# Welcome to the
# Fidelio Interface Application Specification

**valid for Micros-Fidelio Interface Version 8**


Version 2.20 a2

July 29, 2013

# Purpose & Warranties

Warranties

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Purpose:

The purpose of this document is to set a standard for application record formats and data flows to be used for data communications between a Micros-Fidelio Property Management System (PMS) and other hotel computer systems (*). It gives a general description of record formats and data flow requirements, and covers specifics for Record Types, Field Types, and Field usage.

For information regarding the low-level protocol specification and recommendations used by MICROS-Fidelio, please refer to the MICROS-Fidelio Interface Protocol Specification - Section of this document. For corrections, or copies of the current specifications, please contact your local MICROS-Fidelio office or the applicable MICROS-Fidelio Regional Office:

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Information in this document is subject to change without notice.



* Note: FIAS (Fidelio Interface Application Specification) is supported by the following PMS systems from MICROS-Fidelio:
Fidelio Suite 6, Fidelio Suite 7, Fidelio Suite 8 & OPERA PMS
It is NOT supported by 'Fidelio Xpress'.

# History

| Date | Version number and change description |
|---|---|
| 15 Sep 1994 | Version 1.00 – first draft, overview, Record and Field Types |
| 31 Oct 1994 | Version 1.01 – start of field explanations and tables, new fields for guest rights |
| 8 Nov 1994 | Version 1.02 – varying corrections and additions to tables, all revisions between last and current versions now marked |
| 20 Dec 1994 | Version 1.03a – rough draft, revisions marked |
| 4 Jul 1995 | Version 1.04 – clarification of Link Start sequence, add fields for Voice Mail, new language codes, clean up examples (all changes since V1.02 marked) |
| 2 Jan 1995 | Version 1.05 – repaginate |
| 29 Mar 1996 | Version 1.06 – import into Word 7.0 |
| 30 Apr 1996 | Version 1.07 – change Key Options functions (currently unused). Enhanced EFT records and field types. All changes from V1.06 marked. |
| 1 Aug 1996 | Version 1.08 – added Virtual/Phantom Extension examples, changes for terminology, changes from V1.07 marked |
| 26 Mar 1997 | Version 1.09 – added Locator records, cleaned up examples, all changes since V1.07 still marked |
| 1 Oct 1998 | Version 1.10 – major clean-up/reformatting, added more examples, more tables, started FAQ, only significant changes from 1.08/1.09 marked |
| 9 Jan 1998 | Version 1.11 – add PP for messages to be sent to printers, A0-A9 for assignable fields, |
| Jan 2001 | Version 1.50 – added tables (available fields), reformatted document, made further corrections and added more examples. |
| Nov 2001 | Version 1.51 - reformatted document, made further corrections and added more examples. |
| July 2003 | Version 1.60 - imported to HTML-Helpfile, reformatted document, made further corrections and added more examples.<br>• Removed support for **XO** record. |

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| June 2004 | BETA-Version 2.00 - reformatted document, made further corrections and added more examples.<br>• Added new fields an records for Chip&PIN handling in EFT<br>• Renamed description of '**G#**' from Guest Number to Reservation Number to avoid confusion<br>• Enhanced length |
| February 2005 | Release of Version 2.00<br>• Added more fields and examples for EFT-Chip&Pin handling |
| June 2005 | Version 2.01<br>• Removed KeyOptions (**KO**) from Guest Data records (not supported by PMSs any more)<br>• further corrections and added more examples<br>• Added **DA** & **TI** to EFT settlement records |
| September 2005 | Version 2.01 b<br>• Added support for **DU** and **DD** to **PR** |
| May 2006 | Version 2.01 i<br>• Made **PM** in **PR** always mandatory |

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| March 2007 | Version 2.10<br>• Further corrections and explanations to examples<br>• Added new record **$V** for EFT-Settlements without separated authorization<br>• Removed support for **FS** (Field Separator) in **LD**<br>• Added new Interface Type "**MS**" (Miscellaneous)<br>• Removed support for **SM** (Seminar Channels) in all related records<br>• Added support for **RT** (RequestType) in **LD** and support for **LC** (LinkPmsConfiguration) record<br>• Added support for **G+** (Profile-ID) in **PL**<br>• Removed support for **RA** record<br>• Added new record **VA** and redesigned DID handling (added the logic to **GI**/**GC**/**GO** records now)<br>• Added support for **PU** in incoming **RE**<br>• Added CVV Number (**$M**) to all EFT records - functionality is not supported by the Fidelio system yet<br>• FDX-Protocol:<br>  ○ smaller corrections to the time-out descriptions<br>  ○ removed support for XOF/XON<br>• Removed **$2** from **PS** (can only be supported in **PR**)<br>• Added **$Y** - response to **$Q** (Cancel Transaction)<br>• Removed **KO** from **GI** and **GC**<br>• Clarified correct handling of **GI/GC/GO**<br>• **WS** is now mandatory for all postingrelated records (PR/PL/PA) |
| May 2007 | Version 2.10a<br>• smaller corrections in examples for Chip&PIN records |
| May 2007 | Version 2.10b<br>• smaller corrections in the description of data-types |
| June 2007 | Version 2.11<br>• Added **G#** to **KA**<br>• Added **$3** to **KA**<br>• Added **RT** to **KA** and **KD**<br>• Smaller corrections to key-examples<br>• Corrected documentation or RT (RequestType) |

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|---|---|
| November 2007 | Version 2.11c - **Last Release for IFC7!!**<br>• smaller corrections in field description of posting records |
| November 2009 | Version 2.20 - **Release for IFC8 only !!**<br>• enhancements to examples and descriptions in all areas<br>• enlarged **P#** from 4 to 8 characters<br>• Added **AS** to **XB**<br>• Added examples for On-Line Key systems<br>• Added **$1** to **KR** and **KM**<br>• Added **ID** to **KR**, **KD**, **KM**<br>• Added **GN** to **KR**, **KM**<br>• Added **IM** to **$S**, **$V**, **$O** and **$P**<br>• Added new EFT-RequestTypes<br>• Added new AnswerStatuses<br>• Added **PP** to **$G**, **$O**<br>• **CT** is now mandatory in **KA** records<br>• Added **$2** to **KA**<br>• Added documentation for **KZ**<br>• removed **PD** from **PR** (The same functionality is given through the **DD** field)<br>• Added **ID** to **RE**<br>• Added **RT** to **XM**<br>• Added **G+** (Profile ID) to **GI**, **GC**, **PR**<br>• Corrected size of **DD** field<br>• Added logic to create messages in the Fidelio system through **XL**<br>• Removed **KO** from **KM**<br>• |
| July 2010 | Version 2.20a<br>• added **$W** (AVS verification data); this feature will be supported by future PMS versions<br>• corrected descriptions of receipt printing for EFT-transactions |
| July 2010 | Version 2.20b<br>• corrected time-formattings in KeyRecords |
| August 2010 | Version 2.20c<br>• added **CS** to **GI/GC**<br>• added case studies for complex key-handling |
| October 2010 | Version 2.20d<br>• corrected EFT examples<br>• added documentation for AVS (**$M** )and CVV data (**$W**) |
| January 2011 | Version 2.20e<br>• corrections to the 'purpose' chapter. |

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| January 2011 | Version 2.20f<br>• clarification to description of PostingRecords |
| January 2011 | Version 2.20g<br>• added **G+** to **GC**<br>• corrected description of the NoPost ( **NP**) field in **GI**/**GC** |
| April 2011 | Version 2.20h<br>• corrected description of data-type "M" |
| May 2011 | Version 2.20i<br>• changed length of Roomstatus (**RS**) to N,2 |
| June 2011 | Version 2.20j<br>• corrected definition of **$D** in Appendix C |
| June 2011 | Version 2.20k<br>• added example for a refund with **$P** -record |
| September 2011 | Version 2.20l<br>• comments to length of Roomnumber ( **RN**) |
| September 2011 | Version 2.20m<br>• added **CT** to **KR** and **KM** |
| September 2011 | Version 2.20n<br>• smaller corrections and clarifications in descriptions. |
| October 2011 | Version 2.20o<br>• corrected examples of **GO** (removed the unsupported **GN** from all examples)<br>• Added **PH** (Hotel-ID) to **LC** |
| October 2011 | Version 2.20p<br>• changed length of language (**GL**) |
| December 2011 | Version 2.20q<br>• updated FAQ section |
| December 2011 | Version 2.20r<br>• updated PS/PR examples |
| February 2012 | Version 2.20s<br>• updated PS/PR examples |
| March 2012 | Version 2.20t<br>• clarification that **PR**/**PL** may never be used together with **GI**/**GO** |
| April 2012 | Version 2.20u<br>• clarification for message handling |
| May 2012 | Version 2.20v<br>• clarification for synchronisation records |

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|---|---|
| July 2012 | Version 2.20w<br>• clarification for **P#** handling in posting records |
| September 2012 | Version 2.20x<br>• **$R** - changed maximum length from C,10 to C,20 |
| September 2012 | Version 2.20y<br>• clarification for Key Services |
| June 2013 | Version 2.20z<br>• Corrected length description of **DD** |
| July 2013 | Version 2.20a1<br>• removed reminding references to **FS** (Field Separator) in **LD -** this functionality has been removed from the interface program in 2007 |
| July 2013 | Version 2.20a2<br>• Clarification for the usage of **DA** and **TI** in **NS**/**NE** records<br>• Clarification for the usage of **CO** in **PR** |
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**NOTE**: The redesigned DID handling as documented from version 2.10 on is ONLY available with Interface version 8 (**IFC8**) and **Suite8** or **OPERA** as PMS system. The DID handling as it was documented in prior versions of the FIAS specification is NOT supported any more.

# Table of contents

# Overview

This specification is designed to allow for future expansion, either of new records or new fields, by using records that are not of fixed length or content. Neither are the fields of fixed position (with the exception of the Record ID field). This means that as more information becomes available or no longer necessary, the interface can add or omit fields by configuration.

In most cases, fields are not mandatory; when required, they are noted: tables listing available Field IDs will have mandatory fields in **red bold typeface**.

**Mandatory fields must be defined in the Link Record for that Record ID.**

The PMS works by parsing incoming records according to the Record ID field. If fields are sent containing data that the PMS does not require or use for that Record Type, the data will be parsed over and ignored.

Records should always contain all the data necessary to perform a function. However, for many functions, such as Check-in, defaults for unspecified statuses should be used. For example, a Check-in record sent to a PBX should contain the room number, any necessary guest information and default to opening the phone line. It is not necessary to specify that the line should be opened, nor is it necessary to send separate records to support guest information at Check-in. A RoomEquipment (**RE**) record could e.g. be sent after Check-In to signal that an extension should be blocked; for example if the guest has no charging privileges.

# Understanding FIAS

FIAS is a universal protocol specification which can be used by different kinds of third party systems to exchange data.
It allows a system to define its own specific data records using the list of available record types and fields to create desired functionality to be supported within an interface.

Upon startup of the communication the vendor system must provide record types and fields of the desired records to the interface
To do this the record type LR is used. Based on these definitions the interface application will create related logic and passes it on to the PMS System.
The PMS system will then be able to provide the related information for each action to the vendor. This is reflected in the section Communications and Link Control of this document.

FIAS Linkrecords are used to describe the records which should be used in the later communications. This can be compared to XML-schema definitions.

This specification lists the allowed field per record type. The definition needs to be done for all records - both records to the PMS and from the PMS.
Some records are used bi-directional, for those the necessary field have to be combined into one link-record.

An example:

RoomEquipment (**RE**) should be used to signal RoomStatus-changes (**RS**) to the PMS and to change class-of-service (**CS**) to the PBX. Both records need the Room-Number (**RN**):

Example records:

Set COS (**CS**) to '3' for Room (**RN**) 2781:


**RE|RN**2781**|CS**3**|**

Maid status notification (**RS**) (clean/vacant) for Room (**RN**) 2781 (default maid statuses are listed in the Room Maid Statuses Table in Appendix B):


**RE|RN**2781**|RS**3|

So to define a link-record for RoomEquipment (RE) the following should be sent:


**LR|RI**RE**|FL**RNCSRS**|**

# Data Bytes Format

Records are composed of data bytes and link control bytes. The data portion of a record should not contain any bytes normally reserved for link control (Hex 00 through Hex 1F, and Hex 7F). The control characters from Hex 1C through Hex 1F (FS, US, RS) are used by some systems as field separators; for systems using formatted text (guest messages or folios), it is also acceptable to embed such characters as Hex 0A, Hex 0D (LF, CR).

When this is the case, these characters are considered as part of the normal data stream and do not require a preceding escape character (DLE - Hex 10); they are not then available for use as link control characters. For most transmissions, the rest of the standard ASCII character set is sufficient (Hex 20 through Hex 7E); however, in order to support multiple alphabets, extended ASCII (Hex 80 - Hex FF) may be used. Data is passed in an unpacked format; it should not be packed in ‘nibblized’, BCD, or other formats. This is to simplify installation and support.

This specification uses as a field separator the bar character ('|' - Hex 7C). By using a field separator, it is not necessary to pad fields to their maximum size. The PMS sends all fields without padding, and when fields transmitted from the other system reference data configured in the PMS (i.e. room numbers, guest numbers, etc.) they should be sent without padding. If padding is done, numeric fields should be right justified, with leading zeros ('0') except in the case of negative amounts when the leading character is the minus sign ('-').

# Data Types

In general, fields are either numeric (decimal digits '0' - '9'), monetary (this includes the decimal numeric characters, plus '-', and '.' as necessary), or alpha (all alphabetic letters). Some fields require some combination of these types.

**A** - Alpha characters, includes all characters from 'A' - 'Z', 'a' - 'z', any common punctuation characters such as periods ('.'), commas (','), and dashes ('-'), and any characters from the extended ASCII character sets necessary to support local alphabets
**N** - Numeric characters, includes '0' - '9', the minus sign ('-') as leading character, and where necessary 'A' - 'F' and 'a' - 'f' as hex characters. These fields always reflect integer values (no decimal positions).
**M** - Monetary characters, includes all numeric characters and period (‘.’) as decimal indicators where necessary when coming FROM the PMS. record TO the PMS must be without decimal indicator. The PMS can handle monetary fields without an implied decimal point depending on the regional/local setting and currency.
**AN** - Alphanumeric characters, all characters included above as Alpha or Numeric characters.
**ANS** - All characters, the entire printable ASCII character set
**D** - Date, numeric characters, formatted as YYMMDD
**T** - Time, numeric characters, formatted as HHMMSS

**Note**: As the PMS sends and expects to receive fields without padding, leading zeroes or spaces in all alphanumeric fields are considered significant data (i.e. if a room number contains a leading zero or a leading space, this digit is regarded as part of the room number).

Monetary characters:
Posting details are generally expected without decimal indicators. However EFT-transaction will always contain a based on the configuration of the respective local currencyseparator.

# Other Notes

Low-level ACK/NAK responses are required (only applies to asynchronous serial connections); application level responses are only necessary where appropriate . It is not necessary for the receiving system to send an application level response that a particular action has been performed; in the PMS's case, this type of response is sent only when the other system requires them.  When receiving them, it carries out meaningful processing on them only when they require further action.
In most cases where records are rejected at the application level there shall be an application level response, for example, a posting record that is received correctly but contains bad/invalid data (e.g. unknown room number, the application response would contain …**|AS**NG**|CT**INVALID ROOM**|**).
Using a NAK causes immediate retransmission of the same record with only low-level logging of communication errors.

# Field types

**Field Types** are two-character IDs (ANS) included at the beginning of each field. This allows the field to be easily identified. Fields have maximum sizes, but it is not necessary to transmit the entire field size as all fields have a separation character ('|' - 0x7C; this is the default - see section on Communications and Link Control below). Even if there is no data for a field (i.e. the Record Type field), if the field ID is included, it must have a separation character to indicate the presence of a blank field.

Note: All examples are shown without low level protocol framing or response characters. Fields listed in these examples are defined in Record ID Types below. Please note that these are only examples; where fields are not mandatory, they are included to indicate how this specification works, not to restrict the functionality of your system. Field Types in the examples are in **bold typeface** to help identify them. The symbol ' ⇐ ' indicates this record is sent from the PMS, ' ⇒ ' that the record is sent to the PMS.

**Example**

**GI|RN**103**|GN**Mr. Rogers**|**

**GI** - Check-in
**RN** - Room number: 103
**GN** - Guest Name: Mr. Rogers

As mentioned above there are in most cases only a few strict requirements as to which fields must be included or allowed in any given record. Please note that even though a field is requested, if it does not have a logical use within the context of that Record Type, it might not appear in the actual records sent, or it may be sent with no data (i.e. immediately followed by a field separator).

Please note that the content of many Field Types is configurable within the PMS (e.g. **GN, GV** etc.) and as a result may vary from site to site.

It is beyond the scope of this document to describe all the possible usages of the fields listed below. Please contact your local MICROS-Fidelio office or the applicable MICROS-Fidelio Regional Office if you have questions about specific fields.

**Note:** The order of the fields is normally linked to the order in the received linkrecord, but can be changed at any time. The receiving system needs to be prepared to receive records with different field order at any time.

# Record-ID types

The first field in all records is the **Record ID**.  There is no data for this field; the Record ID is followed immediately by the field separator character, Field Types and relevant data.

Listed below are the IDs for the Record Types currently supported, grouped in logical or functional families.

# Communications and Link Control

**LS** - Link Start
**LA** - Link Alive
**LE** - Link End
**LC** - Link Configuration

These Record Types are used to control the status of the link. The PMS only opens or closes the link when starting or stopping its software. This means that if a Link Start (**LS**) is received from the PMS, the Link Description (**LD**) and Link Records (**LR**) must be retransmitted (see Implementation Notes & Exceptions below).

The Link Alive (**LA**) record is provided as a means to verify the link is still functioning. The PMS only uses this Record ID to respond to a Link Start (**LS**) or a Link Alive (**LA**) when the link is or was previously active (see Implementation Notes & Exceptions below and refer to "Usage of **LS/LD/LA/LE** Records").

However, if the other system sends a **LA** record as a test of the link, the PMS will send a low-level acknowledgment (only applies to asynchronous serial connections, see the MICROS-Fidelio Interface Protocol specification for further details). The other system should recognize this as a signal that the PMS interface software is running; an application level response is not sent.

If the PMS sends a Link End (**LE**) record, the other system should buffer all non-discardable records (i.e. charges) until it receives the next communication. At that point, the link should be reactivated even if the Link Start (**LS**) record is missed.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **LS, LA, LE** | **DA** | Date | D | Both |
| **LS, LA, LE** | **TI** | Time | T | Both |

**LD** - Link Description
**LR** - Link Record

These records must be sent by the other system immediately after it receives the Link Start ( **LS**) record from the PMS upon startup or initialization. Please note that it is possible to reconfigure the link at any time.

The link description (**LD**) record indicates the start of the Link Records (**LR**s) and general link information. Link Records (**LR**s) are sent by the other system to describe each record it will be sending and expects to receive; this is basically a Record ID Type, followed by a list of fields that should be included (for that particular Record ID), one Record ID per Link Record (**LR**).
Additionally the field **RT** (RequestType) can be used in the LinkDescription to retrieve certain information from the Micros-Fidelio interface, e.g. the configured timeouts.

Note that in the examples below, the order of the fields requested may not match the order in which they are sent in the record; field order is not considered significant. After the last Link Record (**LR**), the other system should send a Link Alive (**LA**) to indicate that the link is now considered active.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **LD** | **DA** | Date | D | To PMS |
| | **IF** [1] | Interface Family | AN, 2 chars (See Interface Type Table) | To PMS |
| | **TI** | Time | T | To PMS |
| | **V#** | Vendor System's Version # | AN, max 10 | To PMS |
| | **RT** | RequestType<br>Combination of any of the below values:<br>1 - Request the configured Roompayment methods in **RP**<br>2 = Request EFT-Timeout in **A0**<br>4 = Request PMS version in **A1**<br>*8 = not used*<br>16 = Request IFC version in **A2**<br>32 = Request IFC Driver Version in **A3**<br>*64 =not-used*<br>128 = Request DLS-timeout in **A0** | N, max 4<br>The Fidelio interface reads this value<br>Bit-driven, so any combination of the values can be used by adding them together.<br>**PH** (HotelID) is always returned if **RT** is set in **LD** | To PMS |
| | **RL** | Maximum record length for message records<br>(Do not confuse with general maximum record length.<br>This is C, 2000) | N, variable, max. 2000 | To PMS |

[1] determines the display of the PMS Interface system and enables corresponding

functionality in the PMS.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **LR** | **RI** | Record Indicator | ANS, 2 chars | To PMS |
| | **FL** | Field List | ANS, variable | To PMS |

Note: The order of fields is fixed and may not be altered. A Linkrecord MUST look like: **LR|RI**xx**|FL**xxxx**|**

**Examples:**

The following is an example of both systems starting at the same time. The data flow should be followed exactly, with the exception of the format of the Link Records (**LR**s). These are sent as required by the functionality of the other system.

The PMS sends a Link Start (**LS**) record with date (**DA**, 15 October 2000) and time (**TI**, 12:30:45 PM) fields. This indicates that the PMS software has been restarted and the other system must send any configuration records (**LD/LR/LA**) before sending any buffered data records:

**LS|DA**001015**|TI**123045**|**

The other system responds with a Link Description (**LD**) with vendor version # (**V#**) 1.01, and interface type (**IF**) PBX:

**LD|DA**001015**|TI**123046**|V#**1.01**|IF**PB**|**

Then it sends a Link Record (**LR**) with Guest Check-in field list (**RIGI**) – requested fields are Room Number (**RN**), Guest Number (**G#**), Guest Name (**GN**), Guest Language (**GL**), Guest VIP status (**GV**), and Guest Group number (**GG**), with support for multiple guests (Guest Share, **GS**), include Swap Flag (**SF**) in database resync records:

**LR|RI**GI**|FL**RNG#GNGLGVGGGSSF**|**

Link Record (**LR**) with Guest Change (**GC**) field list – requested field list is the same as Guest Check-in (**RIGI** above) with the exception of the **SF** field (**GC** records are not sent as part of a database resync and don't use the Swap Flag) and the **RO** field (used in Room Move records):

**LR|RI**GC**|FL**RNG#GNGLGVGGGSRO**|**

Link Record (**LR**) with Guest Check-out field list (**RIGO**) – requested fields are Room Number (**RN**), Guest Number (**G#**), Guest Share (**GS**) and Swap Flag (**SF**):

**LR|RI**GO**|FL**RNG#GSSF**|**

Note: Guest Check-out records (**GO**s) sent during database resync will not contain any fields other than Room Number (**RN**) and the Swap Flag (**SF**), as there is not valid data for other fields (see database swap example below).

After the last Link Record (**LR**), the other system should send a Link Alive (**LA**) record. This indicates that the other system has sent descriptions of the link and all Record Types that it wants to receive or send. The link is now active and the PMS will immediately start sending any real-time or buffered data:

➡ **LA|DA**001015**|TI**112349**|**

The PMS responds with a Link Alive (**LA**) as the link was inactive before:

⬅ **LA|DA**001015**|TI**112350**|**

**Link Configuration:**

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **LC** | **A0** | EFT-Timeout and DLS-Timeout values from the PMS | N, separated by semicolon | From PMS |
| | **A1** | PMS Version number | AN, variable | From PMS |
| | **A2** | IFC Version number | AN, variable | From PMS |
| | **A3** | IFC driver version | AN, variable | From PMS |
| | **PH** | Hotel-ID | N, 1 | From PMS |
| | **RP** | RoomPaymentmethods as defined in the PMS | AN, variable, values are comma separated | From PMS |
| | | | | |

The information in the LinkConfiguration record is requested through the **RT** field in the **LD** record:

➡ ☻ **LD|DA**001015**|TI**123046**|V#**1.01**|IF**PB**|RT**183**|♥**

⬅ ☻ **LC|RP**16,ROOM**|A0**60;10**|A1**6.2031**|A2**7.43.23**|A3**7.02**|PH**1**|♥**

In this example the following information is transferred:

1. The configured RoomPayment methods are: "16" and "ROOM"

2. The EFT Timeout is 60 seconds
3. The DLS Timeout is 10 seconds
4. The Fidelio version is 6.20.31
5. The interface version is 7.43.23
6. The drivers version for FIAS is 7.02
7. The Hotel-ID is 1

# Implementation Notes & Exceptions

The PMS will send a Link Start (**LS**) as its first message when initializing its software once the communication port has been opened. The other system should respond with a Link Description/Link Record(s)/Link Alive (**LD/LR/LA**) sequence.

If the PMS does not receive a response to the Link Start (**LS**), especially the Link Description (**LD**) and Link Records (**LR**), it will retransmit a Link Start (**LS**) upon receiving the first record from the other system. The other system must respond with the above sequence (**LD/LR/LA**) whenever it receives a Link Start (**LS**) from the PMS. (Note, this can only happen on RS232 connection without handshake. The PMS interface could detect the disconnect from the other system on the communication layer in other situations.)

The other system should always open the communication port upon startup and listen for a message from the PMS for at least 3 seconds. Only if no message was received may the other system send a **LS** record. If a message from the PMS was received then the other system should react to that message accordingly which normally means sending **LD** and **LR** s/**LA**..

If the PMS receives a Link Start record (**LS**), it responds with a Link Start (**LS**) if the link has never been started. The other system should then transmit the **LD/LR/LA** sequence. If the link is currently active or if it had been terminated with a Link End (**LE**) by the other system, the PMS transmits a Link Alive (**LA**), indicating it has a valid configuration for the other system. The other system may then choose to send a Link Alive (**LA**), or to reconfigure the link by sending the **LD/LR/LA** sequence.

The functionality of the PMS if it sends a Link Start (**LS**) and receives a response other than a Link Start/Link Description/Link Records/Link Alive (**LD/LR/LA**) sequence is undefined. Subsequently no data record would be sent by the PMS and incoming data records would be ignored. Only once the proper init sequence has been received and LinkAlive status has been reached will the PMS start processing datarecords.

For normal shutdown, the system that is dropping the link should transmit a Link End (**LE**). However, in exception situations (hardware or software failure, or user error), the PMS will consider the link inactive if there are consecutive low level timeouts (no response from the other system) exceeding a configurable count. The PMS will buffer what it considers critical data. For recovery it is possible for the other system to requests a database synchronization (**DR**) once the communication has been re-established.

If the PMS considers the link inactive (i.e. Link End (**LE**) from the other system, a disconnected communication port or excessive low level timeouts), it will close the respective communication port, reopen it and will send a LS waiting for the other system to reconnect.

# Database Synchronization

**DR** - Database Resync request
**DS** - Database Resync start
**DE** - Database Resync end

These records are used to request an initialization or refresh of the system database, and to indicate the start or end of that resync. With few exceptions, the PMS regards its databases as the 'master copy'. As the PMS can intermix database records with real-time records, the **DS** and **DE** records insure that the other system knows its request has been correctly received and that all database resync information has been sent.

The records sent as part of the database resync are the same as sent during real-time situations with the addition of the swap flag field (**SF**); this allows the other system to determine the difference between the resync records and real-time messages. Resync records will contain the swap flag field (**SF**), real-time records will not. It is strongly recommended that database resyncs are supported.

**NOTE:** A Database-Swap may NOT be requested after every startup. It puts major overhead on communications, especially at larger installation. It should only be requested if data is really not synchronous any more. NEVER request Database Swap requests periodically.
A good rule should be:

- request a swap when the database was wiped out, e.g. during a new installation
- request a swap when the database was wiped out, e.g. due to a hardware failure

Check-In/-Out commands are queued on the Fidelio side. There is NO need to request a Swap only because the system was restarted.

**Note:** Newer Fidelio systems have been modified in a way, so that unnecessary Swap-Requests will be simply ignored without any notification.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **DR** | **DA** | Date | D | To PMS |
| | **TI** | Time | T | To PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **DS, DE** | **DA** | Date | D | From PMS |
| | **TI** | Time | T | From PMS |

**Examples**

The other system requests a database resync (**DR**):

➡ **DR|DA**001005**|TI**125045**|**

The PMS responds with start (**DS**), data (i.e. **GI** and **GO**), and end (**DE**) records. This example assumes that the other system only requested the Room Number (**RN**), Reservation Number (**G#**), and Swap Flag (**SF**) fields in the Link Record (**LR**) describing the Guest In (**GI**) and Guest Out (**GO**) records during the link startup sequence (i.e. **LR**GI**|FL** RNG#GSSF, **LR**GO**|FL**RNG#GSSF):

⬅ **DS|DA**001005**|TI**125047**|**
⬅ **GI|RN**1001**|G#**12345**|GS**N**|SF|**
⬅ **GO|RN**1002**|GS**N**|SF|**
⬅ **GI|RN**1003**|G#**12002**|GS**N**|SF|**
⬅ **GO|RN**1004**|GS**N**|SF|**
⬅ **GI|RN**1003**|GS**Y**|G#**12329**|**
⬅ **GI|RN**1005**|G#**12234**|GS**N**|SF|**
⬅ **DE|DA**001005**|TI**1252001**|**

Note: The sixth record sent in this example is a real-time check-in record; the last record received for any room or guest always reflects the current status. Also, there is no **G#** included in **GO** as these rooms are empty. In addition, at the end of a database resync that is guest-oriented (i.e. the **GI** records contain the Reservation Number, **G#**), if the other system has not received a GI record during the resync for a previously checked in guest, but the room is still occupied in it's system by another guest, the missing guest has checked out and should be deleted from the other system's database.

It is recommended, that during DB-Swap no records are sent to the Fidelio interface, as a possible response (e.g. a **PA** towards a received **PS**) may not be returned as next record but only after some further DB-Swap records.

# Night Audit

**NS** - Night Audit Start
**NE** - Night Audit End

These two records notify other systems about the time-frame when the nightly procedures in the Fidelio system are executed.
E.g. EFT systems should use these records to run end-of-day procedures at the same time to match reports.

It should be taken into account that standard PMS practice is to accept the time of posting as sent by the other system, but to replace the date of postings with the ‘Hotel’ date (as opposed to calendar date).
As a result postings between midnight and 'Night Audit' are listed as revenue of 'yesterday'.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **NS, NE** | **DA** | Date | D | From PMS |
| | **TI** | Time | T | From PMS |

**Example**

**NS|DA**130425|**TI**030400|
**NE|DA**130425|**TI**032500|

Note: The date & time fields in the night-audit records have no relation to the Fidelio system date, but are usually sent with System-date/-time.
The fact of the Night-Audit record is the trigger which signals that the nightly routines are running. The date has no relevance.

# Guest Data

**GI** - Guest Check-in
**GO** - Guest Check-out
**GC** - Guest data change

These records are used to transmit data concerning guests: any information required to set or update the guest data will be included in these records. The records can contain similar data fields, but the Record Type specifies what actions should be performed.

A **GI** record for a previously empty room, i.e. the record contains a Guest Share flag, **GS** set to 'N', sent as an online message (does not contain the Swap Flag, **SF**) should set all statuses as specified in the record (unspecified statuses should have defaults).

A **GI** record with a Swap Flag (**SF**) should only be used to compare statuses and update what has changed, it should not set unspecified statuses to their defaults. This is also true of **GC** records. Only statuses listed in the record should be changed, all other statuses should remain at their current settings.

**Note:** If multiple guests per room (Sharers) are supported, it is required to use the Reservation Number (**G#**) and Guest Share (**GS**) fields; this is to prevent overwriting current guest data. Reservation Number (**G#**) is a unique number (assigned in the PMS) that provides a means of identifying guests, even during name changes. It is recommended for use with all systems; it is required for systems that provide multi-occupancy features (Sharers) or can change guest-related information after check-in.
Another item to be aware of is name format; when Guest Name (**GN**) is used, the format of the name is configurable in the PMS.
Certain fields (i.e. **TV, MR**) are supported here however it is more common to have them defined in room-oriented records, as the **RE** record would be used to just change rights. Please see Room Equipment (**RE**) section below for further details.
The NoPost (**NP**) field is of pure informational status. It does NOT mean that an extension should be barred. Barring & Unbarring is handled through the respective right (e.g. **CS** or **TV**)

Profile-IDs (**G+**):
The ID is of informational purpose only at this point. Please note that the ID is NOT available in the Check-Out record (**GO**) because a profile cannot be checked out, just a reservation.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **GI** | **G#** 1 | Reservation Number | N, max. 10 | From PMS |
| (Guest | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| Check-In) | **GS** 1 | Share Flag | AN, 1 char (Y/N) | From PMS |
| | A0 - A9 2 3 | User Definable Fields | ANS, variable | From PMS |

| | | | | |
|---|---|---|---|---|
| | CS | Class of Service | AN, max. 1 (see COS table) | From PMS |
| | DA | Date | D | From PMS |
| | G+ | Profile Number | AN, max 10 | From PMS |
| | GA | Guest Arrival Date | D | From PMS |
| | GD | Guest Departure Date | D | From PMS |
| | GF | Guest First Name | ANS, max. 40 | From PMS |
| | GG | Guest Group Number | AN, max. 10 | From PMS |
| | GL | Guest Language | AN, max 10 (see Guest Language table) | From PMS |
| | GN | Guest Name | ANS, max. 40 | From PMS |
| | GT | Guest Title | ANS, max. 20 | From PMS |
| | GV | Guest VIP Status | AN, max. 20 (normally numeric values) | From PMS |
| | MR 2,4 | Minibar Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | NP 5 | No Post Status | Y/N (Do **NOT** use to bar/unbar an extension.) | From PMS |
| | SF | Swap Flag | No data (if this field is sent, the record is part of the database swap) | From PMS |
| | TI | Time | T | From PMS |
| | TV 2,4 | TV Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | VR 2,4 | Video Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | WS | Workstation ID | AN, max. 16 | From PMS |

**1** – mandatory for guest-oriented systems
**2** – requires special configuration in PMS
**3** – the data expected in these fields may not be available in every installation. Micros-Fidelio recommends not to base any business logic on these fields
**4** - not available with all PMS systems, requires IFC version 8
**5** - The PMS NoPost status is of pure informational status. It does NOT mean that an

extension should be barred. Barring is handled through the respective right (e.g. **CS** or **TV**)

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **GO** | **G#** 1,2 | Reservation Number | N, max. 10 | From PMS |
| (Guest | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| CheckOut) | **GS** 1 | Share Flag | AN, 1 char (Y/N) | From PMS |
| | DA | Date | D | From PMS |
| | SF | Swap Flag | No data (if this field is sent, the record is part of the database swap) | From PMS |
| | TI | Time | T | From PMS |
| | WS | Workstation ID | AN, max. 16 | From PMS |

**1** – mandatory for guest-oriented systems
**2** – may not be available during database swap

It is not possible or intended to send the guest's name (**GN**) in a check-out (**GO**) record. The Check-out record (**GO**) is intended to remove all existing information from an extension/room on the vendor system. Only RoomNumber (**RN**) and possibly the Reservation-ID (**G#**) as unique identifiers are necessary to perform this functionality.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **GC** | **G#** 1 | Reservation Number | N, max. 10 | From PMS |
| (Guest Info Change / | **RN** | Room Number (destination room during roommove) | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| Name Change / | **GS** 1 | Share Flag | AN, 1 char (Y/N) | From PMS |
| RoomMove) | A0 - A9 2 3 | User Definable Fields | ANS, variable | From PMS |
| | CS | Class of Service | AN, max. 1 (see COS table) | From PMS |
| | DA | Date | D | From PMS |
| | G+ | Profile Number | AN, max 10 | From PMS |
| | GA | Guest Arrival Date | D | From PMS |

| | | | | |
|---|---|---|---|---|
| | GD | Guest Departure Date | D | From PMS |
| | GF | Guest First Name | ANS, max. 40 | From PMS |
| | GG | Guest Group Number | AN, max. 10 | From PMS |
| | GL | Guest Language | AN, max 10 (see Guest Language table) | From PMS |
| | GN | Guest Name | ANS, max. 40 | From PMS |
| | GT | Guest Title | ANS, max. 20 | From PMS |
| | GV | Guest VIP Status | AN, max. 20 (normally numeric values) | From PMS |
| | MR 2,4 | Minibar Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | NP 5 | NoPost Status | Y/N | From PMS |
| | RO 6 | Old Room Number (source room) | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | TI | Time | T | From PMS |
| | TV 2,4 | TV Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | VR 2,4 | Video Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | WS | Workstation ID | AN, max. 16 | From PMS |

**1** – mandatory for guest-oriented systems
**2** – requires special configuration in PMS
**3** – the data expected in these fields may not be available in every installation. Micros-Fidelio recommends not to base any business logic on these fields
**4**- not available with all PMS systems, requires IFC version 8
**5** - The PMS NoPost status is of pure informational status. It does NOT mean that en extension should be barred. Barring is handled through the respective right (e.g. **CS** or **TV**)
**6** - mandatory for systems which support room-moves opposed to C/O of the old room and C/I of the new room

### Examples

Check-in (**GI**) for Room (**RN**) 2781, Reservation Number (**G#**) 12345, Guest Name (**GN**) Mr. Guest, Language (**GL**) English, VIP status (**GV**) 3, Group Number (**GG**) A123, non-share ( **GS**) to an unoccupied room (**GS**N):

**GI|RN**2781|**G#**12345|**GN**Guest, Mr.|**GL**EA|**GV**3|**GG**A123|**GS**N|

**Note:** It is possible on the Fidelio side to incorporate the Guest's title and/or firstname to the **GN** field, however it is recommended to use the respective fields separately.

Change guest information (**GC**) for Room (**RN**) 2781, Reservation Number (**G#**) 12345, Guest Name (**GN**) is now Hr. Gast, Language (**GL**) German, all other statuses remain the same:

**GC|RN**2781|**G#**12345|**GN**Gast, Hr.|**GL**GE|

Check-in (**GI**) for Room (**RN**) 2781, Reservation Number (**G#**) 12381, Guest Name (**GN**) Dr. Sharer, Language (**GL**) English, VIP status (**GV**) 0, Group Number (**GG**) A123, to an occupied room (**GS**Y):

**GI|RN**2781|**G#**12381|**GN**Sharer, Dr.|**GL**EA|**GV**0|**GG**A123|**GS**Y|

Move (**GC**) Reservation Number (**G#**) 12345 from Room (**RO**, source room) 2781 to Room (**RN**, destination room) 9327. The Guest Share (**GS**) flags indicate the new room is unoccupied, but the old room is still occupied. The room move should be treated as a Check-in for the new room, but the only effect on the old room would be to remove the information for Reservation Number (**G#**) 12345:

**GC|RN**9327|**GS**N|**G#**12345|**GN**Guest, Mr.|**GL**EA|**GV**3|**GG**A123|**RO**2781|**GS**Y|

**Note:** It is the responsibility of the receiving system to properly set or change statuses when moving a guest from a share or to a share. It is also expected that if a guest is moved from a room that is now empty, this will function the same as a GO record; if the guest is moved to a previously unoccupied room, all statuses, Wake-up calls, etc. will be transferred accordingly.

Database resync update for Room (RN) 9327/Reservation Number (G#) 12345 and Room (RN) 2781/Reservation Number (G#) 12381, with refresh of available statuses:

**GI|RN**9327|**G#**12345|**GN**Gast, Hr.|**GL**GE|**GV**2|**GG**A123|**GS**N|**SF|**
**GI|RN**2781|**G#**12381|**GN**Sharer, Dr.|**GL**EA|**GV**0|**GG**A123|**GS**N|**SF|**

Check-out (**GO**) Room (**RN**) 9327 , Reservation Number (**G#**) 12345, no sharing situation exists in the old room (**GS**N):

**GO|RN**9327|**G#**12345|**GS**N|

**Case studies:**

Globally two different concepts needs to be understood:
The Fidelio PMS allows situations where more then one guest/reservation is checked into the same room. A vendor system using FIAS needs to decide if he can support such a

'guestbased' system - or if he prefers a 'roombased' mode.
The selection of fields for **GI/GC/GO** should be taken accordingly. The main-logic centers around usage of the fields **G#** (Reservation-ID) and **GS** (Share flag). **G#** should only be used by systems which can truly separate between reservations and which store and handle the different IDs. Additionally **GC** for roommoves should only be used by system which can truly support moving of exiting guest data from one extension to another. Else the record should not be used - or only be used for updates to guestnames.
It is recommended to us the ShareFlag (**GS**) for Roombased systems too.

Roombased approach (typically used by PBX or BMS systems):

Sample linkrecords:

- **LD|DA**081013**|TI**151544**|V#**2.5**|IF**PB**|**
- **LR|RI**GI**|FL**RNGNG#SF**|**
- **LR|RI**GO**|FL**RNG#SF**|**
- **LA|DA**081013**|TI**151544**|**

A check-in of sharing reservations to room 204 would now look like:

- **GI|RN**204**|GN**Share1**|G#**1**|**
- **GI|RN**204**|GN**Share2**|G#**2**|**

Fidelio has now signaled to the external system that two guests have checked-in to the same room - and has sent corresponding names. It remains the external system's decision to see if multiple names can be supported, or if just the first name should be used - or if always the last received name is used.

RoomMove:

Both guests are moved to a different room :

- **GO|RN**204**|G#**1**|**
- **GI|RN**130**|GN**Share1**|G#**1**|**
- **GO|RN**204**|G#**2**|**
- **GI|RN**130**|GN**Share2**|G#**2**|**

Note: the order of the above is not fixed and can look like this too:

- **GO|RN**204**|G#**1**|**
- **GO|RN**204**|G#**2**|**
- **GI|RN**130**|GN**Share1**|G#**1**|**
- **GI|RN**130**|GN**Share2**|G#**2**|**

Guestbased approach (typically used by enhanced PBX or Video systems):

Sample linkrecords:

- **LD|DA**070705**|TI**091707**|V#**2.0.0**|IF**PB**|**
- **LR|RI**GI**|FL**RNG#GNGLGVGGGAGDGSSF**|**
- **LR|RI**GO**|FL**RNG#GSSF**|**
- **LR|RI**GC**|FL**RNG#GNGLGVGGGAGDGSRO**|**
- **LR|RI**RE**|FL**RNVMMLRSCSDN**|**
- **LA|DA**070705**|TI**091714**|**

A check-in of sharing reservation to room 332 would now look like:

- **GI|RN**332**|G#**35869**|GN**Share1**|GL**GE**|GV**0**|GA**090616**|GD**090617**|GS**N**|**
- **GI|RN**332**|G#**35870**|GN**Sharer2**|GL**GE**|GV**0**|GA**090616**|GD**090617**|GS**Y**|**

For the first **GI** record the share-flag (**GS**) is "N", as at this point there is no sharing situation in the room. For the second **GI** the share-flag (**GS**) is set to "Y" as now more then one reservation is checked into this room.

RoomMove:

Reservation (**G#**) 35869 is moved from Room (**RO**) 332 to room (**RN**) 312.The share-status (**GS**) of the new room is "N" and for the old room too, as at this point each room is occupied with just one reservation.

- **GC|G#**35869**|GN**Share1**|GL**GE**|GV**0**|GA**090616**|GD**090617**|RN**312**|GS**N**|RO**332**|GS**N**|**

Now the second reservation is moved to the same room:

- **GC|G#**35870**|GN**Sharer2**|GL**GE**|GV**0**|GA**090616**|GD**090617**|RN**312**|GS**Y**|RO**332**|GS**N**|**

The share-flag (**GS**) is sent twice in the guestdatachange-record (**GC**). This is necessary to signal the share-status of the 'new' room (**RN**) and of the 'old' room (**RO**). The Share-field (**GS**) is always sent right after the room-field to which it refers.
So in the above example the share-flag (**GS**) is set to "Y" for the new room (**RN**) as now both reservations are checked into room 312.

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# Virtual Numbers

Virtual Number fields are used to dynamically assign DID, virtual, or phantom telephone extensions.  Please note that 'Virtual Numbers' requires an additional module in the PMS.

(RA records are only available until Interface version 7. As of Interface version 8, DID handling has been added to the GI/GC/GO records.)

Virtual numbers can be seen as an enhancement to the guest-data as described above. The functionality requires that Guestbased records are supported (= G# and SF are used in all records).
Number can be assigned Room-Based or Guest-Based in the PMS. Multiple Numbers can be assigned in the PMS, however not more then one number per Pool. The DID fields may include multiple values, depending on the respective PMS setup. The value will be send separated by semi-colon. Subsequently no maximum field size can be defined for the DID fields.
Please note that all other records (e.g. ChargePosting, Wakeup etc) do not have support for DID-numbers. It is expected that all those records use the physical extension.

As an extra feature Fidelio can attach a virtual number to a guest's profile to ensure that he always gets the same number, whenever he returns to the Hotel. Subsequently it is possible that Assign or Un-Assign records are sent without a relation to a roomnumber.

Following are the descriptions of the necessary fields and records for DID handling:

***Note:***
*The tables below show the ADDITIONAL fields in GI/GC/GO, which are necessary to support DID functionality.*
***EN**, **ES** and **EP** can be filled with multiple values. In that case the values are separated by semicolon. (see examples)*

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **GI** | **EN** | Equipment Number | AN, no max. value | From PMS |
| (Guest | **ES** | Equipment Status | AN, no max. value (see EP-table) | From PMS |
| Check-In) | **EP** | Pool-ID | AN, no max. value | From PMS |
| | | | | |
| | | | | |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **GC** | **EN** | Equipment Number | AN, no max. value | From PMS |
| (Room | **ES** | Equipment Status | AN, no max. value (see EP-table) | From PMS |
| Move) | **EP** | Pool-ID | AN, no max. value | From PMS |

| | | | | |
|---|---|---|---|---|
| | **EO** | Equipment Number of source room | AN, no max. value | From PMS |
| | **ET** | Equipment Status of source room | AN, no max. value (see EP-table) | From PMS |
| | **EI** | Pool-ID of source room | AN, no max. value | From PMS |
| | | | | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **GO** | **EN** | Equipment Number | AN, no max. value | From PMS |
| (Guest | **ES** | Equipment Status | AN, no max. value (see EP-table) | From PMS |
| Check-Out) | **EP** | Pool-ID | AN, no max. value | From PMS |
| | | | | |
| | | | | |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **VA** | **EN** | Equipment Number | AN, no max. value | To PMS |
| (Virtual Number | **AS** | AnswerStatus | AN, 2 chars (see Answer Status table) | To PMS |
| notification) | **CT** | Cleartext | ANS, max. 40 | To PMS |
| | **RN** | RoomNumber | ANS, max. 8 | To PMS |
| | **ES** | Equipment Status | AN, no max. value | To PMS |
| | **EP** | Pool-ID | AN, no max. value | To PMS |
| | **G#** | Reservation ID | N, max. 8 | To PMS |
| | **GP** | Guest PIN | ANS, max 6 | To PMS |

**NOTE**: The **VA** record is OPTIONAL. It can be used to signal a PIN for a specific DID back after an assignment. Or e.g. to signal an error scenario.

Examples for a Room-based DID handling.
(Guestbased DID setup is possible, but will not be further discussed in this document.

Please refer to your regional Interface product manager for details.)
The idea of a Roombased virtual number handling is, that a virtual number is attached to a room. If a second guest is checked in to the same room, then this guest will not get a new number, as there is already one assigned to this room.

*Check-in* (**GI**) for Room (**RN**) 11323, Reservation Number (**G#**) 35774, Guest Name (**GN**) Smith, Language (**GL**) English, Virtual Number (**EN**) 1062 from Pool-ID (**EP**) 1 and action is assign (**ES**=1):

**GI|RN**11323|**G#**35774|**GN**Smith|**GF**Paul|**GL**EA|**EN**1062|**EP**1|**ES**1|

*Response from PBX*:
Successful assignment of Virtual number (**EN**) 1062 to Room (**RN**) 11323, the assigned PIN (**GP**) is 4455

**VA|EN**1062|**AS**OK|**CT**ASSIGNMENT EXECUTED|**RN**11323|**ES**1|**EP**1|**G#**35774|**GP**4455|

*Check-in* (**GI**) for Room (**RN**) 244, Reservation Number (**G#**) 33611, Guest Name (**GN**) Borgward, Language (**GL**) german, Not-sharing reservation (**GS**), Guest-VIP (**GV**) status is 4, Virtual Number (**EN**) 1033 from Pool-ID (**EP**) 1 and action is assign (**ES**=1), second :Virtual Number (**EN**) 2050 from Pool-ID (**EP**) 2 and action is assign (**ES**=1)

**GI|RN**244|**G#**33611|**GN**Borgward|**GL**GE|**GS**N|**GV**4|**EN**1033;2050|**EP**1;2|**ES**1;1|

*RoomMove:*

Mr Smoth is moved from Room (**RO**) 11323 to Room (**RN**) 11221. His virtual number stays the same and is move (**ES** = 3) to the new room.

**GC|RN**11221|**G#**35774|**GN**Smith|**GF**Paul|**GL**EA|**RO**11323|**EN**1062|**EP**1|**ES**3|**EO**1062|**EI**1|**ET**3|

*Change of virtual number during guest's stay:*

The existing virtual number 1032 is removed and a new virtual number (1050) is assigned to room 372

**GC|G#**34870|**GN**Asaro|**GD**090725|**GL**GE|**GV**4|**EN**1032;1050|**EP**1;1|**ES**0;1|**RN**372|**GS**N|

**Note:** there is no limit of virtual numbers which can be changed within one record. Typically this is limited by the number of available pools if not more than one number can be assigned per pool.

*Check-Out:*

**GO|G#**35774|**RN**11221|**EN**1062|**EP**1|**ES**0|

*Permanent Assignment:*

The Reservation-ID (**G#**) is sent as '0', because this guest does not currently have an active reservation.

**GC|G#**0|**GN**Smith|**GF**Paul|**GL**EA|**EN**1034|**EP**1|**ES**1|

Check-In of a reservation, where the guest has a permanent assignment: Action is "keep" ( **ES** = 2)

**GI|RN**11221|**G#**35774|**GN**Smith|**GF**Paul|**GL**EA|**EN**1034|**EP**1|**ES**2|

# Extended Guest Data

**XL** - Guest message text – online / also used to create messages in the Fidelio system
**XM** - Guest message request
**XT** - Guest message text and other details
**XD** - Guest message delete

**XR** - Guest bill request
**XI** - Guest bill item
**XB** - Guest bill balance

**XC** - Remote Check-out request

These Record Types provide a mechanism to request and pass guest specific information of a more comprehensive nature. They are designed for guest-oriented systems only. It is possible to send message text (**XL**) as an online process, that is, without requests, but as they occur in real-time.

Please note that most of these records require additional configuration in the PMS, some may require additional licensing within the PMS.

Understanding messages:
There are different approaches to message handling. A system can either notify a guest of the existence of a message - or it can display the message itself to the guest.
While handling message, always keep in mind that different guests can be checked into a room, so handling messages must be done in relation to the Reservation-ID (**G#**) and not in relation to a room (**RN**).

*Notification:*
A notification is done by using the RoomEquipment (RE) record. Using RE with the message-light field (**ML**) can be done roombased (only using **RN**) or guestbased (**RN** + **G#** )
It is required to use this feature guestbased if messages should be handled opposed to switching on a light on a telephone-set.
The Fidelio will now signal new messages through the **RE** record. The external system can now alert the guest about the new message. Once the guest acknowledges the alert and requests to see the message, it can now be requested through the message request record (**XM**).
The status of the message in the Fidelio system can now be changed to "retrieved". The external system can adjust this behavior by using RequestType (**RT**) in the **XM** record. Not sending **RT** or setting the value to '1' means: change status to "received". Setting **RT** to '0' signals to the Fidelio system that the status should stay untouched, so that this message can be requested again.

Used records: **RE**, **XM** and **XT**, possibly **XD**

On-Line messages:
If on-line messages should be used, then different records must be defined: **XL** to retrieve messages right when they are entered and **XD** to signal back to the Fidelio system that a

guest has now read a message.
When using On-Line messages it is recommended to NOT use RoomEquipment (**RE**) with MessageLight (**ML**). The existence of a message cannot be propperly signaled as by sending the On-Line-Message record the messages is already marked as "passed to the external system" in the PMS.

Message 'Delete'
The XD record is used to signal that a message has been retrieved by the guest. This record works bi-directional as a message can be retrieved by a guest through various external systems or through Fidelio itself.
**NOTE**: Requesting a message may result in the actual message directly followed by an XD record from the Fidelio system, as by requesting the message the external system has just signalled to the Fidelio system that a guest has retrieved the messages. Received messages can NOT be requested again.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XL** | **G#** | Reservation Number | N, max. 10 | Both |
| (Guest | **MI** | Message ID | N, max. 8 | From PMS |
| Messagetext | **MT** | Message Text | ANS, variable (max 2000) | Both |
| - Online) | **RN** | Room Number | AN, max 8 (can be longer with Suite8 or OPERA-PMS) | Both |
| | $J 1 | External Message ID | N, max 8 | To PMS |
| | DA | Date | D | Both |
| | TI | Time | T | Both |

**1** - mandatory for creation of messages

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XM** | **G#** | Reservation Number | N, max. 10 | To PMS |
| (Guest | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | To PMS |
| Message | DA | Date | D | To PMS |
| Request) | MI | Message ID | N, max. 8 | To PMS |
| | RT | RequestType | N, max 4 | To PMS |
| | TI | Time | T | To PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XT** | **G#** | Reservation Number | N, max. 10 | From PMS |
| (Guest | **MI** | Message ID | N, max.8 | From PMS |
| Message | **MT** | Message Text | ANS, variable (max. 2000) | From PMS |
| Text) | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | DA | Date | D | From PMS |
| | TI | Time | T | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XD** | **G#** | Reservation Number | N, max. 10 | Both |
| (Guest Message 'delete', used | **MI** | Message ID | N, max. 8 | Both |
| to signal that a message was | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | Both |
| retrieved) | DA | Date | D | Both |
| | TI | Time | T | Both |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XR** | **G#** | Reservation Number | N, max. 10 | To PMS |
| (Guest | **RN** | Room Number | N, max. 8 (can be longer with Suite8 or OPERA-PMS) | To PMS |
| bill request) | DA | Date | D | To PMS |
| | TI | Time | T | To PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XI** | **BD** | Item Description | AN, max. 25 | From PMS |

| | | | | |
|---|---|---|---|---|
| (Guest | **BI** | Item Amount | N, max. 20 | From PMS |
| bill item) | **DC** | Department Code | N, max. 6 | From PMS |
| | **G#** | Reservation Number | N, max. 10 | From PMS |
| | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **F#** | Window/Folio Number | N, 2 | From PMS |
| | **FD** | Item Display Flag | AN, 1 char (Y/N) | From PMS |
| | DA | Date | D | From PMS |
| | TI | Time | T | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XB** | **BA** | Balance Amount | N, max. 20 | From PMS |
| (Guest | **G#** | Reservation Number | N, max. 10 | From PMS |
| bill | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| balance) | AS | Answer Status | AN, 2 chars (see Answer Status table) | From PMS |
| | DA | DAte | D | From PMS |
| | TI | Time | T | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **XC** | **AS** 1 | Answer Status | AN, 2 chars (see Answer Status table) | From PMS |
| (Remote | **BA** 2 | Balance Amount | N, max. 20 | Both |
| Check Out | **CT** 1 | Clear Text | ANS, max. 40 | From PMS |
| Request) | **G#** | Reservation Number | N, max. 10 | Both |

| | | | | |
|---|---|---|---|---|
| | **RN** | Room Number | An, max. 8 (can be longer with Suite8 or OPERA-PMS) | Both |
| | DA | Date | D | Both |
| | TI | Time | T | Both |

**1** - sent from PMS to show status of request
**2** - sent as part of Remote Check-out request

**Examples**

Message # (**MI**) 903 sent online (**XL**, immediately after entry in PMS) for Reservation Number (**G#**) 12345 in Room (**RN**) 2781 entered in Front Office on 31 October 2000 (**DA**) at 12:47:53 PM (**TI**):

**XL|RN**2781**|G#**12345**|MI**903**|MT**This is a sample message.<CR><LF>It contains formatting information<CR><LF> because it will be printed directly by<CR><LF>the other system.<FF>**|DA**001031**|TI**124753**|**

Request for text of [all] guest messages (**XM**) for Room (**RN**) 2781, Reservation Number ( **G#**) 12345:

**XM|RN**2781**|G#**12345**|**

Response to guest message request (**XT**) - same message as shown in the **XL** record above:

**XT|RN**2781**|G#**12345**|MI**903**|MT**This is a sample message.<CR><LF>It contains formatting information<CR><LF> because it will be printed directly by<CR><LF>the other system.<FF>**|DA**001031**|TI**124753**|**

Request for text of [all] guest messages (**XM**) for Room (**RN**) 2781, Reservation Number ( **G#**) 12345 with negative response as no unread messages exist::

**XM|RN**2781**|G#**12345**|**

**XT|RN**2781**|G#**12345**|DA**001031**|TI**124753**|**
(**XT** without **MI/MT** signals that no message exists for the inquiry information)

Request to change the status (**XD**) of Message # (**MI**) 903 for Reservation Number (**G#**) 12345 in Room (**RN**) 2781:

**XD|RN**2781**|G#**12345**|MI**903**|**

Create messages:

To create a new text-message in the Fidelio system the **XL**-record is used. In order to use **XL** for incoming message too it is necessary

**XL|RN**248**|G#**35850**|MT**Please come to the restaurant, you forgot your glasses.**|$J**4711**|**

To create a message a valid combination of **RN** and **G#** must be used.
NOTE: **XL**-records with invalid criteria will be ignored. There will not be any notification of an unsuccessful message-creation.
To check for existing messages, the external system can use **XM** with **RT** set to '0'.

Note: The external message-ID (**$J**) is not processed but only used for auditing by the Fidelio system; an internal message-ID (**MI**) is assigned to each message. In order to delete (= mark as read) a specific message, the external system must inquire (**XM**) all messages to retrieve the necessary ID (**MI**).

**Billview:**

Request to view bill (**XR**) for Reservation Number (**GN**) 12345 in Room (**RN**) 2781:

**XR|RN**2781**|G#**12345**|**

Response to bill request (**XI**), bill items (**BI**) for Reservation Number (**G#**) 12345 in Room ( **RN**) 2781 with item information - PMS department code (**DC**), item amount (**BI**), item description (**BD**), date (**DA**) & time (**TI**) of posting, balance record (**XB**) has a folio total (**BA** ) of 138.50:

**XI|RN**2781**|F#**1**|G#**12345**|DC**327**|BI**350**|BD**Telephone**|DA**001031**|TI**124753**|FD**Y**|**
**XI|RN**2781**|F#**1**|G#**12345**|DC**400**|BI**2500**|BD**Lobby Bar**|DA**001031**|TI**1843000**|FD**Y**|**
**XI|RN**2781**|F#**2**|G#**12345**|DC**100**|BI**11000**|BD**Room&Tax**|DA**001101**|TI**031000**|FD**N**|**
**XB|RN**2781**|G#**12345**|BA**13850**|DA**001101**|TI**071500**|**

**Note:** The balance reflects the total of the items sent (generally items that the guest will pay). This may not be the same as the total of the entire guest folio as there may be items that the guest will not pay (i.e. postings covered by a travel agent) and that should not be displayed to the guest. These items are generally marked with ItemDisplayFlag (**FD**) "N". It is recommended that this value is not shown to the guest (and that the displayed BalanceAmount (**BA**) is recalculated based on the total of all items displayed to the guest.) **BA** needs to be stored temporarily in case **XC** records should be used, as the last received **BA** must be set in the **XC** request.

Billview request with invalid request data - or billview is not enabled:

**XR|G#**23116|**RN**387|

**XB|AS**UR|**BA**0|**RN**387|**G#**23116|

Remote check-out request (**XC**) for Reservation Number (**G#**) 12345 in Room (**RN**) 2781, balance (**BA**) 138.50. Note that balance (**BA**) must be included in **XC** records (Fidelio may check, if the received balance matches the current folio total and may refuse the request in case these balances do not match. Value in **BA** should be taken from the **XB** record.):

**XC|RN**2781|**G#**12345|**BA**13850|**DA**001101|**TI**071600|

Response to remote check-out request (**XC**) for Room (**RN**) 2781, Reservation Number (**G#**) 12345 with positive answer status (**AS**) (check-out allowed and will be done as background process):

**XC|RN**2781|**G#**12345|**AS**OK|**DA**001101|**TI**071602|

# Locators

**LO** - Locator On
**LF** - Locator Off
**LP** - Locator Retrieve

Guest locators are used to indicate where a guest is in the hotel if not in their room. A typical situation is where a guest is waiting for an important call or fax but goes to the restaurant for lunch. A locator set (**LO**) by the POS can inform the Front Desk or switchboard personnel where the guest can be found. However, if the functionality is required, any system may send or retrieve locators.

Please note that there can only be one active locator for a guest at any time. This might seem to lead to some problems if multiple systems are setting the locator, but in reality, the guest can only be in one place at a time.

Locator records must always include the Reservation Number (**G#**), as they are a guest, not room, related feature. If the locator record is sent from a system that does not have the Reservation Number (**G#**), this can be retrieved by looking up the guest in question using a Posting Request (**PR**) record containing a Posting Info (**PI**) field (See Point of Sale & other Charge systems section for details). This record is normally used by POSs, but can be used by any system doing a basic inquiry to get a list of guests, and their room and guest numbers.

When turning a locator on (**LO**), the record must also include the current guest location sent as clear text (**CT**), and time at which the locator should automatically expire (**LT**), i.e. for how long the locator is valid. When turning a locator off (**LF**), it is advisable that the external system first retrieve (**LP**) the current (if existing) locator for that guest to verify that it is not turning off a locator set by another system. It is not necessary to turn off locators; in many cases, especially when dealing with locators of short duration, it is easier to let the locator expire on its own.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **LO** (Locator On) | **CT** | Clear Text | ANS, max. 80 | To PMS |
| | **G#** | Reservation Number | N, max. 10 | To PMS |
| | **LT** | Locator expiry time | HHMM | To PMS |
| | **TI** | Time | T | To PMS |
| | DA | Date | D | To PMS |
| | RN | Room Number | AN, max. 8 | To PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **LF**<br><br>(Locator Off) | **G#** | Reservation Number | N, max. 10 | To PMS |
| | DA | Date | D | To PMS |
| | RN | Room Number | AN, max. 8 | To PMS |
| | TI | Time | T | To PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **LP**<br><br>(Locator retrieve) | **AS** 1 | Answer Status | AN, 2 chars (see Answer Status table) | From PMS |
| | **CT** 1 | Clear Text | ANS, max. 96 | From PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **LT** 1 | Locator Expiry Time | HH:MM (PMS format) | From PMS |
| | DA | Date | D | Both |
| | RN | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | Both |
| | TI | Time | T | Both |

**1** – only required in response from PMS

### Examples

Turn on a locator (**LO**) for Reservation Number (**G#**) 19683 from the Lobby Bar (**CT**) which expires (**LT**) at 14:30:

➡ **LO|G#**19683|**CT**Lobby Bar|**TI**123000|**LT**1430|

Turn off the locator (**LF**) set for Reservation Number (**G#**) 19683:

➡ **LF|G#**19683|

Retrieve locator (**LP**) for Reservation Number (**G#**) 19683:

➡ **LP|G#**19683|

Guest locator found with location (**CT**) and expiration time (**LT**):

⬅ **LP|G#**19683|**AS**OK|**CT**Lobby Bar|**LT**14:30|

No guest locator found for this guest (**AS**, **CT**):

**LP|G#**19683**|AS**NM**|CT**No Current Locator**|**

# Room Data

**RE** - Room equipment status

**RE** records are used to control the status of any room equipment (i.e. set/clear items such as message waiting status (**ML**) or Class of Service (**CS**) for TMSs; set/clear TV privileges for Video systems (**TV**), etc.). These records are generally room-oriented and need to be configured in the PMS. In some cases (i.e. **TV** and **MR**), it is possible to configure them in the Guest Data records (**GI**, **GC**). In that case the rights may NOT be used in RE. (Always: Either in **GI**/**GC** or in **RE**.)

*NOTE:* It is possible that two or more statuses are changed in the same record ! Some Fidelio systems can not support both the Do-not-Disturb functionality and the TV rights at the same time. Please clarify with your regional Interface product manager.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **RE** | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | Both |
| (Room | CS 1 | Class of Service | AN, max. 1 (see COS table) | From PMS |
| equipment | CT 2 | Clear Text | ANS, max. 40 | To PMS |
| status) | DN 5 | Do-not-Disturb | AN, max. 1 (Y/N) | From PMS |
| | G# 3 | Reservation Number | N, max. 10 | From PMS |
| | ID | UserId | AN, max. 16 | To PMS |
| | ML 3 | Message Light Status | AN, 1 char (Y/N) | From PMS |
| | MR 4 | Minibar Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | PP 2 | Printer Port | N, 1 | To PMS |
| | PU 7 | Number of Persons | N, max. 2 | To PMS |
| | RS | Room Status | N, 2 (see Room Maid Status table) | To PMS |
| | TV 5 | TV Rights | AN, 2 chars (see Guest Rights table) | From PMS |
| | VM | Voice Mail | AN, max. 4 | To PMS |

**1** – required only if line COS (bar/unbar) functionality is available and used
**2** – can only be used together with VM, RS
**3** – required only if Message Lamp functionality is available and used guestbased (i.e. **G#** is used in **GI** records too) - typically used as notification for a textmessage,
**only** use this if extended guestdata messages are supported too.
**4** – required only if Minibar functionality is available and used
**5** – required only if TV Rights functionality is available and used
**6** – can not be used, if TV-Rights are used on some PMS systems
**6** – can only be used together with RS
**7** – currently only processed by Fidelio Suite8

**Examples**

Turn Message Light (**ML**) on for Room (**RN**) 2781

**RE|RN**2781**|ML**Y**|**

Notify reservation (**G#**) 12345 of the existence of a message (see extended guest data)

**RE|RN**2781**|ML**Y**|G#**12345**|**

Turn DND (**DN**) on for Room (**RN**) 2781:

**RE|RN**2781**|DN**Y**|**

Set COS (**CS**) to '3' for Room (**RN**) 2781:

**RE|RN**2781**|CS**3**|**

Note: Class of Service (**CS**) can either be changed through RoomEquipment (**RE**) or through Check-In records (**GI**/**GC**). This depends if the vendor system can handle rights on a reservation level or on a room-level. Please contact you Micros-Fidelio office for advice on right-handling.

Set COS (**CS**) to '2' for Room (**RN**) 2781 and turn DND (**DN**)off :

**RE|RN**2781**|CS**2**|DN**N**|**

Voice Mail (**VM**) notification on for Room (**RN**) 2781:

➡ **RE|RN**2781**|VM**Y**|**

or

Voice Mail (**VM**) notification with Unread (1)/Read (3) counts for Room (**RN**) 2781:

➡ **RE|RN**2781**|VM**0103**|**

Maid status notification (**RS**) (clean/vacant) for Room (**RN**) 2781 (default maid statuses are listed in the Room Maid Statuses Table in Appendix B):

➡ **RE|RN**2781**|RS**3|

Maid status notification (**RS**) (clean/vacant) for Room (**RN**) 2781, number of persons (**PU**) in the room is **3**:

➡ **RE|RN**2781**|RS**3**|PU**3**|**

Maid status notification (**RS**) (clean/vacant) for Room (**RN**) 2781, number of persons (**PU**) in the room is **3**, the ID (**ID**) of the user changing the status is 'Maid5':

➡ **RE|RN**2781**|RS**3**|PU**3**|ID**Maid5**|**

Maid status notification (**RS**) with text (**CT**) to print on printer (**PP**) 1 for Room (**RN**) 2781:

➡ **RE|RN**2781**|RS**1**|PP**1**|CT**Send maintenance personnel.**|**

Text (**CT**) to be printed on printer (**PP**) 0 for Room (**RN**) 2781:

➡ **RE|RN**2781**|PP**0**|CT**Guest in 2781 needs assistance.**|**

**Note:** The printer port (**PP**) and text (**CT**) can be used with **RE** records to print a message on a specified printer (must be configured); this only occurs if both fields exist in the record. If there are other fields included (i.e. set room status – **RS**), this action will also be performed.
**Note:** Newer interface versions will expect value '0' in PP and will do internal definition which printer to use. It is not recommended to use any other value for **PP**.

Set Minibar rights (**MR**) to normal vending (i.e. no alcoholic articles) for Room (**RN**) 2781:

⬅ **RE|RN**2781**|MR**MN**|**

Set Pay TV rights (**TV**) to block Adult movies in Room (**RN**) 2781:

**RE|RN**2781|**TV**TX|

**Notes:** Pay TV rights have the following precedence: **TN**, no rights (no TV channels); **TM**, all Pay channels blocked; **TX**, Adult Pay channels blocked; **TU**, all rights (includes all Pay channels). With TV rights it is not possible to block normal Pay channels and allow Adult pay channels.
Freely definable rights cane be sent as well, these would be transferred as numerical value from '4' to '9' and need to have their logic attached at the video-system.

**Building Management Systems:**

It is recommended that BM-systems support **RE** record with **CS**. **CS** values could e.g. be interpreted as:

'3' = Aircondition 100%
'2' = Aircondition 75%
'1' = Aircondition 50%
'0' = Aircondition in idle-mode

Some Fidelio systems are capable of sending RE records prior to arrival of the guest to activate the in-room units.
These pre-arrival record can only be RoomEquipment (**RE**) records. Fidelio would send an additional **GI** record once the guest actually arrives.

---

**The following record(s) and functionalities have been discontinued in January 2006:**
(RA records are only available until Interface version 7 on PMS version 6 & 7. As of Interface version 8, DID handling has been added to the GI/GC/GO records for **Suite8** and **OPERA**.)

**RA** - Assign room equipment

**RA** records are used to assign room equipment dynamically (**RA**), as in the case of DID, virtual, or phantom telephone extensions. Please note that Virtual Numbers requires an additional module in the PMS.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **RA (discontinued!)** | **RN** | Room Number | AN, max. 8 | From PMS |
| (Assign room | ES | Equipment status | AN, 1 char (A/U) | From PMS |

| | | | | |
|---|---|---|---|---|
| equipment) | EN | Equipment Number | AN, max. 8 | From PMS |

Assign (**ES**A) Virtual Extension (**EN**) 920920 to Room (**RN**) 2781, Class of Service (COS) set to default by the TMS:

**RA|RN**2781|**EN**920920|**ES**A|

Unassign (**ES**U) Virtual Extension (**EN**) 920920 from Room (**RN**) 2781. This implicitly sets COS for the Virtual Extension to barred status:

**RA|RN**2781|**EN**920920|**ES**U|

Unassign (**ES**U) all Virtual Extensions from Room (**RN**) 2781:

**RA|RN**2781|**ES**U|

**Note:** Virtual Numbers requires an additional module in the PMS. **RA** records are directly linked to the Guest Data records. Virtual numbers can ONLY be handled on the PMS side. Assigning or unassigning on the vendor site is not recommended as no notification to the PMS is possible.

# Wakeup

**WR** - Wakeup request
**WA** - Wakeup answer
**WC** - Wakeup clear

Wakeup records allow both system to set (**WR**) and to clear (**WC**) wakeup calls. In addition, the external system must report the success or failure status of the call (**WA**) to the PMS after execution time. No resonse is necessary to a **WR** or **WC** record.
The PMS can be set to send wakeup requests in advance or right at wakeup time.

Wakeup-answer: just ONE result may be returned to the Fidelio-system for a specific wakeup. If the vendor system retries a wakeup it may NOT send an intermediate result as it would be interpreted as final result.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **WR** | **DA** | Date | D | Both |
| (Wakeup | **RN** | Room Number | AN, max 8 (can be longer with Suite8 or OPERA-PMS)v | Both |
| request) | **TI** | Time | T | Both |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **WC** | **DA** | Date | D | Both |
| (Wakeup | **RN** | Room Number | AN, max 8 (can be longer with Suite8 or OPERA-PMS) | Both |
| clear) | **TI** | Time | T | Both |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **WA** | **AS** | Answer Status | AN, 2 chars (See Answer Status table) | To PMS |
| (Wakeup | **DA** | Date | D | To PMS |
| answer) | **RN** | Room Number | AN, max. 8 v(can be longer with Suite8 or OPERA-PMS) | To PMS |
| | **TI** | Time | T | To PMS |

**Examples**

Request from the PMS to set a wakeup request (**WR**) for Room (**RN**) 2781 at 7 AM (**TI**) on 31 October 2000 (**DA**):

⬅ **WR|RN**2781**|DA**001031**|TI**070000**|**

Wakeup system response (**WA**) that the above wakeup call was unsuccessful (**AS**) because the telephone was busy, value of **TI** is the wakeup time (NEVER the system time):

➡ **WA|RN**2781**|DA**001031**|TI**070000**|AS**BY**|**

Request from PMS to clear (**WC**) this wakeup call:

⬅ **WC|RN**2781**|DA**001031**|TI**070000**|**

Request from wakeup system to clear (**WC**) all wakeup calls for this room (not recommended to be used):

➡ **WC|RN**2781**|DA|TI|**

**NOTE**: Structure of the **TI** field is HHMMSS, however seconds MUST be sent as they were received in the WR regardless if wakeup can be handled by seconds or just by minutes. This mandatory behavior is necessary to properly link a wakeup result to the respective wakeup request in the Fidelio system.

# Key Services

**KR** - Key request
**KD** - Key delete
**KA** - Key answer

**KM** - Key Data Change
**KZ** - Key Read

These are general purpose keycard system records. The Key Request (**KR**) record can be used by the PMS to make all possible requests to the Key Services system (KSS); different types of keys (i.e. new vs. duplicate keys) are specified by the fields sent in the record. The Key Delete (**KD**) record is provided for those systems that would prefer to get specific delete commands. The Key Answer (**KA**) is supplied for completeness; the PMS may or may not pass responses from the KSS to the Front Office users. A key system must be able to support all three records.

The specification currently supports up to 20 extra doors or areas that can be accessed with the guest key. These are sent in the **KO** field and are position dependent, i.e. position 1 = Garage, pos. 2 Minibar, etc. These are not hardcoded from MICROS-Fidelio's viewpoint; they can vary from installation to installation.

Any position that is blank uses the defaults in the keycard system; as MICROS-Fidelio doesn't send trailing blanks, if the field is shorter, any trailing positions should use default settings. Any position that contains a '0' is disabled. Any other character is significant only in the keycard system. If only a toggle is required, then a '1' should be sent to enable this door/area. If a specific area has different access levels, specific characters are sent for the different levels. This method can be used to handle rooms that are sometimes sold together as suites, sometimes sold as separate rooms.

KM records are used for On-Line key systems where key-attributes can be changed without having to re-cut the key. This functionality is e.g. used to conduct a room-move or to extend the validity of a card. For On-Line systems it is a requirement that the key-system tracks all cards by the Fidelio-Reservation-ID and is capable of addressing the data from a KM record to all cards which were made for a respective reservation. Subsequently a key-system needs to be able to delete keys for a room based on one reservation-Id while leaving keys for the same room which are attached to a different reservation-Id intact.

Sharing reservations: Keys for sharers are treated like additional keys for an existing reservation, but of course the Reservation-ID would be different.

KeyRead: This functionality can be used to display information about a key in the PMS.

Cleartext (**CT**) in **KR** and **KM**: This field can be sent by some PMS systems with data which can be printed on top of a key-card (e.g. the guest's name, the validity of the key etc) The data itself is freely configurable. For security reasons this should never contain the roomnumber in case the key gets lost.

**Note:** In the following examples, references are made to sending commands to, or

receiving commands from, the 'key coder'. However, this is for addressing and clarity's sake; there is only one physical connection between the MICROS-Fidelio Interface PC and the KSS master PC.

**Note: K#** (KeyCount) will always be sent with value = '1' with newer Fidelio systems. If several keys should be made for a room, then several commands will be passed (with the respective KeyTypes). This change became necessary to be able to uniquely identify a **KA** -records and link it to a request. Optionally the vendor may chose to omit the **K#** field and expect separate commands per key with the respective different Key-Type (**KT**). First record would be for a new key, all additional request would be for duplicate keys.
It is recommended to not define **K#** in the Linkrecords at all.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **KR** | **KC** | Key Coder | AN, max. 8 | From PMS |
| (Key request) | **KT** | Key Type | AN, max. 2 (see Key Type table) | From PMS |
| | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | From PMS |
| | $1 1 | Configurable Track 1 | AN, max 40 | From PMS |
| | $2 1 | Fidelio standard Track 2 format | AN, 16 | From PMS |
| | A0 - A9 2, 3 | User Definable | ANS, variable | From PMS |
| | CT | Cleartext | ANS, variable (depends on usage and configuration) | From PMS |
| | DA | Date | D | From PMS |
| | DT 1 | Departure (Check-out) Time | HH:MM (as defined in PMS) | From PMS |
| | G# 1, 5 | Reservation Number | N, max. 10 | From PMS |
| | GA 1 | Guest Arrival Date | D | From PMS |
| | GD 1 | Guest Departure Date | D | From PMS |
| | GG | Guest Group Number | AN, max. 10 | From PMS |
| | GN | Guest Name | ANS, max. 40 | From PMS |
| | ID | User ID | AN, max. 16 | From PMS |

| | | | | |
|---|---|---|---|---|
| | K# 4 | Key Count | N, max. 2 | |
| | KO 1, 3 | Key Options | AN, max. 20 | From PMS |
| | RT | RequestType | N, max 10 | From PMS |
| | SI | SuiteInfo | AN, max. 30 - values are separated by ';' (semicolon) | From PMS |
| | TI | Time | T | From PMS |
| | | | | |

**1** – Not available with 'One Shot' Keys
**2** – 'One Shot' Key only supports A0
**3** – Requires special configuration in PMS
**4** – Do NOT use for On-Line systems
**5** - Mandatory for On-Line key systems

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **KD** | **KC** | Key Coder | AN, max. 8 | From PMS |
| (Key delete) | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | From PMS |
| | DA | Date | D | From PMS |
| | G# 1 | Reservation Number | N, max. 10 | From PMS |
| | ID | User ID | AN, max. 16 | From PMS |
| | RT | RequestType | N, max. 10 | From PMS |
| | SI | SuiteInfo | AN, max. 30 | From PMS |
| | TI | Time | T | From PMS |

**1** - Mandatory for On-Line key systems

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **KA** | **AS** | Answer Status | AN, 2 chars (See answer status table) | To PMS |
| (Key Answer) | **CT** | Clear Text | ANS, max. 40 | To PMS |
| | **KC** | Key Coder | AN, max. 8 | To PMS |
| | **WS** | Workstation ID | AN, max. 16 | To PMS |
| | $2 2 | Track 2 data | ANS, max 19 | To PMS |
| | $3 | Track3 data | ANS, max 200 | To PMS |

| | | | | |
|---|---|---|---|---|
| | DA | Date | D | To PMS |
| | G# 1 | Reservation Number | N, max 10 | To PMS |
| | TI | Time | T | To PMS |

**1** - Mandatory for On-Line key systems
**2** - Only allowed if not used in **KR**

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **KM**<br><br>**(Key Data Change)** | **G#** | Reservation Number | N, max. 10 | From PMS |
| | **KC** | Key Coder | AN, max. 8 | From PMS |
| | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **RO** 1 | Old Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | From PMS |
| | $1 2 | Configurable Track 1 | AN, max. 40 | From PMS |
| | $2 2 | Fidelio standard Track 2 format | AN, 16 | From PMS |
| | CT | Cleartext | ANS, variable (depends on usage) | From PMS |
| | A0 - A9 | User Definable | ANS, variable | From PMS |
| | DA | Date | D | From PMS |
| | DT | Departure (Check-out) Time | HH:MM (as defined in PMS) | From PMS |
| | GA | Guest Arrival Date | D | From PMS |
| | GD | Guest Departure Date | D | From PMS |
| | GG | Guest Group Number | AN, max. 10 | From PMS |
| | GN | Guest Name | ANS, max. 40 | From PMS |
| | ID | User ID | AN, max. 16 | From PMS |
| | RT | RequestType | N, max 10 | From PMS |
| | SI | SuiteInfo | AN, max. 30 | From PMS |

| | | | | |
|---|---|---|---|---|
| | TI | Time | T | From PMS |
| | UO | Suite Information of old room | AN, max. 30 | From PMS |

**1** – Mandatory for RoomMove, not send for updated like validity changes
**2** - Not normally used, as the trackdata can not usually be changed after the card has been encoded

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **KZ** | **AS** | Answer Status | AN, 2 chars (See answer status table) | To PMS |
| **(KeyRead)** | **CT** | Clear Text | ANS, max. 40 | To PMS |
| | **KC** | Key Coder | AN, max. 8 | Both |
| | **RN** | RoomNumber | AN, max. 8 | To PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | DA | Date | Date | Both |
| | DT | Departue Time | HH:MM | To PMS |
| | GN | Guest Name | ANS, max. 40 | To PMS |
| | G# | Reservation ID | N, max. 10 | To PMS |
| | GD | Departure Date | Date | To PMS |
| | KO | Key Options | AN, max. 20 | To PMS |
| | SI | SuiteInfo | AN, max. 30 | To PMS |
| | TI | Time | Time | Bpoth |

## Examples

Key request (**KR**) from workstation (**WS**) 3 for key coder (**KC**) 1, for (**K#**) 1 new key (**KT**) for Room (**RN**) 2781, (**KO**) area 1 enabled, areas 2 & 4 set to default, area 3 set to access level 2, area 5 enabled, areas 6-20 set to default, arrival date (**GA**) 29 December 1999, departure date (**GD**) 2 January 2000, Reservation Number (**G#**) 11122, Track 2 (**$2**) should be encoded with the following string - 1000278100011122:

**KR|WS**3|**KC**1|**RN**2781|**KT**N|**K#**1|**KO**1 2 1|**GA**991229|**GD**000102|**G#**11122|**$2** 1000278100011122|

Key request (**KR**) from workstation (**WS**) 9 for key coder (**KC**) 3, for 2 duplicate keys (**KT**) for Room (**RN**) 2781, (**KO**) area 1 enabled, area 2 set to default, area 3 is disabled, area 4 set to access level 2, areas 5-20 set to default., arrival date (**GA**) 30 December 1999,

departure date (**GD**) 5 January 2000, Reservation Number (**G#**) 12345, Track 2 (**$2**) should be encoded with the following string - 1000278100012345, additional rooms (**SI**) 2788 and 2790 should be opened as well:

⬅ **KR|WS**9|**KC**3|**RN**2781|**KT**D|**K#**2|**KO**1 02|**GA**991230|**GD**000105|**G#**12345|**$2** 1000278100012345|**SI**2788;2790|

**Note:** The field list is the same for both key requests; the content can be quite different (arrival/departure dates, optional areas, Track 2 information, etc.). It is up to each KSS to decide how much information to maintain in its databases, and how much information should be duplicated from the original card to the duplicate. The most important point is that '**N**'ew keys cancel any existing keys for the main room (both in databases and in the locks themselves) and that '**D**'uplicate keys do not.

Another important point is that the KSS should not attempt to interpret the data in Track 2 ( **$2**) as the contents of this data may be encoded and/or formats changed. The main purpose of such track encoding is that the keys can be used in a POS that supports EFT cards. Such POSs can then send the information to the PMS to interpret as needed; both the KSS and the POS should consider the track data transparent.

Response (**KA**) from key coder (**KC**) 3, answer status (**AS**) OK, Reservation-Number 12345:

➡ **KA|WS**9|**KC**3|**AS**OK|**G#**12345|

**Note:** It is necessary to specify both the PMS workstation and the Key Service system's coder in cases where more than one PMS workstation may be addressing one key coder. Micros-Fidelio will NOT send another Key-Request command automatically, should a negative response be received as Answerstatus (**AS**). The response is shown to the user so that the user can decide if another try should be made.

Key delete (**KD**) from workstation (**WS**) 9 for key coder (**KC**) 3 for Room (**RN**) 2781, Reservation Number (**G#**) 12345:

⬅ **KD|WS**9|**KC**3|**RN**2781|**G#**12345|

Response (**KA**) from key coder (**KC**) 3, answer status (**AS**) OK, Reservation Number (**G#**) 12345:

➡ **KA|WS**9|**KC**3|**AS**OK|**G#**12345|

Request for a One-Shot key:

⬅ **KR|WS**3|**KC**1|**RN**2781|**KT**O|**K#**1|**KO**1 2 1|**GA**080312|**GD**080312|**DT**12:00|

Note: **GD** will typically be filled with the systemdate for a One-Shot Key.

**Examples for KM record as used in On-Line systems:**

Extension of a stay

Key data Change (**KM**) from workstation (**WS**) 3 for key coder (**KC**) 1, for Room (**RN**) 2781, arrival date (**GA**) 29 December 1999, departure date (**GD**) 4 January 2000, Reservation Number (**G#**) 11122,

**KM|WS**3|**KC**1|**RN**2781|**GA**991229|**GD**000104|**G#**11122|

Response (**KA**) for request from Workstation (**WS**) 3 from key coder (**KC**) 1, answer status ( **AS**) OK, Reservation Number (**G#**) 11122:

**KA|WS**3|**KC**1|**AS**OK|**G#**11122|

Move all keys of a reservation to a different room:

Key data Change (**KM**) from workstation (**WS**) 3 for key coder (**KC**) 1, for Room (**RN**) 3222, old room was (**RO**) 2781, arrival date (**GA**) 29 December 1999, departure date (**GD**) 4 January 2000, Reservation Number (**G#**) 11122, additional rooms (**SI**) to be opened are 3012 and 3012 :

**KM|WS**3|**KC**1|**RN**3222|**RO**2781|**GA**991229|**GD**000104|**G#**11122|**SI**3012;3013|

Note: A system supporting "**KM**" MUST be able to separate keys by reservationnumber (**G#**). If several reservations are checked-into a single room then only the respective keys for reservation number 11122 may be moved, the other keys must stay valid for the old room.

**Track2 data:**

As described above Track2-data can be used for identification on POS systems. The data can be generated by either the PMS or the Key-system. The definition is done through the Linkrecords. **$S** may either be defined in **KR** or in **KA**. Defining in **KR** means that the PMS creates the unique ID and passes to the Key-system for storage on Track2. Defining in KA means that the Key-System will generate a unique ID for the key and will pass the ID back to the PMS in the KeyAnswer string.
Using **$2** in **KA** will only be possible, if the vendor system is prepared to receive multiple Key-Requests for the same room, so that a unique **$2** is returned for each and every key.

Examples:

*New Key:*

**KR|FO**-PC1|**RN**201|**G#**18901|**GA**080520|**GD**080521|**GN**Test|**KC**1|**K#**1|**KT**N|

**KA|**FO-PC1|**KC**1|**$**201030FE159|**AS**OK|

*Additional duplicate key for the same room (**RN**) and from the same Reservation-ID (**G#**):*

**KR|**FO-PC1**|RN**201**|G#**18901**|GA**080520**|GD**080521**|GN**Test**|KC**1**|K#**1**|KT**D**|**

**KA|**FO-PC1**|KC**1**|$2**0104BD5D80**|AS**OK**|**

**Note:**
The above example shows the $2 value in HEX representation. This is the normal approach for Key-Systems which use RFID-cards and may e.g. send the UID of the card as $2 value. NEVER send the ID as BINARY value. The number of characters would exceed storage capacities and would in most cases not be usable for POS identification.

Before implementing **$2** in **KA**, always ensure that the POS-system in your target Hotels are capable of reading the **$2** value from the keys. Especially with RFID cards this implies that the POS can interface with the respective reader, which may not always be the case.

## Key Read:

Key Read (**KZ**) routine is requested at encoder number (**KC**) 01:

**KZ|DA**090401**|TI**125208**|KC**01**|WS**FO-PC1**|**

Response from Keysystem after the key has been read. Optional data may be added in the response from the key system's database (like e.g. the guest's name). Minimum returned information is the number of the room which can be opened with this key.

**KZ|DA**090401**|TI**125213**|KC**01**|WS**FO-PC1**|G#**12345678**|RN**11345**|GN**Test**|GD** 090402**|DT**12:00**|AS**OK**|CT**Key Read OK**|KO** 1 1 23 1 **|SI**120,135**|**

**Note:**
The Key Read functionality is of pure informational purpose. None of the received information is stored or processed in the PMS, it is only for display to the user.

## A complete reservationbased scenario:

The first of two sharing reservations is checked into room (**RN**) 134:

**KR|DA**100317**|TI**152951**|KC**10**|KO** 1 1**|KT**N**|ID**Visor, Super**|RN**134**|WS**FO-PC1**|G+** 35607**|DT**11:00**|G#**31717**|GA**100308**|GD**100310**|GN**Voigt, Thomas Herrn**|$2** 1000013400031717**|**

**KA|KC**10**|WS**FO-PC1**|AS**OK**|DA**100318**|TI**090411**|**

The second of two sharing reservations is checked into room (**RN**) 134:

**KR|DA**100317**|TI**152958**|KC**10**|KO**1 1**|KT**D**|ID**Visor, Super**|RN**134**|WS**FO-PC1**|G+**35609**|DT**11:00**|G#**31719**|GA**100308**|GD**100310**|GN**Voigt, Kerstin Frau**|$2**1000013400031719**|**

**KA|KC**10**|WS**FO-PC1**|AS**OK**|DA**100318**|TI**090411**|**

The first of two sharing reservations is moved from room (**RO**) 134 to room (**RN**) 257:

**KM|G#**31719**|KC**10**|RN**257**|RO**134**|WS**FO-PC1**|$2**1000013400031719**|DA**100317**|DT**11:00**|GA**100308**|GD**100310**|GN**Voigt, Kerstin Frau**|ID**Visor, Super**|TI**153031**|**

**KA|KC**10**|WS**FO-PC1**|AS**OK**|DA**100318**|TI**090411**|**

The second of two sharing reservations is moved from room (**RO**) 134 to room (**RN**) 257:

**KM|G#**31717**|KC**10**|RN**257**|RO**134**|WS**FO-PC1**|$2**1000013400031717**|DA**100317**|DT**11:00**|GA**100308**|GD**100310**|GN**Voigt, Thomas Herrn**|ID**Visor, Super**|TI**153044**|**

**KA|KC**10**|WS**FO-PC1**|AS**OK**|DA**100318**|TI**090411**|**

The first of two sharing reservations is checked out of  room (**RN**) 257:

**KD|DA**100317**|TI**153127**|KC**10**|ID**Visor, Super**|RN**257**|WS**FO-PC1**|G#**31717**|GN**Voigt, Thomas Herrn**|**

**KA|KC**10**|WS**FO-PC1**|AS**OK**|DA**100318**|TI**090411**|**

The second of two sharing reservations is checked out of room (**RN**) 257

**KD|DA**100317**|TI**153127**|KC**10**|ID**Visor, Super**|RN**257**|WS**FO-PC1**|G#**31719**|GN**Voigt, Kerstin Frau**|**

**KA|KC**10**|WS**FO-PC1**|AS**OK**|DA**100318**|TI**090411**|**

# SPA & other charge systems

**PS** - Posting (simple)
**PR** - Posting Request
**PL** - Posting List
**PA** - Posting Answer

The simple form of Posting records (**PS**) is for systems that do room postings without having to verify the guest (i.e. telephone, TV, etc.). These systems generally use the **GI**/**GO** records to ensure that the system in a specific room should be active. They also should use the Room Equipment status or Guest Data (Guest Rights) records to allow changing the status of the equipment after check-in (see examples in the sections above). In this case it is also suggested to support a Class of Service (for example, a guest is checked in but cannot view Pay TV). Postings to specific guests (**G#**) are not supported with this record.

Another means of verifying guest privileges is by reading the information stored on a magnetic stripe card (i.e. normally Track 2 on the guest's room key); this is useful for Minibars, Vending machines, and other self-service POSs. When keys have been encoded with the standard MICROS-Fidelio Track 2 information, the POS can forward this track to identify guests and verify posting privileges.

**POS-System may not use the FIAS specification but use the Fidelio XML-POS specification for an integration. Please contact your local Micros-Fidelio dealer for details.**

Note: Never combine GI/GO with PR/PL handling. Guest-related postings must always be done through inquiries only and not based on data from the vendor system's database.

Posting Request records (**PR**) are intended more for providing the functionality required by SPA systems and allow for posting to PMS folios or accounts. The charges are generally guest-oriented and allow the user to make inquiries (**PI**) to the PMS to provide information such as room occupancy, guest hotel status or credit status, etc. The Posting Request record (**PR**) can be used both to inquire and make the posting. If there is no Reservation Number (**G#**), or it is empty a valid **PI**-field and no TotalAmount (**TA**), then the request is treated as an inquiry. Else the request is treated as a posting. Postings using (**PR**) must have a preceding inquiry (**PR**).
Inquiries will only return a match on those guests which are currently checked in to the Hotel.

If a guest selection is needed, the PMS will return a Posting List record (**PL**); if there are multiple guest folios that match the search criterion (i.e. sharers by room search), there will be multiple roomnumber fields (**RN**) and multiple Reservation-ID fields (**G#**)returned. (Note: all blocks will begin with **RN** and **G#**; the order of any further fields may be different from installation to installation.)

**PR** records may ONLY be used for posting after a successful inquiry (**PR**). A posting with **PR** which is received without prior **PR** as inquiry (**PI**) will be ignored.

The Posting Answer record (**PA**) is required in all cases to be sure that the charges were posted properly and to control the data flow. If specific fields are required to route a Posting

Answer (**PA**) to a terminal or other posting location (**WS**/**SO**), these should be specified in the Field List (**FL**) for this Record Type during startup.

**Note:** Certain fields that may be defined in the Link Record (**LR**) for **PL** and/or **PA** will only contain data if they are sent in the **PS**/**PR** record by the other system e.g. **P#**, **SO** etc.

**NOTE:** All amount fields (**TA**, and Subtotals, Discounts and Taxes and TIP) are expected withOUT a decimal separator !

**Taxes:**
Only use the tax-fields in countries where taxes are calculated as "Add-On." In that case the Subtotals should contain net amounts.
In other countries subtotal fields should contain tax-inclusive amounts.

*Before setting up taxes on the POS system verify the settings in the respective Fidelio installation. In some case Fidelio may expect to get net amounts in the Subtotal fields and in the Totalamount field, i.e. WITHOUT any taxes, as they may be calculated within Fidelio.*

**Linking Records:**

In order to map a response from the PMS to a request from the POS it is recommended to implement **P#**. (For PR/PL this is mandatory.) **P#** must contain a value between 1-99999999. This is a numeric field, so use it without leading zeroes or decimals, positive values only. The PMS will echo the sequence number from the request in the respective response record. This allows for unique identification of a response in multi-thread scenarios.
If the POS server needs a method to identify the source POS-workstation, then using **WS** is the correct approach. (For PR/PL this is mandatory.) **WS** should contain the workstation-ID (or COMPUTERNAME) to allow unique identification. For **PR**-posting **WS** is a mandatory field.
Do not use the same **P#** for Inquiry and posting. The sequence number is used for record based and not transaction based identification.

**Linking Postings:**
In case multiple records are sent for the same guest-check, please note the following: CheckNumber (**C#**), Date (**DA**) and Time (**TI**) **MUST** have the same value in all postings, else it will be impossible for the PMS to link the postings back together for the guest's folio imprint.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **PS** | **DA** | Date | D | To PMS |
| (Posting Simple) | **DD** 1 | Dialed Digits | N, max. 20 | To PMS |
| | **DU** 1 | Duration | T | To PMS |
| | **MA** 2 | Minibar Article | N, max. 4 | To PMS |
| | **M#** 2 | Number of Articles | N, max. 2 | To PMS |

| | | | | |
|---|---|---|---|---|
| | **MP** 3 | Meter or Tax Pulse | N, max. 10 | To PMS |
| | **PT** | Posting Type | AN, 1 char (see Posting Type table) | To PMS |
| | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | To PMS |
| | **SO** 4 | Sales Outlet | N, max. 5 | To PMS |
| | **TA** 5 | Total Posting Amount | M, max 15 | To PMS |
| | **TI** | Time | T | To PMS |
| | C# | Check Number | N, max. 8 | To PMS |
| | CO | Credit Limit Override Flag | AN, 1 char, (Y/N) | To PMS |
| | CT | Clear Text | ANS, max. 20 | To PMS |
| | CV | Covers | N, max. 5 | To PMS |
| | D1 - D9 | Discount 1-9 | M, max. 15 | To PMS |
| | ID | User ID | AN, max. 16 | To PMS |
| | P# | Posting Sequence Number | N, max. 8 (positive value) | To PMS |
| | PC | Posting Call Type | AN, 1 char | To PMS |
| | PM | Payment Method | AN, max. 5 | To PMS |
| | PX | Posting Route (i.e. Trunk ID) | N, max. 6 | To PMS |
| | S1 - S9 | Subtotal 1-9 | M, max. 15 | To PMS |
| | SC | Service Charge | M, max. 15 | To PMS |
| | ST | Serving Time | N, max. 4 | To PMS |
| | T# | Table Number | N, max. 4 | To PMS |
| | T1 - T9 | Tax 1-9 | M, max. 15 | To PMS |
| | TP | Tip | M, max. 15 | To PMS |
| | WS | Workstation ID | AN, max. 16 | To PMS |
| | X1 | Cross Reference Data | AN, max. 25 | To PMS |

**1** - if Posting Type is '**T**' and charge costing is done by PMS using Duration (**DU**), Dialed Digits (**DD**) **must** be sent. (unformatted values ONLY, like: **|DD**004989920920**|** (i.e. no separators or spaces)
**2** - required if Posting Type is Minibar Charge ('**M**')
**3** - required if Posting Type is Telephone Charge ('**T**') and charge costing is done by PMS using meter pulses

**4** - required if more than one Posting Type is used by the same interface
**5** - required if Posting Type is Direct Charge ('**C**')

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **PR** (Posting Request) | **DA** 1 | Date | D | To PMS |
| | **G#** 1 | Reservation Number | N, max. 10 | To PMS |
| | **GN** 1 | Guest Name | ANS, max. 40 | To PMS |
| | **PI** 2 | Posting Inquiry | AN, max. 10 | To PMS |
| | **PM** | Payment Method | AN, max. 5 | To PMS |
| | **RN** 3 | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | To PMS |
| | **P#** | Posting Sequence Number | N, max. 8 (positive value) | To PMS |
| | **TA** 1 | Total Posting Amount | M, max 15 | To PMS |
| | **TI** 1 | Time | T | To PMS |
| | **WS** | Workstation ID | AN, max. 16 | To PMS |
| | $2 | Fidelio standard Track 2 format | N, max 19 | To PMS |
| | C# | Check Number | N, max. 8 | To PMS |
| | CO | Creditlimit Override Flag This flag defines, if the PMS Creditlimit should be ignored for this posting. Normally only allowed for POS supervisors. | AN, 1 char, " <blank>" = don't override 'N' = don't override 'Y' = override | To PMS |
| | CT | Clear Text | ANS, max. 20 | To PMS |
| | CV | Covers | N, max. 5 | To PMS |
| | D1 - D9 | Discount 1-9 | M, max. 15 | To PMS |
| | DD | Dialled Digits | N, max. 20 | To PMS |
| | DU | Duration | T | To PMS |
| | G+ | Profile Number | N, max. 10 | To PMS |
| | ID | User ID | AN, max. 16 | To PMS |

| | | | | |
|---|---|---|---|---|
| | MA | Article Number | N, max. 4 | To PMS |
| | M# | Number of Articles | N, max. 2 | To PMS |
| | MX | Maximum Guests | N, max 1 | To PMS |
| | PC | Posting Call Type | AN, 1 char | To PMS |
| | PT | Posting Type (except 'T') | AN, 1 char (see Posting Type table) | To PMS |
| | S1 - S9 | Subtotal 1-9 | M, max. 15 | To PMS |
| | SC | Service Charge | M, max. 15 | To PMS |
| | SO | Sales Outlet | N, max. 5 | To PMS |
| | ST | Serving Time | N, max. 4 | To PMS |
| | T# | Table Number | N, max. 4 | To PMS |
| | T1 - T9 | Tax 1-9 | M, max. 15 | To PMS |
| | TP | Tip | M, max. 15 | To PMS |
| | X1 | Cross Reference Data | AN, max. 25 | To PMS |

1 - required only after guest selection
2 - required only for inquiries with no guest selection
3 - mandatory in postings, but not in inquiries

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **PL** | **G#** 1 | Reservation Number | N, max. 10 | From PMS |
| (Posting | **GN** 1 | Guest Name | ANS, max. 40 | From PMS |
| List) | **P#** | Posting Sequence Number | N, max. 8 (positive value) | From PMS |
| | **RN** 1 | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | From PMS |
| | A0 - A9 2 | User Definable | ANS, variable | From PMS |
| | BA | Balance Amount | N, max. 20 | From PMS |
| | C# | Check Number | N, max. 8 | From PMS |
| | CL 2 | Credit Limit | N, max. 15 | From PMS |
| | DA | Date | D | From PMS |
| | G+ | Profile Number | N, max. 10 | From PMS |

| | | | | |
|---|---|---|---|---|
| | GA | Guest Arrival Date | D | From PMS |
| | GD | Guest Departure Date | D | From PMS |
| | GF | Guest First Name | ANS, max. 40 | From PMS |
| | GG | Guest Group Number | AN, max. 10 | From PMS |
| | GL | Guest Language | AN, max 10 (see Guest Language table) | From PMS |
| | GT | Guest Title | ANS, max. 20 | From PMS |
| | GV | Guest VIP Status | AN, max. 20 | From PMS |
| | ID | User ID | AN, max. 16 | From PMS |
| | NP | No-Post Status | Y/N | From PMS |
| | PM | PMS Payment Method | AN, max. 5 | From PMS |
| | SO | Sales Outlet | N, max. 5 | From PMS |
| | TI | Time | T | From PMS |

**1** - required if account(s) matching search information in **PI** are found
**2** – requires configuration in PMS

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **PA** | **AS** | Answer Status | AN, 2 chars (see Answer Status table) | From PMS |
| (Posting | **CT** 1 | Clear Text | ANS, max 50 4 | From PMS |
| answer) | **DA** | Date | D | From PMS |
| | **P#** 3 | Posting Sequence Number | N, max. 8 (positive value) | From PMS |
| | **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | From PMS |
| | **TI** | Time | T | From PMS |
| | **WS** 3 | Workstation ID | AN, max. 16 | From PMS |
| | C# | Check Number | N, max. 8 | From PMS |
| | G# 2 | Reservation Number | N, max. 10 | From PMS |
| | GN 2 | Guest Name | ANS, max. 40 | From PMS |

| | | | | |
|---|---|---|---|---|
| | ID | User ID | AN, max. 16 | From PMS |
| | SO | Sales Outlet | N, max. 5 | From PMS |

**1** - required only if search fails (**PR** only)
**2** - not available when **PS** is used
**3** - required if posting is done with **PR**
**4** - on OPERA PMS the length can be much longer then 50 characters, no final limitation.

**Examples**

1. Posting (simple)/Answer

Telephone charge posting (**PT**C, i.e. call costed by other system) to Room (**RN**) 2781, cost (**TA**) 10.50, on 15 September 2000 (**DA**) at 12:35:45 (**TI**), sequence number (**P#**) 0729, dialed digits (**DD**) 004989920920, international call (**PC**/**CT**):

➡ **PS|RN**2781**|TA**1050**|DA**000915**|TI**123545**|P#**1729**|DD**004989920920**|PC**I**|CT** International**|PT**C**|**

Posting accepted (**AS**OK):

⬅ **PA|RN**2781**|AS**OK**|P#**1729**|DA**000915**|TI**123545**|**

Note: Only one PS posting may be sent at a time. The sending system must wait for **PA** before sending the next posting.

Telephone posting (**PT**T, i.e. call costed by PMS by pulse count) to Room (**RN**) 2781, 8 meter pulses (**MP**), on 15 September 2000 (**DA**) at 12:40:41 (**TI**), sequence number (**P#**) 0730, dialed digits (**DD**) 2123830, local call (**PC**/**CT**):

➡ **PS|RN**2781**|PT**T**|MP**8**|DA**000915**|TI**124041**|P#**1730**|DD**2123830**|PC**L**|CT**Local**|**

Posting accepted (**AS**OK):

⬅ **PA|RN**2781**|AS**OK**|P#**1730**|DA**000915**|TI**124041**|**

Telephone posting (**PT**T, i.e. call to be costed by PMS by duration and dialed digits) to Room (**RN**) 2781, duration (**DU**) 3 minutes, 45 seconds, on 15 September 2000 (**DA**) at 12:42:54 (**TI**), sequence number (**P#**) 0731, dialed digits (**DD**) 5106850320, national call ( **PC**/**CT**):

➡ **PS|RN**2781**|PT**T**|DU**000345**|DA**000915**|TI**124254**|P#**1731**|DD**5106850320**|PC**N**|CT** National**|**

Posting accepted (**AS**OK):

⬅ **PA|RN**2781**|AS**OK**|P#**1731**|DA**000915**|TI**124254**|**

**Note:** For Telephone charge postings, the PMS will be configured to use only one posting method, i.e. pre-costed call (**PT** field set to C) or costing by pulse (**MP**) or duration/dialed digits (**DU**/**DD**, **PT** field set to T). If the costing is done by duration (**DU**), dialed digits (**DD**) must be provided. Date (**DA**) and time (**TI**) reflect the start of the call. Posting Sequence ( **P#**) in all cases should be incremented after every successful transmission.

Minibar posting (Direct Charge, **PT**C) to Room (**RN**) 2781, Sales Outlet (**SO**) 100 (this charge comes from a system that also sends laundry charges), cost (**TA**) 14.50, on 15 September 2000 (**DA**) at 12:42:54 (**TI**), sequence number (**P#**) 0732:

➡ **PS|RN**2781**|PT**C**|SO**100**|TA**1450**|DA**000915**|TI**124254**|P#**1732**|**

Posting accepted (**AS**OK):

⬅ **PA|RN**2781**|AS**OK**|P#**1732**|DA**000915**|TI**124254**|**

**Note:** Even though this is a Minibar posting, it uses Posting Type (**PT**) set to C because the charge amount (**TA**) is sent.

Minibar posting (**PT**M) to Room (**RN**) 2781, guest consumption: article (**MA**) 1450 2 (**M#**) times on 15 September 2000 (**DA**) at 12:42:54 (**TI**), sequence number (**P#**) 0733:

➡ **PS|RN**2781**|PT**M**|MA**1450**|M#**2**|DA**000915**|TI**124254**|P#**1733**|**

Posting accepted (**AS**OK):

⬅ **PA|RN**2781**|AS**OK**|P#**1733**|DA**000915**|TI**124254**|**

**Note:** Posting Type (**PT**) is sent as M to indicate that the PMS should calculate the charges itself based on article number (**MA**)/articles consumed (**M#**); this will be done even if a pre-calculated charge is sent. If **MA** is sent but no **M#**, the article count defaults to 1. The value in **M#** must be >0. Negative counts can *not* be accepted.

Supplemental information:

**X1** can be included to the posting record to send additional postings information.
**Note:** Should the check consist of several articles and should these be sent to separate department codes in the PMS, will the PMS copy this information to all separated postings in full. A split of the information contained in **X1** is not possible.

➡ **PS|RN**2781**|PT**C**|TA**1480**|X1**2 Bottles of Apple Juice**|DA**000915**|TI**124254**|P#**1737**|**

2. Posting Request (Inquiries)/List/Answer

Posting Request from POS Sales Outlet (**SO**) 123, Terminal (**WS**) 456, User **ID** Eli, for Room (**PI**) 2781 using PayMethod (**PM**) ROOM:

➡ **PR|SO**123|**WS**456|**ID**ELI|**PI**2781|**DA**000915|**TI**124254|**P#**1734|**PM**ROOM|

List of guests (PL) in Room (RN) 2781:

⬅ **PL|SO**123|**WS**456|**ID**ELI|**RN**2781|**G#**12345|**GN**Guest, Mr.|**RN**2781|**G#**12381|**GN** Sharer, Mr.|**P#**1734|

As seen in the example above, if guests matching the **PI** search criterion are found, the list is formatted as Room Number (**RN**)/Reservation Number (**G#**)/Guest Name (**GN**) triplets (these can occur multiple times if there are sharers in a room, but all three fields are sent for each guest). If the search data was ASCII (i.e. search by guest name), the Room Number/Reservation Number/Guest Name fields can also occur more than once:

<Guest List> := <Room List>[<Room List>][<Room List>]
<Room List> := **RN**<data>|**G#**<data>|**GN**<data>|

For *A/R* or *City Ledger* charges, inquiries are still required. However, since these accounts are not checked into rooms, the Room Number (**RN**) field will be filled with the A/R account number. **G#** will be sent with value '0' as there is no respective guestnumber available. The filed cam not be omitted, as it is mandatory for **PR**-records. It then takes the following form:

<Room List> := **RN**<data>|**G#**0|**GN**<data>|

Posting Request from POS Sales Outlet (**SO**) 123, Terminal (**WS**) 456, User **ID** Josh, for posting information (**PI**) 5781:

➡ **PR|SO**123|**WS**456|**ID**JOSH|**PI**5781|**DA**000915|**TI**124254|**P#**1735|**PM**ROOM|

Invalid room response (**AS**/**CT**):

⬅ **PA|SO**123|**WS**456|**ID**JOSH|**AS**NG|**CT**INVALID ROOM|**P#**1753|

Posting request from POS Sales Outlet (**SO**) 123, alpha search (**PI**) for ‘G’ with "Maximum number of matching guests returned" (**MX**) set to 4:

● Note: **MX** defines the number of matches which will be returned in the PL record.

**PR|SO**123|**WS**456|**ID**ELI|**PI**G|**MX**4|**DA**000915|**TI**124254|**P#**1736|**PM**ROOM|

List of guests (**PL**), Room (**RN**) 2781 – Gast (**GN**), Room (**RN**) 352 – Gandhi and Garibaldi (**GN**, see room list description above):

**PL|SO**123|**WS**456|**ID**ELI|**RN**2781|**G#**12345|**GN**Gast, Hr.|**RN**352|**G#**12940|**GN**Gandhi, Mr.|**RN**352|**G#**12875|**GN**Garibaldi, Mr.|**P#**1736|

3. Posting Request (Charges)/Answer

Posting request from POS for Room (**RN**) 2781 with Reservation Number (**G#**) 12875 selected, Sales Outlet (**SO**) 123, total (**TA**) to post 105.75, F&B (**S1**) charges 80.00, tax (**T1** ) 25.75, check number (C#) 1234, 2 covers (**CV**), serving time (**ST**) 4:

**PR|SO**123|**WS**456|**ID**JOSH|**RN**2781|**G#**12875|**GN**Garibaldi, Mr.|**TA**10575|**S1**8000|**T1** 2575|**C#**1234|**CV**2|**ST**4|**DA**000915|**TI**124254|**P#**1737|**PM**ROOM|

Posting accepted (**AS**OK):

**PA|SO**123|**WS**456|**ID**JOSH|**RN**2781|**G#**12875|**GN**Garibaldi, Mr.|**AS**OK|**DA**000915|**TI** 124254|**P#**1737|

**Note:** In all cases, the sum calculated by adding all subtotal, tax and discount fields (which means the amount in a discount field should be negative) must equal the Total Amount (**TA**) field (see check splitting example below).

The interface calculates as follows:

**TA** = **S1 +** [**S2**] **+** [**S3**] + **T1 +** [**T2**] + [**T3**] + **D1** + [**D2**] + [**D3**] + [**TP**] + [**SC**]

e.g.:
|TA1000|S1800|D1-200|T1400|

=> 10.00 = 8.00 - 2.00 + 4.00

Posting request from POS for Room (**RN**) 2781 with Reservation Number (**G#**) 12345 selected, Sales Outlet (**SO**) number 123, total (**TA**) to post 228.50, food charges (**S1**) 80.00, beverage charges (**S2**) 60.00, miscellaneous (**S3**) 40.00, tax food (**T1**) 25.75, tax beverage (**T2**) 15.25, tax miscellaneous (**T3**) 10.50, discount food (**D1**) 10.00, Tip (**TP**) 5.00, Service Charge (**SC**) 2.00check number (**C#**) 1234, serving time (**ST**) 4:

**PR|SO**123|**WS**456|**ID**ELI|**RN**2781|**G#**12345|**GN**Gast, Hr.|**TA**22850|**S1**8000|**S2**6000 |**S3**4000|**T1**2575|**T2**1525|**T3**1050|**D1**-1000|**TP**500|**SC**200|**C#**1234|**ST**4|**DA**000915|**TI** 124254|**P#**1738|**PM**ROOM|

Posting accepted (**AS**OK):

**PA|SO**123|**WS**456|**ID**ELI|**RN**2781|**G#**12345|**GN**Gast Hr.|**AS**OK|**DA**000915|**TI**124254|**P#**1738|

**Note:** It is not necessary to send a subtotal, tax, or discount field if the value is 0. In the above example, even though there could be corresponding discounts for beverage (**S2**/**D2**) and miscellaneous (**S3**/**D3**), they are not sent because there was no discount given.

If the other system is a POS which supports splitting checks between guests or payment methods, the individual subtotals, taxes, and discounts should also be split so that when added together, they equal the Total Amount to be posted. This way, all rounding corrections are handled by the same system, and the revenue totals between the POS and the PMS will match.

For a split check, where only 110.75 should be posted, these items should be recalculated as follows:

**PR|SO**123|**WS**456|**ID**ELI|**RN**2781|**G#**12381|**GN**Sharer, Mr.|**TA**11075|**S1**4000|**S2**3000|**S3**2000|**T1**1287|**T2**763|**T3**525|**C#**1234|**D1**-500|**ST**4|**DA**000915|**TI**124254|**P#**1740|**PM**ROOM|

The following example is **wrong** because the **subtotals, taxes, and discounts reflect the totals for the whole check and not the current TotalAmount (TA):**

**PR|SO**123|**WS**456|**ID**JOSH|**RN**2781|**G#**12381|**GN**Sharer, Mr.|**TA**11075|**S1**8000|**S2**6000|**S3**4000|**T1**2575|**T2**1525|**T3**1050|**C#**1234|**D1**-1000|**ST**4|**DA**000915|**TI**124254|**P#**1741|**PM**ROOM|

Posting request from POS for payment method (**PM**) AMEX selected, Sales Outlet number 123, total (**TA**) to post 105.75, F&B (**S1**) charges 80.00, tax (**T1**) 25.75, check number (**C#**) 1234, serving time (**ST**) 4:

**PR|SO**123|**WS**456|**ID**JOSH|**PM**AMEX|**TA**10575|**S1**8000|**T1**2575|**C#**1234|**ST**4|**DA**000915|**TI**124254|**P#**1742|

Posting accepted (**AS**OK):

PA|SO123|**WS**456|**ID**JOSH|**AS**OK|**DA**000915|**TI**124254|**P#**1742|

**Note:** Inquiries for payment methods that are configured to post directly to one specific account (i.e. normally anything other than room or A/R charges), for example Cash or EFT charges, are neither required nor supported. These postings are either accepted (**AS**OK), or the Answer Status field (AS) is accompanied by a Clear Text field (**CT**) with a failure message. In addition, if payment methods are enabled for non-room charges, the Payment Method (**PM**) field should be sent with room charges also e.g. **PM**ROOM.

## Inquiries using the magnetic stripe (Track2) of a guest's key-card

Some POS systems are capable of reading and passing information from Track 2 of magnetic key cards.  With these systems the track should be read and passed as is to the PMS (the data on Track 2 up to the end sentinel for the card number should be transparent to both the Key Service System and the POS).

**PR|SO**123|**WS**456|**ID**ELI|**PM**ROOM|**$2**4200278100012345|**C#**1234|**DA**000915|**TI** 124254|**P#**1788|

**PL|SO**123|**WS**456|**ID**ELI|**RN**2781|**G#**12345|**GN**Gast, Hr.|**P#**1788|

The posting will the follow the same rules as described above. $2 can only be used in the inquiry circle to identify a guest. The posting needs to be done using the returned roomnumber and Reservation-ID for this guest.

# EFT - Electronic Funds Transfer

**$U** - Card type/usage request/answer
**$A** - Authorization request/answer
**$B** - Batch Begin
**$S** - Settlement request/answer
**$Z** - Batch End
**$E** - Batch Entered
**$L** - Blacklist check/answer (not currently supported)
**$H** - Hotel/Courtesy card (not currently supported)
**$M** - Release of Authorization (not currently supported)
**$V** - Pay-Only Settlement request/answer

Blacklist checking (**$L**) is not currently supported except where it is an integrated part of type/usage verification (**$U**), authorization (**$A**), or settlement (**$S**) processes.

Settlement records (**$S**) can either be sent online (at Check-out) or as batches. For systems that use batches, the Batch Entered (**$E**) record must be returned to confirm the acceptance of the entire batch.
A system supporting batches must be prepared to handle On-Line settlements as well, as batch settlement may not be supported by every Fidelio PMS system.

To run authorizations and settlements in one step, please use **$V**.
This options should only be chosen in case a bank does not support separated authorizations.

CVV numbers: The CVV (CV2) number can be provided for deposit payments (i.e. customer gives card over the phone). The number is only provided for the authorization process and is not stored in any way in the Fidelio-system.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$U** | **$#** | Credit Card Number | N, max. 23 | Both |
| (Card | **$2 1** | Credit Card Track 2 | AN, max. 40 | From PMS |
| type / usage) | **$C** | Card Usage | N, 1 digit (see EFT Card Usage Table) | To PMS |
| | **$D** | Expiry Date | MMYY | From PMS |
| | **$T** | Card Type | AN, 2 chars | To PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **S#** | Sequence number | N, max. 15 | Both |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $M | CVV-Number | N, max. 3 (not currently supported) | From PMS |
| | $W | AVS verification data | ANS, max 500 (not currently supported) | From PMS |

**1** - sent by the PMS only if the card was swiped

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$A** | **$#** | Credit Card # | N, max. 23 | From PMS |
| (Authorization) | **$2 1** | Track 2 | AN, max. 40 | From PMS |
| | **$D** | Expiry Date | MMYY | From PMS |
| | **$R** | Reference Number (Approval code) | AN, max. 20 | To PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **AS** | Answer Status | AN, 2 chars | To PMS |
| | **CT** | Clear Text | ANS, max. 40 | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **TA** | Total Posting Amount | M, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $+ | Secondary Authorization Amount | M, max. 15 | From PMS |
| | $C | Card Usage | N, 1 digit (see EFT Card Usage Table) | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $M | CVV Number | N, max. 3 (only for Deposit payments, i.e. customer not present) | From PMS |
| | $W | AVS verification data | ANS, max 500 (not currently supported) | From PMS |
| | GA **2** | Guest Arrival Date | D | From PMS |
| | GD **2** | Guest Departure Date | D | From PMS |
| | IN | Issue Number | N, max. 2 | Both |
| | RT | Request Type | AN, max. 10 chars (see Request Type table) | From PMS |
| | SD | Start Date | YYMM | Both |

**1** - sent by the PMS only if the card was swiped
**2** - not sent when request is originating in Deposit, A/R or similar areas of the PMS

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$B** | **$N** | Batch Number | N, max. 16 | From PMS |
| (Batch begin) | **DA** | Date | D | From PMS |
| | **TI** | Time | T | From PMS |

| | | | | |
|---|---|---|---|---|
| | **S#** | Sequence Number | N, max. 15 | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | WS | Workstation ID | AN, max. 16 | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$S** | **$#** | Credit Card # | N, max. 23 | From PMS |
| (Settlement) | **$2 1** | Track 2 | AN, max. 40 | From PMS |
| | **$D** | Expiry Date | MMYY | From PMS |
| | **$R** | Reference Number (Approval code) | AN, max. 20 | From PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **AS** | Answer Status | AN, 2 chars | To PMS |
| | **CT** | Clear Text | ANS, max. 40 | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **TA** | Total Posting Amount | M, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $C | Card Usage | N, 1 digit (see EFT Card Usage Table) | From PMS |
| | $F **3** | Audit Trail Number | AN, 16 chars | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $J **4** | Transaction Number | AN, max. 16 | To PMS |
| | $M | CVV Number | N, max. 3 (not currently supported) | From PMS |
| | $W | AVS verification data | ANS, max 500 (not currently supported) | From PMS |
| | DA | Date | D | From PMS |
| | GA **5** | Guest Arrival Date | D | From PMS |
| | GD **5** | Guest Departure Date | D | From PMS |
| | IM | Installments | N, max. 3 | From PMS |
| | IN **2** | Issue Number | N, max. 2 | Both |
| | RT | Request Type | AN, max. 10 chars (see Request Type table) | From PMS |
| | SD **2** | Start Date | YYMM | Both |
| | TI | Time | T | From PMS |

**1** - sent by the PMS only if the card was swiped
**2** – not required from other system in Batch response
**3** – can only be used, when $J is NOT used.
**4** – can only be used, when $F is NOT used.
**5** - not sent when request is originating in Deposit, A/R or similar areas of the PMS

Audit trail / Transaction numbers can only be generated by one system. Should the PMS generate this number, then $F must be used. Should the EFT system generate this number, then $J must be used.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$V** | **$#** | Credit Card # | N, max. 23 | From PMS |
| (Settlement *without* prior authorization) | **$D** | Expiry Date | MMYY | From PMS |
| | **$R** | Reference Number (Approval code) | AN, max. 20 | To PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **AS** | Answer Status | AN, 2 chars | To PMS |
| | **CT** | Clear Text | ANS, max. 40 | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **TA** | Total Posting Amount | M, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $2 | Track 2 | AN, max. 40 | From PMS |
| | $F **1** | Audit Trail Number | AN, 16 chars | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $J **2** | Transaction Number | AN, max. 16 | To PMS |
| | $M | CVV Number | N, max. 3 | From PMS |
| | $W | AVS verification data | ANS, max 500 (not currently supported) | From PMS |
| | GA | Guest Arrival Date | D | From PMS |
| | GD | Guest Departure Date | D | From PMS |
| | IM | Installments | N, max 2 | From PMS |
| | PH | Hotel-ID | AN, max. 20 | Both |
| | RT | Request Type | AN, max. 10 chars (see Request Type table) | From PMS |

**1** – can only be used, when $J is NOT used.
**2** – can only be used, when $F is NOT used.

Audit trail / Transaction numbers can only be generated by one system. Should the PMS generate this number, then $F must be used. Should the EFT system generate this number, then $J must be used.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$Z** | **$N** | Batch Number | N, max. 16 | From PMS |
| (Batch end) | **DA** | Date | D | From PMS |
| | **TI** | Time | T | From PMS |
| | **S#** | Sequence Number | N, max. 15 | From PMS |

| | | | | |
|---|---|---|---|---|
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | WS | Workstation ID | AN, max. 16 | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$E** | **$N** | Batch Number | N, max. 16 | To PMS |
| (Batch entered) | **AS** | Answer Status | AN, max. 10 chars, (see Answer Status table) | To PMS |
| | **TI** | Time | T | To PMS |
| | **WS** | Workstation ID | AN, max. 16 | To PMS |
| | $I | Merchant ID | AN, max. 16 | To PMS |

Note: **TA** (Total Amount) will be sent in the format as setup in the respective Fidelio system. Generally it will be sent as xxxx.yy (with decimal) yet if Fidelio is setup without decimal, it may be sent without decimal.

## Examples

1. **Card Type/Usage**

Card Type/Usage request from the PMS, Sequence Number (**S#**) 1, Merchant ID (**$I**) 00747576, Reservation Number (**G#**) 12345, Credit Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/05, Track 2 data (**$2**) 370000000000002=12011231345 from workstation (**WS**) FO-PC-RIGHT :

**$U|S#**1**|$I**00747576**|G#**12345**|$#**370000000000002**|$D**1205**|$2** 370000000000002=12011231345**|WS**FO-PC-RIGHT**|**

Card type/usage answer from the EFT to request (**S#**) 1, Reservation Number (**G#**) 12345, Credit Card Number (**$#**) 370000000000002, Card Type (**$T**) VS, valid as Credit and Debit Card (**$C**):

**$U|S#**1**|G#**12345**|$#**370000000000002**|$T**VS**|$**C5**|WS**FO-PC-RIGHT**|**

Notes: The sequence number (**S#**) returned by the EFT should be the same as the one in the PMS request; this allows for multi-threading of requests. If the EFT is doing card type/usage verification, the card types (**$T**) no longer use the PMS hardcoded card types and card number check digit schemes. The card types as defined in the EFT must be defined also in the PMS configuration and enabled as Credit Card in 'Credit Limit'. The card usage (**$C**) values are specified in the EFT Card Usage Tables below.

2. **Authorization**

Authorization request from the PMS for the above guest, request made during Check-In (**RT**

- for Request Type values see table below), Authorize 1000.00 (**TA**) as Credit Card (**$C**):

**$A|S#**2|**$I**00747576|**G#**12345|**$#**370000000000002|**$D**1201|**RT**17|**$C**1|**TA**1000.00|**$2**370000000000002=12011231345|**WS**FO-PC-RIGHT|

Authorization answer for Reservation Number (**G#**) 12345, Approved (**AS**OK), Approval Code (**$R**) 0729:

**$A|S#**2|**G#**12345|**AS**OK|**$R**0729|**WS**FO-PC-RIGHT|

Note: The reference number field (**$R**) when returned in an authorization request is the approval code.

Authorization request from the PMS for the above guest, request made during Check-In, Authorize 1000.00 (**TA**) as Credit Card on a manually entered card (no **$2**), with Issue Number (**IN**) 3 and Start Date (**SD**) October 2005:

**$A|S#**2|**$I**00747576|**G#**12345|**$#**370000000000002|**$D**1201|**RT**17|**$C**1|**TA**1000.00|**IN**3|**SD**0510|**WS**FO-PC-RIGHT|

Secondary Authorization request from the PMS for the above guest for 500 extra ($+), Authorize as Credit Card:

**$A|S#**3|**$I**00747576|**G#**12345|**$#**370000000000002|**$D**1201|**RT**20|**$C**1|**TA**1500.00|**$+**500.00|**$2**370000000000002=12011231|**$R**0729|**WS**FO-PC-RIGHT|

Note: MICROS-Fidelio Front Office automatically calculates and makes secondary approvals when necessary (i.e. when postings plus expected charges covering the rest of the guest's stay exceed the previously approved amount). Both the total amount (**TA**) and secondary amount (**$+**) are sent so that the EFT can decide on the appropriate action based on local floor limits or other factors. Secondary authorizations can also occur because of manual action taken by the user.

Authorization request from the PMS, for the same guest, Authorize as Debit Card:

**$A|S#**4|**$I**00747576|**G#**12345|**$#**370000000000002|**$D**1201|**RT**20|**$C**3|**TA**1000.00|**$2**370000000000002=12011231345|**WS**FO-PC-RIGHT|

Authorization answer for Reservation Number (**G#**) 12345, Referral (**AS**RF/CTREFERRAL):

**$A|S#**4|**G#**12345|**AS**RF|**CT**REFERRAL|**WS**FO-PC-RIGHT|

Authorization answer for Reservation Number (**G#**) 12345, Denied (**AS**DN/CTDENIED):

**$A|S#**4|**G#**12345|**AS**DN|**CT**DENIED|**WS**FO-PC-RIGHT|

3. **Batch/Online Settlements**

Settlement Batch Begin record, Merchant ID (**MI**) 00747576, Batch # (**$N**) 0009151:

**$B|S#**5**|$I**00747576**|$N**0009151**|DA**000915**|TI**014254**|WS**FO-PC-RIGHT**|**

Settlement request from the PMS, Reservation Number (**G#**) 12345, Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/01, Settle 315.00 (**TA**) as Credit Card, Approval Code (**$R**) 0729, Track 2 data (**$2**) included, Audit Trail # (**$F**) 12345079202:

**$S|S#**6**|G#**12345**|$#**370000000000002**|DA**061015**|TI**123045**|$D**1201**|RT**20**|$C**1**|TA** 315.00**|$R**A0729**|$2**370000000000002=12011231345**|$F**12345A072964530**|WS** FO-PC-RIGHT**|**

Note: In countries where an audit trail/transaction number must be generated for printout on the guest folio, MICROS-Fidelio currently uses the guest number combined with the reference number the sequence number and the time-stamp (SS+MM); in the above example, the audit trail number would be 12345A072964530. The maximum length is 16 characters, so in case the guest number is rather long it may happen the a part of the time-stamp is trimmed off.
However, the format of the number may be changed at any time in the future.

Note: The values in date (**DA**) and time (**TI**) are not filled with system date and time, but with the timestamp when the settlement took place.

Acceptance of settlement record (**AS**OK):

**$S|S#**6**|G#**12345**|AS**OK**|WS**FO-PC-RIGHT**|**

Settlement request from the PMS, Reservation Number (**G#**) 12540, Card Number (**$#**) 370000000000010, Expiry Date (**$D**) 12/01, Settle 470.50 (**TA**) as Debit Card, Approval Code (**$R**) 0309, Track 2 data (**$2**) included, Audit Trail # (**$F**) 12450030910:

**$S|S#**7**|G#**12540**|$#**370000000000010**|$D**1201**|RT**20**|$C**3**|TA**470.50**|$R**0309**|$2** 370000000000010=12011231345**|$F**12450030910**|WS**FO-PC-RIGHT**|**

Acceptance of settlement record (**AS**OK):

**$S|S#**7**|G#**12540**|AS**OK**|WS**FO-PC-RIGHT**|**

Settlement void request from the PMS, Reservation Number (**G#**) 12723, Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/01, Settle as Bank Card, credit Amount (**TA**) 123.75, Track 2 data (**$2**) included, Audit Trail # (**$F**) 1272302:

**$S|S#**8**|G#**12723**|$#**370000000000002**|$D**1201**|$C**2**|$2** 370000000000002=12011231345**|TA**-123.75**|$F**1272302**|WS**FO-PC-RIGHT**|**

Note: MICROS-Fidelio does *not* support approval codes (**$R**) for voiding charges. This also affects the audit trail # (**$F**) Audit trail may be different . As well please note that a voided charge can be of a different amount then the prior settlement.

Acceptance of settlement void record (**AS**OK):

**$S|S#**8|**G#**12723|**AS**OK|**WS**FO-PC-RIGHT|

Transaction Number from EFT system:

**$S|S#**9|**G#**10815|**$#**370000000000002|**$D**1201|**$C**1|**$2** 370000000000002=12011231345|**TA**23.50|**WS**FO-PC-RIGHT|

Note: When the transaction number from the EFT-system should be used, **$F** (trail#) can NOT be used as well. Only one audit number can be stored in the PMS with every transaction.

Acceptance of settlement record (**AS**OK) with transaction number:

**$S|S#**8|**G#**12723|**AS**OK|**$J**AB4711|**WS**FO-PC-RIGHT|

Settlement End record, Merchant ID (**$I**) 00747576, Batch # (**$N**) 0009151:

**$Z|S#**9|**$I**00747576|**$N**0009151|**DA**000915|**TI**020254|**WS**FO-PC-RIGHT|

4. **Batch entered**

**$E|S#**9|**AS**OK|**DA**000915|**TI**020254|**WS**FO-PC-RIGHT|

**Note**: MICROS-Fidelio expects that if a specific settlement from a batch is accepted, then it is settled. The Batch Entered record is only to indicate that the EFT has received the Batch End and done any processing appropriate to Close Day.

5. **Pay-Only settlement**

Settlement request from the PMS, Reservation Number (**G#**) 12345, Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/01, Settle 315.00 (**TA**),Track 2 data (**$2**) included, :

**$V|S#**6|**G#**12345|**$#**370000000000002|**DA**061015|**TI**123045|**$D**1201|**RT**20|**TA** 315.00|**$2**370000000000002=12011231345|**WS**FO-PC-RIGHT|

Acceptance of settlement record (**AS**OK) with Approval Code (**$R**) A1234 and Transaction-ID (**$J**) 123456765432:

**$V|S#**6|**G#**12345|**AS**OK|**WS**FO-PC-RIGHT|**$R**A1234|**WS**FO-PC-RIGHT|**$J** 123456765432|

**Note:** The **$V** record is designed to handle the authorization code and the transaction ID separately. The EFT system must return the approval code in the **$V** response record. the transaction ID can either be generated by the EFT system and can then be passed to the PMS in the **$V** response in the **$J** field. or it may be generated by the PMS and would then be sent in the **$V** request record in the **$F** field.

## 6. AVS verification data and CVV-numbers

This additional security data can be sent e.g. for deposit payments where the guest give his creditcard number over the phone to the Fidelio-user.
The data will be sent in the first record of a transaction, i.e. either the authorization or straight in the Pay-Only record.

Format:
the CVV-Number (**$M**) will be 3 digit numeric in most cases (may be 4 digits for some cards)

The address-verification data (**$W**)can be very long, as this one field can contain the complete address. The different information is separated by semicolo and contains 5 fields:

- Address 1
- Address 2
- City
- State
- Postal Code

Example with all data provided: ....|**$W**2322 Main Street;Apt.B;New York;NY;123456|...
Example with just some data provided: ....|**$W**;;;NY;123456|....

The contents depends on user input and can thus vary from Hotel to Hotel or from country to country. The above examples should how an address would look like in the US. In Germany it could look like (House-number entered in Address 2):

....|**$W**Franklinstraße;14;Berlin;;10587|...

or (House-number entered in Address 1):

....|**$W**Franklinstraße14;;Berlin;;10587|...

# EFT - Enhancements for Chip & PIN support

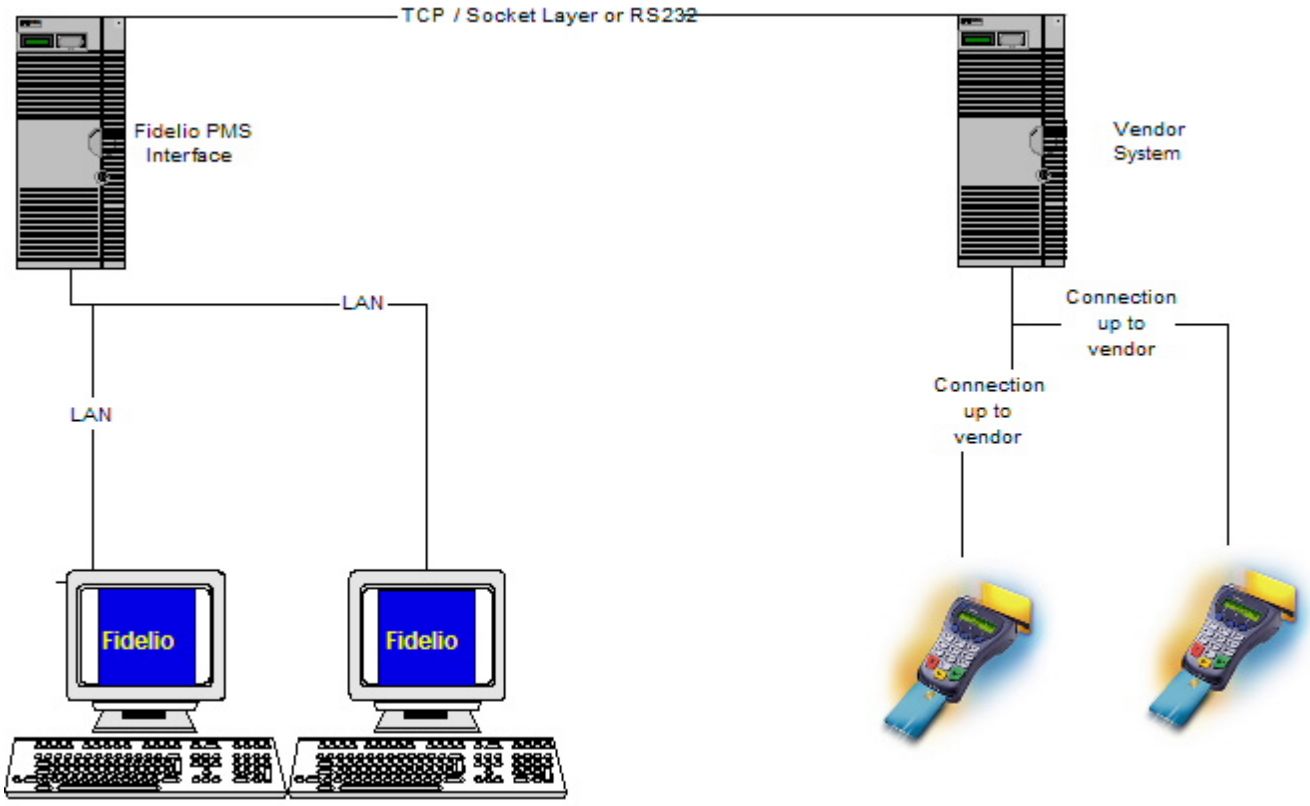
Following records and functionalities have been added to support EFT systems, which are connected to EMV-devices (= Chip&PIN device).

**Note:**

These functionalities have not been added to all Fidelio systems (yet). Please refer to your local Micros-Fidelio office to find out more about the availability of these records. Record layout is still to be considered as "draft". Changes may be done **without** further notice.

Two elementary definitions need to be understood before proceeding:
No EMV-device may be connected to a PC where the Fidelio PMS (Property Management System) is running. The devices need to be connected through the local area network or via RS232 directly from the EFT vendor's system. All commands will be sent from the Fidelio interface to the EFT system's main server through a single connection (server to server architecture). Commands from the Fidelio Interface include the Workstation-ID (**WS**) which should be used on the EFT system to map the command to the corresponding EMV device.
There will not be any kind of tunnelling of data between the vendor system and the EMV device through the Fidelio system.

Folowing is an example of the record flow:



## Records and Fields:

**$K** - Card type/usage with Chipcard - request/answer
**$G** - Authorization with Chipcard request/answer
**$O** - Settlement request/answer with Chipcard and existing pre-authorization
**$P** - Settlement request/answer with Chipcard without pre-authorization (= one-step transaction)
**$Q** - Cancel transaction
**$Y** - Response to Cancel Transaction (**$Q**)

(There will **not** be any support for batch-transactions with Chipcards.)

Note: There is no necessity to use the typecheck record. There will be instances where the device or the local regulation will not even allow to read data from the chip without processing at least an authorization. A standard scenario should be that **$G** and **$O** are used to allow authorizations at Check-In, Top-Up authorizations and settlement at C/O. It is assumed that the EFT vendor system can handle scenarios where the card is only inserted and verified during C/I and the settlement can be handled without further card verification (= no second PIN entry) . For those scenarios where no separate authorization could be supported, **$P** should be used.

OPERA is currently **NOT** prepared to handled mixed scenarios. Either all card types can be handled with separated authorizations or none.
Suite8 can handle each payment method separately.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$K** (Card type / usage with Chipcard) | **$#** | Credit Card Number | N, max. 23 | To PMS |
| | **$D** | Expiry Date | MMYY | To PMS |
| | **G#** | Reservation Number | N, max 10 | Both |
| | **$T** | Card Type | AN, 2 chars | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $2 | Credit Card - Track2 equivalent data | AN, max. 40 | To PMS |
| | $C | Card Usage | N, 1 digit (see EFT Card Usage Table) | To PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | AS 1 | Answer Status | AN, 2 Chars. (see Answer Status Table) | To PMS |
| | CT | Clear Text | ANS, max. 40 | To PMS |
| | KC | Terminal-ID | AN, max. 8 | From PMS |
| | PH | Hotel-ID | AN, max. 20 | Both |
| | IN | Issue Number | N, max. 2 | To PMS |
| | SD | Start Date | YYMM | To PMS |
| | | | | |

**1** - used by Fidelio to trigger if the result was successful or not. If **AS**<>OK the contents of **CT** will be displayed to the user.

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$G** | **$#** | Credit Card # | N, max. 23 | To PMS / Both in case of a Top-Up authorization |
| (Authorization with Chipcard) | **$+** | Secondary Authorization Amount | M, max. 15 | From PMS |
| | **$D** | Expiry Date | MMYY | To PMS / Both in case of a Top-Up authorization |
| | **$R** | Reference Number (Approval code) | AN, max. 20 | To PMS / Both in case of a Top-Up authorization |
| | **$T** | Card Type | AN, 2 chars | To PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **AS** | Answer Status | AN, 2 chars | To PMS |
| | **CT** | Clear Text | ANS, max. 64.000 **3** | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **TA** | Total Posting Amount | M, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $2 | Track 2 | AN, max. 40 | To PMS / Both in case of a Top-Up authorization |
| | $C **1** | Card Usage | N, 1 digit (see EFT Card Usage Table) | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $M | CVV Number | N, max. 3 (not currently supported) see also | From PMS |
| | $W | AVS verification data | ANS, max 500 (not currently supported) see also | From PMS |
| | CG | Cryptogram | ANS, max. 150 | To PMS |
| | GA **2** | Guest Arrival Date | D | From PMS |
| | GD **2** | Guest Departure Date | D | From PMS |
| | KC | Terminal ID | AN, max. 8 | From PMS |
| | PH | Hotel-ID | AN, max. 20 | Both |
| | PP | PrinterPort | N, 1 | To PMS |
| | IN | Issue Number | N, max. 2 | Both |
| | RT | Request Type | AN, max. 10 chars (see Request Type table) | From PMS |

| | | | | |
|---|---|---|---|---|
| | SD | Start Date | YYMM | Both |
| | | | | |

**1 -** Should only be defined if $K-record is used with different usage types.
**2** - not sent when request is originating in Deposit, A/R or similar areas of the PMS
3 – 64.000 characters for receipts, maximum 40 characters for text-descriptions during negative responses

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$O** | **$#** | Credit Card # | N, max. 23 | From PMS |
| (Settlement with Chipcard *and* prior authorization) | **$2 1** | Track 2 | AN, max. 40 | From PMS |
| | **$D** | Expiry Date | MMYY | From PMS |
| | **$R** | Reference Number (Approval code) | AN, max. 20 | From PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **AS** | Answer Status | AN, 2 chars | To PMS |
| | **CT** | Clear Text | ANS, max. 64.000 **4** | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **TA** | Total Posting Amount | M, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $C | Card Usage | N, 1 digit (see EFT Card Usage Table) | From PMS |
| | $F **2** | Audit Trail Number | AN, 16 chars | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $J **3** | Transaction Number | AN, max. 16 | To PMS |
| | $M | CVV Number | N, max. 3 (not currently supported) see also | From PMS |
| | $W | AVS verification data | ANS, max 500 (not currently supported) see also | From PMS |
| | CG | Cryptogram | ANS, max. 150 | From PMS |
| | DA | Date | D | From PMS |
| | GA | Guest Arrival Date | D | From PMS |
| | GD | Guest Departure Date | D | From PMS |
| | IM | Installments | N, max. 2 | From PMS |
| | IN | Issue Number | N, max. 2 | Both |
| | KC | Terminal-ID | AN, max. 8 | From PMS |
| | PH | Hotel-ID | AN, max. 20 | Both |
| | PP | Printer Port | N, 1 | To PMS |

| | | | | |
|---|---|---|---|---|
| | RT | Request Type | AN, max. 10 chars (see Request Type table) | From PMS |
| | SD | Start Date | YYMM | Both |
| | TI | Time | T | From PMS |
| | X1 - X9 | Cross-Reference data for printing | ANS, max. 25 | To PMS |

**1** - sent if the corresponding value was received from EFT vendor during **$K** or **$G**
**2** – can only be used, when $J is NOT used.
**3** – can only be used, when $F is NOT used.
**4** – 64.000 characters for receipts, maximum 40 characters for text-descriptions during negative responses

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$P** (Settlement with Chipcard *without* prior authorization) | **$#** | Credit Card # | N, max. 23 | To PMS |
| | **$D** | Expiry Date | MMYY | To PMS |
| | **$R** | Reference Number (Approval code) | AN, max. 20 | To PMS |
| | **$T** | Card Type | AN, 2 Chars | To PMS |
| | **G#** | Reservation Number | N, max. 10 | Both |
| | **AS** | Answer Status | AN, 2 chars | To PMS |
| | **CT** | Clear Text | ANS, max. 64.000 **3** | To PMS |
| | **S#** | Sequence Number | N, max. 15 | Both |
| | **TA** | Total Posting Amount | M, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | Both |
| | $2 | Track 2 | AN, max. 40 | To PMS |
| | $F **1** | Audit Trail Number | AN, 16 chars | From PMS |
| | $I | Merchant ID | AN, max. 16 | From PMS |
| | $J **2** | Transaction Number | AN, max. 16 | To PMS |
| | GA | Guest Arrival Date | D | From PMS |
| | GD | Guest Departure Date | D | From PMS |
| | KC | Terminal-ID | AN, max. 8 | From PMS |
| | PH | Hotel-ID | AN, max. 20 | Both |
| | IM | Installments | N, max. 2 | From PMS |
| | IN | Issue Number | N, max. 2 | Both |
| | RT | Request Type | AN, max. 10 chars (see Request Type table) | From PMS |
| | SD | Start Date | YYMM | Both |
| | X1 - X9 | Cross-Reference data for printing | ANS, max. 25 | To PMS |

**1** – can only be used, when $J is NOT used.

**2** – can only be used, when $F is NOT used.
**3** – 64.000 characters for receipts, maximum 40 characters for text-descriptions during negative responses

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$Q** | **G#** | Reservation Number | N, max 10 | From PMS |
| (Cancel Transaction) | **S#** | Sequence Number | N, max. 15 | From PMS |
| | **WS** | Workstation ID | AN, max. 16 | From PMS |
| | PH | Hotel-ID | AN, max. 20 | From PMS |
| | RT | Request Type | AN, max. 10 chars (See Request Type table) *Currently not supported* | From PMS |

| Record ID | Field ID | Description | Format | Direction |
|---|---|---|---|---|
| **$Y** | **G#** | Reservation Number | N, max 10 | To PMS |
| (Response to Cancel Transaction request) | **S#** | Sequence Number | N, max. 15 | To PMS |
| | **WS** | Workstation ID | AN, max. 16 | To PMS |
| | **AS** | Answer Status | AN, max. 10 Chars. (see Answer Status Table) | To PMS |
| | CT | Clear Text | ANS, max. 40 | To PMS |
| | PH | Hotel-ID | AN, max. 20 | To PMS |

# Examples

## 1. Card Type/Usage with Chipcard

Card Type/Usage request from the PMS, Sequence Number (**S#**) 1, Merchant ID (**$I**) 00747576, Reservation Number (**G#**) 12345, from FO-PC-1 (**WS**) :

**$K|S#**1|**$I**00747576|**G#**12345|**WS**FO-PC-1|**PH**08154711|

Card type/usage answer from the EFT to request (**S#**) 1, Reservation Number (**G#**) 12345, Credit Card Number (**$#**) 370000000000002, Expydate 12/05, Card Type (**$T**) VS, valid as Credit Card (**$C**), with Answerstatus (**AS**) 'OK' :

**$K|S#**1|**G#**12345|**$#**370000000000002|**$D**1205|**$T**VS|**$C**1|**WS**FO-PC-1|**AS**OK|**CT**Card acceptable|**PH**08154711|

The Fidelio workstation-ID (**WS**) should be used by the EFT-vendor system to identify the source of the request to map this request to the corresponding device. Changing this mapping table should be kept very easy, as this needs to be done every time when a PC is exchanged or another PC is added to the Hotel's network.

Notes: The sequence number (**S#**) and workstation-ID (**WS**) returned by the EFT must be the same as the one in the PMS request; this allows for multi-threading of requests. If the EFT is doing card type/usage

verification, the card types (**$T**) no longer use the PMS hardcoded card types and card number check digit schemes. The card types as defined in the EFT must now be defined also in the PMS configuration and enabled as Credit Card in 'Credit Limit'. The card usage (**$C**) values are specified in the EFT Card Usage Tables below. Hotel-ID (**PH**) may be used by the vendor system as additional attribute to the Merchant-ID for Hotel-Identification; only one Hotel-ID will be sent from a Fidelio interface per installation, definition of Hotel-ID is done on the Fidelio side. Hotel-ID (**PH**) is used as additional routing attribute in this example. A vendor may use this a further info to identify the source of a record, as the merchant-ID may be fixed to one value depending on the version of the Fidelio system. (It may **not** be assumed by a vendor that Fidelio would send a different merchant-ID based on the payment method.) Hotel-ID is specified as alpha-muneric. However: in most cases will this information be pure numeric. (Again: depending on the version of the Fidelio system.)

## 2. Authorization without prior Typecheck (no $K):

Authorization request from the PMS for the above guest, request made during Check-In (**RT** - for Request Type values see table below), Authorize 1000.00 (**TA**) requested from FO-PC-1 (**WS**) during Checkin (**RT**) , Terminal-ID (KC) = 02:

Note: **TA** will always be sent with a '.' (dot) as decimal separator regardless of the operating systems settings. The will not be any link to a currency. It is expected that the vendor system handles the same currency which the respective Hotel has set as base/local currency.

**$G|S#**2|**$I**00747576|**G#**12345|**RT**1|**TA**1000.00|**WS**FO-PC-1|**KC**02|

Authorization answer for Reservation Number (**G#**) 12345, Approved (**AS**OK), Approval Code (**$R**) 0729, and card details:
Cardnumber (**$#**)=370000000000002, Expirydate (**$D**)=1205; CardType (**$T**)=VS , Cryptogram (**CG**) = 376D67171490E3E7

**$G|S#**2|**G#**12345|**AS**OK|**$R**0729|**$#**370000000000002|**$D**1205|**$T**VS|**WS**FO-PC-1|**CG** 376D67171490E3E7|

Note: The reference number field (**$R**) when returned in an authorization request is the approval code. Value of CardType (**$T**) must be configurable as the Fidelio PMS may expect a different value for the same card depending on the respective Hotel's setup. The following is expected on the EFT system before the above answer was received:

- EFT system has connected to a device, which was internally mapped by checking **WS**
- Amount to be authorized was displayed to the guest and was acknowledged by the guest
- PIN verification has successfully taken place
- On-Line Authorization was successfully carried out
- All the above steps have been done within a maximum 60 seconds time frame. (If there is no result within 60 seconds must all transactions be cancelled and a corresponding error be returned to the Fidelio interface.)
- Cryptogram data (**CG**) was returned by the EFT system for storage within Fidelio
- The Terminal ID is the target Chip&PIN terminal. This value is configurable and linked against the Workstation from where the request comes. This field is optional, a vendor may use **WS** to do his own mapping.

Secondary Authorization (Top-Up) request from the PMS for the above guest for 500 extra ($+), Authorize as Credit Card, referencing the existing approval (**$R**):

**$G|S#**3|**$I**00747576|**G#**12345|**$R**0729|**$#**370000000000002|**$D**1205|**RT**4|**$C**1|**TA**1500.00|**$+**500.00|**WS** FO-PC-1|

Note: MICROS-Fidelio Front Office automatically calculates and makes secondary approvals when

necessary (i.e. when postings plus expected charges covering the rest of the guest's stay exceed the previously approved amount). Both the total amount (**TA**) and secondary amount (**$+**) are sent so that the EFT can decide on the appropriate action based on local floor limits or other factors. Secondary authorizations can also occur because of manual action taken by the user. **TA** will show the new total amount to be authorized, **$+** will show the currently additional requested amount. The returned authorization code is expected to cover the complete amount. Fidelio will later attach the last received authorization code to the actual settlement. The cryptogram (**CG**) will not be passed to the vendor system for top-up authorizations. Fidelio will store the cryptogram from the original authorization request and will pass this back at settlement time.

Different Answer scenarios:

Authorization answer for Reservation Number (**G#**) 12345, Denied (**AS**DN/CTDENIED):

**$G|S#**4|**G#**12345|**AS**DN|**CT**DENIED|**WS**FO-PC-1|

Authorization answer for Reservation Number (**G#**) 12345, Timeout (**AS**RY/CTDevice timed out):

**$G|S#**4|**G#**12345|**AS**RY|**CT**Device timed out|**WS**FO-PC-1|

'Referal' may not be used as return answer. The Fidelio PMS would identify the answer as 'negative' and would not accept the card details. The only answer status which will make Fidelio accept the card details is 'OK'.

### 3. Authorization with prior Typecheck (with $K):

Authorization request from the PMS for the above guest, request made during Check-In (**RT** - for Request Type values see table below), Authorize 1000.00 (**TA**) for cardnumber 370000000000002 (**$#**) with Expiry date 12/05 (**$D**) as Credit Card (**$C**) requested from FO-PC-1 (**WS**) during Checkin (**RT**) :

**$G|S#**7|**$I**00747576|**G#**12345|**$#**370000000000002|**$D**1205|**RT**4|**$C**1|**TA**1000.00|**WS**FO-PC-1|

Note: $2 is not passed on in this record, as it was not received during the type-check. Support for $2 may be completely removed in the future, as it may turn out that there is not need to store this information in the Fidelio system.

Authorization answer for Reservation Number (**G#**) 12345, Approved (**AS**OK), Approval Code (**$R**) 0730, and card details:
Cardnumber(**$#**)=370000000000002, Expirydate(**$D**)=1205; CardType(**$T**)=VS , Cryptogram (**CG**) = A411E83654571BF7

**$G|S#**2|**G#**12345|**AS**OK|**$R**0730|**$#**370000000000002|**$D**1205|**$T**VS|**WS**FO-PC-1|**CG** A411E83654571BF7|

### 4. Online Settlements with prior authorization

Settlement request from the PMS, Reservation Number (**G#**) 12345, Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/05, Settle 315.00 (**TA**) as Credit Card, Approval Code (**$R**) 0740, Cryptogram (**CG**) was A411E83654571BF7:

**$O|S#**8|**G#**12345|**$#**370000000000002|**$D**1205|**RT**4|**$C**1|**TA**315.00|**$R**0740|**WS**FO-PC-2|**CG**
A411E83654571BF7|

Acceptance of settlement record (**AS**OK) with Transaction-ID F12345ASD12 (**$J**):
In this example the vendor system passes on further detailed information for printout on the customers receipt (folio). The fields X1 .... X9 have been designed for flexible usage.
It is not anticipated that all nine field will become necessary, however all fields have been added for future use.

Here the fields have been filled as follows:

X1 = Application ID (AID)
X2 = Effective Date (Note: this is a STRING field, so in case a date should be sent/printed then the field needs to contain the corresponding formatting information (e.g. the '/' as separator))
X3 = Application Label
X4 = CVM (Cardholder Verification Method)
X5 = PAN Sequence Number

**$O|S#**8|**G#**12345|**AS**OK|**WS**FO-PC-2|**$J**F12345ASD12|**X1**A0000000031010|**X2**12/03|**X3**Visa Classic|**X4**
'Signature not required'|**X5**0815-4711|

Note: This is only an example of the usage of the X-fields. A future version of this documentation will contain recommendation for the usage of these fields.

Note: The X-fields are defined with a length of 25 characters maximum per field. However the total length of all X-fields may *not* exceed 200 characters.

Settlement void request from the PMS, Reservation Number (**G#**) 12723, Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/05, credit Amount (**TA**) 123.75, Audit Trail # (**$F**) 1272302, Cryptogram (**CG**) was A411E83654571BF7:

**$O|S#**21|**G#**12723|**$#**370000000000002|**$D**1205|**$C1|TA**-123.75|**$F**1272302|**WS**FO-PC-2|**CG**
A411E83654571BF7|

Note: MICROS-Fidelio does *not* support approval codes (**$R**) for voiding charges. This also affects the audit trail # (**$F**) Audit trail may be different . As well please note that a voided charge can be of a different amount then the prior settlement. Voiding of charges will be sent without prior (negative) authorization request.

Acceptance of settlement void record (**AS**OK):

**$O|S#**21|**G#**12723|**AS**OK|**WS**FO-PC-2|

## 5. Online Settlements without prior authorization

Settlement request from the PMS, Reservation Number (**G#**) 12345, Settle 425.00 (**TA**) :

**$P|S#**33|**G#**12345|**RT**4|**TA**425.00|**WS**FO-PC-2|

Acceptance of settlement record (**AS**OK) with Transaction-ID F12345ASD13 (**$F**), Approval Code A123 (**$R**) and card-details: Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/05, CardType = VISA (**$T**):

**$P|S#**33|**G#**12345|**AS**OK|**WS**FO-PC-2|**$J**F12345ASD13|**$R**A123|**$#**370000000000002|**$D**1205|**$T**VS|

Refund request from the PMS, Reservation Number (**G#**) 45678, Refund-Amount -200.00 (**TA**) :

**$P|S#**34|**G#**45678|**RT**4|**TA**-200.00|**WS**FO-PC-2|

Acceptance of refund record (**AS**OK) with Transaction-ID **J**F12388ASD15 (**$F**), Approval Code A124 (**$R**) and card-details: Card Number (**$#**) 370000000000002, Expiry Date (**$D**) 12/05, CardType = VISA (**$T**):

**$P|S#**34|**G#**45678|**AS**OK|**WS**FO-PC-2|**$J**F12388ASD15|**$R**A124|**$#**370000000000002|**$D**1205|**$T**VS|

Note: Refunds are made withOUT any relation to a prior settlement. It is very well possible to send money back to a card, where no payment was taken before.

## 6. Cancel Transaction

Cancel transaction may not refer to the last sent record of the Fidelio interface if running in a multi-threaded mode.

Scenario:
Settlement request from the PMS, Reservation Number (**G#**) 12345, Settle 425.00 (**TA**) :

**$P|S#**34|**G#**12345|**RT**4|**TA**125.00|**WS**FO-PC-2|

The Fidelio Interface is configured for a timeout of 60 seconds. If no response to the above request was received within 60 seconds will the following record be sent:

Cancel transaction request from the PMS,referring to: Reservation Number (**G#**) 12345, Sequence number 34 (**S#**) from PC FO-PC-2 (**WS**):

**$Q|S#**34|**G#**12345|**WS**FO-PC-2|

Response from EFT system after successful cancelation of the request (negative responses may not happen. It is assumed that the EFT system can cancel all transactions at any time.)

**$Y|S#**34|**G#**12345|**AS**OK|**WS**FO-PC-2|**CT**Successfully Cancelled

**NOTE:** The **S#** (Sequence Number) of the $Q record is not unique, but refers to the sequence of the record which should be cancelled !!!!

## 7. Printing of Receipts

With IFC8 it is now possible to send complete receipts instead of the separated print-fields. This allows dynamic changes to the receipt, e.g. adding of DCC information or different receipts based on different card types.
The contents of the receipts will be taken 'as-is' and will not be formatted in any way before printing. Only the positioning on the page can be adjusted (e.g. 'center').

Print information can be sent in **$G, $O** and **$P** records. The actual receipt is sent in the "**CT**" field. An additional field needs to be added to the link-records and to the transactions: "**PP**" (PrinterPort)
Setting printerport in the record identifies that the contents of the CT field is a receipt and should be printed. The default value for **PP** is '0'. Other values link the receipt to a specific printer on the Micros-Fidelio system: Values 1-7 can be used and link to the respective Printer-Index on the machine, where the Micros-Fidelio interface is running. This functionality can be used when different printers should be remotely driven, however it is recommended to leave choice of the printer to the Micros-Fidelio system. By default 1 printer is assigned per workstation from which requests can be made. This will be totally sufficient for most installations.

Example:
(Below is an example for a settlement. Authorization replies are handled in the same manner)

Request:

**$O|$#**4752XXXXXXX5570**|$D**XXXX**|$R**12345678**|G#**12345678**|S#**1**|TA**20000**|WS**1**|**

Response:

**$O|PP**0**|$#**4752XXXXXXX5570**|$D**XXXX**|AS**OK**|G#**12345678**|#S**1**|WS**1**|$J**12345678**|CT** Merchant Copy <CR><LF> Settlement Status = Settlement approved <CR><LF> Payment = VISA EMV <CR><LF> Terminal ID = 234 <CR><LF> AID Number = A12Q<CR><LF> <FF> <CR><LF> Customer Copy <CR><LF> Settlement Status = Settlement approved <CR><LF> Payment = VISA EMV <CR><LF> Terminal ID = 234 <CR><LF> AID Number = A12Q <CR><LF> Cardnumber = XXXXXXXXXXX5570 <CR>**|**

**NOTE:** All formatting information needs to be sent as described in the example above. "<CR>" is a placeholder for a Carriage Return, which must be sent as HEX-0A character. Same applies to all other formatting information.
It is highly recommended to allow configuration of these items so that adjustments can be made based on the installed printers.
See above: Micros-Fidelio will NOT make any changes to the received information but will process/print as-is.

Record length:
Receipts should not be 'endless' in length. The default maximum record length for FIAS records is 64.000 characters, longer records are not processed. Additionally, please remember that the receipts need to be printed and should always fit on one DIN A4 page in length.

Note: when sending receipt data to the PMS it is logically NOT possible to return meaningful information into ClearText (**CT**). Cleartext (**CT**) is ignored by the PMS when AnswerStatus (**AS**) = "OK". If AnswerStatus <>"OK" then the contents of Cleartext will be interpreted as information to the user why the request was denied.
If receipts need to be printed for negative responses too, then two records need to be sent to the interface:

1st response-record (No **AS**-field but with **RT** field and value='64):

**$O|PP**0**|$#**4752XXXXXXX5570**|$D**XXXX**|RT**64**|G#**12345678**|#S**1**|WS**1**|$J**12345678**|CT** Merchant Copy <CR><LF> Settlement Status = Settlement denied <CR><LF> Payment = VISA EMV <CR><LF> Terminal ID = 234 <CR><LF> AID Number = A12Q<CR><LF> <FF> <CR><LF> Customer Copy <CR><LF> Settlement Status = Settlement denied <CR><LF> Payment = VISA EMV <CR><LF> Terminal ID = 234 <CR><LF> AID Number = A12Q <CR><LF> Cardnumber = XXXXXXXXXXX5570 <CR>**|**

2nd response-record (No **PP** field):

**$O|$#**4752XXXXXXX5570**|$D**XXXX**|AS**DN**|G#**12345678**|#S**1**|WS**1**|$J**12345678**|CT**Request denied, insufficient funds**|**

# History

| Date | Version number and change description |
|---|---|
| 26 Mar 1992 | 1.00 - full duplex covered |
| 21 April 1992 | 1.01 - half duplex & physical transmission layer covered |
| 8 May 1992 | 1.02 - overall edit |
| 19 Feb 1993 | 1.03 - corrected use of control separator characters |
| 3 Nov 1993 | 1.04 - changed half duplex section to clearly indicate <ACK>0/<ACK>1 as <DLE>0/<DLE>1 |
| 10 May 1994 | 1.05 - only reformatting changes |
| 18 July 1994 | 1.06 - added usage of <ACK> as response in half duplex |
| 15 Sep 1994 | 1.07 - reformatted entire document, added notes for formatting control characters as data |
| 12 Jul 1995 | 1.08 - clarified responses for full duplex when no answer is received. |
| 9 Jan 1996 | 1.09 - only reformatting changes |
| 1 Aug 1996 | 1.10 - only reformatting changes |
| 12 Mar 1997 | 1.11 - removed half duplex protocol |
| 11 Feb 1998 | 1.12 - only reformatting changes |
| 28 Dec 2000 | 1.50 - addition of TCP/IP |
| 19 Nov 2001 | 1.51 - only reformatting changes |
| August 2003 | Version 1.60 - imported to HTML-Helpfile, reformatted document |

# Physical Transmission Layer

**Note**: This section only applies to asynchronous serial connections.

### Connection Types

Communication is handled using asynchronous data format. The transmission line characteristics are defined in CCITT V.24 and RS-232. The number of data bits may be seven (7) or eight (8); however, eight is necessary to be able to transmit multiple character sets. Number of stop bits is set to one (1). In order to enable single bit error correction, MICROS-Fidelio suggests the use of a parity bit; however, parity should be configurable to be Odd, Even, or None. The baud rate for the transmission should be user definable, with a recommended range of 1200 baud to 38400 baud. A peak rate of at least 9600 baud should be supported.

### Hardware Handshake

In order to be able to detect whether the other system is properly connected, the 'hardware handshake' lines can be employed. However MICROS-Fidelio raises the DTR and RTS lines only to indicate that the interface program is running; DTR and RTS do not fluctuate during program operation, nor are they used for byte-level flow control. The signal is dropped if the hotel user performs an orderly exit from the interface software. DSR and CTS as received from the vendor are recognized in the same fashion; that is, if the signals are high, MICROS-Fidelio will assume the vendor is available for communication. If the signal drops MICROS-Fidelio assumes that the vendor has entered maintenance or some other non-communicating state. Do not use the handshake lines for intra-record flow control. Note: as signal level can remain high when systems experience operational difficulties, signal monitoring is recommended as a secondary connection integrity check.

# Cabling

The MICROS-Fidelio Property Management System Interface hardware uses the following pinning of serial port connectors which can be either DB-9 or DB-25; DB-9 is the standard. MICROS-Fidelio operates as a DTE (data terminal equipment). Connectors on the interface PC are typically male; the vendor cable connector is therefore female. Note: Only pins which are used are shown.

**DB-9 Connector**

| PIN # | NAME | DESCRIPTION |
|---|---|---|
| case | | Shielding ground |
| 1 | DCD | Data Carrier Detect |
| 2 | RX | Receive |
| 3 | TX | Transmit |
| 4 | DTR | Data Terminal Ready |
| 5 | GND | Signal ground |
| 6 | DSR | Data Set Ready |
| 7 | RTS | Request to Send |
| 8 | CTS | Clear to Send |

**DB-25 Connector**

| PIN # | NAME | DESCRIPTION |
|---|---|---|
| 1 | | Shielding ground |
| 2 | TXD | Transmit |
| 3 | RXD | Receive |
| 4 | RTS | Request to send |
| 5 | CTS | Clear to send |
| 6 | DSR | Data set ready |
| 7 | GND | Signal ground |
| 8 | DCD | Data carrier detect |
| 20 | DTR | Data terminal ready |

# General Transmission Layer Considerations

Note: Most of the information in this section only applies to asynchronous serial connections. However, MICROS-Fidelio recommends that records are started and ended with link control bytes, even when using TCP/IP. Framing the data makes it easier to avoid record concatenation, as it is possible to find more than one record in the TCP/IP buffer when calling recv().

### Data Bytes Format

Records are composed of data bytes and link control bytes. The data portion of a record should not contain any bytes normally reserved for link control (Hex 00 through Hex 1B, and Hex 7F). The control characters from Hex 1C through Hex 1F are used by some systems as field separators; other control characters sometimes used as data (such as CR - Hex 0D and HT - Hex 0A) to indicate display formatting. When this is the case, these characters are considered as part of the normal data stream and do not require a preceding escape character; they are then also not available for use as link control characters. For most transmissions, the rest of the standard ASCII character set is sufficient (Hex 20 through Hex 7E); however, in order to support multiple alphabets, extended ASCII (Hex 80 - Hex FF) may be used. Data is passed in an unpacked format; it should not be packed in nibblized, BCD, or other formats.

### Link Control Bytes Format

Link control bytes are used to indicate the beginning and end of records, positive and negative responses, and provide other functionality such as flow control. Control bytes fall into the range from Hex 00 through Hex 1B (though Hex 7F is also a control byte). Many of these have standard definitions, though some usages are determined by interface protocol specifications. The implementation and use of specific control bytes is described below.

### Other Notes

Link level responses should always be sent within the timeouts detailed later. However, the sender always should be prepared to receive an <ACK>/<NAK> as soon as it transmits the LRC (or <ETX> if no transmission error checking is being done).

Some means of record level checking (as opposed to byte level parity checking) for transmission errors is highly desirable; for the half duplex protocol, it is required. This specification supports use of a Longitudinal Redundancy Character (or Vertical Parity). The standard LRC is calculated using a seed value of 0, and bitwise XORing each byte following the <STX>, including the <ETX>. This value is transmitted as a single ASCII character immediately following the <ETX> as the final character of the record. When the LRC that the receiver calculates matches the one transmitted by the sender, the receiver replies with an <ACK> and processes the record; otherwise, the receiver replies with a <NAK> and discards the last received record. The LRC may be any of the 256 characters in the ASCII character set, so receiving routines should be able to distinguish by the LRC's position in a record that it is not a link control byte if the LRC is an <STX>, <ETX>, etc.

# LRC calculation example

The following diagram demonstrates an LRC calculation (the data is '12345'):

| | | |
|---|---|---|
| bit | 7 6 5 4 3 2 1 0 | |
| <STX> | 0 0 0 0 0 0 1 0 | unused |
| LRC | 0 0 0 0 0 0 0 0 | seed |
| Byte 1 | 0 0 1 1 0 0 0 1 | '1' |
| LRC | 0 0 1 1 0 0 0 1 | |
| Byte 2 | 0 0 1 1 0 0 1 0 | '2' |
| LRC | 0 0 0 0 0 0 1 1 | |
| Byte3 | 0 0 1 1 0 0 1 1 | '3' |
| LRC | 0 0 1 1 0 0 0 0 | |
| Byte4 | 0 0 1 1 0 1 0 0 | '4' |
| LRC | 0 0 0 0 0 1 0 0 | |
| Byte5 | 0 0 1 1 0 1 0 1 | '5' |
| LRC | 0 0 1 1 0 0 0 1 | |
| <ETX> | 0 0 0 0 0 0 1 1 | |
| LRC | 0 0 1 1 0 0 1 0 | ‘2’ = transmitted LRC |

**<STX>12345<ETX>2**

# Full Duplex Protocol

## Overview

Full duplex communications means both systems can transmit and receive link or application level messages simultaneously. This does not mean implementing a half duplex protocol on full duplex hardware (see half duplex specification). In addition, the baud rate used in a specification only applies to individual bits in a byte; all bits, including start, stop, and parity (if used) will be transmitted at the specified baud rate. However, asynchronous communications means that the start bit of the next byte might not be transmitted within the next interval. Because of this, timeouts are implemented for transmission of a record; these, of course, depend on the maximum record length in an interface and the standard baud rate. There are also timeouts for link level responses.

Though both systems may be transmitting application level messages at the same time, it is most likely they will not finish transmission at the same time. Link level messages (either responses or flow control) should not be intermingled with application messages. For example, do not put an <ACK>/<NAK> response in the middle of the record being sent. If the other system finishes its transmission first, finish the local transmission completely and then transmit any line control sequences.

## Basic Full Duplex Description

There is no line bid (for full duplex, the <ENQ> is a response status inquiry after a response timeout, see below). Unless one system has sent an application level request to stop the link or lowered the hardware handshake lines (this is used only when the link is in an idle state), the link is always considered active.

The beginning of a record is marked by an <STX>. The data in the record is then sent in ASCII format, and the record terminates with an <ETX>. A general rule of thumb for calculating the transmitted record timeout is to divide the baud rate by 10 (1 start bit, 8 data bits, & 1 stop bit) to get number of characters per second, divide the result by the length of the longest record, then multiply the second result by 2. This is about twice as long as it should take to transmit a record with no inter-byte pauses.

MICROS-Fidelio strongly suggests using an LRC (see description above). The LRC is transmitted immediately following the <ETX>. Whether an LRC is used or not, when the receiving system determines it has gotten a complete record it sends a link level response within 3 seconds (this is a maximum timeout; hopefully, the response will be much quicker). If the receiving system is transmitting a data record, the beginning of the 3 second timeout period starts immediately after the end of the transmission. If no LRC is used, the response is always an <ACK>; if an LRC is used, the response (<ACK>/<NAK>) is based on the result of the LRC calculation.

If the sender receives an <ACK>, the link is now available for transmitting another record if there are more records to send. If the sender receives a <NAK>, the original record is transmitted again, retrying 3 times (for a total of 4 transmission attempts) as necessary. If a successful transmission cannot be completed (including <ACK>/<NAK> timeouts), the record is discarded, the error logged (implementation of error logging is up to the individual system), and link activity proceeds as if an <ACK>

had been received.

It is possible that the sender does not receive an <ACK> or <NAK> within the 3 second data record response timeout (timer 1). If this occurs, or if the sending system receives any character, it should respond with an <ENQ> within 3 seconds (timer 2). This is a prompt to the receiving system to retransmit its last <ACK> or <NAK> (do NOT retransmit the record), using the same 3 second timeout (timer 1) as for the original response. Any <ENQ>s received (other than as an LRC) after the 3 second timeout (timer 2) are invalid (respond with a <NAK>), (though this can trigger the retransmission of a record, this violates the timeouts specified in this protocol). Any character received other than an <ENQ> also resets the last response to a <NAK>. This prevents double postings in systems where charge data is transmitted.

### Full Duplex Link Control Bytes

<**STX**> (Hex 02) - <STX> is used to mark the beginning of a record. It is immediately followed by the data portion of the record.

<**ETX**> (Hex 03) - <ETX> is used to mark the end of the data portion; however, it is not part of the data.

<**ENQ**> (Hex 05) - <ENQ> is used to reinquire for logical layer response when an incorrect (not <ACK> or <NAK>) or no response was received. After transmitting a record, the sender should receive a response within 3 seconds. If no response is received by the end of the timeout, or an unexpected character (not <ACK>, <NAK> or <STX>) is received, the sender should transmit an <ENQ>. This process is retried up to 3 times as necessary. If an <ACK>/<NAK> response is never received, the record is discarded, and the sender logs an error.

<**ACK**> (Hex 06) - <ACK> represents positive acknowledgment of receipt of a valid transmission. Note: this is used for link level validation only; if a higher level validation is required (such as validating record types, or other record data), a high level data record should be returned by the receiving system with the data acceptance/rejection information. However, an <ACK> response to the original record is always required first.

<**NAK**> (Hex 15) - <NAK> is a request from the receiving system to have the sender retransmit the last data record because the receiver detected a transmission error. This is link level only (see note above in <ACK> description). Records that are <NAK>'ed should not be processed by the receiver at any higher level.

### Examples

- Normal transmission:

| Sender | | Receiver |
|---|---|---|
| <STX><data><ETX><lrc> | ➡ | |
| | ⬅ | <ACK> |

**Note**: For normal transmission the receiver should respond with an <ACK> within 3 seconds.

- Message received with incorrect LRC:

| Sender | | Receiver |
|---|---|---|
| <STX><data><ETX><%lrc%> | ➡ | |
| | ⬅ | <NACK> |
| <STX><data><ETX><lrc> | ➡ | |
| | ⬅ | <ACK> |

**Note**: If the receiver does not receive a valid LRC, it should respond with a <NAK> within 3 seconds. The sender then retransmits the original message. If the message cannot be successfully transmitted after three retries (total of 4 transmission attempts), the message is discarded, and both systems should log a transmission error.

- Low level response not recognized or not received within timeout:

| Sender | | Receiver |
|---|---|---|
| <STX><data><ETX><lrc> | ➡ | |
| | // ⬅ | <ACK> |
| | timeout or | |
| | ⬅ | <???> |
| <ENQ> | ➡ | |
| | ⬅ | <previous response> |

**Note**: If the sender receives an invalid response (not <ACK> or <NAK>), or does not receive any response within the 3 second timeout, it should send an <ENQ> within 3 seconds. The receiver then retransmits the original response.

# TCP / IP

## Overview

TCP/IP is available as a transport protocol layer as of Version 7 of the MICROS-Fidelio Interface program. As TCP/IP is a robust protocol that supports its own handshaking, transmission integrity checking, etc., it is not the intention of this document to redescribe how TCP/IP works. However, there are some options that MICROS-Fidelio has chosen to implement in a specific manner; for example, MICROS-Fidelio uses stream type TCP/IP, not datagram. These implementation details are listed below.

## Framing

Many applications that use TCP/IP simply send unframed data (i.e. they don't use link control bytes). However, since the low-level handshaking is performed by the TCP/IP stack, it is possible that a second data block may be sent before the receiving application has actually retrieved the first data block, even in a stream implementation. This results in a situation where the receiver has to be able to parse the data to insure that trailing data blocks are not accidentally discarded.

One approach is to implement a handshake at the application level; this can however slow the throughput which defeats one of the main gains of using TCP/IP. The other method is to add start and end of data link control bytes as a mechanism to clearly mark a record. Even if the application receives more than a single data block, it can easily parse out the first complete block and process it, storing any extra characters until it can locate another complete block. MICROS-Fidelio therefore requires the use of link control bytes even with TCP/IP.

## Client/Server

The interface program always acts as the server for the TCP/IP connection. A port, or service, number is configured at installation; this is the port to which the client should try to connect. The interface program listens indefinitely on that port for a connection request. Upon receiving a request, the listening thread accepts it and starts a communication thread for the data exchange on a different port. The communication thread reads any data received and checks at least once every 10 milliseconds whether there is something to be sent.

When the connection is closed by the client the interface keeps on listening for a new connection request.
Other systems that want to communicate using TCP/IP should therefore implement a client that establishes one connection and uses this for all communications.

***Note**: Only one client at a time can have a connection for a given port number, thus the Micros-Fidelio interface communicates to a single application ONLY. (Multiport connections are only possible with connections to Interface Version 8, but depend on the specific usage. Please contact your local Micros-Fidelio office about availability.)*

*After a successful connection the interface will keep listening on the given port. Should another connect request be received will the interface drop the original connection and connect to the client, which connected last.*
*This behavior is designed to allow a vendor to reestablish a broken link without restarting the Fidelio Interface.*
*However, as restarting the link may take several seconds, it is mandatory to keep an established connection open at all times.*

## Connection Mode

A persistent connection to the Fidelio interface is always required. The connection should be left up and running until the one of the systems needs to shut it down for maintenance purposes.
The communication is designed to be contained within a local area network infrastructure and not for communication through active components over the internet.

# Correct example of LS/LD/LA/LE

1. Interface and external system are started:

Interface sends LS to signal a start.

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

External system responds with LD and LR records and finally with LA

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:37 received DATA

-1>[0/0]☺LR|RI...

-->10:14:37 received DATA

-1>[0/0]☺LR|RI...

-->10:14:37 received DATA

-1>[0/0]☺LR|RI...

-->10:14:37 received DATA

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:37 received DATA

Interface verifies LR records and will reply with LA

**Note:** This may take up to 3 seconds. NO further record may be sent by the external system at this point until LA was received from the interface.

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:37 sent DATA

2. External system is restarted and can not know if the interface has received Link-Records before:

External system sends LS to signal a restart.

-1>[2/6]☺LS|DA010131|TI101410|♥

-->10:14:20 received DATA

a.) Interface will send LS now, in case it has not received any Link-Records since it was last restarted.

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

In this case the external system has to send LD and LRs now. (same as described above under 1.)

b.) Interface respondes with LA to signal that valid Linkrecords have been received.

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:37 sent DATA

The external system can now decide to send LA and start communicating, or to go back to the initialization sequence and send LD & LRs.

Both approaches are valid.

3. Link End

Any time the external system shuts down, it must send LE before closing the communication channel.

The interface will respond with an LE.

```
-1>[2/6]☺LE|DA010131|TI101410|♥

-->10:14:20 received DATA
```

```
<1-[0/0]☺LE|DA010131|TI101410|♥

<--10:14:37 sent DATA
```

No further data record can be exchanged now from either side until LA status has been reached again. (See above)

## 4. Alive-Check

The LS record can be used to check the activity of the link to the MICROS-Fidelio interface. (Might be useful on TCP connections through active devices like switches etc).
MICROS-Fidelio recommends NOT to send an LS as alive check more then once every 5 minutes.

```
-1>[2/6]☺LS|DA010131|TI101410|♥

-->17:16:20 received DATA
```

```
<1-[0/0]☺LA|DA010131|TI101410|♥

<--17:16:21 sent DATA
```

**NOTE:** The MICROS-Fidelio Interface will **NOT** respond with an LA to an LA while in Alive status !!!

General considerations:

Micros Fidelio recommends that a system using FIAS does not send a record right at startup but first waits for incoming records for up to 3 seconds.

If the Micros-Fidelio interface is running while the external system start, will it receive a record from the Micros-Fidelio interface in this timeframe. In TCP connections this will be a **LS** record. In RS232 connections it will more likely be an **ENQ** character.

The external system should initiate the communication if no record is received within 3 seconds.

Communication can be initiated by sending **LS** or **LD**.

# Usage of LS/LD/LA/LE Records

## Table of Contents

Please note that these are only examples to show how LA and LE records are used; the contents of other records and data contained in the fields therein may be incomplete or may not represent valid data.

Additional comments are marked with '####'.

1) LS (Link Start) records

a) IFC starts, then External System.

```
<1-[0/0]☺LS|DA010131|TI101410|♥
<--10:14:10 sent DATA
                        #### We always start with LS and
                        #### expect an ACK in response.

<--10:14:20 TIMEOUT from waiting for ACK

<1-[2/6]♣
<--10:14:20 sent ENQUIRY
                        #### ENQ (looking for a response to
                        #### LS). Note: ENQ represents
                        #### 'transmitter did not receive
                        #### any response from receiver in
                        #### regards to the last record' i.e.
                        #### our LS.

<--10:14:22 TIMEOUT from waiting for ACK
                        #### We still wait for an ACK to
                        #### our LS.

<1-[2/6]♣
<--10:14:22 sent ENQUIRY
                        #### ENQ (looking for response to LS)

<--10:14:27 TIMEOUT from waiting for ACK
```

<1-[2/6]♣

<--10:14:27 sent ENQUIRY

#### ENQ (looking for response to LS)

-1>[2/6]§

-->10:14:27 received NOT ACKNOWLEDGE

#### NAK received, this simply means

#### 'I did not receive your last

#### record, please resend'.

<1-[2/2]☺LS|DA010131|TI101410|♥

<--10:14:27 sent DATA

#### We resend our last record i.e. L

<--10:14:37 TIMEOUT from waiting for ACK

#### Again, we wait for an ACK to

#### our LS.

<1-[2/6]♣

<--10:14:37 sent ENQUIRY

#### ENQ (looking for response to LS)

-1>[2/6]§

-->10:14:37 received NOT ACKNOWLEDGE

#### NAK received - resend last

#### record.

<1-[2/2]☺LS|DA010131|TI101410|♥

<--10:14:37 sent DATA

#### We resend our last record i.e.LS

-1>[2/3]♠

-->10:14:37 received ACKNOWLEDGE

#### We now get ACK'ed and proceed.

#### And are now ready to start init

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:37 received DATA

<1-[0/0]♠

<--10:14:37 sent ACKNOWLEDGE

-1>[0/0]☺LR|RI...

-->10:14:37 received DATA

<1-[0/0]♠

<--10:14:37 sent ACKNOWLEDGE

.

..

...

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:37 received DATA

<1-[0/0]♠

<--10:14:37 sent ACKNOWLEDGE

#### Init continues, both sides

#### are now in sync.

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:37 sent DATA

-1>[2/3]♠

```
-->10:14:37 received ACKNOWLEDGE
```

b) IFC starts, while External System was still running

```
<1-[0/0]☺LS|DA010131|TI101410|♥
<--10:14:10 sent DATA
-1>[2/3]♠
-->10:14:10 received ACKNOWLEDGE

-1>[4/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥
-->10:14:10 received DATA
<1-[4/0]♠
<--10:14:10 sent ACKNOWLEDGE

-1>[0/0]☺LR|RI...
-->10:14:10 received DATA
<1-[0/0]♠
<--10:14:10 sent ACKNOWLEDGE

-1>[0/0]☺LA|DA010131|TI101410|♥
-->10:14:10 received DATA
<1-[0/0]♠
<--10:14:10 sent ACKNOWLEDGE

<1-[0/0]☺LA|DA010131|TI101410|♥
<--10:14:10 sent DATA
-1>[2/3]♠
-->10:14:10 received ACKNOWLEDGE
```

c) External System starts, then IFC

```
(#### We do not see their LS, so we may receive an ENQ).
```

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]♠

-->10:14:10 received ACKNOWLEDGE

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

-1>[0/0]☺LR|RI...

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]♠

-->10:14:10 received ACKNOWLEDGE

d) External System starts while IFC is still running;

(#### Link was previously Alive)

-1>[0/0]☺LS|DA010131|TI101410|♥

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]♠

-->10:14:10 received ACKNOWLEDGE

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:10 received DATA

#### External system **must** send either an

<1-[0/0]♠

#### **LA** record or **LD**/**LR**/**LA** otherwise the

<--10:14:10 sent ACKNOWLEDGE

#### link will remain inactive.

e) Both systems start simultaneously, without any conflict

(#### External system has been waiting 3 seconds for messages from IFC but did not receive one.)

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]☺LS|DA010131|TI101410|♥

-->10:14:10 received DATA

<1-[2/3]♠

<--10:14:10 sent ACKNOWLEDGE

-1>[2/3]♠

-->10:14:10 received ACKNOWLEDGE

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]♠

-->10:14:10 received ACKNOWLEDGE

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

-1>[0/0]☺LR|RI...

->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]♠

-->14:10:21 received ACKNOWLEDGE

f) Both systems start simultaneously, with conflict

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

-1>[2/3]☺LS|DA010131|TI101410|♥

-->10:14:10 received DATA

<1-[2/3]♠

<--10:14:10 sent ACKNOWLEDGE

<--10:14:20 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:20 sent ENQUIRY

-1>[2/6]§

-->10:14:20 received NOT ACKNOWLEDGE

<1-[2/2]☺LS|DA010131|TI101410|♥

<--10:14:20 sent DATA

-1>[2/3]♠

-->10:14:20 received ACKNOWLEDGE

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:20 sent DATA

-1>[2/3]♠

-->10:14:20 received ACKNOWLEDGE

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:20 received DATA

<1-[0/0]♠

<--10:14:20 sent ACKNOWLEDGE

-1>[0/0]☺LR|RI...

-->10:14:20 received DATA

<1-[0/0]♠

<--10:14:20 sent ACKNOWLEDGE

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:20 received DATA

<1-[0/0]♠

<--10:14:20 sent ACKNOWLEDGE

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:20 sent DATA

-1>[2/3]♠

-->10:14:20 received ACKNOWLEDGE

2) LE (Link End) records

a) External System shuts down while IFC is still running, then IFC shuts down

```
-1>[0/0]☺LE|DA010131|TI101410|♥
-->10:14:20 received DATA
<1-[0/0]♠
<--10:14:20 sent ACKNOWLEDGE

<1-[0/0]☺LE|DA010131|TI101410|♥
                        #### Our high-level response
<--10:14:20 sent DATA
-1>[2/3]♠
-->10:14:20 received ACKNOWLEDGE
                        #### IFC is now in 'LE' state

20010131 10:14:20 : Program terminated.
                        #### CTRL-F10 stops IFC
                        #### immediately, no LE sent (not
                        #### required as external system is
                        #### already shut down).
```

b) External System shuts down, IFC not running

```
(### i.e. IFC sent no LE, crashed or ALT-F10 used).
.
..
...
```

c) IFC shuts down (with CTRL-F10) while External System is still running

```
<1-[0/0]☺LE|DA010131|TI101410|♥
```

```
<--10:14:20 sent DATA


<--10:14:30 TIMEOUT from waiting for ACK
                        #### No ACK: this should not
                        #### normally occur and is here
                        #### only as an example to show that
                        #### IFC waits for an ACK before
                        #### shutting down.
<1-[2/6]♣
<--10:14:30 sent ENQUIRY


-1>[2/6]♠
-->10:14:30 received ACKNOWLEDGE

20010131 10:14:30 : Program terminated.
                        #### IFC terminates on receipt of an
                        #### ACK.
```

d) IFC shuts down (with CTRL-F10) while External System not running
(#### it sent no LE before shutdown).

<1-[0/0]☺LE|DA010131|TI101410|♥

<--10:14:10 sent DATA

<--10:14:20 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:20 sent ENQUIRY

<--10:14:25 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:25 sent ENQUIRY

<--10:14:31 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:31 sent ENQUIRY

<--10:14:36 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:36 sent ENQUIRY

<--10:14:41 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:41 sent ENQUIRY

<--10:14:46 TIMEOUT from waiting for ACK

```
20010131 10:14:46 : Comm.problem: retries expired
20010131 10:14:46 : running
20010131 10:14:46 : Program terminated.
                        #### After 5 retries (ENQs) IFC
                        #### terminates.
```

e) Shutting down simultaneously, IFC ‘first’

```
<1-[0/0]☺LE|DA010131|TI101410|♥
<--10:14:10 sent DATA
                        #### IFC sends LE 'first'.

-1>[2/3]☺LE|DA010131|TI101410|♥
-->10:14:10 received DATA
                        #### External system sends LE at
                        #### 'same' time.
<1-[2/3]♠
<--10:14:10 sent ACKNOWLEDGE
                        #### IFC ACKs their LE.

-1>[2/3]♠
-->10:14:10 received ACKNOWLEDGE
                        #### They ACK our LE.

<1-[0/0]☺LE|DA010131|TI101410|♥
<--10:14:10 sent DATA
                        #### Our High-level response to
                        #### their LE.
-1>[2/3]♠
-->10:14:10 received ACKNOWLEDGE
                        #### IFC terminates on receipt of
                        #### an ACK.

20010131 10:14:10 : Program terminated.
```

f) Shutting down simultaneously, IFC ‘first’, no ACK from External System

<1-[0/0]☺LE|DA010131|TI101410|♥

#### IFC sends LE 'first'.

<--10:14:10 sent DATA

-1>[2/3]☺LE|DA010131|TI101410|♥

#### External system sends LE at

-->10:14:10 received DATA

#### 'same' time.

<1-[2/3]♠

<--10:14:10 sent ACKNOWLEDGE

#### IFC ACKs their LE.

<--10:14:18 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:18 sent ENQUIRY

<--10:14:23 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:23 sent ENQUIRY

<--10:14:28 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:28 sent ENQUIRY

<--10:14:33 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:33 sent ENQUIRY

<--10:14:38 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:38 sent ENQUIRY

<--10:14:43 TIMEOUT from waiting for ACK

#### IFC times out on waiting for
#### response to our LE
#### After 5 retries (ENQs) IFC
#### would normally terminate,
#### however we still need to respond
#### to their LE.

20010131 10:14:43 : Comm.problem: retries expired

<1-[0/0]☺LE|DA010131|TI101410|♥

<--10:14:43 sent DATA

#### Our High-level response to
#### their LE.

<--10:14:53 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:53 sent ENQUIRY

<--10:14:58 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:58 sent ENQUIRY

<--10:15:03 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:15:03 sent ENQUIRY

<--10:15:08 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:15:08 sent ENQUIRY

<--10:15:13 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:15:13 sent ENQUIRY

<--10:15:18 TIMEOUT from waiting for ACK

20010131 10:15:18 : Comm.problem: retries expired

20010131 10:15:18 : running

20010131 10:15:18 : Program terminated.

#### IFC now terminates.

g) Shutting down simultaneously, External System first

(#### this time External System sends LE 'first')

-1>[0/0]☺LE|DA010131|TI101410|♥

-->10:14:10 received DATA

<1-[0/0]♠

<--10:14:10 sent ACKNOWLEDGE

<1-[0/0]☺LE|DA010131|TI101410|♥

<--10:14:10 sent DATA

#### External system does not ACK

#### CTRL-F10 is pressed on IFC PC

<--10:14:20 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:20 sent ENQUIRY

<--10:14:25 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:25 sent ENQUIRY

<--10:14:30 TIMEOUT from waiting for ACK

<1-[2/6]♣

<--10:14:30 sent ENQUIRY

<--10:14:35 TIMEOUT from waiting for ACK

<1-[2/6]♣

```
<--10:14:35 sent ENQUIRY

<--10:14:40 TIMEOUT from waiting for ACK

<1-[2/6]♣
<--10:14:40 sent ENQUIRY

<--10:14:45 TIMEOUT from waiting for ACK

20010131 10:14:45 : Comm.problem: retries expired
20010131 10:14:45 : running
20010131 10:14:45 : Program terminated.
                        #### IFC shuts down correctly.
```

**TCP-IP Implementations:**

Implementations using TCP/IP can be considered less complicated as al

3) LS (Link Start) records

a) IFC starts, then External System.

```
<1-[0/0]☺LS|DA010131|TI101410|♥
<--10:14:10 sent DATA
                        #### We always start with LS and
                        #### expect an LD record as response.
                        #### When connecting to our TCP-Port the
                        vendor system
                        #### receives this LS and can process
                        accordingly.

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥
```

```
-->10:14:37 received DATA
                          #### Now we are waiting for the LRs and the LA
                          #### which signals the end of the Link Record
                          sequence



-1>[0/0]☺LA|DA010131|TI101410|♥
-->10:14:37 received DATA

                          #### Init is finished, both sides
                          #### are now in sync.

<1-[0/0]☺LA|DA010131|TI101410|♥
<--10:14:37 sent DATA
```

b) IFC starts, while External System was still running

```
<1-[0/0]☺LS|DA010131|TI101410|♥
<--10:14:10 sent DATA
                          #### We always start with LS and
                          #### expect an LD record as response.

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥
-->10:14:37 received DATA
                          #### Now we are waiting for the LRs and the LA
                          #### which signals the end of the Link Record
                          sequence
```

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:37 received DATA

#### Init is finished, both sides

#### are now in sync.

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:37 sent DATA

c) External System starts, then IFC

As IFC is not running, no TCP connection can be made. the external system should regularly try to reconnect to see if IFC has been restarted. Once IFC can be reached the sequence is the same as listed above under a):

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

#### We always start with LS and

#### expect an LD record as response.

#### When connecting to our TCP-Port the vendor system

#### receives this LS and can process accordingly.

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:37 received DATA

#### Now we are waiting for the LRs and the LA

#### which signals the end of the Link Record sequence

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:37 received DATA

#### Init is finished, both sides

#### are now in sync.

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:37 sent DATA

d) External System starts while IFC is still running,

IFC will drop the TCP-Port upon receiving a LE and will re-open it waiting for a connection request.
Subsequently the startup sequence will be the same as listed above under a).

<1-[0/0]☺LS|DA010131|TI101410|♥

<--10:14:10 sent DATA

#### We always start with LS and

#### expect an LD record as response.

#### When connecting to our TCP-Port the vendor system

#### receives this LS and can process accordingly.

-1>[0/0]☺LD|DA010131|TI101410|V#1.01|IFPB|♥

-->10:14:37 received DATA

#### Now we are waiting for the LRs and the LA

#### which signals the end of the Link Record sequence

-1>[0/0]☺LA|DA010131|TI101410|♥

-->10:14:37 received DATA

#### Init is finished, both sides

#### are now in sync.

<1-[0/0]☺LA|DA010131|TI101410|♥

<--10:14:37 sent DATA

4) LE (Link End) records

Each system should wait for the LE from the other system before dropping the port. IFCs timeout for waiting for this response is 2 seconds.

a) External System shuts down while IFC is still running, then IFC shuts down

-1>[0/0]☺LE|DA010131|TI101410|♥

-->10:14:20 received DATA

<1-[0/0]☺LE|DA010131|TI101410|♥

<--10:14:20 sent DATA

#### The TCP port is now dropped.

#### It may take a few seconds before IFC opens another listening port.

b) IFC shuts down

<1-[0/0]☺LE|DA010131|TI101410|♥

<--10:14:20 sent DATA

-1>[0/0]☺LE|DA010131|TI101410|♥

-->10:14:20 received DATA

#### The TCP port is now dropped.

# Appendix A - FAQ

This section contains answers to frequently asked questions.

- Do I have to send the link startup sequence (LD/LR)?

We strongly recommend that the link startup sequence is sent if you receive a Link Start (LS) record from MICROS-Fidelio. If it is not sent, you will receive only default records with default formats or in newer versions of the Micros-Fidelio Interface program you will not receive any record any more at all and incoming records will be ignored. There are very few situations where the defaults are useful, as they are quite limited, not defined in the specification, and may change at any time. There may be a point where no default record formats are supported.

- Which records should I describe in the link startup sequence?

It is best to send a Link Record (**LR**) for all records that you wish to use, not just the ones that you will receive, but also the ones that you will send (not currently required, though helpful for installation and maintenance, and may be required in future versions). The only records you don't need to describe are the Link records themselves (**LS/LD/LR/LA/LE**) and the Database records (**DR/DS/DE**), these records have fixed formats and cannot be changed.

- What do I include in the Link Record (LR) as Field List (FL) if a record has multiple uses?

Include all fields in the **FL** that you will use, regardless of which direction the record is sent. For example, the Room Equipment (**RE**) record can be used both to control Message Lamps (**ML**), Do Not Disturb (**DN**), and to report Room Status (**RS**) from the external system. The same applies for Guest Data change (**GC**); it can be used for Guest Info/Name change and also for Room Moves. Only send one **LR** for such records.

- Do I have to send the **LD/LR/LA** sequence every time at startup?

No. This is dependent on what you receive as a response to your Link Start (**LS**). If you receive an **LS**, this means that the MICROS-Fidelio interface has been restarted while your software was stopped; you must re-describe your record formats. If you receive a Link Alive (**LA**) when you send an **LS**, this means that MICROS-Fidelio still recognizes your interface. You may resend the **LD** and **LR** records if you wish to change your configuration, or you may just send the **LA** to finish opening the link.

- Shall I answer Link Alive (**LA**) records with an **LA** record?

Only if you did not send an **LS** or **LA**. This is in most cases sent by MICROS-Fidelio in response to one of these two records having been sent by the other system

- What should I do if I receive a <ENQ> at startup?

This means that MICROS-Fidelio has been sending a record, usually a Link Start (**LS**) or Link End (**LE**). If you are using the full-duplex low level protocol, respond with a <**NAK**> to indicate that you have not received a valid record (**Half-Duplex** is not supported any more - January 2003). (For legacy interfaces using a half-duplex protocol, you should respond to the first <**ENQ**> with an <**NAK**> to resynchronize the protocol.)

- Do I need to do an inquiry before posting charges?

If your system can support guest identification through some other means (for example, virtual numbers used as PIN codes), or if the charges you send are room-based (such as Minibar), then no inquiry is necessary. For restaurant charges, inquiries should be sent only for payment methods that require guest identification. For cash or other payment types that are sent for audit purposes (all charges are posted to a pre-configured account), no inquiry should be sent.

- What are the recommended features for POS?

We recommend that POS systems (generally referring to guest-oriented charges) support inquiries as well as postings. Most hotels are interested in being able to track charges by time of day; to do this you should include the Serving Time (**ST**) field to indicate breakfast, lunch, dinner, or other meal periods. Itemization (i.e. sending subtotal fields with respective tax and discount fields where applicable for various menu categories such as food, beverage, etc.) is also considered a high priority by many hotels. Lastly, many hotels wish to have the transfer of non-room charges such as cash, EFT, and A/R supported.

- Can monetary fields contain a decimal character? If not, do they always contain 2 implicit decimal places?

Monetary fields contain no implicit decimal character. As most currencies support 2 decimal places, this is the default behavior. If you work with currencies without decimal places, you should still include them in monetary fields. If you work with currencies with more than 2 decimal places, send your amounts as is (but without the decimal character). MICROS-Fidelio can be configured to scale the charges down by factors of 10 to obtain the correct amount.

- Do I need to send response messages for Wake-ups?

It is strongly recommended that you send them so that if a Wake-up fails, the hotel staff can be notified to wake the guest by some other means.

- What records should be used for Dynamic Virtual Number assignment?

Use the Room Equipment Assign (**RA**) to assign and unassign Virtual Numbers to physical telephone lines. The Room Equipment (**RE**) records can be used to control COS the same

as with fixed telephone extensions.

- There are Record Types/fields that we would like to see included in the spec. How can this be done?

Please contact the MICROS-Fidelio Regional Interface Department at the telephone or fax numbers, or write us at the addresses provided above.

# IF - Interface Types

(Used by PMS to determine the screen display for the requested interface type and to activate/deactivate certain functionalities.)

| Interface Type (Family) | Code |
|---|---|
| Call Accounting | **CA** |
| Key Services System (Door Locking) | **DL** |
| EFT (Electronic Funds Transfer) | **EF** |
| Energy Management | **EM** |
| Minibar | **MB** |
| TMS / PBX Gateway | **PB** |
| POS | **PO** |
| Pay TV / Extended Video Services | **VI** |
| Voice Mail | **VM** |
| Miscellaneous / Data Retrieval System | **MS** |
| In-Room Internet Systems | **WW** |

# AS - Answer Statuses

| Code | Supported Interface Types | Meaning |
|---|---|---|
| **AA** | PBX - DID-Response | Virtual Number already assigned |
| **AN** | PBX - DID-Response | Virtual Number not found |
| **BM** | VSS/remote check-out | Balance mismatch |
| **BY** | Wakeup/<br>Key Services | Telephone / Encoder Busy |
| **CD** | VSS/remote check-out | Check-out date is not today |
| **CO** | POS Systems | Posting denied because overwriting the CreditLimit is not allowed (not used with Suite8) |
| **DE** | Wakeup/Key | Wakeup/Key has been deleted |
| **DM** | POS systems | Sum of subtotals doesn't match TotalAmount |
| **DN** | EFT | Request denied |
| **FX** | Guest related requests | Guest  not allowed this feature |
| **IA** | Guest related requests | Invalid account |
| **NA** | All systems | Night Audit |
| **NF** | VSS/remote check-out | Feature not enabled or Check-out process not running |
| **NG** | All information requests | Guest not found |
| **NM** | Message/Locator request | Message/Locator not found |
| **NP** | POS Systems | Posting denied for this guest (NoPost flag has been set) |
| **NR** | Wakeup | No Response |
| **OK** | All systems | Command or request completed successfully |
| **RF** | EFT | Referral |
| **RY** | All systems | Retry |
| **SV** | Wakeup | Wakeup has been sent to external system |
| **UR** | All systems | Unprocessable request, this request cannot be carried out , no retry |

# GL - Guest Languages

The following are the most commonly used defaults.

| Language | Code |
|---|---|
| English / American | **EA** |
| French | **FR** |
| German | **GE** |
| Italian | **IT** |
| Japanese | **JA** |
| Spanish | **SP** |

# KT - Key Types

| Code | Meaning |
|---|---|
| **N** | New key request. Cancels any existing keys |
| **D** | Duplicate key request. Any existing keys remain valid/active. |
| **O** | One shot key. Key is only valid for use once |

# PT - Posting Types

| Code | Meaning |
|---|---|
| **C** | Direct charge, record **must** include Total Amount (**TA**) field |
| **M** | Minibar charge, record **must** include Minibar Article (**MA**) field, and Minibar count(**M#**), posting is by PMS using article number/count |
| **T** | Telephone charge, record **must** include Meter Pulse (**MP**) field, call charge is calculated by PMS. (Not supported by **PR** record only **PS** record.) |

# CS - Class of Service (COS)

| Code | Meaning |
|---|---|
| **0** | Barred/hotel internal only |
| **1** | Local |
| **2** | National |
| **3** | No restrictions |

# MR, VR, TV - Guest Rights

| Type | Accepted statuses |
|---|---|
| **MR** – Minibar rights | **MU** - unlock Minibar |
| | **MN** – Minibar normal vending |
| | **ML** - lock Minibar |
| **TV** – Pay TV rights | **TU** – unlimited pay channels (default) |
| | **TM** - no Pay movies |
| | **TX** - no Adult movies |
| | **TN** - no TV rights |
| **VR** – Video rights | **VA** - view bill & remote c/o (default) |
| | **VB** - only view bill |
| | **VN** - no video rights |

**Note:** Video rights have the following precedence: **VN**, no rights; **VB**, view bill only; **VA**, all rights (view bill and remote check-out allowed). It is not possible to block view bill rights and still allow remote check-out.

Pay TV rights have the following precedence: **TN**, no rights (no TV channels); **TM**, all Pay channels blocked; **TX**, Adult Pay channels blocked; **TU**, all rights (includes all Pay channels). With TV rights it is not possible to block normal Pay channels and allow Adult pay channels.

# RS - Room Maid Statuses

| Code | Room Maid Status |
|---|---|
| **1** | Dirty/Vacant |
| **2** | Dirty/Occupied |
| **3** | Clean/Vacant |
| **4** | Clean/Occupied |
| **5** | Inspected/Vacant |
| **6** | Inspected/Occupied |

Further values may be possible depending on the Hotels PMS setup. The maximum length for the RS field is defined with N,2. Some PMS systems can support even longer values.

**Note:** It is NOT possible to change a room to a status like "Out-of-Order" or "Out-of-Service". This would influencing the number of available rooms and cannot be done on an external system but only in the PMS itself.

# RT - EFT Authorization, Settlement and other Request Types

**RT** in **$U, $A**, **$S**, **$G**, **$O** and **$P**
**T**he request types represent the source of the transaction within the Fidelio PMS.

Basic Request Types

| Code | Meaning |
|---|---|
| **1** | Check-In |
| **2** | Deposit |
| **4** | Other |
| **128** | Check Out |
| **256** | Accounts Receivable |

Descriptive Request Types

| Code | Meaning |
|---|---|
| **16** | Card was swiped in the PMS |
| **512** | Customer is NOT present (not supported in all Fidelio systems) |
| **1024** | Transaction was generated due to a No-Show (not supported in all Fidelio systems) |
| **2048** | Transaction is based on a cash-withdrawal (not supported in all Fidelio systems) |
| | |
| | |
| | |

Note: Descriptive RequestTypes are added to basic RequestTypes. Multple descriptive RequestTypes can be sent, but only ONE of the basic RequestTypes will be used to describe the source of a transaction.
The values are BIT-oriented and are send as numeric values.

e.g.: A transaction is originated from Accounts Receivable (256) and was Swiped (16) so **RT** would be filled with "272"

**RT** in **$Q - NOT CURRENTLY SUPPORTED**

| Code | Meaning |
|---|---|
| **1** | Cancel due to timeout |

| | |
|---|---|
| **2** | Cancel due to an unexpected reply which was received by the Fidelio Interface |
| | |
| | |

**RT** in **LD** (request values in **LC** record)

| Code | Meaning |
|---|---|
| **1** | Request the configured Roompayment methods in **RP** |
| **2** | Request EFT-Timeout in **A0** |
| **4** | Request PMS version in **A1** |
| **8** | *not used* |
| **16** | Request IFC version in **A3** |
| **32** | Request IFC Driver Version in **A2** |
| **64** | *not used* |
| **128** | Request DLS-timeout in **A0** |
| | |

Note: The above values can be added to combine the request.

**RT** in **KR**

| Code | Meaning |
|---|---|
| **1** | *not used* |
| **2** | *not used* |
| **4** | Request keydata in **$3** field in **KA** record |
| | |

**RT** in **XM**

| Code | Meaning |
|---|---|
| **0** | do not change message status to "received" during request action |
| **1** | change message status to "received" during request action |
| | |
| | |

# EP / ET - Equipment Status (DID)

EquipmentStatus (**EP**) and EquipmentStatusOld (**ET**)

| Code | Meaning |
|---|---|
| **0** | Un-assign a DID number |
| **1** | Assign a DID-number |
| **2** | Keep an assigned number |
| **3** | Move an assigned number<br>(Only possible during Room-Move) |
| | |

# Appendix C - Field ID and Codes Table

| Field ID | Description | Format | Record IDs where this field is allowed |
|---|---|---|---|
| **$#** | Credit Card Number | N, max. 23 | $A, $S, $U, $K, $G, $O, $P |
| **$+** | Secondary Authorization Amount | M, max. 15 | $A, $G |
| **$1** | Track 1 | AN, max. 40 | KR, KM |
| **$2** | Credit Card Track 2<br>/<br>Fidelio standard Track 2 format | AN, max. 40<br><br>AN, max. 16 | $A, $S, $U, $K, $G, $O, $P<br>PR<br>KR, KA, KM |
| **$3** | Track3 data from Keysystems -> data which is used on the key-device to open the guest room | AN, max. 200 | KA |
| **$C** | Card Usage | N, 1 digit<br>(see EFT Card Usage Tables) | $A, $S, $U, $K, $G, $O, $P |
| **$D** | Expiry Date | N, 4 chars. (MMYY) | $A, $S, $U, $K, $G, $O, $P |
| **$F** | Audit Trail Number | AN, 16 chars | $S, $O, $P |
| **$I** | Merchant ID | AN, max. 16 | $A, $B, $S, $U, $Z, $K, $G, $O, $P |
| **$J** | Transaction Number | AN, max 16 | $S, $V, $O, $P<br>XL |
| **$M** | CVV - Number ( | N, max. 3 | (not currently used) |
| **$N** | Batch Number | N, max. 16 | $B, $E , $Z |
| **$R** | Reference Number (Approval Code) | AN, max. 20 | $A, $S, $G, $O, $P |
| **$T** | Card Type<br>(As defined in Fidelio) | AN, 2 chars | $U, $K, $G, $O, $P |
| **$W** | AVS verification data (separated by semicolon(s)) | ANS, max 500 | (not currently used) |
| **A0 - A9** | User Definable Fields | ANS, variable | GI, GC<br>KR, KM<br>PL |

| | | | |
|---|---|---|---|
| **AS** | Answer Status | AN, 2 chars<br>(see Answer Status table) | $A, $E, $S, , $K, $G, $O, $P, $Y<br>KA, KZ<br>LP,<br>PA,<br>XC (RCKO Response),XB<br>WA |
| **BA** | Balance Amount | N, max. 20<br><br>M, max. 20<br>(may include decimal point depending on local currency) | XB, XC (RCKO request),<br><br>PL |
| **BD** | Item Description | AN, max. 25 | XI |
| **BI** | Item Amount | N, max. 20 | XI |
| **C#** | POS - Check Number | N, max. 8 | PA, PL, PR, PS |
| **CG** | Cryptogram | AN, max. 150 chars | $G; $O |
| **CL** | Credit Limit | M, max 15<br>(may include decimal point depending on local currency) | PL |
| **CO** | Credit Limit Override Flag | AN, 1 char (Y/N) | PR, PS |
| **CS** | Class Of Service | AN, max. 1<br>(see COS table) | RE<br>GI/GC |
| **CT** | Clear Text | ANS, variable<br>(depends on usage) | $A, $S, , $K, $G, $O, $P, $Q, $Y<br>KR, KM, KA, KZ<br>LO, LP,<br>PA, PS, PR<br>RE (VM, DN, RS),<br>XC (RCKO response) |
| **CV** | Number Of Covers | N, max. 5 | PR, PS |
| **D1 - D9** | Discount 1 – 9 | M, max. 15 | PR, PS |
| **DA** | Date | D | $B, $E, $Z,<br>DE, DR, DS,<br>GC, GI, GO,<br>KA, KD, KR, KM, KZ<br>LA, LD, LE, LS,<br>LF, LO, LP,<br>NS, NE,<br>PA, PL, PR, PS,<br>XB, XC, XD, XI, XL,<br>XM, XR, XT,<br>WR, WC, WA |

| | | | |
|---|---|---|---|
| **DC** | Department Code | N, max. 4 | XI |
| **DD** | Dialed Digits | N, max. 20 | PS, PR |
| **DN** | Do-Not-Disturb Status | AN, max. 1<br>(Y, enable/N, disable) | RE |
| **DT** | Departure (Check-out) Time | HH:MM (as defined in PMS) | KR (KTN, KTD), KM, KZ |
| **DU** | Duration | T | PS |
| **EN** | Equipment Number | AN, max. 8 | GI, GC, GO, VA |
| **EP** | Equipment Pool-ID | N, max. 2 | GI, GC, GO, VA |
| **ES** | Equipment Status | AN, 1 char<br>(A, assign / U, unassign) | GI, GC, GO, VA |
| **F#** | Window/Folio Number | N, 1 | XI |
| **FD** | Item Display Flag | AN, 1 char (Y/N) | XI |
| **FL** | Field List | ANS, variable | LR |
| **FS** | Field Separator | ANS, 1 char | **NOT SUPPORTED !!** |
| **G#** | Reservation Number | N, max. 10 | $A, $S, $U, $K, $G, $O, $P, $Q, $Y<br>KD, KR (KTN, KTD), KA, KM, KZ<br>GI, GC, GO,<br>LO, LF, LP,<br>PR, PL, PA,<br>RE (ML),<br>XB, XC, XD, XI, XL, XM, XR, XT |
| **G+** | Profile Number | N, max. 10 | PL, PR, GI, GC |
| **GA** | Guest Arrival Date | D | $A, $S, $K, $G, $O, $P<br>GI, GC<br>KR (KTN, KTD), KM<br>$S, $A,<br>PL |
| **GD** | Guest Departure Date | D | $A, $S, $K, $G, $O, $P<br>GI, GC<br>KR (KTN, KTD), KM, KZ<br>$S, $A,<br>PL |
| **GF** | Guest First Name | ANS, max. 20 | GC (Guest Info/Name Change), GI, PL |

| | | | |
|---|---|---|---|
| **GG** | Guest Group Number | AN, max. 10 | GC (Guest Info/Name Change), GI,<br>KR, KM<br>PL |
| **GL** | Guest Language | AN, max. 10<br>(see Guest Language table) | GC (Guest Info/Name Change), GI,<br>PL |
| **GN** | Guest Name | ANS, max. 40 | GC (Guest Info/Name Change), GI,<br>KR (KT=N, KT=D), KM, KZ<br>PA (Response to PR ), PL, PR |
| **GP** | Guest PIN (DID) | N, max. 5 | VA |
| **GS** | Share Flag | AN, 1 char (Y/N) | GC, GI, GO |
| **GT** | Guest Title | ANS, max. 20 | GC (Guest Info/Name Change), GI, PL |
| **GV** | Guest VIP Status | AN, max. 20 | GC (Guest Info/Name Change), GI,<br>PL |
| **ID** | User ID | AN, max. 16 | PA, PL, PR, PS,<br>KR, KD, KM<br>RE |
| **IF** | Interface Family | AN, 2 chars<br>(see Interface Type table) | LD |
| **IN** | Issue Number<br>(UK Only!) | N, max. 2 | $A, $S, $K, $G, $O, $P |
| **K#** | Key Count | N, max. 2 | KR<br>$K, $G, $O, $P |
| **KC** | Key Coder | AN, max. 8 | KA, KD, KR, KZ, KM |
| **KO** | Key Options | AN, max. 20 | KR (KT=N & KT=D), KZ |
| **KT** | Key Type | AN, max. 1<br>(see Key Type table) | KR |
| **LT** | Locator Expiry Time | T | LO, LP |
| **M#** | Number Of Articles | N, max. 2 | PR, PS |
| **MA** | Minibar Article | N, max. 4 | PR, PS |
| **MX** | Maximum Guest Match | N, max. 1 | PR |
| **MI** | Message ID | N, max. 8 | XD, XL, XM, XT |
| **ML** | Message Light Status | AN, 1 char (Y/N) | RE |
| **MP** | Meter Or Tax Pulse | N, max. 10 | PS |

| | | | |
|---|---|---|---|
| **MR** | Minibar Rights | AN, 2 char<br>(see Guest Rights table) | GC (Guest Info/Name Change), GI,<br>RE (Minibar) |
| **MT** | Message Text | ANS, variable (max 1000, or as defined in the LD-record) | XL, XT |
| **NP** | No Post Flag | Y/N | GI, GC, PL |
| **P#** | Posting Sequence Number | N, max. 4 | PA, PL, PR, PS |
| **PC** | Posting Call Type | AN, 1 char | PR, PS |
| **PH** | Hotel-ID | AN, max. 20 | $K, $G, $O, $P, $Q (as add-on info to the merchant-ID)<br>LC |
| **PI** | Inquiry Data | AN, max. 10 | PR |
| **PM** | Payment Method<br>/<br>PMS Payment Method | AN, max. 5<br><br>AN, max. 5 | PR, PS<br><br>PL |
| **PP** | Printer Port | N, 1 | RE (VM, DN, RS), $G, $O |
| **PT** | Posting Type | AN, 1 char<br>(see Posting Type table) | PR (except PTT), PS |
| **PX** | Posting Route (i.e. Trunk) | N, max. 6 | PS |
| **PU** | Number of Persons | N, max. 2 | RE |
| **RI** | Record ID | ANS, 2 chars | LR |
| **RL** | Maximum *Message* Record Length | N, variable<br>(max. record length is 2000) | LD |
| **RN** | Room Number | AN, max. 8 (can be longer with Suite8 or OPERA-PMS) | GC, GI, GO,<br>RA, RE,<br>KD, KR, KM, KZ<br>LF, LO, LP,<br>PA, PL, PR, PS,<br>XB, XC, XD, XI, XL,<br>XM, XR, XT,<br>WA, WC, WR<br>VA |
| **RO** | Old Room Number | AN, max. 8 | GC (Room Move)<br>KM (Room Move) |
| **RP** | Configured Roompayment methods | ANS, no max. | LC |

| | | | |
|---|---|---|---|
| **RS** | Room Maid Status | N, 1<br>(see Room Maid Status table) | RE |
| **RT** | Request Type | AN, 2 chars,<br>(see Request Type table) | LD<br>$A, $S, $V, $O, $G, $P<br>KR, KM<br>XM |
| **S#** | Sequence Number | N, max. 15 | $A, $B, $S, $U, $Z, $K, $G, $O, $P, $Q, $Y |
| **S1 -S9** | Subtotal 1 – 9 | M, max. 15 | PR, PS |
| **SC** | Service Charge | M, max. 15 | PR, PS |
| **SD** | Start Date<br>(UK Only !) | YYMM | $A, $S, $K, $G, $O, $P |
| **SF** | Swap Flag | No data (if this field is sent, the record is part of a DB swap) | GI, GO |
| **SI** | Suite Info | AN, max. 30 | KR, KD , KM, KZ |
| **SO** | Sales Outlet | N, max. 5 | PA, PL, PR, PS |
| **ST** | Serving Time | N, max. 4 | PR, PS |
| **T#** | Table Number | N, max. 4 | PR, PS |
| **T1 - T9** | Tax 1 – 9 | M, max. 15 | PR, PS |
| **TA** | Total Posting Amount | M, max 15 | PS, PR, $A, $S |
| **TI** | Time | T | $B, $E, $Z,<br>DE, DR, DS,<br>GC, GI, GO,<br>KA, KD, KR, KM, KZ<br>LA, LD, LE, LS,<br>LF, LO, LP,<br>NE, NS,<br>PA, PL, PR, PS,<br>XB, XC, XD, XI, XL,<br>XM, XR, XT,<br>WA, WC, WR |
| **TP** | Tip | M, max. 15 | PR, PS |
| **TV** | TV Rights | AN, 2 char<br>(see Guest Rights table) | GC (Guest Info/Name Change), GI,<br>RE |
| **UO** | Suite Info for Old Room | AN, max. 30 | KM |
| **V#** | Vendor Version Number | AN, max. 10 | LD |
| **VM** | Voice Mail | AN, max. 4 | RE |

| | | | |
|---|---|---|---|
| **VR** | Video Rights | AN, 2 char<br>(see Guest Rights table) | GC (Guest Info/Name Change), GI, |
| **WS** | Workstation ID | AN, max. 16 | $A, $B, $E, $S, $U, $Z, $K, $G, $O, $P, $Q, $Y<br>KA, KD, KR, KM, KZ<br>PA, PL, PR, PS |
| **X1** | Cross Reference Data | AN, max. 25 | PS, PR |
| **X1-X9** | Custom Print Fields | AN, max. 25 | $O, $P |
| | | | |
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