional for 0200, 0210, 0220, 0221, 0420, and 0421 messages. If it is carried in the initial transaction message, it is carried throughout all subsequent messages for the transaction, except advice responses.

BASE24-pos

The Card Acceptor Identification Code element is conditional for all authorization, financial transaction, and reversal messages, with the exception of 0130, 0230, 0412, and 0430 messages.

P-43 Card Acceptor Name/Location

Format: ANS 40

Used By: BASE24-atm
BASE24-pos

The name and location of the card acceptor, which defines the point of service in both local and interchange environments.

The structure of P-43 is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–22	22	Terminal owner The name of the institution owning the terminal.
23–35	13	Terminal city The city in which the transaction-originating terminal is located.
36–38	3	Terminal state A code indicating the state or province in which the transaction-originating terminal is located.
39–40	2	Terminal country A code indicating the country in which the transaction-originating terminal is located.

BASE24-atm

The Card Acceptor Name/Location element is mandatory in all 0200, 0220, 0221, 0420, and 0421 messages.

BASE24-pos

The Card Acceptor Name/Location element is mandatory in all 0100, 0120, 0121, 0200, 0220, 0221, 0402, 0403, 0420, and 0421 messages.

P-44 Additional Response Data — BASE24-atm

Format: ANS 27 (includes a 2-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

The Additional Response Data element can be used for additional data in a response message, which can be printed on a screen or receipt where the transaction was acquired.

This element is conditional for 0210 messages.

For incoming 0210 messages, this element is used for account balance information. If the authorizer wants to include account balance information in the transaction response, whether on a balance inquiry or any other transaction type, it is the Additional Response Data element that carries it.

The structure of the Additional Response Data element for BASE24-atm is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–2	2	Field Length Indicator This field must be set to 25.
3	1	Usage Indicator Used to interpret the rest of the data. Valid values are: 1 = Ledger balance present only 2 = Available balance present only 3 = Both balances present; use ledger balance if only one can be used 4 = Both balances present; use available balance if only one can be used
4–15	12	Ledger Balance

Position	Length	Description
16–27	12	Available Balance If the account concerned is a credit account, the first amount is the current credit account balance and the second amount is the available credit. For both balances, the currency is assumed to be the currency of the BASE24 data base. If a negative amount is expressed, the leftmost byte contains a minus sign (–); otherwise, it contains a zero.

P-44 Additional Response Data — BASE24-pos

Format: ANS 27 (includes a 2-position field length indicator)

Used By: BASE24-pos
(see separate descriptions for other products)

Indicates the result of address verification processing. The Additional Response Data element is conditional for BASE24-pos 0200, 0210, and 0220 messages.

The structure of the Additional Response Data element for BASE24-pos is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–2	2	Field Length Indicator This field must be set to 02.
3	1	Responder Identity This field is not used by BASE24.

Position	Length	Description
4	1	Address Verification Status Code Valid values are: A = ADDRESS: Address matches, ZIP code does not match N = NO: Address and ZIP code do not match R = RETRY: System unavailable or timeout S = SERVICE NOT SUPPORTED: Issuer does not support address verification at Visa or the issuer processing center U = UNAVAILABLE: Address information is unavailable W = WHOLE: 9-digit ZIP code matches, address does not match X = EXACT: Address and 9-digit ZIP code match Y = YES: Address and 5-digit ZIP code match Z = ZIP: 5-digit ZIP code matches, address does not match 0 = ZERO: Address verification was not performed ␣ = SPACE: Address verification was not performed

P-45 Track 1 Data

Format: ANS ..76

Used By: BASE24-pos

The Track 1 Data element contains the information encoded on Track 1 of the magnetic stripe of the card being used for the transaction, including start and end sentinel and longitudinal redundancy check (LRC) characters. The content of this data element is specified in the ISO 7813 standard, *Identification Cards—Financial Transaction Cards*. The general format of information in this data element is shown below.

Start sentinel (%)

Format code (B for credit cards is the only format code defined)

Primary account number (PAN), left justified (up to 19 digits)

Field separator (^)

Country code (if present; 3 digits)

Name (up to 26 characters)

Field separator (^)
Expiration date (YYMM)
Service code (if present; 3 digits)
Discretionary data (up to 21 characters)
End sentinel (?)
Longitudinal redundancy check character

If this data element is present in an incoming transaction and contains information other than spaces, BASE24 scans the data from the right to compute the length and moves the start sentinel, the data for the computed length, and the end sentinel to the Track 1 token. It then adds 2 to the length of the token and adds it to the message.

If this data element is present and there is only a PAN and expiration date in the Track 2 data element (only four numeric characters after the field separator), BASE24 sets the start sentinel for Track 2 to M.

For outgoing messages, the BASE24 ISO Host Interface process moves data from the Track 1 token (excluding the start sentinel, end sentinel and longitudinal redundancy check character) to this data element.

P-46 Additional Data — ISO

Format: ANS ..999
Used By: Not used by BASE24

P-47 Additional Data — National

Format: ANS ..999
Used By: Not used by BASE24

P-48 Additional Data — BASE24-atm Data

Format: ANS 47 (includes a 3-position field length indicator)
Used By: BASE24-atm
(see separate descriptions for other products)

Carries sharing information. The information in this element is used by the BASE24-atm Authorization process to determine whether not-on-us transactions are to be allowed. A not-on-us transaction is one where the card issuer and card acceptor are not the same.

This element is mandatory for 0200 messages.

The structure of the Additional Data element for BASE24-atm is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 044.
4–27	24	Sharing Group Identifiers (24 at 1 byte each) A terminal can belong to up to 24 sharing groups within a BASE24-atm system. This list of sharing group identifiers is compared to the card issuer's sharing groups; if there is no match, meaning the card issuer and terminal do not have at least one sharing group in common, the transaction is not allowed.
28	1	Terminal Transaction Allowed Code Values indicate the type of geographical sharing restrictions the terminal owner wants to apply to the transaction if the transaction is not-on-us (the card issuer and terminal owner are not the same): 0 = Not allowed if not-on-us at all 1 = Allowed within the county 2 = Allowed within the state 3 = Allowed nationally 4 = Allowed internationally
29–30	2	Terminal State Code A numeric code indicating the state in which the terminal is located, zero-filled where not applicable.
31–33	3	Terminal County Code A numeric code indicating the county in which the terminal is located, zero-filled where not applicable.

Position	Length	Description
34–36	3	Terminal Country Code A numeric code indicating the country in which the terminal is located, zero-filled where not applicable.
37–47	11	Terminal Routing Group A numeric code indicating the routing group to which the terminal belongs.

P-48 Additional Data — BASE24-pos Retailer Data

Format: ANS ..30 (includes a 3-position field length indicator)

Used By: BASE24-pos
(see separate descriptions for other products)

Carries the information required to identify the retailer involved in the transaction. It is mandatory for all authorization, financial transaction, reversal, and reconciliation control messages, with the exception of 0130, 0230, 0412, and 0430 messages.

The structure of the Additional Data element for BASE24-pos is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 027.
4–22	19	Retailer ID The retailer ID of the retailer initiating the transaction.
23–26	4	Retailer Group The retailer group to which the retailer initiating the transaction belongs.

Position	Length	Description
27–30	4	Retailer Region The retailer region to which the retailer initiating the transaction belongs.

P-48 Additional Data — BASE24 Network Management Data

Format: ANS ..203 (includes a 3-position field length indicator)

Used By: BASE24-atm
BASE24-pos
(see separate descriptions for other products)

Carries information used by BASE24 for network management messages. This information is used for logons to the co-network. The information passed in this element determines the configuration processing options that each network is using. This information is vital and must be shared between the networks in order to correctly process transactions.

This data element is conditional for 0800 and 0810 messages. This field is sent only when this is a logon request or response. A network management message for a logon is identified by a value of 001 in the Network Management Code (S-70) element.

The structure of the Additional Data element for BASE24 network management data is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator For a fixed-length field, this field must be set to 200. For a variable-length field, this field must be set to 017 for Release 6.0 format and 016 for Release 5.x or Release 4.0 format.

Position	Length	Description
4–5	2	<p>Version Number</p> <p>A code specifying the oldest common release of the BASE24 message formats used between two co-networks. Valid values are as follows:</p> <p>00 = Release 4.0 format 01 = Release 5.x format 60 = Release 6.0 format</p> <p>In a release 4.0 BASE24 network, the value of this field must be set to 00. In a release 5.x BASE24 network, the value must be set to 00 or 01; it cannot be set to 60. In a release 6.0 BASE24 network, the value can be set to 00, 01, or 60. The BASE24 co-networks must use the value of the message format of the oldest release of BASE24 used by the two co-networks.</p>
6	1	<p>Acknowledgment to Switch</p> <p>Specifies whether BASE24 sends text-level acknowledgments to the co-network. Valid values are as follows:</p> <p>0 = No, BASE24 does not send text-level acknowledgments to the co-network 1 = Yes, BASE24 sends text-level acknowledgments to the co-network</p>
7	1	<p>Acknowledgment from Switch</p> <p>Specifies whether BASE24 expects text-level acknowledgments from the co-network. Valid values are as follows:</p> <p>0 = No, BASE24 does not expect text-level acknowledgments from the co-network 1 = Yes, BASE24 expects text-level acknowledgments from the co-network</p>

Position	Length	Description
8	1	Acquirer Stand In Authorization Specifies whether BASE24, when acting as the acquirer, can stand in for the co-network. Valid values are as follows: 0 = No, BASE24 cannot stand in for the co-network 1 = Yes, BASE24 can stand in for the co-network
9	1	Issuer Stand In Authorization Specifies whether the co-network, when acting as the acquirer, can stand in for BASE24, when BASE24 is acting as the issuer. Valid values are as follows: 0 = No, the co-network cannot stand in for BASE24 1 = Yes, the co-network can stand in for BASE24
10	1	Cutover Status The type of settlement logic configured for BASE24. Valid values are as follows: 0 = BASE24 and the co-network are equal settlement partners 1 = BASE24 is the main settlement partner 2 = BASE24 is the secondary settlement partner If BASE24 and the co-network are equal partners, each partner is responsible for its own cutover and each must send totals to the other partner at settlement. If BASE24 is the main partner, BASE24 controls when cutover occurs and is responsible for sending totals for settlement. If BASE24 is the secondary partner, the co-network controls when cutover occurs and is responsible for sending totals for settlement.
11	1	Encryption Type The type of PIN encryption configured for BASE24. Valid values are as follows: 0 = No PIN encryption 1 = Security device PIN management 2 = Software DES PIN management

Position	Length	Description
12	1	Number of Keys Indicates whether the inbound and outbound keys for a specific BIC ISO Interface process are combined or separate. Valid values are as follows: 1 = Combined keys (inbound and outbound keys are equal) blank, 0, or 2 = Separate keys
13	1	Key Length Indicates whether single- or double-length Key Exchange Keys (KEKs) are used with this co-network. The value in this field is used when PIN and MAC keys are exchanged using dynamic key management. The PIN KEK and the MAC KEK must be the same length. Valid values are as follows: 0, 1 = Single-Length Key Exchange Keys (KEKs) 2 = Double-Length KEKs
14	1	Key Processing Type A code identifying the type of dynamic key management processing this BIC ISO Interface process can perform. Valid values are as follows: 0, N = None M = Main S = Secondary C = Co-network
15	1	MAC Type Indicates the level of MAC support for this BIC ISO Interface process. Valid values are as follows: 0 = No MAC support 1 = Hardware MAC support 2 = Software MAC support

Position	Length	Description
16	1	MAC Data Type Indicates character set in which MAC data is formatted. Valid values are as follows: 0 = ASCII 1 = EBCDIC
17–19	3	Reserved Options A code indicating the currency used for transactions the interface process receives. Valid values are listed in the ISO 4217 standard, <i>Codes for the Representation of Currencies and Funds</i> .
20	1	MAC Key Length Indicates whether single- or double-length MAC Keys are used with this co-network. Valid values are as follows: 0 or 1 = Single-Length MAC Keys 2 = Double-Length MAC Keys This field is present in a Release 6.0 format message, but not in a Release 5.x or Release 4.0 format message.
21–203	183	Filler Reserved for future use.

P-49 Transaction Currency Code

Format: N 3

Used By: BASE24-atm
BASE24-pos

A code that defines the currency of the source location of the transaction. The Transaction Currency Code element identifies the currency that applies to the value in the Transaction Amount (P-4) element. Valid values are listed in the ISO 4217 standard, *Codes for the Representation of Currencies and Funds*.

BASE24 uses numeric currency codes only.

BASE24-atm

The Transaction Currency Code element identifies the currency that applies to the Transaction Amount (P-4), and Transaction Fee Amount (P-28) elements. It is mandatory for all financial transaction and reversal messages.

BASE24-pos

The Transaction Currency Code element is mandatory for all authorization, financial transaction, reversal, and reconciliation messages.

P-50 Settlement Currency Code

Format: N 3

Used By: BASE24-atm
BASE24-pos

A code that defines the currency in which reconciliation figures are expressed.

If this data element is present, the amount used is taken from the appropriate settlement amount field (P-5). If this data element is not present, the amount used is taken from the transaction amount field (P-4).

BASE24 uses numeric currency codes only. Valid values are listed in the ISO 4217 standard, *Codes for the Representation of Currencies and Funds*.

For both BASE24-atm and BASE24-pos, the Settlement Currency Code element is mandatory in all reconciliation messages.

P-51 Cardholder Billing Currency Code

Format: N 3

Used By: Not used by BASE24

P-52 Personal Identification Number (PIN) Data

Format: AN 16

Used By: BASE24-atm
BASE24-pos

A number assigned to a cardholder intended to uniquely identify that cardholder at the point of service. This element can contain the PIN itself or a derivative. It can be encrypted or in the clear.

BASE24-atm

The Personal Identification Number (PIN) Data element is conditional for 0200 messages. If BASE24 determines that the cardholder's PIN has been verified, then this element need not be included in the outgoing 0200 message. However, if the co-network is to verify the PIN, then this element must be included in the message.

In many cases, PIN verification is done by BASE24-atm. Whenever BASE24 determines that the PIN has already been verified, it omits this element from outgoing 0200 messages.

BASE24-pos

The Personal Identification Number (PIN) Data element is conditional for 0100 and 0200 messages.

On incoming BASE24-pos messages, the PIN Data element is required if PINs are to be verified.

On outgoing BASE24-pos messages, BASE24 sends the PIN Data element if PINs are to be verified by the co-network.

P-53 Security Related Control Information

Format: N 16

Used By: BASE24 Network Management

The Security Related Control Information element contains BASE24 dynamic key management data. It is conditional for network management messages.

The structure of the Security Related Control Information element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–2	19	Key Type A flag identifying the type of key being exchanged. Valid values are as follows: 00 = PIN key 01 = MAC key
3–4	19	Key Direction A flag indicating the direction of the key being exchanged. Valid values are as follows: 01 = Outbound key only 02 = Inbound key only 03 = Both incoming and outgoing keys
5–16	19	Reserved for future use

P-54 Additional Amounts

Format: ANS 27 (includes a 3-position field length indicator)

Used By: BASE24-atm
BASE24-pos

Carries the cash back amount for deposits and purchases where cash is being returned to the customer.

It is conditional for 0200, 0210, 0220, 0221, 0420, and 0421 messages. If the transaction is a deposit (BASE24-atm) or purchase with cash back (BASE24-pos), the Additional Amounts element is required to carry the cash back amount.

Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 012.
4–15	12	Cash Back Amount The cash back amount for deposits and purchases.
16–27	12	Settlement Amount The cash back amount in the currency defined by the code in P-50.

P-55 Through P-56 ISO Reserved

Format: ANS ..999

Used By: Not used by BASE24

P-57 Through P-59 National Reserved

Format: ANS ..999

Used By: Not used by BASE24

P-60 BASE24-atm Terminal Data

Format: ANS 15 (includes a 3-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

Carries terminal information required by BASE24-atm for processing.

For transactions introduced into the BASE24-atm system by an acquirer co-network, these sub-elements must come from the original request sent by that co-network. For transactions originating from BASE24-atm, they come from the BASE24 data base.

This data element is mandatory for all financial transaction and reversal messages, except for 0230 and 0430 messages.

The structure of the BASE24-atm Terminal Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 012.
4–7	4	Terminal Owner FIID The FIID of the institution owning the terminal.
8–11	4	Terminal Logical Network The logical network in which the terminal is located.
12–15	4	Terminal Time Offset (PIC S999) A signed number of minutes to be added to the BASE24 system time to arrive at the local time of the terminal originating the transaction.

P-60 BASE24-pos Terminal Data

Format: ANS 19 (includes a 3-position field length indicator)

Used By: BASE24-pos
(see separate descriptions for other products)

Carries terminal information required by BASE24-pos for processing.

For transactions introduced into the BASE24-pos system by an acquirer co-network, these sub-elements must come from the original request sent by that co-network. For transactions originating from BASE24-pos, they come from the BASE24 database.

This data element is mandatory for all authorization, financial transaction, reversal, and reconciliation control messages, with the exception of 0130, 0230, 0412, and 0430 messages.

The structure of the BASE24-pos Terminal Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 016.
4–7	4	Terminal Owner FIID The FIID of the institution owning the terminal.
8–11	4	Terminal Logical Network The logical network in which the terminal is located.
12–15	4	Terminal Time Offset (PIC S999) A signed number of minutes to be added to the BASE24 system time to arrive at the local time of the terminal originating the transaction.
16–19	4	Pseudo Terminal ID A value used by interchanges to identify the terminal involved in a transaction.

P-61 BASE24-atm Card Issuer and Authorizer Data

Format: ANS ..18 (includes a 3-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

Uniquely identifies a financial institution within a BASE24 system.

This element is conditional for 0220 and 0221 messages.

The structure of the BASE24-atm Card Issuer and Authorizer Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator For adjustment transactions (message type 5400), this field must be set to 015. For all other message types, this field must be set to 013.
4–7	4	Card Issuer FIID The FIID of the card issuer.
8–11	4	Card Logical Network The logical network of the card issuer.
12–15	4	Save Account Indicators Two two-position codes, indicating the actual account types involved in the transaction. The first code indicates the type of the <i>from</i> account; the second code indicates the type of the <i>to</i> account.
16	1	Authorizer A code indicating whether the primary (P) or alternate (A) authorizer authorized the transaction.
17–18	2	Original Transaction Code The transaction code for the original transaction. This field is only included when the message type is 5400.

P-61 BASE24-pos Card Issuer-Category-Response Code Data

Format: ANS 22 (includes a 3-position field length indicator)

Used By: BASE24-pos
(see separate descriptions for other products)

The card issuer's FIID and logical network, the transaction category, and some additional response code data. It is mandatory for authorization, financial transaction, and reversal messages.

The structure of the BASE24-pos Card Issuer-Category-Response Code Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 019.
4–7	4	Card Issuer FIID The FIID of the card issuer.
8–11	4	Card Logical Network The logical network of the card issuer.
12	1	Category The category associated with the transaction.
13–14	2	Save Account Indicator A two-position code, indicating the actual type of account on which the transaction was performed.
15–22	8	Interchange Response Code Response codes and reason codes supplied by an interchange.

P-62 BASE24 Postal Code

Format: ANS 13 (includes a 3-position field length indicator)

Used By: BASE24-atm
BASE24-pos

The postal code of the terminal originating the transaction. It is available for all message types.

In the United States, postal code is synonymous with ZIP code.

The structure of the BASE24 Postal Code element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 010.
4–13	10	Postal Code (left-justified, blank-filled). The postal code of the terminal originating the transaction.

P-63 BASE24-atm PIN Offset

Format: ANS 19 (includes a 3-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

Carries a PIN offset to allow ATM customers to select their own PINs.

The BASE24-atm PIN Offset element is available for outgoing 0200 and all 0210, 0220, 0221, 0420, or 0421 messages.

A customer PIN selection is not a separate transaction by itself, but rather it is embedded in whichever transaction the customer was doing when the new PIN was entered for the first time. If that transaction happens to be reversed, the PIN selection is not reversed.

The structure of the BASE24-atm PIN Offset element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 016.
4–19	16	PIN Offset (left-justified, blank-filled)

P-63 BASE24-pos Additional Data

Format: ANS ..600 (includes a 3-position field length indicator)

Used By: BASE24-pos
(see separate descriptions for other products)

BASE24-pos uses the BASE24-pos Additional Data element to carry BASE24 message tokens. BASE24 tokens are carried in the external message in the same general structure as they are carried in the internal message. The major difference is that, in the external message, all tokens are in ASCII format.

If token data is added to the BASE24-pos Additional Data element, the first item following the field length indicator is a Header token. The Header token contains a count of the number of tokens associated with the message and the overall length of all token data. The Header token is added to the message when the first token is added, and is updated each time a subsequent token is added.

The token header for the first token is located after the Header token. Each token that is added to the message has its own token header. Unlike the Header token, which contains information about *all tokens* in the message, the token header contains information about one specific token. The token header identifies the individual token and contains the length of the individual token. The token header is followed by token data. Together, the token header and the token data form a single token. The combination of token header and token data is repeated for each token in the message.

BASE24 tokens are carried in their entirety in ASCII format. The general structure of the BASE4-pos Additional Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
01–03	3	Field Length Indicator The field length indicator value is the sum of the lengths of the Header token, all token headers, and token data being used.
04–15	12	Header Token
15–24	10	Token Header
<i>a–b</i>	<i>n</i>	Token Data
...
<i>w–x</i>	<i>10</i>	Token Header
<i>y–z</i>	<i>n</i>	Token Data

P-64 Primary Message Authentication Code

Format: AN 16

Used By: BASE24-atm
BASE24-pos

The Primary Message Authentication Code element carries the message authentication code (MAC) for the message, if no fields are in the Secondary Bit Map. If there are secondary data elements are included in the message, the Secondary Message Authentication Code element (S-128) is used to carry the message authentication code. In this case, this Primary Message Authentication Code data element (P-64) is not present in the message.

Secondary Bit Map Data Elements

This section contains descriptions for data elements 65 through 128 of the BIC ISO external message. The table below lists the data elements controlled by the secondary bit map of the BIC ISO external message, sequenced by their bit map positions.

Position	Data Element Name
S-65	Extended Bit Map
S-66	Settlement Code
S-67	Extended Payment Code
S-68	Receiving Institution Country Code
S-69	Settlement Institution Country Code
S-70	Network Management Information Code
S-71	Message Number
S-72	Message Number Last
S-73	Action Date
S-74	Number Credits
S-75	Reversal Number Credits
S-76	Number Debits
S-77	Reversal Number Debits
S-78	Number Transfer
S-79	Reversal Number Transfer
S-80	Number Inquiries
S-81	Number Authorizations
S-82	Processing Fee Amount Credits
S-83	Transaction Fee Amount Credits

Position	Data Element Name
S-84	Processing Fee Amount Debits
S-85	Transaction Fee Amount Debits
S-86	Amount Credits
S-87	Reversal Amount Credits
S-88	Amount Debits
S-89	Reversal Amount Debits
S-90	Original Data Elements
S-91	File Update Code
S-92	File Security Code
S-93	Response Indicator
S-94	Service Indicator
S-95	Replacement Amounts
S-96	Message Security Code
S-97	Net Settlement Amount
S-98	Payee
S-99	Settlement Institution Identification Code
S-100	Receiving Institution Identification Code
S-101	File Name
S-102	Account Identification 1
S-103	Account Identification 2
S-104	Transaction Description
S-105	Reserved ISO
S-106	Reserved ISO

Position	Data Element Name
S-107	Reserved ISO
S-108	Reserved ISO
S-109	Reserved ISO
S-110	Reserved ISO
S-111	Reserved ISO
S-113	Reserved National
S-120	BASE24 Key Management
S-120	BASE24-atm Terminal Address-Branch-Region
S-120	BASE24-pos Terminal Address-Branch
S-121	BASE24-pos Authorization Indicators
S-122	BASE24 Card Issuer Identification Code
S-123	Cryptographic Service Message
S-123	BASE24-atm Deposit Credit Amount
S-123	BASE24-pos Invoice Data
S-124	BASE24-atm Depository Type
S-124	BASE24-pos Batch and Shift Data
S-125	BASE24-atm Account Indicator
S-125	BASE24-pos Settlement Data
S-126	BASE24-pos Pre-Auth and Chargeback Data
S-126	BASE24-atm Additional Data
S-127	BASE24-pos User Data
S-128	Message Authentication Code

S-65 Extended Bit Map

Format: Not defined by BASE24

Used By: Not used by BASE24 or ISO 8583

S-66 Settlement Code

Format: N 1

Used By: BASE24-atm
BASE24-pos

Indicates the result of a reconciliation request. It is mandatory in all reconciliation response messages (0510, 0512, 0530, and 0532). BASE24 does not supply the *in balance* or *out of balance* values for this element. A value of 9 has been defined to indicate that the reconciliation message was received but was not checked against internal totals at the time it was received. The checking of reconciliation totals within BASE24 is done when settlement reports are run.

S-67 Extended Payment Code

Format: N 2

Used By: Not used by BASE24

S-68 Receiving Institution Country Code

Format: N 3

Used By: Not used by BASE24

S-69 Settlement Institution Country Code

Format: N 3

Used By: Not used by BASE24

S-70 Network Management Information Code

Format: N 3

Used By: BASE24-atm
BASE24-pos

A code used to manage the online processing status between BASE24 and a co-network. It identifies the purpose of a network management request message.

The following network management information codes are supported by the BIC ISO Interface process:

001 = Logon
002 = Logoff
161 = Change Key
162 = New Key
163 = Repeat Key
164 = Verify Key
201 = Cutover
301 = Echo-test

Network management information codes 161, 162, 163, and 164 are used only for dynamic key management messages.

The Network Management Information Code element is mandatory for 0800, 0810, 0820, 0821, and 0830 messages.

S-71 Message Number

Format: N 4

Used By: Not used by BASE24

S-72 Message Number Last

Format: N 4

Used By: Not used by BASE24

S-73 Action Date

Format: N 6 (YYMMDD)

Used By: Not used by BASE24

S-74 Number Credits

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of credit transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-75 Reversal Number Credits

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of reversal credit transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-76 Number Debits

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of debit transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-77 Reversal Number Debits

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of reversal debit transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-78 Number Transfer

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of transfer transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-79 Reversal Number Transfer

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of transfer reversal transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-80 Number Inquiries

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of inquiry transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-81 Number Authorizations

Format: N 10

Used By: BASE24-atm
BASE24-pos

Indicates the number of authorization transactions that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-82 Processing Fee Amount Credits

Format: N 12

Used By: Not used by BASE24

S-83 Transaction Fee Amount Credits

Format: N 12

Used By: Not used by BASE24

S-84 Processing Fee Amount Debits

Format: N 12

Used By: Not used by BASE24

S-85 Transaction Fee Amount Debits

Format: N 12

Used By: Not used by BASE24

S-86 Amount Credits

Format: N 16

Used By: BASE24-atm
BASE24-pos

Indicates the total amount of all credit transactions (excluding fees) that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-87 Reversal Amount Credits

Format: N 16

Used By: BASE24-atm
BASE24-pos

Indicates the total amount of all reversal credits (excluding fees) that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-88 Amount Debits

Format: N 16

Used By: BASE24-atm
BASE24-pos

Indicates the total amount of all debit transactions (excluding fees) that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-89 Reversal Amount Debits

Format: N 16

Used By: BASE24-atm
BASE24-pos

Indicates the total amount of all reversal debits (excluding fees) that have been processed since the last business day cutover.

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522, and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

For a description of the information included in this element, refer to appendix E.

S-90 Original Data Elements

Format: N 42

Used By: BASE24-atm
BASE24-pos

A group of five sub-elements contained in a reversal or adjustment message intended to identify the original transaction being reversed or adjusted.

In the case of adjustments, the first two digits of the Processing Code element (P-3) are set to either 02 (debit adjustment) or 22 (credit adjustment).

BASE24 does not use the ISO definition for the Original Data element but instead uses the following structure. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–4	4	Original Transaction Type The transaction type identifying the original transaction.
5–16	12	Original Sequence Number The sequence number identifying the original transaction.
17–20	4	Transaction Date The date of the original transaction.
21–28	8	Transaction Time The time of the original transaction.
29–32	4	Original BASE24 Capture Date The date the original transaction was posted by BASE24.
33–42	10	Filler

Note: Information for this data element is not always available through BASE24. Therefore, it is recommended that systems interfacing with BASE24 not use this data element to uniquely identify a transaction. The following elements can be used to uniquely identify a transaction:

P-12 Local Transaction Time
P-13 Local Transaction Date
P-35 Primary Account Number (from Track 2 Data)
P-37 Retrieval Reference Number
P-41 Card Acceptor Terminal Identification
P-45 Primary Account Number (from Track 1 Data)

BASE24-atm

The Original Data Elements data element is mandatory for 0420, 0421, and 0430 messages. The Original Data Elements data element is conditional for 0220 messages and is only required if the transaction is an adjustment.

BASE24-pos

The Original Data Elements data elements is mandatory for 0420, 0421, and 0430 messages. It is conditional for 0402 and 0403 messages. In 0402 and 0403 messages, BASE24 accepts the data element if it is sent and sends the data element if some portion of the information is available.

The Original Data Elements data element is conditional for 0200, 0210, 0220, and 0221 messages and is only required if the transaction is an adjustment.

S-91 File Update Code

Format: AN 1

Used By: Not used by BASE24

S-92 File Security Code

Format: AN 2

Used By: Not used by BASE24

S-93 Response Indicator

Format: AN 5

Used By: Not used by BASE24

S-94 Service Indicator

Format: AN 7

Used By: Not used by BASE24

S-95 Replacement Amounts

Format: AN 42

Used By: BASE24-atm
BASE24-pos

The Replacement Amounts data element contains the new transaction amount for a previous BASE24-atm or BASE24-pos transaction. This data element also contains the new surcharge amount for a previous BASE24-atm transaction.

BASE24-atm

The Replacement Amounts data element is conditional for 0420, 0421, and 0430 messages. It is necessary only for partial reversals. On a full reversal, this data element is not included in messages from BASE24-atm and need not be present in messages to BASE24-atm.

For partial reversals of deposit with cash back transactions, the Actual Transaction Amount field in this data element carries the amount of cash actually dispensed.

For partial reversals of transactions with a surcharge, the Transaction Fee field in this data element carries the actual surcharge applied to the transaction.

The structure of this data element is provided below.

Position	Length	Description
1-12	12	Actual Transaction Amount The actual completed amount of the transaction. On incoming messages, this value is placed in the RQST.AMT-2 field in the STM if the transaction is not a deposit with cash back and the RQST.AMT-3 field if the transaction is a deposit with cash back. On outgoing messages, this value is taken from the RQST.AMT-2 field in the STM if the transaction is not a deposit with cash back and the RQST.AMT-3 field if the transaction is a deposit with cash back.

Position	Length	Description
13–24	12	Settlement Amount The settlement amount in the currency defined by the code in P-50.
25–33	9	Transaction Fee The amount of the acquirer fee (surcharge or incentive) assessed on this transaction. If the amount is negative (i.e., an incentive), the first byte of this field is set to a minus sign (–). If the amount is positive (i.e., a surcharge), the first byte of this field remains set to its initialized value. On incoming messages, this value is placed in the TRAN-FEE field in the Surcharge Data token. On outgoing messages, this value is taken from the TRAN-FEE field in the Surcharge Data token.
34–42	9	Settlement Fee Ignored on incoming messages and zero-filled on outgoing messages.

BASE24-pos

The Replacement Amounts data element is conditional for 0200, 0210, 0220, 0221, 0402, 0420, and 0421 messages. This data element is required only if the transaction is an adjustment. Otherwise, this data element is not included in messages from BASE24-pos and need not be present in messages to BASE24-pos. The structure of this data element is provided below.

Position	Length	Description
1–12	12	Actual Transaction Amount The actual completed amount of the transaction. On incoming messages, this value is placed in the TRAN.AMT-2 field in the PSTM. On outgoing messages, this value is taken from the TRAN.AMT-2 field in the PSTM.

Position	Length	Description
13–24	12	Settlement Amount The settlement amount in the currency defined by the code in P-50.
25–42	30	Not Used Ignored on incoming messages and zero-filled on outgoing messages.

S-96 Message Security Code

Format: AN 16

Used By: Not used by BASE24

S-97 Net Settlement Amount

Format: X + N 16

Used By: BASE24-atm
BASE24-pos

Net Settlement Amount is calculated using the other reconciliation amounts as follows:

Net Settlement Amount = (Amount Credits + Reversal Amount Credits)
– (Amount Debits + Reversal Amount Debits)

This element is mandatory in all reconciliation request and advice messages (0500, 0502, 0520, 0521, 0522 and 0523) and is mandatory in reconciliation response messages if the Settlement Code element (S-66) is set to a value other than 9.

S-98 Payee

Format: ANS 25

Used By: Not used by BASE24

S-99 Settlement Institution Identification Code

Format: N ..11

Used By: BASE24-atm
BASE24-pos

Identifies the institution initiating a reconciliation message exchange. It is used by BASE24 in reconciliation request and advice messages. In a reconciliation response message, it is copied from the original reconciliation request or advice.

This element is mandatory in all reconciliation messages.

S-100 Receiving Institution Identification Code

Format: N ..11

Used By: BASE24-atm
BASE24-pos

Identifies the institution receiving a request message. This element is included because of its potential need by an acquirer co-network sending a request through BASE24 without knowledge of who is to be the end recipient.

If the transaction is acquired by the co-network, the receiving institution ID is moved to the internal message. If the ID is zeros and LCONF parameter OVRRD-INST-ID-FLDS specifies to override the receiving institution ID, the value in the ICFE SWI-ID field is moved to the internal message.

When a transaction originates at a terminal directly connected to BASE24, the value from the internal message is moved to this data element. If LCONF parameter OVRRD-INST-ID-FLDS specifies to override the receiving institution ID, the value in the ACQ-ID-NUM field is moved to this data element.

BASE24-atm

The Receiving Institution Identification Code element is mandatory for 0200 (outgoing), 0210, 0220, 0221, 0420, and 0421 messages. This element is conditional for 0220 and 0221 messages.

On 0420 messages, the value of the Receiving Institution Identification Code element is copied from the 0210 message.

On 0420 messages, the value of the Receiving Institution Identification Code element is copied from the 0210 message.

BASE24-pos

The Receiving Institution Identification Code element is mandatory for 0110, 0210, 0402, 0403, 0420, and 0421 messages. This element is conditional for 0120, 0121, 0220, and 0221 messages.

S-101 File Name

Format: ANS 4

Used By: Not used by BASE24

S-102 Account Identification 1

Format: ANS ..28

Used By: BASE24-atm
BASE24-pos

A series of digits used to identify a customer account, usually some account that is tied to the primary or card account.

The account number in the Account Identification 1 element must be right justified.

BASE24-atm

The Account Identification 1 element is used for the *from* account number involved in the transaction (e.g., the debit account in a withdrawal or transfer transaction or the account being inquired upon in a balance inquiry transaction).

The Account Identification 1 element is conditional for all financial transaction and reversal messages except 0200 messages. On incoming financial transaction and reversal messages, it is included if it is known to the co-network. On outgoing financial transaction and reversal messages, it is sent by BASE24 if it is available.

BASE24-pos

The Account Identification 1 element is used for the account number involved in the transaction.

The Account Identification 1 element is mandatory for 0402, 0403, and 0412 messages. It is conditional for authorization, 0420, 0421 and 0430 messages, and financial transaction messages except 0100 and 0200 messages. Where it is conditional, it is included in the message if it is known to the co-network, and it is sent by BASE24 if it is available.

S-103 Account Identification 2

Format: ANS ..28

Used By: BASE24-atm

A series of digits used to identify a customer account, usually some account which is tied to the primary or card account. In BASE24, this element is used for the *to* account number (e.g., the credit account in a deposit or transfer transaction).

The Account Identification 2 element is conditional on all financial transaction and reversal messages, except 0200 messages. It is included in incoming messages if it is known to the co-network. It is included in outgoing messages if it is known to BASE24.

S-104 Transaction Description

Format: ANS ..999

Used By: Not used by BASE24

S-105 Through S-111 ISO Reserved

Format: ANS ..999

Used By: Not used by BASE24

S-113 National Reserved

Format: ANS ..999

Used By: Not used by BASE24

S-120 BASE24 Key Management

Format: ANS 9 (includes a 3-position field length indicator)

Used By: BASE24 Network Management
(see separate descriptions for other products)

The BASE24 Key Management element contains check digits for key exchanges. This element is conditional for network management messages. It must be included in the message if the Network Management Information Code (S-70) element is set to a value of 162, 163, or 164.

The structure of the BASE24 Key Management element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 006.
4–9	6	Check Digits The check digits for the key being exchanged.

S-120 BASE24-atm Terminal Address-Branch-Region

Format: ANS 36 (includes a 3-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

Carries terminal information for the terminal involved in the transaction.

BASE24-atm needs to carry the terminal address to comply with certain interchange systems. Branch and region are BASE24-atm elements used in conjunction with terminal control operations.

This element is not to be confused with Card Acceptor Name/Location element (P-43), which gives the terminal location in terms of city, state, or country.

The BASE24-atm Terminal Address-Branch-Region element is available for all messages.

The structure of the BASE24-atm Terminal Address-Branch-Region element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 033.
4–28	25	Terminal Address The address of the terminal originating the transaction.
29–32	4	Terminal Branch The branch ID of the terminal originating the transaction.
33–36	4	Terminal Region The region ID of the terminal originating the transaction.

S-120 BASE24-pos Terminal Address-Branch

Format: ANS 32 (includes a 3-position field length indicator)

Used By: BASE24-pos
(see separate descriptions for other products)

Carries terminal information for the terminal involved in the transaction.

This element is not to be confused with the Card Acceptor Name/Location element (P-43), which gives the terminal location in terms of city, state, or country.

The BASE24-pos Terminal Address-Branch element is available for all messages except reconciliation control messages.

The structure of the BASE24-pos Terminal Address-Branch element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents. The name and location of the terminal.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 029.
4–28	25	Terminal Name and Location The name and location of the terminal
29–32	4	Terminal Branch ID The branch ID of the terminal.

S-121 BASE24-pos Authorization Indicators

Format: ANS 23 (includes a 3-position field length indicator)

Used By: BASE24-pos

Contains clerk and authorization information for the transaction. This element is mandatory for authorization, financial transaction, and reversal messages, with the exception of 0130 and 0230 messages.

The structure of the BASE24-pos Authorization Indicators data element is shown below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 020.
4–9	6	Clerk ID The clerk ID of the clerk initiating the transaction.

Position	Length	Description
10–13	4	CRT Authorization Group The group number of the CRT authorization operator that handled the transaction, in the case where the transaction was a referral.
14–21	8	CRT Authorization User ID The user ID of the CRT authorization operator that handled the transaction, in the case where the transaction was a referral.
22	1	Authorization Indicator An indicator specifying how the transaction was authorized.
23	1	Authorization Indicator 2 An indicator specifying how the transaction was authorized if it was authorized outside of the first logical network in which it was received.

S-122 BASE24 Card Issuer Identification Code

Format: ANS 14 (includes 3-position field indicator)

Used By: BASE24-atm
BASE24-pos

The BASE24 Card Issuer Identification Code data element contains a value that identifies the institution that issued the card involved in the transaction. This value is used only when the card issuer is different from the receiving institution and BASE24 has no knowledge of the difference.

The structure of this data element is provided below.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 011.

Position	Length	Description
4-14	11	Card Issuer ID The card issuer ID. See the product-specific descriptions that follow for more information on the card issuer ID field.

BASE24-atm

The BASE24 Card Issuer Identification Code data element is conditional in 0210, 0220, 0221, 0420, and 0421 messages. If this data element is included in the external message, BASE24 accepts the value it contains. If the value is available, BASE24 sends the data element in the external message.

The host institution to which BASE24 sends 0200 messages is always the receiving institution, but may or may not be the card issuer. For example, an institution can be defined in the BASE24 database to appear as though it is the card issuer of multiple prefixes, and also as an issuer host to which BASE24 is connected using the BASE24 ISO Host Interface process. In reality, some of the prefixes may belong to other sponsor banks, and the host to which BASE24 is connected is doing authorizations on their behalf. When this is the case, this data element should appear in the 0210 message inbound to BASE24 and the value it contains should identify the true card issuer institution.

If the data element is present in the 0210 message, then it should be present in subsequent messages of the transaction (except advice responses).

On incoming BASE24-atm messages, the value from this data element is placed in the CRD-ISS-ID-NUM field in the STM.

On outgoing BASE24-atm messages, the value for this data element is taken from the CRD-ISS-ID-NUM field in the STM.

BASE24-pos

The BASE24 Card Issuer Identification Code data element is mandatory for 0402 messages and is conditional in 0110, 0120, 0121, 0210, 0220, 0221, 0420, and 0421 messages. In conditional situations, if this data element is included in the external message, BASE24 accepts it. If it is available, BASE24 sends it in the external message.

The host institution to which BASE24 sends 0100 and 0200 messages is always the receiving institution, but may or may not be the card issuer. For example, an institution can be defined in the BASE24 database to appear as though it is the card issuer of multiple prefixes, and also as an issuer host to which BASE24 is connected using the BASE24 ISO Host Interface process. In reality, some of the prefixes may belong to other sponsor institutions, and the host to which BASE24 is connected is doing authorizations on their behalf. When this is the case, this data element should appear in the 0110 or 0210 message inbound to BASE24 and the value it contains should identify the true card issuer institution.

If the data element is present in the 0110 or 0210 message, then it should be present in subsequent messages of the transaction (except advice responses).

On incoming BASE24-pos messages, the value from this data element is placed in the CRD-ISS-ID-NUM field in the PSTM.

On outgoing BASE24-pos messages, the value for this data element is taken from the CRD-ISS-ID-NUM field in the PSTM.

S-123 Cryptographic Service Message

Format: ANS ..553 (includes a 3-position field length indicator)

Used By: BASE24 Network Management
(see separate descriptions for other products)

The Cryptographic Service Message data element contains the ANSI X9.17 standard Cryptographic Service Message (CSM).

This data element is conditional for network management messages. It must be included in the message if the value in the Network Management Information Code (S-70) data element is 161, 162, or 163.

The structure of this data element is provided below.

Position	Length	Description
1-3	3	Field Length Indicator This field must contain the length of the Cryptographic Service Message (CSM).

Position	Length	Description
4–553	550	Cryptographic Service Message (CSM) This field contains the Cryptographic Service Message (CSM). The length of this field depends on the format of the CSM being sent or received. Refer to the ANSI document <i>Financial Institution Key Management (Wholesale)</i> for the standard on which the CSM is based. Refer to the <i>BASE24 Transaction Security Manual</i> for details on the way BASE24 products use the CSM.

S-123 BASE24-atm Deposit Credit Amount

Format: N 27 (includes a 3-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

The BASE24-atm Deposit Credit Amount data element contains the amount added to the available balance for the cardholder as a result of a deposit transaction.

This data element is conditional for 0210, 0220, 0221, 0420, and 0421 messages. If the transaction is a deposit, this data element is required; otherwise, the data element is not used.

On incoming messages, the value from this data element is placed in the RQST. DEP-BAL-CR field in the STM.

On outgoing messages, the value for this data element is taken from the RQST. DEP-BAL-CR field in the STM.

The structure of this data element is provided below.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 012.

Position	Length	Description
4–15	12	Deposit Credit Amount The amount added to the available balance for the cardholder as a result of a deposit transaction.
16–27	12	Deposit Credit Settlement Amount The settlement amount in the currency defined by the code in P-50.

S-123 BASE24-pos Invoice Data/Settlement Record

Format:	ANS 23 (Invoice Data) ANS 171 (Settlement Record 1) Both formats include a 3-position field length indicator
Used By:	BASE24-pos (see separate descriptions for other products)

The BASE24-pos Invoice Data/Settlement Record 1 data element is used to carry different information, depending on the type of message.

Invoice Data

The Invoice Data format of the BASE24-pos Invoice Data/Settlement Record 1 data element is mandatory in 0402 and 0420 messages and is conditional for 0100, 0120, 0121, 0200, 0220, and 0221 messages. In these conditional situations, BASE24 sends the data element if the information is available in the PSTM, and accepts the data element if it is included in the external message.

The structure of this data element is provided below.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 020.

Position	Length	Description
4–13	10	Invoice Number The invoice number provided by the terminal originating the transaction (left-justified, blank-filled). On incoming messages, this value is placed in the INVOICE-NUM field in the PSTM. On outgoing messages, this value is taken from the INVOICE-NUM field in the PSTM.
14–23	10	Original Transaction Invoice Number The original invoice number for the transaction, if one was provided. On incoming messages, this value is placed in the ORIG-INVOICE-NUM field in the PSTM. On outgoing messages, this value is taken from the ORIG-INVOICE-NUM field in the PSTM.

Settlement Record 1

The Settlement Record 1 format of the BASE24-pos Invoice Data/Settlement Record 1 data element is mandatory in 0500 and 0520 messages.

The structure of this data element is provided below.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 168.
4–9	6	Posting Date This value is taken from the SETL-REC.SET-REC1. POST-DAT field in the settlement message.
10–13	4	DPC Number This value is taken from the SETL-REC.SET-REC1. DPC-NUM field in the settlement message.

Position	Length	Description
14–29	16	Terminal ID This value is taken from the SETL-REC.SET-REC1. TERM-ID field in the settlement message.
30–40	11	Retailer Identification Number This value is taken from the SETL-REC.SET-REC1. RETL.RTTN field in the settlement message.
41–68	28	Retailer Account Number This value is taken from the SETL-REC.SET-REC1. RETL.ACCT field in the settlement message.
69–108	40	Retailer Name This value is taken from the SETL-REC.SET-REC1. RETL.NAM field in the settlement message.
109	1	Settlement Record Type A code indicating the type of settlement record carried in this data element. Valid values are as follows: 0 = Batch 1 = Shift 2 = Daily 3 = Network 9 = Service totals This value is taken from the SETL-REC.SET-REC1. SETL-TYP field in the settlement message.
110	1	Balance Flag This value is taken from the SETL-REC.SET-REC1. BAL-FLG field in the settlement message.
111–113	3	Batch Number This value is taken from the SETL-REC.HEAD.RETL. BATCH-NUM field in the settlement message.
114–116	3	Shift Number This value is taken from the SETL-REC.HEAD.RETL. SHIFT-NUM field in the settlement message.

Position	Length	Description
117–122	6	Transaction Date This value is taken from the SETL-REC.SET-REC1. TRAN-DAT field in the settlement message.
123–128	6	Transaction Time This value is taken from the SETL-REC.SET-REC1. TRAN-TIM field in the settlement message.
129	1	Associated Record Flag This value is taken from the SETL-REC.SET-REC1.OB- FLG field in the settlement message.
130–139	10	ACH Company ID This value is taken from the SETL-REC.SET-REC1. ACH-COMP-ID field in the settlement message.
140–149	10	Billing Information This value is taken from the SETL-REC.SET-REC1. BILLING-INFO field in the settlement message.
150–152	3	Authorization Currency Code This value is taken from the SETL-REC.SET-REC1. AUTH-CRNCY-CDE field in the settlement message.
153–160	8	Authorization Conversion Rate This value is taken from the SETL-REC.SET-REC1. AUTH-CONV-RATE field in the settlement message.
161–163	3	Settlement Currency Code This value is taken from the SETL-REC.SET-REC1. SETL-CRNCY-CDE field in the settlement message.
164–171	8	Settlement Conversion Rate This value is taken from the SETL-REC.SET-REC1. SETL-CONV-RATE field in the settlement message.

S-124 BASE24-atm Depository Type

Format: ANS 4 (includes a 3-position field length indicator)

Used By: BASE24-atm
(see separate descriptions for other products)

A code indicating the type of depository for BASE24-atm transactions that require a depository.

This element is conditional in 0200, 0210, 0220, 0221, 0420, and 0421 messages and is only required if the transaction requires the use of a depository (deposit, payment enclosed, message to institution).

On a 0200 message, the BASE24-atm Depository Type element indicates the types of depositories available. Valid values are as follows:

- 0 = Normal envelope depository
- 1 = Commercial (e.g., Securomatic) depository
- 2 = Both normal and commercial

On a 0210 message, the BASE24-atm Depository Type element indicates the depository the card acceptor opens. Valid values are as follows:

- 0 = Normal envelope depository
- 1 = Commercial (e.g., Securomatic) depository

On a 0220, 0221, 0420, or 0421 message, the BASE24-atm Depository Type element indicates the type of depository used on the transaction. Valid values are as follows:

- 0 = Normal envelope depository
- 1 = Commercial (e.g., Securomatic) depository

The structure of the BASE24-atm Depository Type element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1-3	3	Field Length Indicator This field must be set to 001.

Position	Length	Description
4	1	Depository Type The type of depository to be used at the terminal.

S-124 BASE24-pos Batch and Shift Data/Settlement Record 2

Format:	ANS 12 (Batch and Shift Data) ANS ..687 (Settlement Record 2) Both formats include a 3-position length indicator
Used By:	BASE24-pos (see separate descriptions for other products)

The BASE24-pos Batch and Shift Data/Settlement Record 2 data element is used to carry different information, depending on the type of message.

Batch and Shift Data

The Batch and Shift Data format of this data element is mandatory for 0100, 0120, 0121, 0200, 0210, 0220, 0221, 0402, and 0420 messages. With these messages, the fields in this data element contain batch and shift data.

The structure of this data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 009.
4–6	3	Batch Sequence Number The sequence number of the transaction within the batch. On incoming messages, this value is placed in the BATCH-SEQ-NUM field in the PSTM. On outgoing messages, this value is taken from the BATCH-SEQ-NUM field in the PSTM.

Position	Length	Description
7–9	3	Batch Number The batch number of the transaction. On incoming messages, this value is placed in the BATCH-NUM field in the PSTM. On outgoing messages, this value is taken from the BATCH-NUM field in the PSTM.
10–12	3	Shift Number The shift number of the transaction. On incoming messages, this value is placed in the SHIFT-NUM field in the PSTM. On outgoing messages, this value is taken from the SHIFT-NUM field in the PSTM.

Settlement Record 2

The Settlement Record 2 format of this data element is conditional for 0500 and 0520 messages. It is required if service totals are present. With these messages, the fields in this data element contain information from Settlement Record 2.

The structure of this data element is provided below.

Position	Length	Description																								
1–3	3	Field Length Indicator This field must be set to the sum of the lengths of all fields in this data element except the Field Length Indicator field. This value varies depending on the number of service totals contained in the Service Total field, as shown below. <table><tr><th>Count</th><th>Length</th><th>Count</th><th>Length</th></tr><tr><td>1</td><td>072</td><td>6</td><td>412</td></tr><tr><td>2</td><td>140</td><td>7</td><td>480</td></tr><tr><td>3</td><td>208</td><td>8</td><td>548</td></tr><tr><td>4</td><td>276</td><td>9</td><td>616</td></tr><tr><td>5</td><td>344</td><td>10</td><td>684</td></tr></table>	Count	Length	Count	Length	1	072	6	412	2	140	7	480	3	208	8	548	4	276	9	616	5	344	10	684
Count	Length	Count	Length																							
1	072	6	412																							
2	140	7	480																							
3	208	8	548																							
4	276	9	616																							
5	344	10	684																							

Position	Length	Description
4–7	4	Number of Services The number of card types for which the following information is being provided. This value is taken from the SETL-REC.SERVICES.NUM-SRV field in the settlement message.
8–687		Service Total There may be up to 10 occurrences of the following totals. Each occurrence is 68 characters in length.
	2	Type of Service A code identifying the type of card for which the totals are being provided. This value is taken from the SETL-REC.SERVICES.SRV.TYP field in the settlement message.
	4	Debit Count The number of times the card type has been used for debit transactions. This value is taken from the SETL-REC.SERVICES.SRV.DB-CNT field in the settlement message.
	18	Debit Amount The total amount of debit transactions involving the card type. This value is taken from the SETL-REC.SERVICES.SRV.DB field in the settlement message.
	4	Credit Count The number of times the card type has been used for credit transactions. This value is taken from the SETL-REC.SERVICES.SRV.CR-CNT field in the settlement message.

Position	Length	Description
	18	Credit Amount
		The total amount of credit transactions involving the card type.
		This value is taken from the SETL-REC.SERVICES.SRV.CR field in the settlement message.
	4	Adjustment Count
		The number of times the card type has been used for adjustment transactions.
		This value is taken from the SETL-REC.SERVICES.SRV.ADJ-CNT field in the settlement message.
	18	Adjustment Amount
		The total amount of adjustment transactions involving the card type.
		This value is taken from the SETL-REC.SERVICES.SRV.ADJ field in the settlement message.

S-125 BASE24-atm Account Indicator

Format: ANS 4

Used By: BASE24-atm

The BASE24-atm Account Indicator is a BASE24-atm value used in outgoing messages to indicate the accounts in a two-sided transaction (transfer or payment-from) the co-network is to process. Values are as follows:

- 0 = Process both the *from* and *to* accounts
- 1 = Process only the *from* account
- 2 = Process only the *to* account

This element is conditional in 0200 (outgoing), 0210, 0220, 0221, 0420, 0421 messages and is only required if the Processing Code element (P-3) indicates that a transaction is two-sided.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to 001.
4	1	Account Indicator Identifies the account in the transaction.

S-125 BASE24-pos Settlement Data/Settlement Record 3

Format: ANS 15 (Settlement Data)
ANS 267 (Settlement Record 3)
Both formats include a 3-position length indicator

Used By: BASE24-pos
(see separate descriptions for other products)

The BASE24-pos Settlement Data/Settlement Record 3 data element is used to carry different information depending on the type of message.

Settlement Data

The Settlement Data format of this data element is mandatory for authorization, financial transaction, and reversal messages, with the exception of 0130, 0230, 0412, and 0430 messages.

The structure of this data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 012.

Position	Length	Description
4–5	2	Services This field corresponds to the RTE.SRV field in the PSTM.
6–9	4	Originator This field corresponds to the TRAN.ORIG field in the PSTM.
10–13	4	Destination This field corresponds to the TRAN.DEST field in the PSTM.
14	1	Draft Capture Flag This field corresponds to the TRAN.DFT-CAPTURE-FLG field in the PSTM.
15	1	Settlement Flag This field is not used by BASE24-pos.

Settlement Record 3

The Settlement Record 3 format of this data element is conditional for 0500 and 0520 messages.

The structure of this data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator This field must be set to a value of 264.
4–7	4	Draft Capture Debit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.DC-TOT.DB-CNT field in the settlement message.

Position	Length	Description
8–25	18	Draft Capture Debit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.DC-TOT.DB field in the settlement message.
26–29	4	Draft Capture Credit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.DC-TOT.CR-CNT field in the settlement message.
30–47	18	Draft Capture Credit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.DC-TOT.CR field in the settlement message.
48–51	4	Draft Capture Adjustment Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.DC-TOT.ADJ-CNT field in the settlement message.
52–69	18	Draft Capture Adjustment Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.DC-TOT.ADJ field in the settlement message.
70–73	4	Total Debit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.TOT.DB-CNT field in the settlement message.
74–91	18	Total Debit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.TOT.DB field in the settlement message.
92–95	4	Total Credit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.TOT.CR-CNT field in the settlement message.

Position	Length	Description
96–113	18	Total Credit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.TOT.CR field in the settlement message.
114–117	4	Total Adjustment Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.TOT.ADJ-CNT field in the settlement message.
118–135	18	Total Adjustment Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.TOT.ADJ field in the settlement message.
136–139	4	Current Network Draft Capture Debit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-DC-TOT.DB-CNT field in the settlement message.
140–157	18	Current Network Draft Capture Debit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-DC-TOT.DB field in the settlement message.
158–161	4	Current Network Draft Capture Credit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-DC-TOT.CR-CNT field in the settlement message.
162–179	18	Current Network Draft Capture Credit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-DC-TOT.CR field in the settlement message.
180–183	4	Current Network Draft Capture Adjustment Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-DC-TOT.ADJ-CNT field in the settlement message.

Position	Length	Description
184–201	18	Current Network Draft Capture Adjustment Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-DC-TOT.ADJ field in the settlement message.
202–205	4	Current Network Total Debit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-TOT.DB-CNT field in the settlement message.
206–223	18	Current Network Total Debit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-TOT.DB field in the settlement message.
224–227	4	Current Network Total Credit Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-TOT.CR-CNT field in the settlement message.
228–245	18	Current Network Total Credit Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-TOT.CR field in the settlement message.
246–249	4	Current Network Total Adjustment Count This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-TOT.ADJ-CNT field in the settlement message.
250–267	18	Current Network Total Adjustment Amount This value is taken from the SETL-REC.SET-REC.SET-REC2.STL.CN-TOT.ADJ field in the settlement message.

S-126 BASE24-atm Additional Data

Format: ANS ..800 (includes a 3-position field length indicator)

Used By: BASE24-atm

BASE24-atm uses the BASE24-atm Additional Data element to carry BASE24 message tokens. BASE24 tokens are carried in the external message in the same general structure as they are carried in the internal message. The major difference is that, in the external message, all tokens are in ASCII format.

If token data is added to the BASE24-atm Additional Data element, the first item following the field length indicator is a Header token. The Header token contains a count of the number of tokens associated with the message and the overall length of all token data. The Header token is added to the message when the first token is added, and is updated each time a subsequent token is added.

The token header for the first token is located after the Header token. Each token that is added to the message has its own token header. Unlike the Header token, which contains information about *all tokens* in the message, the token header contains information about one specific token. The token header identifies the individual token and contains the length of the individual token. The token header is followed by the token data. Together, the token header and the token data form a single token. The combination of token header and token data is repeated for each token in the message.

BASE24 tokens are carried in their entirety in ASCII format. The general structure of the BASE24-atm Additional Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1–3	3	Field Length Indicator The field length indicator value is the sum of the lengths of the Header token, all token headers, and token data being used.
4–15	12	Header Token
15–24	10	Token Header
<i>a–b</i>	<i>n</i>	Token Data

Position	Length	Description
...
<i>w-x</i>	<i>10</i>	Token Header
<i>y-z</i>	<i>n</i>	Token Data

S-126 BASE24-pos Preauthorization and Chargeback Data

Format: ANS 41 (includes a 3-position field length indicator)

Used By: BASE24-pos

Carries preauthorization and chargeback information for certain BASE24-pos messages. The BASE24-pos Preauthorization and Chargeback Data element is mandatory for authorization, financial transaction, and reversal messages, with the following exceptions. It is conditional for 0110, 0130, 0210, and 0230 messages.

The structure of the BASE24-pos Preauthorization and Chargeback Data element is provided below. Included for each field is the field position in the element, its field length, and a description of its contents.

Position	Length	Description
1-3	3	Field Length Indicator This field must be set to 038.
4-6	3	Preauthorization Hold The time limit to hold preauthorized funds. The first byte of the field indicates the intervals (0=minutes, 1=hours, and 2=days) and the second two bytes indicates the number of specified intervals.
7-18	12	Preauthorization Sequence Number The sequence number associated with the preauthorization.
19-38	20	Referral Phone Number The telephone number to be called in cases where a referral is issued on the transaction.

Position	Length	Description
39–40	2	Reason for Chargeback A code indicating the reason for a chargeback.
41	1	Number of Chargeback The number of times a chargeback has been attempted on this item.

S-127 BASE24-pos User Data

Format: ANS ..200

Used By: BASE24-pos

Allows the co-network to send information to BASE24 that is returned in the response. BASE24 does not recognize this information and does not use it for processing. It is available for all messages.

S-128 Secondary Message Authentication Code

Format: N 16

Used By: BASE24-atm
BASE24-pos

The Message Authentication Code element carries the message authentication code (MAC) for the message if the message contains at least one other secondary data element. If the message contains no secondary data elements, the MAC is placed in the Primary Message Authentication Code data element (P-64).

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6: Transaction Handling

This section describes how the BASE24 system handles various types of transactions. It describes the basic flow of transaction processing and provides transaction flow diagrams illustrating how messages to and from the co-network are handled. Transaction flow diagrams are also provided for network management messages and cutover messages.

Introduction

The following message flows are described in this section. In most cases, these flows are described twice—once when the message flow is initiated by the BASE24 system and once when the message flow is initiated by the co-network.

- Requests
- Reversals
- Timeouts
- Force Posts
- Store-and-Forward
- MAC Failure — Transaction Request
- MAC Failure — Transaction Response
- MAC Verification Failure
- Logon
- Logoff
- Echo Test
- Change Key
- New Key
- Repeat Key
- Verify Key

Logging to the ILF

The BIC ISO Interface process logs the following types of messages to the Interchange Log File (ILF):

- Requests containing error conditions
- Responses for normal conditions
- Reversals
- Force posts
- Reconciliation totals

Whenever a reversal occurs, the ILF record already logged for the transaction is updated in place.

Rejected Messages

If the BIC ISO Interface process receives an external message that it cannot process or reformat for internal use, it rejects the message as follows:

1. Changes the first position of the message type to a value of 9. For example, a 0200 message would be changed to a 9200 message, and a 0420 message would be changed to a 9420 message.
2. Places the bit number of the data element causing rejection in the Status field of the BIC ISO external message header. For example, if the Track 2 data in the P-35 data element cannot be parsed, the Status field in the header would be set to 035.
3. Returns the message to the co-network.

These actions are taken on any message that cannot be processed, not just those requiring a response.

Tracing Transactions

In order to trace transactions, the BIC ISO Interface process uses the Retrieval Reference Number (P-37) data element from the external message. The value of the Retrieval Reference Number data element is assigned by a message initiator to uniquely identify a transaction. It is a number that remains unchanged for all messages throughout the life of a transaction.

Other data elements from the external message that can be used to trace transactions are listed below. For additional information on these data elements, refer to section 5.

- Transaction Amount (P-4)
- Local Transaction Time (P-12)
- Local Transaction Date (P-13)

- Acquiring Institution Identification Code (P-32)
- Track 2 Data (P-35), primary account number within the Track 2 Data element
- Track 1 Data (P-45), primary account number within the Track 1 Data element.

Message Flows to the Co-Network

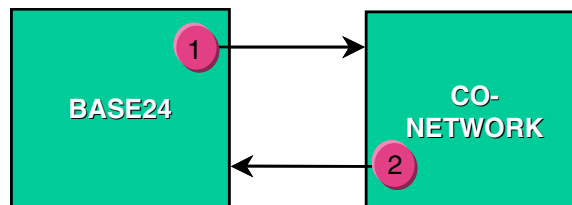
When a transaction is initiated on the BASE24 system that must be sent to the co-network for authorization, five possible message flows can take place between the BASE24 system and the co-network:

- Requests
- Reversals
- Force Posts
- Timeouts
- Store-and-Forward
- MAC Failure—Transaction Request
- MAC Failure—Transaction Response
- MAC Verification Failure

Each of these message flows is described below and on the pages that follow.

Request Message to the Co-Network

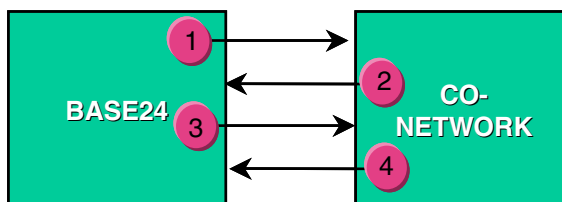
The diagram below illustrates the message flow when a transaction is initiated by the BASE24 network and must be sent to the co-network for authorization. The steps in the diagram are described below.



1. BASE24 sends a 0100 or 0200 external message to the co-network for authorization.
2. The co-network authorizes the transaction and sends a 0110 or 0210 external message to BASE24.

Reversal to the Co-Network

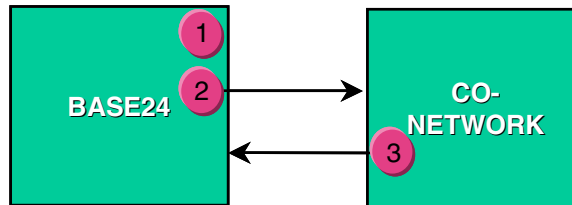
When an ATM or POS device connected to the local BASE24 network fails to complete a transaction as authorized, a reversal message must be sent to the co-network. The diagram below illustrates the message flow when a reversal is sent to the co-network. The steps in the diagram are described below.



1. BASE24 sends a 0100 or 0200 external message to the co-network for authorization.
2. The co-network authorizes the transaction and sends a 0110 or 0210 external message to BASE24.
3. BASE24 determines that the transaction failed to complete as authorized and logs a 0420 external message to the BASE24 database to be sent to the co-network during store-and-forward processing.
4. If BASE24 is configured to expect text-level acknowledgments, the co-network sends a 0430 external message to BASE24.

Force Post Messages to the Co-Network

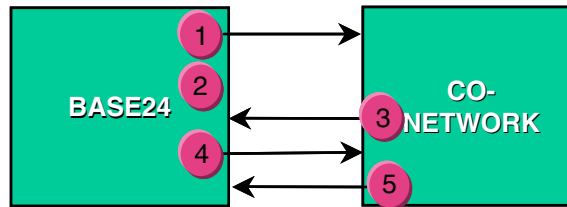
When the local BASE24 network performs stand-in authorization, it sends the co-network a force post message for each transaction it authorizes. The diagram below illustrates the message flow when a force post message is sent to the co-network. The steps in the diagram are described below.



1. BASE24 determines that the co-network is not available to authorize a transaction and performs stand-in authorization.
2. If the transaction was approved, BASE24 formats a 0220 external message and sends it to the co-network using store-and-forward processing as a force post transaction when the co-network becomes available. If the transaction was declined, the message is dropped.
3. If BASE24 is configured to expect text-level acknowledgments, the co-network sends a 0230 external message to BASE24.

Timeouts of Requests to the Co-Network

Each time BASE24 sends a 0200 financial transaction request to the co-network for authorization, BASE24 sets a timer. If the timer expires before a response is received from the co-network, the transaction is timed out. The diagram below illustrates the message flow when a financial transaction times out. The steps in the diagram are described below.



1. BASE24 sends a 0100 or 0200 external message to the co-network for authorization and sets a timer to wait for a response from the co-network.
2. The timer expires before a response is received from the co-network. BASE24 determines whether stand-in authorization is allowed. If stand-in authorization is allowed, BASE24 returns the request to the co-network as a failed 0200 message. If stand-in authorization is not allowed, BASE24 routes the transaction to an alternate destination if one is specified. In all other instances where stand-in authorization is not allowed, BASE24 denies the transaction and sends a 0110 or 0210 external message to the co-network.
3. The co-network sends a 0110 or 0210 late response to BASE24. If the transaction was denied by the co-network, BASE24 drops the late response.
4. If the transaction was approved by the co-network, BASE24 logs a 0420 external reversal message and adds it to the BASE24 database to be processed during store-and-forward processing.
5. If BASE24 is configured to expect text-level acknowledgments, the co-network sends a 0430 external message to BASE24.

Store-and-Forward Messages to the Co-Network

Messages intended for the co-network are stored on the BASE24 database during periods when the communications link between BASE24 and the co-network is down. These are known as store-and-forward messages. The general processing flow for store-and-forward messages is the same as for normal messages. To the co-network, the messages appear to be happening as they are sent—they are indistinguishable from normal messages.

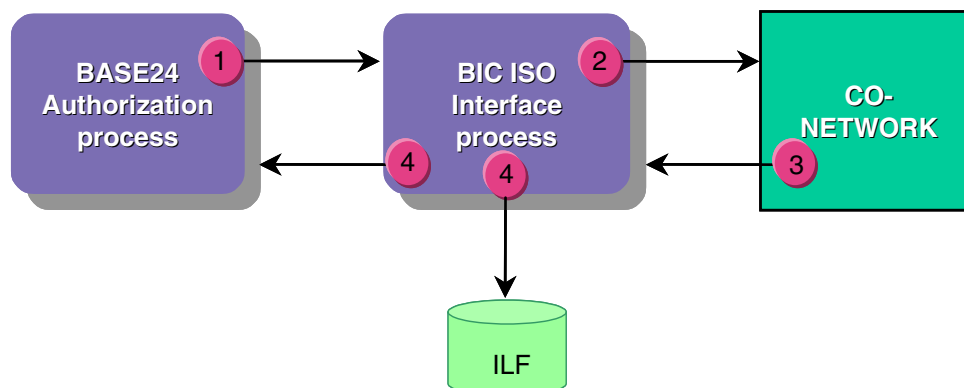
The following message types can be logged to the BASE24 database as store-and-forward messages:

- 0220 Financial Transaction Advice messages
- 0221 Financial Transaction Advice Repeat messages
- 0420 Acquirer Reversal Advice message
- 0421 Acquirer Reversal Advice Repeat message
- 0500 Settlement Totals messages
- 0520 Acquirer Reconciliation Advice message
- 0521 Acquirer Reconciliation Advice Repeat message
- 0522 Issuer Reconciliation Advice message
- 0523 Issuer Reconciliation Advice Repeat message
- 0800 Cutover messages
- 0820 Network Management Advice message
- 0821 Network Management Advice Repeat message

The co-network must send any required acknowledgments to these messages to the BIC ISO Interface process.

MAC Failure—Transaction Request

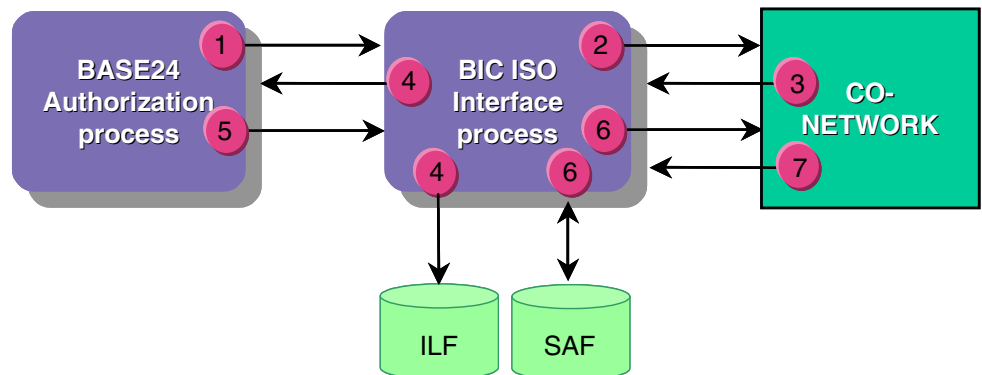
The diagram below illustrates the message flow when a MAC generation failure occurs on transaction request initiated by the BASE24 network destined for a co-network. In this case, a denial response is sent to the BASE24 Authorization process indicating a MAC security failure condition.



1. A BASE24 Authorization process sends a request to the BIC ISO Interface process in the 0200 internal message format.
2. The BIC ISO Interface process reformats the message into the 0100 or 0200 external message format, sends the external message to the co-network for authorization, and starts an outbound request timer to wait for a response from the co-network.
3. The co-network routes the transaction to the appropriate authorizer. The message fails due to a MAC generation error, and the co-network formats the response into the 0110 or 0210 external message format and sends it to the BIC ISO Interface process.
4. The BIC ISO Interface process deletes the outbound request timer, formats a 0210 internal response message, sends the response to the BASE24 Authorization process to be delivered to the ATM or POS device, and logs a copy of the transaction to the Interchange Log File (ILF).

MAC Failure—Transaction Response

The diagram below illustrates the message flow when a MAC generation failure occurs on transaction response initiated by the BASE24 network destined for a co-network and the financial transaction was approved. In this case, a reversal message is sent to the BASE24 Authorization process indicating a MAC security failure condition.



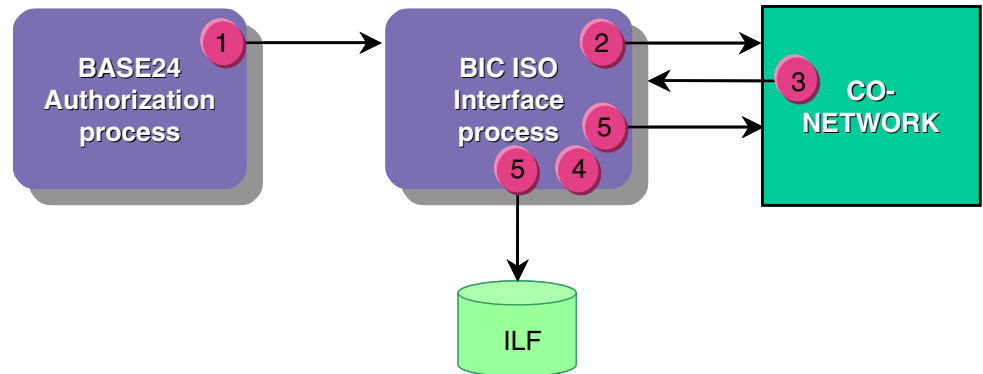
1. A BASE24 Authorization process sends a request to the BIC ISO Interface process in the 0200 internal message format.
2. The BIC ISO Interface process reformats the message into the 0100 or 0200 external message format, sends the external message to the co-network for authorization, and starts an outbound request timer to wait for a response from the co-network.
3. The co-network routes the transaction to the appropriate authorizer. After the transaction is approved, the co-network formats the response into the 0110 or 0210 external message format and sends it to the BIC ISO Interface process.
4. The BIC ISO Interface process deletes the outbound request timer, formats a 0210 internal response message, sends the response to the BASE24 Authorization process to be delivered to the ATM or POS device, and logs a copy of the transaction to the Interchange Log File (ILF).
5. The BASE24 Authorization process returns a 0420 message to the BIC ISO Interface process, indicating the transaction failed to complete as authorized due to a MAC generation error. The BIC ISO Interface process locates the ILF record for the original transaction and updates the ILF with the reversal information.
6. The BIC ISO Interface process formats a 0420 external message and logs this message to the Store-and-Forward File (SAF) to be sent to the co-network during store-and-forward processing.

7. If the text-level acknowledgment option is being used, the co-network sends a 0430 message to the BIC ISO Interface process. Upon receipt of the 0430 message, the BIC ISO Interface process deletes the record from the SAF.

Note: The text-level acknowledgment option is *not* supported by Dynamic Key Management (DKM).

MAC Verification Failure

The diagram below illustrates the message flow when a MAC verification failure occurs on a transaction request initiated by the BASE24 network destined for a co-network. In this case, the transaction is rejected and a denial response is sent to the BASE24 Authorization process indicating the message was rejected.



1. A BASE24 Authorization process sends a request to the BIC ISO Interface process in the 0200 internal message format.
2. The BIC ISO Interface process reformats the message into the 0100 or 0200 external message format, sends the external message to the co-network for authorization, and starts an outbound request timer to wait for a response from the co-network.
3. The co-network routes the transaction to the appropriate authorizer. After the transaction is approved, the co-network formats the response into the 0110 or 0210 external message format and sends it to the BIC ISO Interface process.
4. The BIC ISO Interface process attempts to verify the MAC on the 0110 or 0210 message, but it fails to verify.
5. The BIC ISO Interface process rejects the message by placing a value of 9 in the first position of the message type making it 9210. The BIC ISO Interface process also places the bit number (i.e., 64 or 128 as appropriate) of the data element causing rejection in the STATUS field of the BIC ISO external message header. The STATUS field indicates the message failed due to a MAC verification error.

The BIC ISO Interface process sends the 9210 external message to the co-network. The BIC ISO Interface process deletes the outbound request timer, formats a 0210 internal message, and sends it to the BASE24 Authorization process. The BIC ISO Interface process also logs a copy of the transaction to the Interchange Log File (ILF).

Message Flows from the Co-Network

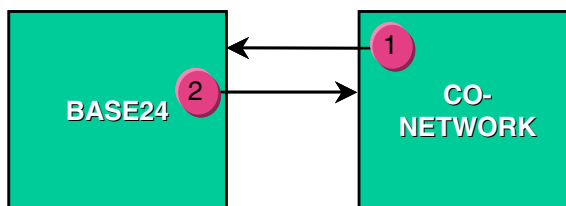
When a transaction is initiated on the co-network that must be authorized by BASE24, five possible message flows can take place between BASE24 and the co-network:

- Authorizations
- Requests
- Reversals
- Force Posts
- Timeouts
- MAC Failure — Transaction Request
- MAC Failure — Transaction Response
- MAC Verification Failure

Each of these message flows is described below and on the pages that follow.

Request Message from the Co-Network

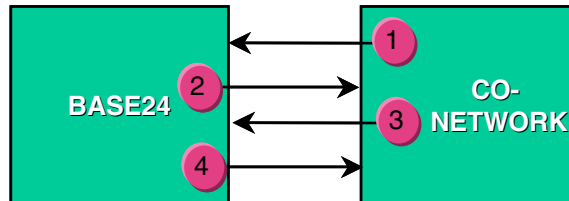
When a cardholder from the local BASE24 network initiates a transaction on the co-network, the transaction must be sent to BASE24 for authorization. The diagram below illustrates the message flow when a transaction is sent to BASE24 for authorization. The steps in the diagram are described below.



1. The co-network sends a 0100 or 0200 external message to BASE24 for authorization.
2. BASE24 authorizes the transaction and sends a 0110 or 0210 response external message to the co-network to be completed.

Reversal from the Co-Network

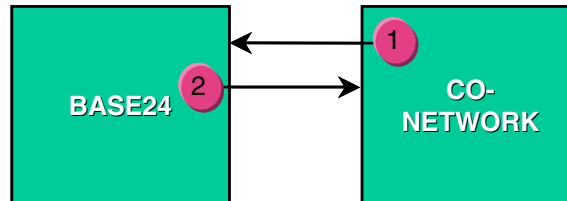
When an ATM or POS device connected to the co-network fails to complete a transaction as authorized, a reversal message must be sent to BASE24. The diagram below illustrates the message flow when a reversal is sent to BASE24. The steps in the diagram are described below.



1. The co-network sends the request to BASE24 as a 0200 external message.
2. BASE24 authorizes the transaction and sends a 0210 external message to the co-network to be completed at the ATM or POS device.
3. The co-network returns a 0420 external message to BASE24, indicating that the transaction failed to complete as authorized.
4. If BASE24 is configured to send text-level acknowledgments, BASE24 sends a 0430 external message to the co-network.

Force Post Messages from the Co-Network

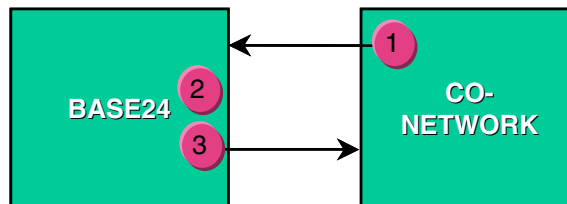
When the co-network performs stand-in authorization, it sends BASE24 a force post message for each transaction it authorizes. The diagram below illustrates the message flow when a force post message is sent to BASE24. The steps in the diagram are described below.



1. The co-network sends BASE24 a force post message in the 0220 external message format.
2. If BASE24 is configured to send text-level acknowledgments, BASE24 sends a 0230 external message to the co-network.

Timeouts of Request Messages from the Co-Network

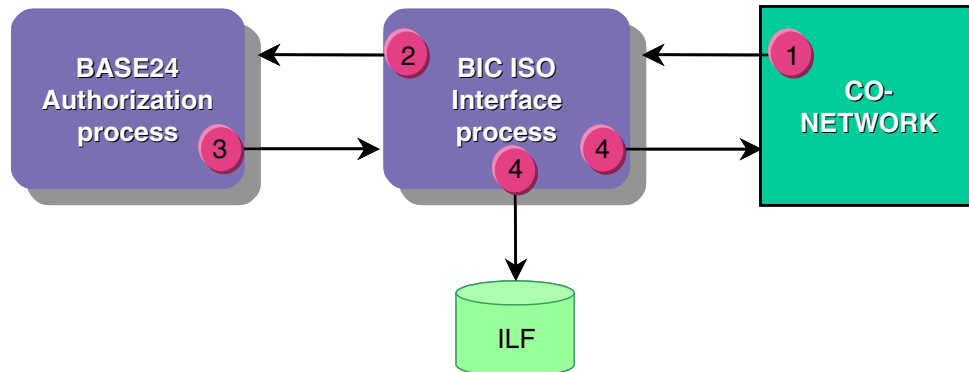
Each time the co-network sends a financial transaction to BASE24 for authorization, BASE24 sets a timer. If the timer expires before the transaction is authorized by BASE24, the transaction is timed out. The diagram below illustrates the message flow when a financial transaction times out. The steps in the diagram are described below.



1. The co-network sends the request to BASE24 as a 0200 message.
2. BASE24 begins the process of authorizing the request and sets a timer.
3. When the timer expires, BASE24 denies the transaction and sends a 0210 external message to the co-network.

MAC Failure—Transaction Request

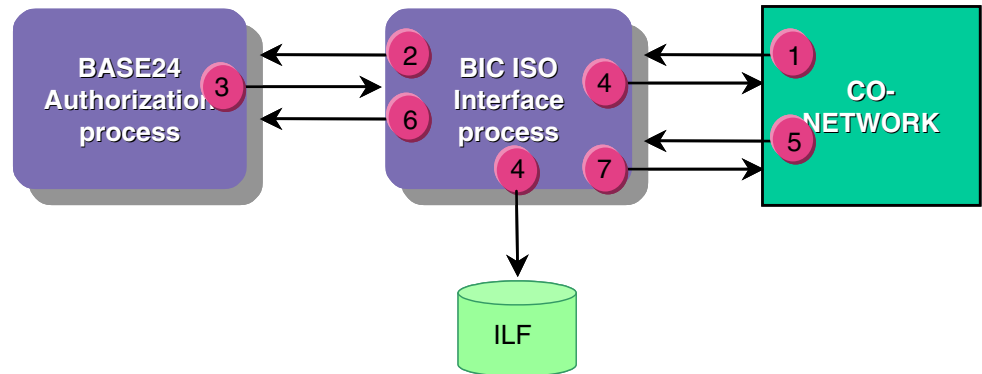
The diagram below illustrates the message flow when a MAC generation failure occurs on transaction request initiated by the co-network to BASE24 for authorization. In this case, a denial response is sent to the BIC ISO Interface process indicating a MAC security failure condition.



1. A co-network sends a request to the BIC ISO Interface process in the 0100 or 0200 external message format.
2. The BIC ISO Interface process reformats the message into the 0200 internal message format, sends the internal message to the BASE24 Authorization process for authorization, and starts an inbound request timer to wait for a response.
3. The BASE24 Authorization process sends the response to the BIC ISO Interface process in the 0210 internal message format, indicating the message failed due to a MAC generation error.
4. The BIC ISO Interface process deletes the inbound request timer, formats a 0210 external response message, sends the response to the co-network to be completed, and logs a copy of the transaction to the Interchange Log File (ILF).

MAC Failure—Transaction Response

The diagram below illustrates the message flow when a MAC generation failure occurs on transaction response initiated by the co-network to BASE24 for authorization. In this case, a reversal message is sent to the BASE24 Authorization process indicating a MAC security failure condition.

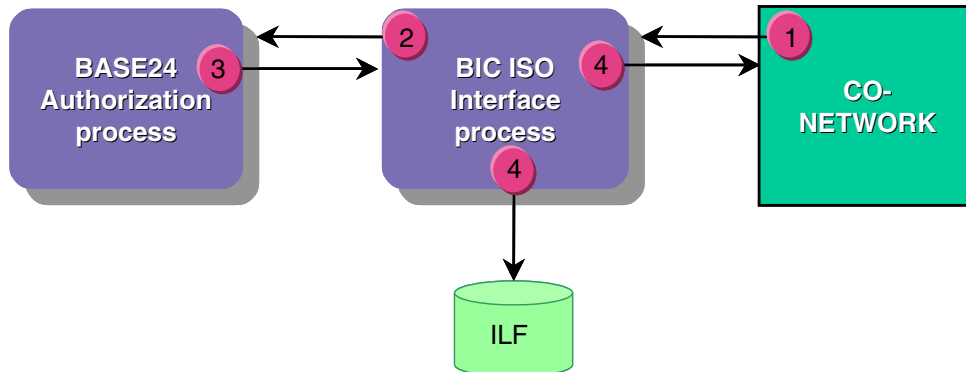


1. A co-network sends a request to the BIC ISO Interface process in the 0100 or 0200 external message format.
2. The BIC ISO Interface process reformats the message into the 0200 internal message format, sends the internal message to the BASE24 Authorization process for authorization, and starts an inbound request timer to wait for a response.
3. The BASE24 Authorization process sends the transaction response to the BIC ISO Interface process in the 0210 internal message format.
4. The BIC ISO Interface process deletes the inbound request timer, formats a 0110 or 0210 external response message, returns the response to the co-network to be delivered to the ATM or POS device, and logs a copy of the transaction to the Interchange Log File (ILF).
5. The co-network returns a 0420 message to the BIC ISO Interface process, indicating the transaction failed to complete as authorized due to a MAC verification error.
6. The BIC ISO Interface process locates the ILF record for the original transaction, updates the ILF with the reversal information, formats a 0420 internal message, and sends the internal message to the BASE24 Authorization process.
7. If the text-level acknowledgment option is being used, the co-network sends a 0430 message to the BIC ISO Interface process.

Note: The text-level acknowledgment option is *not* supported by dynamic key management (DKM).

MAC Verification Failure

The diagram below illustrates the message flow when a MAC verification failure occurs on transaction request initiated by the co-network to and sent to BASE24 for authorization. In this case, the transaction is rejected and a denial response is sent to the BASE24 Authorization process indicating the message was rejected.



1. A co-network sends a request to the BIC ISO Interface process in the 0100 or 0200 external message format.
2. The BIC ISO Interface process reformats the message into the 0200 internal message format, sends the internal message to the BASE24 Authorization process for authorization, and starts an inbound request timer to wait for a response.
3. The BASE24 Authorization process sends the response to the BIC ISO Interface process in the 0210 internal message format, indicating the message failed due to a MAC verification error.
4. The BIC ISO Interface process rejects the message by placing a value of 9 in the first position of the message type making it 9210. The BIC ISO Interface process also places the bit number of the data element causing rejection in the STATUS field of the BIC ISO external message header. The STATUS field indicates the message failed due to a MAC verification error. The BIC ISO Interface process sends the 9210 external message to the co-network and logs a copy of the transaction to the Interchange Log File (ILF).

Network Management Message Flows

Network management messages are used to manage the operational status of the communications lines between BASE24 and the co-network.

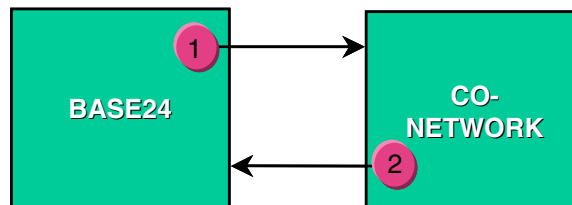
The BIC ISO Interface process supports the following types of network management messages:

- Logon messages
- Echo test messages
- Logoff messages
- Dynamic key management
- Cutover messages

This section describes the message flows that occur when logon, echo test, logoff, and cutover network management messages are sent. It also describes the message flows for change key, new key, repeat key, and verify key messages, which are used exclusively with dynamic key management (DKM).

Logon/Echo Test Initiated by BASE24

The diagram below illustrates the message flow between BASE24 and the co-network when BASE24 initiates a logon or echo test message. The steps in the diagram are described below.



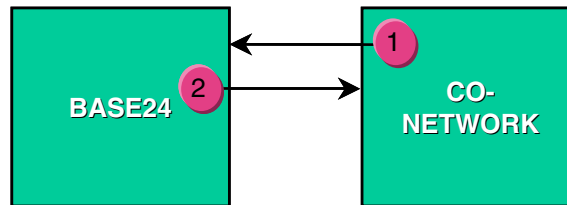
1. To initially log on, BASE24 sends an 0800 logon message to the co-network with an information code of 001.

BASE24 can also periodically send an 0800 message to the co-network with an information code of 301 to ensure the link is still up between BASE24 and the co-network. When the information code is set to 301, this means that the 0800 message is an echo test message.

2. The co-network responds with an 0810 message. The response code in the 0810 message indicates whether the co-network processed the logon successfully.

Logon/Echo Test Initiated by Co-Network

The diagram below illustrates the message flow between BASE24 and the co-network when the co-network initiates a logon or echo test message. The steps in the diagram are described below.



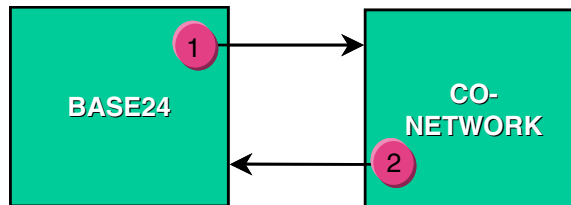
1. To initially log on, the co-network sends an 0800 logon message to BASE24 with an information code of 001.

The co-network can also periodically send an 0800 message to BASE24 with an information code of 301 to ensure the link is still up between BASE24 and the co-network. When the information code is set to 301, this means that the 0800 message is an echo test message.

2. BASE24 responds with an 0810 message. The response code in the 0810 message indicates whether BASE24 processed the logon successfully.

Logoff Initiated by BASE24

The diagram below illustrates the message flow between BASE24 and the co-network when BASE24 initiates a logoff message. The steps in the diagram are described below.



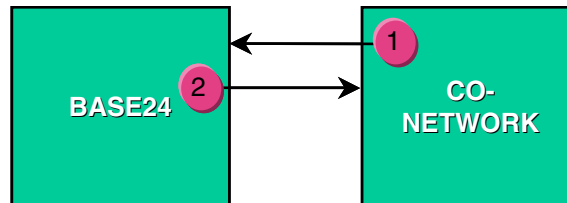
1. BASE24 sends an 0800 message to the co-network with an information code of 002. It also sets a timer and waits for a response from the co-network. If the co-network does not respond before the timer expires, BASE24 sets another timer. If the co-network does not respond before the second timer expires, BASE24 sends another logoff message.

This step is repeated until BASE24 receives a response to the 0800 message.

2. The co-network responds with an 0810 message indicating that the logoff was successful. When BASE24 receives the 0810 message, it deletes the timers set for the station named in the logoff message.

Logoff Initiated by the Co-Network

The diagram below illustrates the message flow between BASE24 and the co-network when the co-network initiates a logoff message. The steps in the diagram are described below.



1. The co-network sends an 0800 message to BASE24 with an information code of 002.
2. BASE24 responds with an 0810 message indicating that the logoff was successful and deletes the timers set for the station named in the logoff message.

Key Management Message Flows

Key management messages make up a subset of network management messages. These messages are sent as 0800 messages and require 0810 messages in response. There are four key management messages available:

- Change key
- New key
- Repeat key
- Verify key

The change key and new key messages can be generated automatically, as the result of a defined threshold being surpassed, or manually, when an operator issues a command from a network control facility. The repeat key and verify key messages can only be generated from a network control facility.

In addition, key management information is passed in data elements S-70 (Network Management Information Code) and S-123 (Cryptographic Service Message). For more information on these two data elements, refer to section 5.

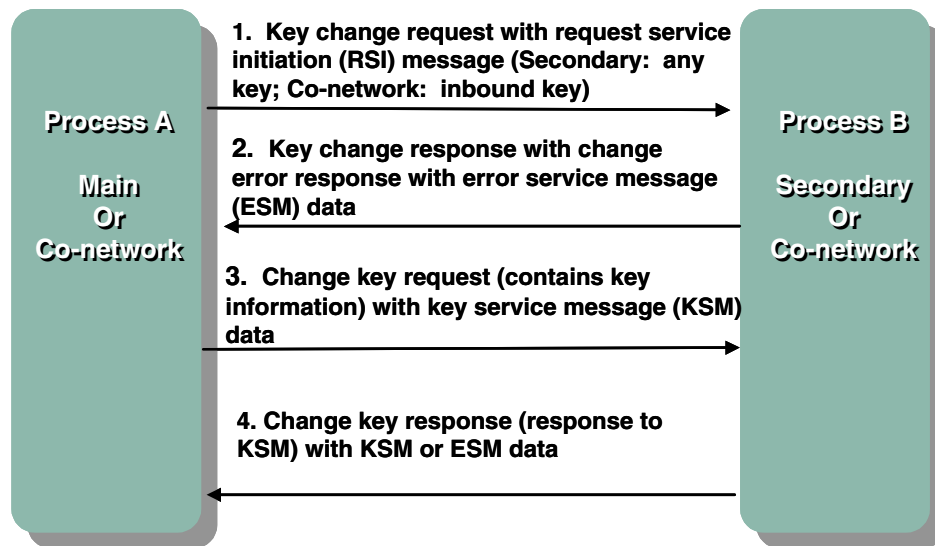
This subsection describes the message flows that occur when key management messages are sent. For more information on key management, refer to the *BASE24 Transaction Security Manual*.

Change Key

A PIN or MAC change key request from the co-network to the BIC ISO Interface process can be initiated by entering a key change command from a network control facility or it can be done automatically when threshold parameters configured for dynamic key management (DKM) in the Key File (KEYF) are surpassed. The co-network shares control of DKM processing with the BIC ISO Interface process. This means each co-network is only responsible for exchanging its outbound key. Therefore, a change key request is initiated when the co-network requests an inbound key change. If the outbound key is being changed, the co-network initiates a new key request (as described later). If both the inbound and outbound keys are being changed, a change key request is initiated for the inbound key change and a new key request is initiated for the outbound key. This message flow is used only with DKM.

Note: In this BIC environment, the inbound key for the co-network is the outbound key for the BIC ISO Interface process. The scenario is described from the perspective of the co-network sending the 0800 message. Therefore, the BIC ISO Interface process receiving the 0800 always reverses the value (i.e., changes inbound to outbound and vice versa) when processing the message.

The diagram below illustrates the message flow between the co-network and BIC ISO Interface process when the co-network initiates a change key request message. The diagram illustrates how messages containing Cryptographic Service Message (CSM) formats are used in a key change request. The steps corresponding to the diagram are also described below.



1. The process requesting a change key (process B) sends an 0800 request message containing a request service initiation (RSI) message to the process responsible for generating the key (process A).

The network management information code in the message is set to 161 to indicate this is a change key request. The requesting process (process B) starts a network management timer and waits for a response from the generating process (process A). If process A does not send a response before the management timer expires, process B starts an extended network management timer. If process A does not send a response before the extended management timer expires, process B sends another message and deletes the network management, extended network management, and wait for traffic timers.

2. Process A responds to process B. This 0810 response message notifies process B that the key change request has been received, but does not return the new key. The CSM in this response contains the RSI echoed from the

original key change request when no errors are detected in the request and the new key can be generated. The CSM contains an ESM when errors are found in the request and the new key cannot be generated. The 0810 message sent by process A formats contains a response code of 00 (approved). If the change key request was unsuccessful, the response code is 05 (denied) and the request is dropped by process B.

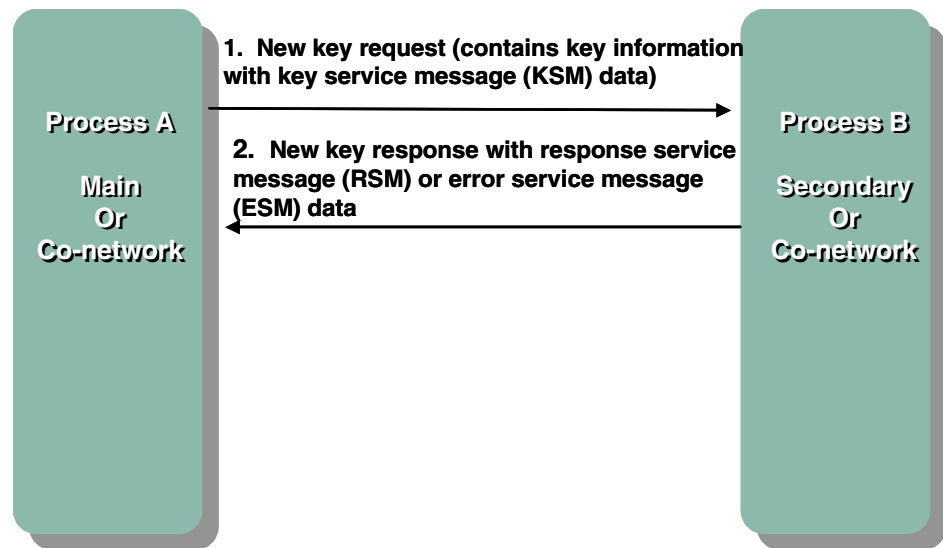
3. Process A sends a request message containing a key service message (KSM) with the new key information to process B. Process B formats and sends an 0800 message with a network management information code of 161 to process A.
4. Process B responds to process A. This response message contains a response service message (RSM) when no errors are detected in the KSM or an error service message (ESM) when errors are found in the KSM.

New Key

A request for a new PIN or MAC key from the BIC ISO Interface process to a co-network can be initiated by entering a key change command from a network control facility or it can be done automatically when threshold parameters configured for dynamic key management (DKM) in the Key File (KEYF) are surpassed. The co-network shares control of DKM processing with the BIC ISO Interface process. This means each co-network is only responsible for exchanging its outbound key. Therefore, a change key request is initiated when the co-network requests an inbound key change (as described earlier). If the outbound key is being changed, the co-network initiates a new key request. If both the inbound and outbound keys are being changed, a change key request is initiated for the inbound key change and a new key request is initiated for the outbound key. In addition, the main process is responsible for new key generation. If this is the main process, a new key request is made. This message flow is used only with DKM.

Note: In this BIC environment, the inbound key for the co-network is the outbound key for the BIC ISO Interface process. The scenario is described from the perspective of the co-network sending the 0800 message. Therefore, the BIC ISO Interface process receiving the 0800 always reverses the value (i.e., changes inbound to outbound and vice versa) when processing the message.

The following diagram illustrates the message flow between the BIC ISO Interface process and the co-network when the BIC ISO Interface process initiates a new key request message. The steps corresponding to the diagram are also described on the following page. The diagram illustrates how messages containing CSM formats are used when a new key is passed between processors.



1. The process generating the key (process A) sends a request message containing a KSM with the new key information to the receiving process (process B) without receiving a request from process B. Process A formats and sends an 0800 message with a network management information code of 162 to process B. It also starts a network management timer and waits for a response from the co-network. If process B does not send a response before the management timer expires, process A starts an extended network management timer. If process B does not send a response before the extended management timer expires, process A resets the counter and sends another message. In addition, process A deletes the network management, extended network management, and wait for traffic timers.
 - a. If this message is being generated as a result of a change request, the key type (i.e., PIN or MAC) and keys being changed (i.e., inbound, outbound, or both) is echoed from the change key request message.
 - b. If both the inbound and outbound keys are being changed, then two new key requests are required. One to change the inbound key and one to change the outbound key.
 - c. Process A generates the new keys. The following is the resulting output.
 - A new working key encrypted under the master key to the security module.
 - A new working key encrypted under the exchange key.
 - Check digits

The check digits and new working key encrypted under the exchange key are sent in the 0800 message to the co-network. The new working key encrypted under the master key to the security module is stored in the KEYF when the 0810 message is returned from the co-network. The DKM information is sent in the Cryptographic Service Message (CSM), data element S-123, of the external message. Process A updates the appropriate PIN or MAC key counter (depending on the type of key being generated) in the PCT.

2. Process B responds to process A. This 0810 response message contains an RSM when no errors are detected in the KSM or an ESM when errors are found in the KSM. Process B receives the 0800 from process A message and verifies it. If it is valid, process B translates the key.
 - a. If process B successfully translates the key, the check digits must be verified. The check digits translated must be the same as those sent in the external message.
 - b. Process B updates the KEYF with the new key and check digits.

Note: If any of the previous steps fail, process B sends an 0810 message with a response code of 05 (denied) to process A. If successful, process B sends an 0810 message with a response code of 00 (approved) to process A.

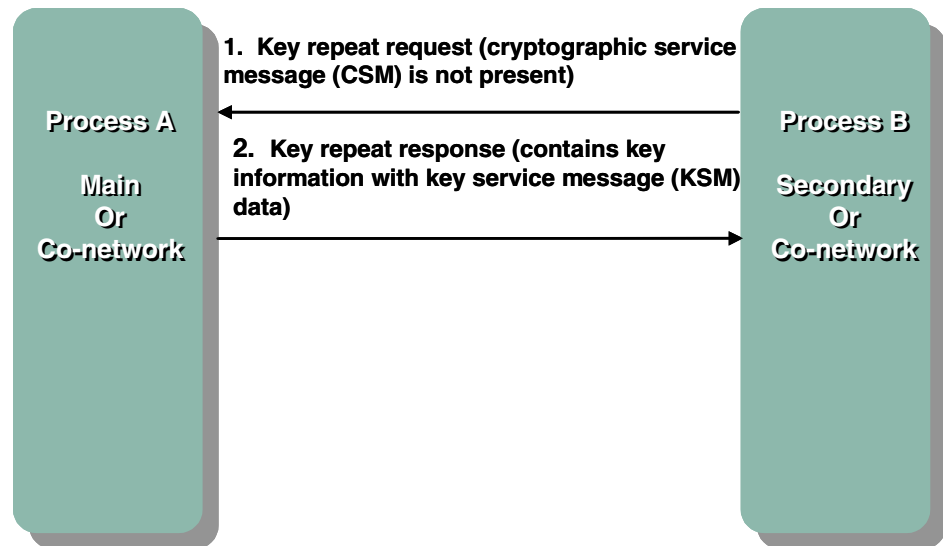
- c. Process A receives the 0810 message from process B and performs the following functions:
 - Deletes the network management timer used to update KEYF time interval thresholds.
 - Updates the keys, current index, check digits, and appropriate counters in the KEYF.

Process A is responsible for resetting the threshold parameters set up in the KEYF. The threshold parameters are updated based on the keys being generated.

Repeat Key

A request to repeat a PIN or MAC key to the BIC ISO Interface process can be initiated by entering a repeat key command from a network control facility. A repeat key request can only be initiated by a secondary or co-network process. This message flow is used only with Dynamic Key Management (DKM). The diagram below illustrates the message flow between the co-network and the BIC ISO Interface process when the co-network initiates a repeat key request message. The diagram illustrates how messages containing CSM formats are used when a key is repeated. The steps corresponding to the diagram are also described.

Warning: The Repeat Key command may not work for customers using Racal-Guardata security devices because of the following limitation. Racal uses its own GC command to perform the Repeat Key command. At some Racal installations, the GC command cannot be executed unless the security box is in an “authorized state.” Normally, it is not good security practice to run with the security box in an “authorized state” during normal online processing.



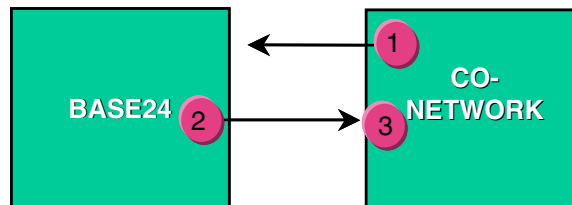
1. The process that originally received the key (process B) sends an 0800 key repeat request message to the process that originally generated the key (process A). The CSM is not present in this message. The network management information code in the message is 163 to indicate this is a repeat key request. Process B starts a network management timer and waits for a response from the process A. If process A does not respond before the timer expires, process B starts an extended network management timer. If process A does not send a response before the extended timer expires, process

B sends another repeat key request. In addition, process B deletes the network management, extended network management, and wait-for-traffic timers.

2. Process A sends an 0810 response message containing a KSM with the existing key information to process B. Process A does not change the key or any key-related counters before sending the response. Since the KSM is in a response, process B cannot return an RSM or ESM. The 0810 message contains a response code of 00 (approved). The exact key and check digits currently stored are returned to process B. If the 0800 message was approved, no further processing is necessary. If the 0800 message was not approved, the 0810 message contains a response code of 05 (denied), and process B drops the message and logs a message indicating the error.

Verify Key

A request to verify a PIN or MAC key to the BIC ISO Interface process can be initiated by entering a verify key command from a network control facility. A verify key request can only be initiated by a secondary or co-network process. This message flow is used only with Dynamic Key Management (DKM). The diagram below illustrates the message flow between the co-network and the BIC ISO Interface process when the co-network initiates a verify key request message. The steps corresponding to the diagram are also described below.



1. The secondary or co-network formats and sends an 0800 message with a network management information code of 164 to the BIC ISO Interface process. The co-network starts a network management timer and waits for a response from the BIC ISO Interface process. If the BIC ISO Interface process does not respond before the timer expires, the co-network starts an extended network management timer. If the BIC ISO Interface process does not send a response before the extended timer expires, the co-network sends another repeat key request. In addition, the co-network deletes the network management, extended network management, and wait-for-traffic timers.
2. The BIC ISO Interface process verifies that the check digits received in the 0800 message match the check digits currently stored. If the check digits match, the BIC ISO Interface process formats an 0810 message with a response code of 00 (approved) to the co-network. If the check digits do not match, the response code is 12 (check digits do not match).
3. The co-network receives the 0810 response and checks the response code. If the response code is 00 (approved), the check digits matched and the verify key request is approved. If the response code is 12 (check digits do not match), the check digits did not match and the verify key request is dropped. In this case, the co-network logs a message identifying the error.

Cutover Message Flows

For cutover processing, BASE24 and the co-network can be defined as equal partners, or one network can be defined as the main partner. When BASE24 and the co-network are equal partners, each network informs the other network when cutover occurs. In addition, each network must send the other network reconciliation totals.

When both networks are not equal partners, BASE24 must be identified as either the main network or the secondary network. The co-network is either main or secondary, whichever BASE24 is not. Secondary network cutover must occur before the main network cutover or incoming transactions from the secondary network will be denied.

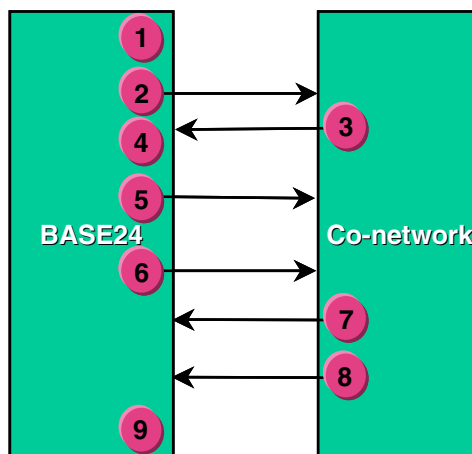
Cutover processing occurs seven days a week. When cutover processing occurs, four possible message flows can take place between BASE24 and the co-network:

- Equal Partner Reconciliation/BASE24 Cutover
- Equal Partner Reconciliation/Co-network Cutover
- Main/Secondary Cutover when BASE24 is the Secondary
- Main/Secondary Cutover when BASE24 is the Main

Each of these message flows is described on the following pages.

Equal Partner Reconciliation—BASE24 Cutover

When BASE24 and the co-network are equal partners regarding reconciliation and cutover, the same processing occurs for both. The diagram below illustrates the reconciliation message flow when BASE24 cuts over. The steps in the diagram are described below.



1. BASE24 cuts over to a new business date.
2. BASE24 sends an 0800 message to the co-network with the information code set to 201. This 0800 message contains the business date for the processing day just ended. BASE24 sets a timer and waits for a cutover acknowledgment from the co-network. All new requests are denied until BASE24 receives a cutover acknowledgment message.

If no stations are available or if the cutover message times out, the cutover message is placed in the BASE24 database as an 0820 network management advice message to be processed during store-and-forward processing.

3. The co-network sends an 0810 cutover acknowledgment message to BASE24 with the information code set to 201.

In the event BASE24 does not receive an 0810 network management response to a cutover request, BASE24 sends an 0820 advice message to the co-network. If the co-network does not respond to the 0820 message with an 0830 advice response message, BASE24 changes the 0820 message to an 0821 message and stores it in the BASE24 database to be sent during store-and-forward processing. BASE24 sends the 0821 message to the co-network until it receives an 0830 message or until a specified number of tries has been reached. If the specified number of tries has been reached, BASE24 sends a message to the network log indicating that manual reconciliation is necessary.

4. BASE24 sets a timer to allow all of the old business day's transactions to finish.
5. When the timer expires, reconciliation totals are sent. BASE24 sends a 0500 acquirer reconciliation totals message to the co-network and sets a timer to wait for an acquirer settlement acknowledgment message.

If no stations are available, BASE24 changes the message type to indicate that this reconciliation message is now a store-and-forward advice message. That is, the 0500 acquirer reconciliation totals message is changed to a 0520 acquirer reconciliation advice message. The 0520 message is added to the BASE24 database to be processed during store-and-forward processing.

6. BASE24 sends a 0502 issuer reconciliation totals message to the co-network and sets a timer to wait for an issuer settlement acknowledgment message.

If no stations are available, BASE24 changes the message type to indicate that this reconciliation message is now a store-and-forward advice message. That is, the 0502 issuer reconciliation message is changed to a 0522 issuer reconciliation advice message. The 0522 message is added to the BASE24 database to be processed during store-and-forward processing.

7. The co-network replies with a 0510 acquirer reconciliation acknowledgment message. BASE24 deletes the timer that was set when BASE24 sent the 0500 acquirer reconciliation totals message.

In the event BASE24 does not receive a 0510 acquirer reconciliation response message before its timer expires, BASE24 sends out the 0520 acquirer reconciliation advice message from step 5. If the co-network does not respond with a 0530 message, BASE24 changes the 0520 message to a 0521 message and stores it in the BASE24 database to be sent during store-and-forward processing. BASE24 sends the 0521 message to the co-network until it receives a 0530 acquirer reconciliation response message or until a specified number of tries has been reached. If the specified number of tries has been reached, BASE24 sends a message to the network log indicating that manual reconciliation is necessary.

8. The co-network replies with a 0512 issuer reconciliation acknowledgment message. BASE24 deletes the timer that was set when BASE24 sent the 0502 issuer reconciliation totals message.

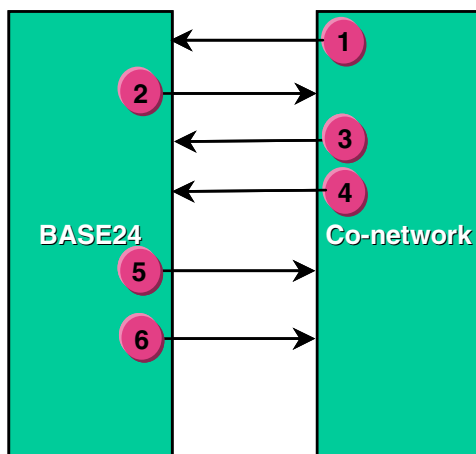
In the event BASE24 does not receive a 0512 issuer reconciliation response message before its timer expires, BASE24 sends out the 0522 issuer reconciliation advice message from step 6. If the co-network does not respond with a 0532 message, BASE24 changes the 0522 message to a 0523 message and stores it in the BASE24 database to be sent during store-and-forward processing. BASE24 sends the 0523 to the co-network until it receives a 0532 issuer reconciliation response message or until a specified

number of tries has been reached. If the specified number of tries has been reached, BASE24 sends a message to the network log indicating that manual reconciliation is necessary.

9. BASE24 verifies that both acquirer and issuer totals have been sent to the co-network. Cutover processing is now complete.

Equal Partner Reconciliation—Co-Network Cutover

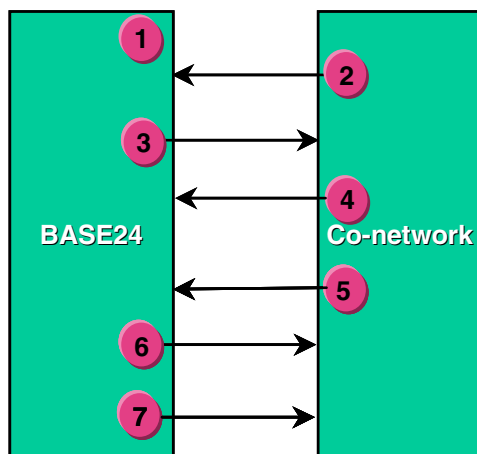
When BASE24 and the co-network are equal partners regarding reconciliation and cutover, the same processing occurs for both. The diagram below illustrates the reconciliation message flow when the co-network cuts over. The steps in the diagram are described below.



1. The co-network sends an 0800 message to BASE24 with the information code set to 201. This 0800 message contains the business date for the processing day just ended.
2. BASE24 sends an 0810 cutover acknowledgment message to the co-network with the information code set to 201.
3. At some point, the co-network sends reconciliation totals to BASE24. The co-network sends a 0500 acquirer reconciliation totals message to BASE24.
4. The co-network also sends a 0502 issuer reconciliation totals message to BASE24.
5. BASE24 replies with a 0510 acquirer reconciliation acknowledgment message.
6. BASE24 replies with a 0512 issuer reconciliation acknowledgment message.

Main/Secondary Cutover when BASE24 is Secondary

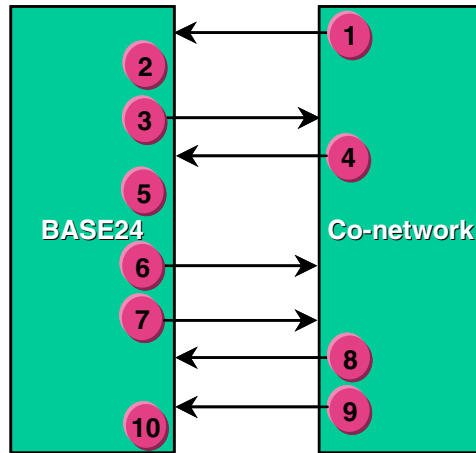
When the two networks are not equal partners regarding reconciliation and cutover, the secondary network must cut over before the main network. The diagram below shows the message flow when BASE24 is the secondary network. The steps in the diagram are described below.



1. BASE24 cuts over to a new business date. All subsequent transactions initiated by BASE24 reflect the new business date.
2. At some later time, the co-network cuts over and sends an 0800 message to BASE24 with the information code set to 201. This 0800 message contains the business date for the processing day just ended.
3. BASE24 sends an 0810 cutover acknowledgment message to the co-network with the information code set to 201.
4. At some point, the co-network sends reconciliation totals to BASE24. The co-network sends a 0500 acquirer reconciliation totals message to BASE24.
5. The co-network sends a 0502 issuer reconciliation totals message to BASE24.
6. BASE24 replies with a 0510 acquirer reconciliation acknowledgment message.
7. BASE24 replies with a 0512 issuer reconciliation acknowledgment message.

Main/Secondary Cutover when BASE24 is Main

When the two networks are not equal partners regarding reconciliation and cutover, the secondary network must cut over before the main network. The diagram below shows the message flow when BASE24 is the main network. The steps in the diagram are described below.



1. The co-network cuts over. At some point after cutover, the co-network sends a 0200 financial request message to BASE24 containing the new business date.
2. BASE24 cuts over to a new business date.
3. BASE24 sends an 0800 message to the co-network with the information code set to 201. This 0800 message contains the business date for the processing day just ended. BASE24 sets a timer and waits for a cutover acknowledgment from the co-network. All new requests are denied until BASE24 receives a cutover acknowledgment message.

If no stations are available or if the cutover message times out, the cutover message is placed in the BASE24 database as an 0820 network management advice message to be processed during store-and-forward processing.

4. The co-network sends an 0810 cutover acknowledgment message to BASE24 with the information code set to 201.

In the event BASE24 does not receive an 0810 network management response to a cutover request, BASE24 sends an 0820 advice message to the co-network. If the co-network does not respond to the 0820 message with an 0830 advice response message, BASE24 changes the 0820 message to an 0821 message and stores it in the BASE24 database to be sent during store-and-forward processing. BASE24 sends the 0821 message to the co-network

until it receives an 0830 message or until a specified number of tries has been reached. If the specified number of tries has been reached, BASE24 sends a message to the network log indicating that manual reconciliation is necessary.

5. BASE24 sets a timer to allow all of the old business day's transactions to finish.
6. When the timer expires, reconciliation totals are sent. BASE24 sends a 0500 acquirer reconciliation totals message to the co-network and sets a timer to wait for an acquirer settlement acknowledgment message.

If no stations are available, BASE24 changes the message type to indicate that this reconciliation message is now a store-and-forward advice message. That is, the 0500 acquirer reconciliation totals message is changed to a 0520 acquirer reconciliation advice message. The 0520 message is added to the BASE24 database to be processed during store-and-forward processing.

7. BASE24 sends a 0502 issuer reconciliation totals message to the co-network and sets a timer to wait for an issuer settlement acknowledgment message.

If no stations are available, BASE24 changes the message type to indicate that this reconciliation message is now a store-and-forward advice message. That is, the 0502 issuer reconciliation message is changed to a 0522 issuer reconciliation advice message. The 0522 message is added to the BASE24 database to be processed during store-and-forward processing.

8. The co-network replies with a 0510 acquirer reconciliation acknowledgment message. BASE24 deletes the timer that was set when BASE24 sent the 0500 acquirer reconciliation totals message.

In the event BASE24 does not receive a 0510 acquirer reconciliation response message before its timer expires, BASE24 sends out the 0520 acquirer reconciliation advice message from step 6. If the co-network does not respond with a 0530 message, BASE24 changes the 0520 message to a 0521 message and stores it in the BASE24 database to be sent during store-and-forward processing. BASE24 sends the 0521 message to the co-network until it receives a 0530 acquirer reconciliation response message or until a specified number of tries has been reached. If the specified number of tries has been reached, BASE24 sends a message to the network log indicating that manual reconciliation is necessary.

9. The co-network replies with a 0512 issuer reconciliation acknowledgment message. BASE24 deletes the timer that was set when BASE24 sent the 0502 issuer reconciliation totals message.

In the event BASE24 does not receive a 0512 issuer reconciliation response message before its timer expires, BASE24 sends out the 0522 issuer reconciliation advice message from step 7. If the co-network does not respond with a 0532 message, BASE24 changes the 0522 message to a 0523

message and stores it in the BASE24 database to be sent during store-and-forward processing. BASE24 sends the 0523 to the co-network until it receives a 0532 issuer reconciliation response message or until a specified number of tries has been reached. If the specified number of tries has been reached, BASE24 sends a message to the network log indicating that manual reconciliation is necessary.

10. BASE24 verifies that both acquirer and issuer totals have been sent to the co-network. Cutover processing is now complete.

A: BASE24-atm/ISO Conversion Tables

Appendix A contains conversion tables for the various BASE24-atm codes that must be converted to and from ISO standard codes by the BIC ISO Interface process.

This section contains conversion tables for the following types of codes:

- Response codes
- Reversal codes
- Adjustment codes

Response Codes

Response codes are carried in the Response Code data element (P-39) of the BASE24 external message. The tables below and on the following pages are used to convert BASE24-atm response codes to and from the ISO standard response codes.

Converting BASE24-atm Response Codes to ISO

BASE24-atm response codes carried internally are translated to external codes for use in the BASE24 external message according to the following table. The codes used in the external message are based on the ISO standard.

The ENHANCED-EMV-RC-MAPPING param in the LCONF controls whether or not enhanced EMV mapping is performed for EMV-related response codes. If that param is set to 0 or 2, standard mapping is performed for BASE24-atm response codes as shown in the table. If the param is set to 1 or 3, enhanced EMV mapping is performed—in this case, only the mapping differences are shown in the table. Refer to the *BASE24 Logical Network Configuration File Manual* for information about the ENHANCED-EMV-RC-MAPPING param.

BASE24-atm		ISO			
		Standard Mapping		Enhanced EMV Mapping	
000	Approved with balances	00	Approved or completed successfully		
001	Approved—no balances	00	Approved or completed successfully		
050	Unauthorized usage	62	Restricted card		
051	Expired card	54	Expired card		
052	Invalid card	14	Invalid card number (no such number)		
053	Invalid PIN	55	Incorrect personal identification number		
054	Database problem	89	Reserved for private use		
055	Ineligible transaction	12	Invalid transaction		

BASE24-atm		ISO			
		Standard Mapping		Enhanced EMV Mapping	
056	Ineligible account	76	Reserved for private use		
057	Transaction not supported	12	Invalid transaction		
058	Insufficient funds with no amount 3	51	Not sufficient funds		
059	Insufficient funds with amount 3	51	Not sufficient funds		
060	Uses limit exceeded	65	Exceeds withdrawal frequency limit		
061	Withdrawal limit would be exceeded	61	Exceeds withdrawal amount limit		
062	PIN tries exceeded	75	Allowable number of PIN tries exceeded		
063	Withdrawal limit already reached	61	Exceeds withdrawal amount limit		
064	Invalid credit card cash advance amount	13	Invalid amount		
065	No statement information	86	Reserved for private use		
066	Statement information not available	87	Reserved for private use		
067	Invalid cash back amount	13	Invalid amount		
068	External decline	05	Do not honor		
069	No sharing arrangement between the card issuer and terminal owner	77	Reserved for private use		
070	System error	88	Reserved for private use		

BASE24-atm		ISO			
		Standard Mapping		Enhanced EMV Mapping	
071	Contact card issuer	78	Reserved for private use		
072	Destination not available	91	Issuer or switch is inoperative		
073	Routing look up problem	92	Financial institution or intermediate network facility cannot be found for routing		
074	Message edit error	30	Format error		
081	Security module parameter error	05	Do not honor	U1	Security Module Parameter Error
082	Security module failure	05	Do not honor	U2	Security Module Failure
083	KEYI record not found	05	Do not honor	U3	KEY1 Record Not Found
084	ATC check failure	05	Do not honor	U4	ATC Check Failure
085	CVR decline	05	Do not honor	U5	CVR Decline
086	TVR decline	05	Do not honor	U6	TVR Decline
087	Request cryptogram failure	05	Do not honor	U0	ARQC Failure Decline
088	Fallback decline	05	Do not honor	U8	Fallback Decline
090	Approved transaction inside window	79	Reserved for private use		
091	Approved transaction outside window	80	Reserved for private use		
092	Approved transaction (balance anytime)	81	Reserved for private use		
150	Unauthorized usage (capture card)	36	Restricted card		

BASE24-atm		ISO			
		Standard Mapping		Enhanced EMV Mapping	
151	Expired card (capture card)	33	Expired card		
162	PIN tries exceeded (capture card)	38	Allowable PIN tries exceeded		
185	CVR Capture	67	Hard capture ¹	V8	CVR Capture
186	TVR Capture	67	Hard capture ¹	V9	TVR Capture
187	ARQC Failure Capture	67	Hard capture ¹	V7	ARQC Failure Capture
1xx	Any other response code where the card is captured	67	Hard capture ¹		

¹ A hard capture requires that a card be picked up at the ATM.

Converting ISO Response Codes to BASE24-atm

ISO response codes carried in the BASE24 external message are converted to BASE24-atm response codes according to the following table.

The ENHANCED-EMV-RC-MAPPING param in the LCONF controls whether or not enhanced EMV mapping is performed for EMV-related response codes. If that param is set to 0 or 2, standard mapping is performed for BASE24-atm response codes as shown in the table. If the param is set to 1 or 3, enhanced EMV mapping is performed—in this case, only the mapping differences are shown in the table. Refer to the *BASE24 Logical Network Configuration File Manual* for information about the ENHANCED-EMV-RC-MAPPING param.

Any ISO code that is not listed in the table below is translated to the BASE24-atm response code 068 (decline). These response codes are either illogical in a given message type or are not supported by the BASE24-atm product.

ISO		BASE24-atm			
		Standard Mapping		Enhanced EMV Mapping	
00	Approved or completed successfully	000	Approved with balances (if balances are present in the external message)		
		001	Approved—no balances for display (if no balances are present in the external message)		
01	Refer to card issuer	071	Contact card issuer		
02	Refer to special conditions of card issuer	071	Contact card issuer		
03	Invalid merchant	068	External decline		
04	Pick-up	168	External decline (capture card)		
05	Do not honor	068	External decline		
06	Error	068	External decline		
07	Pick-up card, special condition	168	External decline (capture card)		
08	Honor with identification	068	External decline		
09	Request in progress	068	External decline		
10	Approved for partial amount (not supported)	068	External decline		

ISO		BASE24-atm			
		Standard Mapping		Enhanced EMV Mapping	
11	Approved (VIP)	001	Approved—no balances for display		
12	Invalid transaction	055	Ineligible transaction		
13	Invalid amount	074	Message edit error		
14	Invalid card number (no such number)	052	Invalid card		
15	No such issuer	068	External decline		
16	Approved, update track 3 (not supported)	068	External decline		
17	Customer cancellation	068	External decline		
18	Customer dispute	068	External decline		
19	Re-enter transaction	068	External decline		
20	Invalid response	068	External decline		
21	No action taken	068	External decline		
22	Suspected malfunction	068	External decline		
23	Unacceptable transaction fee	068	External decline		
30	Format error	074	Message edit error		
31	Bank not supported by switch	073	Routing look up problem		
32	Completed partially	068	External decline		
33	Expired card	151	Expired card (capture card)		
34	Suspected fraud	168	External decline (capture card)		

ISO		BASE24-atm			
		Standard Mapping		Enhanced EMV Mapping	
35	Card acceptor contact acquirer, pick-up	168	External decline (capture card)		
36	Restricted card	150	Unauthorized usage (capture card)		
37	Card acceptor call acquirer security	168	External decline (capture card)		
38	Allowable PIN tries exceeded	162	PIN tries exceeded (capture card)		
39	No credit account	056	Ineligible account		
40	Requested function not supported	055	Ineligible transaction		
41	Lost card	150	Unauthorized usage (capture card)		
42	No universal account	056	Ineligible account		
43	Stolen card, pick-up	150	Unauthorized usage (capture card)		
44	No investment account	056	Ineligible account		
51	Not sufficient funds	059	Insufficient funds with amount 3 (if data element P-44 is present in the external message)		
		058	Insufficient funds with no amount 3 (if data element P-44 is not present in the external message)		
52	No chequing account	056	Ineligible account		
53	No savings account	056	Ineligible account		

ISO		BASE24-atm			
		Standard Mapping		Enhanced EMV Mapping	
54	Expired card	051	Expired card		
55	Incorrect personal identification number	053	Invalid PIN		
56	No card record	052	Invalid card		
57	Transaction not permitted to cardholder	050	Unauthorized usage		
58	Transaction not permitted to terminal	057	Transaction not supported		
59	Suspected fraud	068	External decline		
60	Card acceptor contact acquirer	068	External decline		
61	Exceeds withdrawal amount limit	063	Withdrawal limit already reached		
62	Restricted card	050	Unauthorized usage		
63	Security violation	068	External decline		
65	Exceeds withdrawal frequency limit	060	Uses limit exceeded		
66	Card acceptor call security department of acquirer	068	External decline		
67	Hard capture (requires that card be picked up at ATM)	168	External decline at ATM (capture card)		
75	Allowable number of PIN tries exceeded	062	PIN tries exceeded		
76	Reserved for private use	056	Ineligible account use		

ISO		BASE24-atm			
		Standard Mapping		Enhanced EMV Mapping	
77	Reserved for private use	069	No sharing between the card issuer and terminal owner		
78	Reserved for private use	071	Contact card issuer		
79	Reserved for private use	090	Approved transaction inside window		
80	Reserved for private use	091	Approved transaction outside window		
81	Reserved for private use	092	Approved transaction balance anytime		
86	Reserved for private use	065	No statement information for the account		
87	Reserved for private use	066	Statement information not available		
88	Reserved for private use	070	System error		
89	Reserved for private use	054	Database problem		
90	Cutoff is in process—a switch is ending business for a day and starting the next (transaction can be sent again in a few minutes)	072	Destination not available		
91	Issuer or switch is inoperative	072	Destination not available		

ISO		BASE24-atm			
		Standard Mapping		Enhanced EMV Mapping	
92	Financial institution or intermediate network facility cannot be found for routing	073	Routing look up problem		
93	Transaction cannot be completed due to a violation of law	068	External decline		
94	Duplicate transmission	068	External decline		
95	Reconcile error	068	External decline		
96	System malfunction	070	System error		
U0	ARQC Failure Decline	068	External decline	087	ARQC Failure Decline
U1	Security Module Parameter Error	068	External decline	081	Security Module Parameter Error
U2	Security Module Failure	068	External decline	082	Security Module Failure
U3	KEY1 Record Not Found	068	External decline	083	KEY1 Record Not Found
U4	ATC Check Failure	068	External decline	084	ATC Check Failure
U5	CVR Decline	068	External decline	085	CVR Decline
U6	TVR Decline	068	External decline	086	TVR Decline
U8	Fallback Decline	068	External decline	088	Fallback Decline
V7	ARQC Failure Capture	068	External decline	187	ARQC Failure Capture
V8	CVR Capture	068	External decline	185	CVR Capture
V9	TVR Capture	068	External decline	186	TVR Capture

Reversal Codes

Reversal codes are carried in the Response Code data element (P-39) of the BASE24 external message. The tables below are used to convert BASE24-atm reversal codes to and from the ISO standard reversal codes.

Converting BASE24-atm Reversal Codes to ISO

When BASE24-atm sends a 0420 message to a co-network, the external response code is to be interpreted as the reason for the reversal.

BASE24-atm reversal codes carried internally are translated to external codes for use in the BASE24 external message according to the following table. The codes used in the external message are based on the ISO standard.

BASE24-atm		ISO	
1	Response received too late	68	Response received too late
2	Partial reversal	32	Completed partially
00	Reason unknown	00	Approved or completed successfully
01	Time-out	68	Response received too late
02	Invalid response	20	Invalid response
03	Destination not available	82	Reserved for private use
08	Customer canceled	17	Customer cancellation
10	Hardware error	21	No action taken
20	Suspect transaction	22	Suspected malfunction
21	MAC failure	U1	Reserved for private use
22	KMAC synchronization error	U2	Reserved for private use
23	Message replay error	U3	Reserved for private use
24	Invalid MAC	U4	Reserved for private use

- ¹ The BIC ISO Interface received a late 0210 message from an issuer. This code is not translated, but rather is set by the BIC ISO Interface process.
- ² The BIC ISO Interface received a reversal from within the BASE24-atm system with a nonzero amount in the amount 2 field in the internal message. This code is not translated, but rather is set by the BIC ISO Interface process.

Converting ISO Reversal Codes to BASE24-atm

Reversal codes coming to BASE24-atm from a co-network using external messages must go through a translation also. That translation is performed according to the following table. The codes used in the BASE24 external message are based on the ISO standard and must be translated to their BASE24-atm equivalents.

When BASE24-atm receives any codes not found in the left-hand column below, BASE24-atm modifies the message type and sends the message back to the co-network as rejected. Reversal codes are used for information only within BASE24-atm.

ISO		BASE24-atm	
00	Approved or completed successfully	00	Reason unknown
17	Customer cancellation	08	Customer canceled
20	Invalid response	02	Invalid response
21	No action taken	10	Hardware error
22	Suspected malfunction	20	Suspect transaction
32	Completed partially	10	Partial completion
68	Response received too late	01	Time-out
82	Reserved for private use	03	Destination not available
U1	Reserved for private use	21	MAC failure
U2	Reserved for private use	22	KMAC synchronization error
U3	Reserved for private use	23	Message replay error

ISO		BASE24-atm	
U4	Reserved for private use	24	Invalid MAC

Adjustment Codes

Adjustment codes are carried in the Response Code data element (P-39) of the BASE24 external message. The table below is used to convert BASE24-atm adjustment codes to and from the ISO standard adjustment codes.

Converting BASE24-atm Adjustment Codes to ISO

When BASE24-atm sends an adjustment to a co-network (a 0220 message with the processing code set to indicate that it is an adjustment), the external response code is to be interpreted as the reason for the adjustment.

BASE24-atm adjustment codes carried internally are translated to external codes for use in the BASE24 external message according to the following table. The codes used in the external message are based on the ISO standard.

BASE24-atm		ISO	
12	Original amount incorrect	64	Original amount incorrect
13	ATM malfunction	22	Suspected malfunction
14	Suspicious reversal	83	Reserved for private use
15	Misdispense reversal	84	Reserved for private use
16	Duplicate transaction	94	Duplicate transmission
17	Reconciliation error	95	Reconcile error
18	PLUS add cash withdrawal	85	Reserved for private use

Converting ISO Adjustment Codes to BASE24-atm

Adjustment transactions from co-networks are not supported by BASE24-atm. The facility is provided for interchanges only. Therefore, if a 0220 or 0221 message is received with a processing code beginning with 02 or 22, the message is rejected.

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B: BASE24-pos/ISO Conversion Tables

Appendix B contains conversion tables for the various BASE24-pos codes that must be converted to and from ISO standard codes by the BIC ISO Interface process.

This section contains conversion tables for the following types of codes:

- Response codes
- Reversal codes
- Adjustment codes

Response Codes

Response codes are carried in the Response Code data element (P-39) of the BASE24 external message. The tables below and on the following pages are used to convert BASE24-pos response codes to and from the ISO standard response codes.

Converting BASE24-pos Response Codes to ISO

BASE24-pos response codes carried internally are translated to external codes for use in the BASE24 external message according to the following table. The codes used in the external message are based on the ISO standard.

The ENHANCED-EMV-RC-MAPPING param in the LCONF controls whether or not enhanced EMV mapping is performed for EMV-related response codes. If that param is set to 0 or 1, standard mapping is performed for BASE24-pos response codes as shown in the table. If the param is set to 2 or 3, enhanced EMV mapping is performed—in this case, only the mapping differences are shown in the table. Refer to the *BASE24 Logical Network Configuration File Manual* for information about the ENHANCED-EMV-RC-MAPPING param.

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
000	Approved balances available	00	Approved or completed successfully		
001	Approved no balances available	00	Approved or completed successfully		
002	Approved country club	76	Reserved for private use		
003	Approved (maybe more ID)	08	Honor with identification		
004	Approved pending identification (sign paper draft)	77	Reserved for private use		
005	Approved blind	78	Reserved for private use		
006	Approved VIP	11	Approved (VIP)		

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
007	Approved administrative transaction	79	Reserved for private use		
008	Approved national NEG hit OK	80	Reserved for private use		
009	Approved commercial	81	Reserved for private use		
050	Decline	05	Do not honor		
051	Expired card	54	Expired card		
052	PIN tries exceeded	75	Allowable number of PIN tries exceeded		
053	No sharing	31	Bank not supported by switch		
054	No security module	82	Reserved for private use		
055	Invalid transaction	12	Invalid transaction		
056	No support	57	Transaction not permitted to cardholder		
057	Lost or stolen card	41	Lost card		
058	Invalid status	14	Invalid card number (no such number)		
059	Restricted	62	Restricted card		
060	No accounts	83	Reserved for private use		
061	No PBF	84	Reserved for private use		
062	PBF update error	85	Reserved for private use		
063	Invalid authorization type	86	Reserved for private use		
064	Bad Track Data	87	Reserved for private use		

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
065	Adjustment not allowed	12	Invalid transaction		
066	Invalid credit card advance increment	T1	Reserved for private use		
067	Invalid transaction date	T2	Reserved for private use		
068	PTLF error	88	Reserved for private use		
069	Bad message edit	30	Format error		
070	No IDF	15	No such issuer		
072	Card on national negative file	R8	Reserved for private use		
073	Invalid route service	89	Reserved for private use		
074	Unable to authorize	N0	Reserved for private use		
075	Invalid PAN length	N1	Reserved for private use		
076	Low funds	51	Not sufficient fund		
077	Preauthorization full	N2	Reserved for private use		
078	Duplicate transaction	94	Duplicate transaction		
079	Maximum online refund reached	N3	Reserved for private use		
080	Maximum offline refund reached	N4	Reserved for private use		
081	Maximum credit per refund reached	N5	Reserved for private use		
082	Number of times used	65	Exceeds withdrawal frequency limit		
083	Maximum refund credit reached	N6	Reserved for private use		

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
084	Customer selected negative file reason	N7	Reserved for private use		
085	Inquiry not allowed	57	Transaction not permitted to cardholder		
086	Over floor limit	N8	Reserved for private use		
087	Maximum number of refund credit	N9	Reserved for private use		
088	Place call	01	Refer to card issuer		
089	CAF status = 0 or 9	T5	Reserved for private use		
090	Referral file full	O0	Reserved for private use		
091	NEG file problem	O1	Reserved for private use		
092	Advance less than minimum	O2	Reserved for private use		
093	Delinquent	O3	Reserved for private use		
094	Over limit table	O4	Reserved for private use		
095	Amount over maximum	61	Exceeds withdrawal amount limit		
096	PIN required	O5	Reserved for private use		
097	Mod 10 check	O6	Reserved for private use		
098	Force post	O7	Reserved for private use		
099	Bad PBF	O8	Reserved for private use		
100	Unable to process transaction	06	Error		
101	Issue call	02	Refer to special conditions for card issuer		

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
102	Call	02	Refer to special conditions for card issuer		
103	NEG file problem	O9	Reserved for private use		
104	CAF problem	P0	Reserved for private use		
105	Card not supported	T3	Reserved for private use		
106	Amount over maximum	T4	Reserved for private use		
107	Over daily limit	P1	Reserved for private use		
108	CAPF not found	P2	Reserved for private use		
109	Advance less than minimum	P3	Reserved for private use		
110	Number times used	P4	Reserved for private use		
111	Delinquent	P5	Reserved for private use		
112	Over limit table	P6	Reserved for private use		
113	Timeout	68	Response received too late		
115	PTLF full	S4	PTLF full		
120	Bad UAF	T6	Bad UAF		
121	ADMN file problem	S8	Reserved for private use		
122	Unable to validate PIN; security module is down	S9	Reserved for private use		
130	ARQC failure	01	Refer to card issuer	V0	ARQC failure referral
131	CVR referral	01	Refer to card issuer	V1	CVR referral
132	TVR referral	01	Refer to card issuer	V2	TVR referral

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
133	Reason online referral	01	Refer to card issuer	V3	Reason online code referral
134	Fallback referral	01	Refer to card issuer	V4	Fallback referral
150	Merchant not on file	03	Invalid merchant		
200	Invalid account	T8	Reserved for private use		
201	Incorrect PIN	55	Incorrect personal identification number		
202	Advance less than minimum	P7	Reserved for private use		
203	Administrative card needed	P8	Reserved for private use		
204	Enter lesser amount	P9	Reserved for private use		
205	Invalid advance amount	13	Invalid amount		
206	CAF not found	56	No record found		
207	Invalid transaction date	Q0	Reserved for private use		
208	Invalid expiration date	Q1	Reserved for private use		
209	Invalid transaction code	Q2	Reserved for private use		
251	Cash back exceeds daily limit	T7	Reserved for private use		
400	ARQC failure	05	Do not honor	U0	ARQC failure
401	HSM parameter error	05	Do not honor	U1	Security module parameter error
402	HSM failure	05	Do not honor	U2	Security module failure

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
403	KEYI record not found	05	Do not honor	U3	KEY1 record not found
404	ATC check failure	05	Do not honor	U4	ATC check failure
405	CVR decline	05	Do not honor	U5	CVR decline
406	TVR decline	05	Do not honor	U6	TVR decline
407	Reason online decline	05	Do not honor	U7	Reason online code decline
408	Fallback decline	05	Do not honor	U8	Fallback decline
900	PIN tries exceeded	38	Allowable PIN tries exceeded		
901	Expired card	33	Expired card		
902	NEG capture card	36	Restricted card		
903	CAF status 3	43	Stolen card, pick up		
904	Advance less than minimum	Q3	Reserved for private use		
905	Number times used	Q4	Reserved for private use		
906	Delinquent	Q5	Reserved for private use		
907	Over limit table	Q6	Reserved for private use		
908	Amount over maximum	Q7	Reserved for private use		
909	Capture	07	Pick-up card, special condition		
910	ARQC failure	04	Pick-up	V7	ARQC failure capture
911	CVR failure	04	Pick-up	V8	CVR capture
912	TVR failure	04	Pick-up	V9	TVR capture

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
950	Administrative card not found	Q8	Reserved for private use		
951	Administrative card not allowed	Q9	Reserved for private use		
952	Approved administrative request performed in window	R0	Reserved for private use		
953	Approved administrative request performed out of window	R1	Reserved for private use		
954	Approved administrative request performed anytime	R2	Reserved for private use		
955	Chargeback, customer file updated	R3	Reserved for private use		
956	Chargeback, customer file updated, acquirer not found	R4	Reserved for private use		
957	Chargeback, incorrect prefix number	R5	Reserved for private use		
958	Chargeback, incorrect response code or CPF configuration	R6	Reserved for private use		
959	Administrative transactions not supported	R7	Reserved for private use		
960	Chargeback approved, customer file not updated	S5	Reserved for private use		

BASE24-pos		ISO			
		Standard Mapping		Enhanced EMV Mapping	
961	Chargeback approved, customer file not updated, acquirer not found	S6	Reserved for private use		
962	Chargeback accepted, incorrect destination	S7	Reserved for private use		

Converting ISO Response Codes to BASE24-pos

ISO response codes carried in the BASE24 external message are converted to BASE24-pos response codes according to the following table.

The ENHANCED-EMV-RC-MAPPING param in the LCONF controls whether or not enhanced EMV mapping is performed for EMV-related response codes. If that param is set to 0 or 1, standard mapping is performed for BASE24-pos response codes as shown in the table. If the param is set to 2 or 3, enhanced EMV mapping is performed—in this case, only the mapping differences are shown in the table. Refer to the *BASE24 Logical Network Configuration File Manual* for information about the ENHANCED-EMV-RC-MAPPING param.

Any ISO code that is not listed in the table below is translated to the BASE24-pos code 050 (decline). These response codes are either illogical in a given message type or are not supported by BASE24-pos.

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
00	Approved or completed successfully (if balances are available)	000	Approved balances available		
00	Approved or completed successfully (if balances are not present)	001	Approved no balances available		
01	Refer to card issuer	088	Place call		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
02	Refer to special conditions for card issuer	101	Issue call		
03	Invalid merchant	150	Merchant not on file		
04	Pick-up card	909	Capture		
05	Do not honor	050	Decline		
06	Error	100	Unable to process transaction		
07	Pick-up card, special condition	909	Capture		
08	Honor with identification	003	Approved (maybe more ID)		
09	Request in progress	078	Duplicate transaction		
11	Approved (VIP)	006	Approved VIP		
12	Invalid transaction	055	Invalid transaction		
13	Invalid amount	205	Invalid amount or bad message edit		
14	Invalid card number (no such number)	058	Invalid status		
15	No such issuer	070	No IDF		
30	Format error	069	Bad message edit		
31	Bank not supported by switch	053	No sharing		
33	Expired card	901	Expired card		
34	Suspected fraud	909	Capture		
35	Card acceptor contact acquirer	909	Capture		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
36	Restricted card	902	NEG capture card		
37	Card acceptor call acquirer security	909	Capture		
38	Allowable PIN tries exceeded	900	PIN tries exceeded		
39	No credit account	050	Decline		
41	Lost card	057	Lost or stolen card		
43	Stolen card, pick-up	903	Stolen card, pick-up		
51	Not sufficient funds	076	Low funds		
54	Expired card	051	Expired card		
55	Incorrect personal identification number	201	Incorrect PIN		
56	No card record	206	CAF not found		
57	Transaction not permitted to cardholder	056	No support		
58	Transaction not permitted to terminal	055	Invalid transaction		
61	Exceeds withdrawal amount limit	095	Amount over maximum		
62	Restricted card	059	Restricted		
65	Exceeds withdrawal frequency limit	082	Number of times used		
68	Response received too late	113	Timeout		
75	Allowable number of PIN tries exceeded	052	PIN tries exceeded		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
76	Reserved for private use	002	Approved country club		
77	Reserved for private use	004	Approved pending identification (sign paper draft)		
78	Reserved for private use	005	Approved blind		
79	Reserved for private use	007	Approved administrative transaction		
80	Reserved for private use	008	Approved national negative file hit OK		
81	Reserved for private use	009	Approved commercial		
82	Reserved for private use	054	No security module		
83	Reserved for private use	060	No accounts		
84	Reserved for private use	061	No PBF		
85	Reserved for private use	062	PBF update error		
86	Reserved for private use	063	Invalid authorization type		
87	Reserved for private use	064	Bad track data		
88	Reserved for private use	068	PTLF error		
89	Reserved for private use	073	Invalid route service		
90	Cutoff is in process, a switch is ending business for a day and starting the next (transaction can be sent again in a few minutes)	074	Unable to authorize		
91	Issuer or switch is inoperative	074	Unable to authorize		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
92	Financial institution or intermediate network facility cannot be found for routing	050	Decline		
94	Duplicate transmission	078	Duplicate transaction		
96	System malfunction	100	Unable to process		
N0	Reserved for private use	074	Unable to authorize		
N1	Reserved for private use	075	Invalid PAN length		
N2	Reserved for private use	077	Preauthorization full		
N3	Reserved for private use	079	Maximum online refund reached		
N4	Reserved for private use	080	Maximum offline refund reached		
N5	Reserved for private use	081	Maximum credit per refund		
N6	Reserved for private use	083	Maximum refund credit reached		
N7	Reserved for private use	084	Customer selected negative file reason		
N8	Reserved for private use	086	Over floor limit		
N9	Reserved for private use	087	Maximum number refund credits		
O0	Reserved for private use	090	Referral file full		
O1	Reserved for private use	091	NEG file problem		
O2	Reserved for private use	092	Advance less than minimum		
O3	Reserved for private use	093	Delinquent		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
O4	Reserved for private use	094	Over limit table		
O5	Reserved for private use	096	PIN required		
O6	Reserved for private use	097	Mod 10 check		
O7	Reserved for private use	098	Force post		
O8	Reserved for private use	099	Bad PBF		
O9	Reserved for private use	103	NEG file problem		
P0	Reserved for private use	104	CAF problem		
P1	Reserved for private use	107	Over daily limit		
P2	Reserved for private use	108	CAPF not found		
P3	Reserved for private use	109	Advance less than minimum		
P4	Reserved for private use	110	Number of times used		
P5	Reserved for private use	111	Delinquent		
P6	Reserved for private use	112	Over limit table		
P7	Reserved for private use	202	Advance less than minimum		
P8	Reserved for private use	203	Administrative card needed		
P9	Reserved for private use	204	Enter lesser amount		
Q0	Reserved for private use	207	Invalid transaction date		
Q1	Reserved for private use	208	Invalid expiration date		
Q2	Reserved for private use	209	Invalid transaction code		
Q3	Reserved for private use	904	Advance less than minimum		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
Q4	Reserved for private use	905	Number of times used		
Q5	Reserved for private use	906	Delinquent		
Q6	Reserved for private use	907	Over limit table		
Q7	Reserved for private use	908	Amount over maximum		
Q8	Reserved for private use	950	Administrative card not found		
Q9	Reserved for private use	951	Administrative card not allowed		
R0	Reserved for private use	952	Approved administrative request performed in window		
R1	Reserved for private use	953	Approved administrative request performed out of window		
R2	Reserved for private use	954	Approved administrative request performed anytime		
R3	Reserved for private use	955	Chargeback, customer file updated		
R4	Reserved for private use	956	Chargeback, customer file updated, acquirer not found		
R5	Reserved for private use	957	Chargeback, incorrect prefix number		
R6	Reserved for private use	958	Chargeback, incorrect response code or CPF configuration		
R7	Reserved for private use	959	Administrative transactions not supported		

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
R8	Reserved for private use	072	Card on national negative file		
S4	PTLF full	115	PTLF full		
S5	Reserved for private use	960	Chargeback approved, customer file not updated		
S6	Reserved for private use	961	Chargeback approved, customer file not updated, acquirer not found		
S7	Reserved for private use	962	Chargeback accepted, incorrect destination		
S8	Reserved for private use	121	ADMN file problem		
S9	Reserved for private use	122	Unable to validate PIN; security module is down		
T1	Reserved for private use	066	Invalid credit card advance amount		
T2	Reserved for private use	067	Invalid transaction date		
T3	Reserved for private use	105	Card not supported		
T4	Reserved for private use	106	Amount over maximum		
T5	Reserved for private use	089	CAF status = 0 or 9		
T6	Reserved for private use	120	Bad UAF		
T7	Reserved for private use	251	Cash back exceeds daily limit		
T8	Reserved for private use	200	Invalid account		
U0	ARQC failure decline	050	Decline	400	ARQC failure decline
U1	Security module parameter error	050	Decline	401	Security module parameter error

ISO		BASE24-pos			
		Standard Mapping		Enhanced EMV Mapping	
U2	Security module failure	050	Decline	402	Security module failure
U3	KEY1 record not found	050	Decline	403	KEY1 record not found
U4	ATC check failure	050	Decline	404	ATC check failure
U5	CVR decline	050	Decline	405	CVR decline
U6	TVR decline	050	Decline	406	TVR decline
U7	Reason online code decline	050	Decline	407	Reason online code decline
U8	Fallback decline	050	Decline	408	Fallback decline
V0	ARQC failure referral	050	Decline	130	ARQC failure referral
V1	CVR referral	050	Decline	131	CVR referral
V2	TVR referral	050	Decline	132	TVR referral
V3	Reason online code referral	050	Decline	133	Reason online code referral
V4	Fallback referral	050	Decline	134	Fallback referral
V7	ARQC failure capture	050	Decline	910	ARQC failure capture
V8	CVR capture	050	Decline	911	CVR capture
V9	TVR capture	050	Decline	912	TVR capture

Reversal Codes

Reversal codes are carried in the Response Code data element (P-39) of the BASE24 external message. The tables below are used to convert BASE24-pos reversal codes to and from the ISO standard reversal codes.

Converting BASE24-pos Reversal Codes to ISO

When BASE24-pos sends a 0420 message to a co-network, the external response code is to be interpreted as the reason for the reversal.

BASE24-pos reversal codes carried internally are translated to external codes for use in the BASE24 external message according to the following table. The codes used in the external message are based on the ISO standard.

BASE24-pos		ISO	
¹	Response received too late	68	Response received too late
00	Unknown reason	00	Approved or completed successfully
01	Time-out	68	Response received too late
02	Command rejected	40	Requested function not supported
03	Destination not available	R9	Reserved for private use
08	Customer canceled	17	Customer cancellation
10	Hardware error	22	Suspected malfunction
19	System error	96	System malfunction
20	Suspect reversal	S0	Reserved for private use
21	MAC failure	U1	Reserved for private use
22	KMAC synchronization error	U2	Reserved for private use
23	Message replay error	U3	Reserved for private use
24	Invalid MAC	U4	Reserved for private use

- ¹ The BIC ISO Interface process received a late 0210 message from an issuer. This external code is set by the BIC ISO Interface process instead of being translated from a BASE24-pos reversal code.

Converting ISO Reversal Codes to BASE24-pos

Reversal codes coming to BASE24-pos from a co-network using external messages must go through a translation also. That translation is performed according to the following table. The codes used in the BASE24 external message are based on the ISO standard and must be translated to their BASE24-pos equivalents.

When BASE24-pos receives any codes not found in the left-hand column below, BASE24-pos sends the message back to the co-network. Reversal codes are used for information only within BASE24-pos.

ISO		BASE24-pos	
00	Approved or completed successfully	00	Unknown reason
17	Customer cancellation	08	Customer canceled
22	Suspected malfunction	10	Hardware error
40	Requested function not supported	02	Command rejected
68	Response received too late	01	Time-out
96	System malfunction	19	System error
R9	Reserved for private use	03	Destination not available
S0	Reserved for private use	20	Suspect reversal
U1	Reserved for private use	21	MAC failure
U2	Reserved for private use	22	KMAC synchronization error
U3	Reserved for private use	23	Message replay error
U4	Reserved for private use	24	Invalid MAC

Adjustment Codes

Adjustment codes are carried in the Response Code data element (P-39) of the BASE24 external message. The tables below are used to convert BASE24-pos adjustment codes to and from the ISO standard adjustment codes.

Converting BASE24-pos Adjustment Codes to ISO

When BASE24-pos sends an adjustment to a co-network, the external response code is to be interpreted as the reason for the adjustment.

BASE24-pos adjustment codes carried internally are translated to external codes for use in the BASE24 external message according to the following table. The codes used in the external message are based on the ISO standard.

BASE24-pos		ISO	
00	Unknown	00	Approved or completed successfully
12	Original amount incorrect	64	Original amount incorrect
14	Suspicious reversal override	S1	Reserved for private use
15	Misdispense reversal override	S2	Reserved for private use
16	Duplicate transaction	94	Duplicate transmission
17	Reconciliation error	95	Reconcile error
18	PLUS add cash withdrawal or advance	S3	Reserved for private use
19	System error	96	System malfunction

Converting ISO Adjustment Codes to BASE24-pos

When BASE24-pos receives a 0200 or 0220 message with the processing code set to indicate that it is an adjustment, the external response code is to be interpreted as the reason for the adjustment.

The BASE24 external message adjustment response codes are translated to BASE24-pos adjustment codes carried internally. The codes used in the external message are based on the ISO standard.

ISO		BASE24-pos	
64	Original amount incorrect	12	Original amount incorrect
94	Duplicate transmission	16	Duplicate transaction
95	Reconcile error	17	Reconciliation error
96	System malfunction	19	System error
S1	Reserved for private use	14	Suspicious reversal override
S2	Reserved for private use	15	Misdispense reversal override
S3	Reserved for private use	18	PLUS add cash withdrawal or advance

C: Previous Release ISO Messages

BASE24 supports both current and previous release ISO message formats. When a product is configured to support previous release formats, some data elements have a different structure from the structures documented in section 5. This appendix provides the structures for those data elements where the structure for the previous release format is different from the current release format.

BASE24-pos Release 3.4 ISO Message Formats

When the BASE24-REL LCONF param is configured to send messages in the previous release format, data element P-63 is affected. The structures for the previous-release format of data element P-63 is documented in this subsection.

P-63 BASE24-pos Additional Data

Format: ANS ..600 (includes a 3-position field length indicator)

Used By: BASE24-pos

BASE24-pos uses Additional Data to carry supplemental information for which specific ISO-designated data elements are not available. P-63 can carry data for up to 100 ISO-like data elements simultaneously. A two-digit code ranging from 00 to 99 uniquely identifies each data element in P-63. The length of each data element can range from 02 to 99, subject to a maximum total length of all data elements in P-63 of 600.

Field Length Indicator

The first three positions in data element P-63 contain a three-digit field length indicator. The value in the field length indicator specifies the total length of all of the additional data elements carried within element P-63.

Position	Length	Description
01-03	3	Field Length Indicator The field length indicator value is the sum of all Additional Data Element Length, Additional Data Element Code, and Additional Data Element Field lengths that are being used. Currently element P-63 is carrying data for only one element—the Address Verification Data. The field length indicator for this element must be set to 033.

Additional Data Elements—General Structure

As additional data elements are defined for P-63, each will use the general structure provided below. Included for each field is the field length and a description of its contents.

Once multiple data elements are defined for P-63, co-networks must determine which elements are included and their order of appearance in P-63. The Additional Data Element Code identifies each data element, and the Additional Data Element Length specifies each element size.

Length	Description
2	Additional Data Element Length

This field specifies the length of the Additional Data Element Code plus the Additional Data Element Field. Valid values are 02 to 99.

2	Additional Data Element Code
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This field specifies the unique code assigned to the Additional Data Element Field. BASE24-pos uses this code to identify the information in the Additional Data Element Field. Valid values are 00 to 99. The value 01 identifies BASE24-pos Address Verification data. No other codes are assigned at the present time.

<i>j</i>	Additional Data Element Field
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This field contains the supplemental information. The value *j* equals the value in the Additional Data Element Length field minus 2. The Additional Data Element Field can actually consist of one or more items. For example, BASE24-pos Address Verification data includes two fields—Address and ZIP code.

Address Verification Data

P-63 currently contains one data element—Address Verification Data. The ISO external message used by the VisaNet Interchange uses S-123 for address verification data, and the ISO external message used by the Banknet Interchange uses S-120. Since BASE24-pos already uses these elements for other information, BASE24-pos uses a data element in P-63 for the address verification data. The code assigned to this data element is 01.

The structure of P-63 is provided below. Included is the field length and a description of its contents.

Length	Description
2	Address Verification Data Element Length This field must be set to 31, representing the length of the Address Verification Data Element Code, Address Verification Address, and Address Verification ZIP Code fields.
2	Address Verification Data Element Code This field must be set to 01.
20	Address Verification Address On incoming messages, this value is placed in the internal message. On outgoing messages involving address verification, this value is taken from the internal message. The value in the internal message signifies address verification is involved.
9	Address Verification ZIP Code On incoming messages, this value is placed in the internal message. On outgoing messages involving address verification, this value is taken from the internal message. The value in the internal message signifies address verification is involved.

D: System Configuration Options

This appendix outlines the options that are available when configuring a co-network that conforms to the standards outlined in this manual. These options should be decided before the co-network is put into production.

Acquirer/Issuer — BASE24 can process transactions on behalf of an acquirer, an issuer, or for both.

An issuer processes transactions on behalf of the card-issuing financial institution. In the case of BASE24, this means that BASE24 receives transactions that were initiated on the co-network and sends them to the appropriate BASE24 Authorization process.

An acquirer accepts transaction requests that must be sent to another network for authorization. In the case of BASE24, this means that BASE24 forwards transactions initiated on the BASE24 network to the co-network for authorization.

This option is set using the ACQUIRER and ISSUER fields on Enhanced Interchange Configuration File (ICFE) screen 3.

Automatic Logon — BASE24 can be set up to automatically log on to the co-network at startup. If this option is selected, no operator intervention is needed to log on to the co-network. It is done automatically as part of the initialization of the BIC ISO Interface process. Keys are also exchanged if hardware security is used in PIN or MAC processing.

This option is set using the AUTO SIGNON START field on ICFE screen 3.

Cutover Relationship — The cutover relationship between BASE24 and the co-network can be defined as a main/secondary or as an equal partner relationship. If it is main/secondary, the main process controls when cutover should occur and is responsible for sending totals for settlement. If it is an equal partner relationship, each partner is responsible for its own cutover and each must send totals at settlement.

This option is set using the CUTOVER STATUS field on ICFE screen 12.

Data Prefix Characters — Alphanumeric characters that BASE24 must include at the start of any message being sent to the co-network. Up to 9 bytes are allowed and they are stored in hex character display format. These are the ASCII (not EBCDIC) codes.

This option is set using the DATA PREFIX CHARACTERS fields on ICFE screen 12.

Defining Stations — BASE24 can be connected to a maximum of 20 stations. This option is set using ICFE screen 13.

Institution ID — The Base segment of the Enhanced Interchange Configuration File (ICFE) contains the SWI-ID and DFLT-ACQ-ID-NUM fields that can be used to override the institution ID. A Logical Network Configuration File (LCONF) parameter (OVRRD-INST-ID-FLDS) controls the use of these fields. When formatting messages to be sent to the interchange, BIC ISO overrides the (P-32) field acquiring and forwarding institution IDs in the external message with the value in the SWI-ID and the receiving institution ID in the external message with the value in the DFLT-ACQ-ID-NUM data element, if configured to do so by the LCONF parameter. When formatting messages received from the interchange, BIC ISO does not use the override institution ID value for the forwarding institution ID.

If the acquiring or receiving institution IDs are zeros and the LCONF parameter OVRRD-INST-ID-FLDS specifies to override the ID, the acquirer institution ID in the internal message is set to the value of the DFLT-ACQ-ID-NUM, and the receiving institution ID is set to the value of the SWI-ID field.

Interchange Encryption Type — ASE24 can specify the type of PIN encryption used for messages going to and coming from the co-network. This option is set using the ENCRYPT TYPE field on Key File (KEYF) screen 1.

Key Length — BASE24 can be used to specify whether single- or double-length Key Exchange Keys (KEKs) are used by the specified co-network when PIN or MAC keys are exchanged for dynamic key management (DKM). Single-length KEKs are 16 characters and double-length KEKs are 32 characters. The PIN KEK and the MAC KEK must be the same length.

This option is set using the KEY LENGTH field on KEYF screen 1.

Key Processor Type — Identifies the type of dynamic key management (DKM) processor a particular BIC ISO Interface is. The key processor type dictates the type of DKM processing a the BIC ISO Interface can perform.

- If each interface is responsible for generating its own outbound working keys, the DKM type is co-network.
- If the specified BIC ISO Interface is responsible for all key generation, the DKM type is master.
- If the specified BIC ISO Interface does not generate or receive keys (i.e., does not participate in DKM), the DKM type is none.
- If the specified BIC ISO Interface receives keys but does not generate them, the DKM type is slave.

This option is set using the KEY PROCESSING TYPE field on KEYF screen 3.

MAC Data Type — Specifies the alphanumeric character set being used for the data being authenticated. The character set can either be ASCII or EBCDIC. This option is set using the MAC DATA TYPE field on KEYF screen 1.

MAC Encrypt Type — Specifies how message authentication will be performed between the interchange and the BIC ISO Interface. Message authentication can be performed using security modules. Software MACs are currently not supported. This option is set using the MAC ENCRYPT TYPE field on KEYF screen 1.

Not-On-Us Transactions — BASE24 can be set up to specify the conditions under which certain incoming transactions are allowed. Transactions initiated on the co-network can be limited by transaction type. Individual transaction types can be disallowed on transactions from the co-network, or limited to being accepted only within the same county, state, or nation.

This option is set using the NOT ON US field on ICFE screen 7.

Number of Keys — Identifies whether the inbound and outbound keys are combined or separate. If the keys are combined, the inbound and outbound PIN keys are the same and the inbound and outbound MAC keys are the same. If the keys are separate, the inbound and outbound PIN keys are different and the inbound and outbound MAC keys are different.

This option is set using the NUMBER OF KEYS field on KEYF screen 1.

Stand-in Authorization — Either BASE24 or the co-network, when acting as the acquirer, can be set up to specify whether it can stand in to authorize transactions if the link between BASE24 and the co-network is down. This option is set using the ACQ STAND-IN AUTH and ISS STAND-IN AUTH field on ICFE screen 12.

Text-level Acknowledgments — BASE24 can be set up to either send text-level acknowledgments to the co-network or expect text-level acknowledgments from the co-network, or both.

This option is set using the ACK TO SWITCH and ACK FROM SWITCH fields on ICFE screen 3.

Version — The current release of the external message format. This option is set using the VERSION field on ICFE screen 12.

E: Reconciliation Totals

BASE24 can be configured to maintain a number of running totals that reflect the approved transactions processed between BASE24 and the co-network since the last business day cutover. The totals that can be maintained by BASE24 include the following:

- Debit amount — The total amount of all debit transactions
- Credit amount — The total amount of all credit transactions
- Reversal debit amount — The total amount of all reversal debit transactions
- Reversal credit amount — The total amount of all reversal credit transactions
- Debit count — The total number of debit transactions
- Credit count — The total number of credit transactions
- Reversal debit count — The total number of reversal debit transactions
- Reversal credit count — The total number of reversal credit transactions
- Inquiries count — The total number of inquiry transactions
- Transfers count — The total number of transfer transactions
- Transfer reversal count — The total number of transfer reversal transactions
- Authorization count — The total number of authorization transactions
- Net settlement amount — The net settlement amount for the cutover date just completed

These totals are kept for the current processing date, the previous processing date, and the next processing date. The totals kept by BASE24 are sent to the co-network in the 0500, 0502, 0520, and 0522 reconciliation messages. BASE24 sends reconciliation messages to the co-network even if BASE24 is not configured to maintain totals.

If BASE24 is maintaining totals, the appropriate totals are updated based on the type of transaction and the posting date for the transaction as it is processed by BASE24. The following tables summarize how each transaction impacts the totals listed above. These tables include the data elements associated with these totals.

For a complete description of these data elements, refer to section 5. For the purposes of impacting totals, force post transactions are treated the same as normal transactions, and adjustments are treated the same as reversals. A legend for abbreviations used in each table is provided immediately following each table.

BASE24-atm Transactions

		Reconciliation Totals										
		Amounts				Counts						
		Debits	Credits	Debit Reversals	Credit Reversals	Debits	Credits	Debit Reversals	Credit Reversals	Inquiries	Transfers	Transfer Reversals
Transaction	Data Element	S-88	S-86	S-89	S-87	S-76	S-74	S-77	S-75	S-80	S-78	S-79
Withdrawal		O				+1						
Withdrawal Reversal		CA			O				+1			
Deposit			O				+1					
Deposit Reversal			CA	O				+1				
Deposit W/Cash Back		CB	O			+1	+1					
Deposit W/Cash Back Reversal (Entire Transaction)				O	CB			+1	+1			
Deposit W/Cash Back Reversal (Cash Back Amount Only)		RA			CB				+1			
Transfer											+1	
Transfer Reversal												+1

Reconciliation Totals

		Reconciliation Totals										
		Amounts				Counts						
		Debits	Credits	Debit Reversals	Credit Reversals	Debits	Credits	Debit Reversals	Credit Reversals	Inquiries	Transfers	Transfer Reversals
Transaction	Data Element	S-88	S-86	S-89	S-87	S-76	S-74	S-77	S-75	S-80	S-78	S-79
Payment From/To											+1	
Payment From/To Reversal												+1
Payment Enclosed			O				+1					
Balance Inquiry										+1		

Legend:

- O = Original Transaction Amount
- CB = Cash Back Amount
- CA = Actual completion amount of the transaction
- RA = Replacement amount
- +1 = Addition of one transaction to specified count

BASE24-pos Transactions

		Reconciliation Totals									
		Amounts				Counts					
		Debits	Credits	Debit Reversals	Credit Reversals	Debits	Credits	Debit Reversals	Credit Reversals	Inquiries	Authorizations
Transaction	Data Element	S-88	S-86	S-89	S-87	S-76	S-74	S-77	S-75	S-80	S-81
Normal Purchase		O				+1					
Normal Purchase Reversal					O				+1		
Preauthorization											+1
Preauthorization Completion		CA				+1					
Preauthorization Completion Reversal					CA				+1		
Mail/Phone Order		O				+1					
Mail/Phone Order Reversal					O				+1		
Merchandise Return			O				+1				
Merchandise Return Reversal				O				+1			
Cash Advance		O				+1					
Cash Advance Reversal					O				+1		

Reconciliation Totals

	Reconciliation Totals										
	Amounts					Counts					
	Debits	Credits	Debit Reversals	Credit Reversals	Debits	Credits	Debit Reversals	Credit Reversals	Inquiries	Authorizations	
Transaction Data Element	S-88	S-86	S-89	S-87	S-76	S-74	S-77	S-75	S-80	S-81	
Purchase W/Cash Back	T				+1						
Purchase W/Cash Back Reversal	CB			T				+1			
Purchase Adjustment	N	OC				+1					
Purchase Adjustment Reversal		N	OC				+1				
Merchandise Return Adjustment	OC	N			+1						
Merchandise Return Adjustment Reversal	N			OC				+1			
Cash Advance Adjustment	N	OC				+1					
Cash Advance Adjustment Reversal		N	OC				+1				
Balance Inquiry									+1		

Reconciliation Totals

Legend:

- O = Original Transaction Amount
- T = Total Transaction Amount—Purchase with Cash Back Transaction
(Purchase Amount + Cash Back)
- OC = Original Completed Amount—Adjustment transactions
- CA = Completed Amount—Preauthorization Completion Transaction
- CB = Cash Back Amount—Purchase with Cash Back Transaction
- N = New Amount—Adjustment transactions
- +1 = Addition of one transaction to specified count

ACI Worldwide, Inc.

Glossary

Acquirer — The party in a message exchange representing the card acceptor (who originally initiated the transaction).

Advice — A message that notifies a party of an action that has been taken on its behalf, requiring no approval.

Authorization — The approval or guarantee given by the card issuer to the acquirer or card acceptor.

Authorization messages — The category of messages that contain sufficient information for an issuer to approve or decline a customer transaction, but not to post to the cardholder account or to substantiate a transfer of funds between card acceptor and acquirer or between acquirer and card issuer.

Card acceptor — The party accepting the card and presenting transaction data to an acquirer.

Card issuer — The institution or its agent that issues an identification card to the cardholder.

Co-network — A transaction processing network that conforms to BIC ISO standards. This network may or may not be a BASE24 network.

Data element — A component of the BIC ISO external message that contains one or more individual fields.

Financial transaction messages — The category of messages that contain sufficient information for an issuer to approve or decline a customer transaction and to apply the amount of the transaction to the cardholder account.

Incoming messages — Messages received by BASE24 from the co-network.

Interactive message — A message transmitted and responded to while the transaction is taking place.

Issuer — The party in a message exchange representing the transaction authorizer (who is, or is acting on behalf of, the institution that issued the card).

Message — A set of data elements used to exchange information between institutions. No communications (i.e., header/trailer, protocol, or character code) or security implications are assumed or identified.

Network management messages — The category of messages that are used to manage the operational status of the communications lines between BASE24 and the co-network.

Non-interactive message — A message transmitted after the transaction has taken place and a response is not urgent.

Outgoing messages — Messages sent by BASE24 to the co-network.

Reconciliation control messages — The category of messages that contain information to bring about settlement between BASE24 and the co-network.

Request — A message originating an interactive series of messages.

Response — A message containing the reply to a request, or acknowledging receipt of a request or advice message.

Reversal — A message informing the sender of the original message that the message cannot be processed as instructed (i.e., is undeliverable, unprocessable, or cancelled by the receiver).

Reversal messages — The category of messages that contain information to allow for the reversal of a previously requested transaction.

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