



# **Billing System Output File Specification**

**Service Information Record (SIR) Format**

**For**

**Call Detail Records (CDR) and  
Data Detail Records (DDR)**

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## About This Document

### Purpose

The purpose of this document is to outline the operation of File Transfer Protocol (FTP) site which is made available to service providers and their billing provider to download Service Information Records (SIR) for Call Detail Records (CDRs) and Data Detail Records (DDRs)

The document also defines the structure of the SIR files and a description of the fields, their format and use that are contained within.

### Scope

This document provides an overview of the SIR files that are necessary to support a working interface between Emersion and Service Providers with regard to billing information.

### Document Conventions

The following conventions are used throughout this manual to describe information and procedures:

*Italics* Indicates the name of a field.



The ⓘ symbol indicates some useful information or a handy tip.

### Document Control

Version	Date	Description	Author / Amendment
2.0	13/2/2009	Release	Paul Dundas
2.1	24/3/2009	Added three additional fields to the SIR spec: <ul style="list-style-type: none"><li>• Rate plan ID</li><li>• Package plan ID</li><li>• Package subscription ID</li></ul>	Paul Dundas
2.2	28/04/2011	Updated to support the new systems features and provide better visibility to the structure and billing used to generate SIRs	Martin Edge
2.3	29/04/2011	Modify to allow for support of Data Records and new naming conventions	Paul Dundas
3.0	1/06//2011	Release	Paul Dundas

## Introduction

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The Emersion Billing System is designed to allow an easy and secure way to connect to Emersion's FTP site and download SIR files in order for Service Providers to complete their billing and reconcile bills.

Emersion may update the system to improve your experience, the addition of extra features and changes may occur beyond the date of the creation of this document. Therefore, some information in this version of the manual may become out of date. Always check with Emersion to ensure you are working with the latest version of this manual.

## Service Information Records

Service Information Records (SIR) for Call Detail Records (CDRs) and Data Detail Records (DDR) are generated in the same interval as they are retrieved from the Suppliers system (i.e. daily for most Suppliers).

The Emersion Service Information Records a single SIR file structure that contains a record Identifier and records are split into the following categories:

- **Usage records**
  - Generally event based traffic which may consist of call traffic, data consumption, content downloads, SMS, and other usage types. They will also include usage that is to be credited (CR).
- **Non usage records**
  - Will include once off type charges such as call out fee, purchase of equipment etc.
- **Reversal records**
  - A reversal record will be used where a usage record has been delivered and should be withdrawn / reversed.
  - Reversal records will be identical to the original record being withdrawn except the DRCR field will be reversed e.g. the original record has DR the reversal record will contain a CR
- **Access records**
  - Recurring fee type charges will include access charges, service and equipment charges etc.
- **Adjustment records**
  - Generally used to adjust usage records for rate plan changes (two records will occur for each adjustment one reversing the original record DR to CR and a new record with the updated charges DR).

## Assumptions Made

The following assumptions have been made:

- You have an internet connection, and are capable of establishing a connection to Emersion's Systems
- You are familiar with File Transfer Protocol (FTP) methods and you can competently use them.
- You have been provide access through the Emersion Firewall for the IP addresses for the machine(s) or network subnet(s) that will be downloading the SIR's
- If there are no records to go out in a given file an empty SIR file will be produced with Header and Trailer records.
- Usage that is to be credited will be sent through as record type 1 with the DRCR field populated as CR

## SIR Files

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This file can contain a mixture of service types and usage types, which can be differentiated using the *Supplier ID*, *Service Type ID*, *Record Type* and *Service ID* or *Charge ID* field in each SIR.

### System Requirements

- FTP client software.  
Emersion recommends you use a reliable, and preferably well known, FTP client.
- Emersion FTP site log in details.  
The Emersion Provisioning team will provide you with your specific FTP log in account and password.
- Recipient Source IP Addresses.  
IP Address(es) must be provided to Emersion to restrict access to the Emersion FTP site (to be provided by the SP on the Establishment Form or a work order ticket).

### FTP Site

The SIR files are available from the Emersion FTP Site:

<ftp.bms.emersion.com.au>

The files are made available for a minimum of 35 days by default. After this time Emersion may purge the SIRs from the FTP Site, archive them offsite and charge for recovery.

The Service Provider is responsible for archiving any SIRs after this time.

### FTP Site Structure

Once you have logged in to the Emersion BMS FTP site, you will see a folder called BMS. Under the BMS folder, there are a number of sub-folders:

- common                contains information common to all Emersion Clients (e.g. reference tables).
- docs                   contains documentation common to all Emersion Clients (e.g. user manuals and other Emersion documents)
- reports                reports generated for the service provider
- data                    contains the SIR files specific to a Service Provider. Download your SIR files from here using your FTP client or system.

### Values and Taxes

Please note that all values transmitted in the SIR files are Tax exclusive. The Tax type to be applied to each record (If any) will be indicated in the *Tax ID* field of the file.

## SIR File Format

The Emersion SIR file will be used to transfer data between system applications.

Files produced will be ASCII and comply with CSV ("Comma Separated Values") standards.

All Files will have an ".EME" extension.

Files will be provided in a Zip Format to reduce file sizes.

File Naming Conventions are detailed in Appendix 1.

File Format is detailed in Appendix 2: Table 1 - SIR File Format.

### Separators & Quoting

- Each record is one line.
- Outbound SIR Files will only send LF (0x0A) Line separators.
- Fields are separated with commas.

### STRING Fields

- ALL STRING Fields are always delimited with double quotes - the delimiters that will be parsed and discarded by the reading applications.
- Leading and trailing whitespace is preserved – as all STRING fields are delimited with double-quotes.
- Embedded commas are preserved – as all STRING fields are delimited with double-quotes.
- Embedded line separator LF (0x0A) or CRLF (0x0D0A) NOT ALLOWED –will NEVER be embedded in the data (making a record more than one line).
- Embedded double-quotes NOT ALLOWED - will NEVER be embedded in the data (making a record more than one line).

### NUMERIC Fields

- Numeric Fields (Integer and Decimal) are never Quoted
- Integer values will contain no decimals or decimals point
- Decimal values will be of type float with 7 digit precision (after the decimal point)

### DATE and TIME fields

- Dates/Time fields will be represented in the [ISO8601 format](#) YYYY-MM-DD hh:mm:ss. For instance 2008-10-04 12:34:22 would signify that the call was made at on the 4th of October, 2008 at 12:34:22.
- Date fields will be represented in the [ISO8601 format](#) YYYY-MM-DD.
- Time fields will be represented in the [ISO8601 format](#) hh:mm:ss.
- Dates and Date Time Fields are not quoted

## Appendix 1 –SIR File Naming Convention

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### SIR File naming convention

The following information is separated by underscores (\_) to form the file name.

- **SIR** specifies that this is a Service Information Record based file.
- **Receiver ID** is the ID of the receiving party.
- **Date** is the date the extract was run in *CCYYMMDD* format (i.e. 20080801).
- **File sequence-number** can be used to verify a list of files in sequences that are received by the receiver.

For example: SIR\_ 88\_20110431\_101.EME

In the above example we can ascertain the following:

- **SIR** specifies that this is a Service Information Record based file.
- **Receiver ID** is 88.
- **Date** of the file is 31<sup>st</sup> April 2011.
- **Sequence-number** of the file is 101 and as such this is the 101st file this receiver should have received.
- This file uses the default format Identifier.



## Appendix 2 –SIR File Format

**Table 1 - SIR File Format**

Field	Format	Max Width	Mandatory / Optional	Notes
Record Type	Integer	2	Mandatory	Two digit value sets the record type <b>See Table 4 - Record Type</b>
Supplier ID	Integer	3	Mandatory	This will contain an ID which refers to the carrier system with which this service exists
Service Type ID	Integer	3	Mandatory	Service Type ID within the system. This can be used to determine which product you are dealing with. <b>Mapping table is available within the Cumulus User Interface Reports Section.</b>
Account ID	Integer	17	Mandatory	The Account ID for the End User within the system.
Service ID	Integer	17	Optional	The unique system identifier for a given service. This will not change even if plans are changed.
Tariff ID or Product ID	Integer	17	Mandatory	This contains the Tariff ID applied to the charge by the umbrella billing system. For non-usage this will generally be our Product ID. <b>Mapping tables are available within the Cumulus User Interface Reports Section.</b>
Time Band ID	String	16	Optional	When present, this is the text description for a time band. Examples are 'Off Peak' and 'Peak'.
Description	String	128	Mandatory	This will contain a description of the tariff based on the Tariff Description.
Supplemental Description	String	128	Optional	An additional description used to provide extra information. For non-usage records this represents the description carried inbound from an external supplier.
Currency ID	Integer	3	Mandatory	This will contain an identifier that refers to the Currency Type ID that should be applied to this record.
Tax ID	Integer	3	Mandatory	This will contain an identifier that refers to the tax type that should be applied to this record. Note that all charges within the records exclude the tax component. <b>See Table 5 – Tax-ID</b>
Service Type Code	String	2	Mandatory	<b>Table 11 - Service Type Code</b>
Charge ID	String	256	Mandatory	This will contain the number or Identifier that was charged, or should be used for charging. See accompanying tables for use and formatting examples: <b>Table 6 Charge-ID - Full National Telephone Number</b> <b>Table 7 - Charge-ID –Simplified Full</b>

Field	Format	Max Width	Mandatory / Optional	Notes
				<b>National Number</b> <b>Table 8 - Charge-ID -Mobile Service Number</b> <b>Table 9 - Charge-ID - Uniform Resource Identifier</b> <b>Table 10a - Charge-ID - Username</b>
Destination Number	Integer	20	Optional	This will contain the destination number of the call.
Terminated Number	Integer	20	Optional	This will contain the terminated number of the call.
Date Start	Date	10	Optional	This will contain the date in which the call was made. This will be in the <a href="#">ISO8601 format YYYY-MM-DD</a>
Time Start	Time	8	Optional	<b>hh:mm:ss</b> . For instance 12:34:22 would signify that the call was made at 12:34:22
Date End	Date	10	Optional	This will contain the date in which the call was ended. This will be in the <a href="#">ISO8601 format YYYY-MM-DD</a>
Time End	Time	8	Optional	<b>hh:mm:ss</b> . For instance 12:34:22 would signify that the call was made at 12:34:22
Unit Type Id	Integer	3	Mandatory	This will contain the unit type. Current values are in <b>Table 12 - Unit-type-id</b>
Units	Integer	8	Mandatory	This will contain the amount of units which are of the type specified by unit-type-id. <b>For DDR records (data services), this will be the session length in seconds.</b>
Download	Integer	17	Optional	Used for DDR records (data services), this is the downloaded data in bytes.
Upload	Integer	17	Optional	Used for DDR records (data services), this is the uploaded data in bytes.
Rated Amount	Decimal	16	Mandatory	This will contain the rated amount as a float with up to 7 digit precision, excluding any tax components. Decimal point is used.
Charged Amount	Decimal	16	Mandatory	This will contain the charged amount as a float with up to 7 digit precision, excluding any tax components. Decimal point is used.
Invoiced Amount	Decimal	16	Mandatory	This will contain the invoiced amount as a float with up to 7 digit precision, excluding any tax components. Includes any discounts, billing profile calculation adjustments, Free calls etc. Decimal point is used.  <b>The Invoiced Amount is the end product or rating and charging and is what you are invoiced.</b>
DRCR	String	2	Mandatory	This field is used by the SP to asses if the amount is a credit (CR) or a charge (DR)
Package Plan ID	Integer	17	Optional	Package Plan used to create the SIR

Field	Format	Max Width	Mandatory / Optional	Notes
Service Plan ID	Integer	17	Optional	Service Plan used to create the SIR
Rate Card ID	Integer	17	Optional	Rate Plan ID for the plan used to create this SIR.
BoltOn Plan ID	Integer	17	Optional	Bolt On Plan used to create the CDR
Package subscription ID	Integer	17	Optional	Unique Identifier linking records related to a bundle of services.
Service Subscription ID	Integer	17	Optional	Identifier for the subscription currently active for a given service.
Bolt On Subscription ID	Integer	17	Optional	If present, the subscription ID for a Bolt On if currently active on a service.
Feature Subscription ID	Integer	17	Optional	If present, the subscription ID for a Service Feature if currently active on a service.
Package Period ID	Integer	17	Optional	An ID which represents the billing period for the package subscription that the SIR fell into
Service Subscription Period ID	Integer	17	Optional	An ID which represents the billing period for a service subscription that the SIR fell into.
Bolt On Subscription Period ID	Integer	17	Optional	An ID which represents the billing period for a bolt on subscription that the SIR fell into.
Feature Subscription Period ID	Integer	17	Optional	An ID which represents the billing period for a feature subscription that the SIR fell into.
Session ID	String	50	Optional	An Identifier for a session generally used in data services.
Origin IP Address	String	20	Optional	IP Address if supplied generally used on data services.
Additional Info 1	String	128	Optional	
Additional Info 2	String	128	Optional	
Additional Info 3	String	128	Optional	
Additional Info 4	String	128	Optional	
Additional Info 5	String	128	Optional	
Additional Info 6	String	128	Optional	
Additional Info 7	String	128	Optional	
Additional Info 8	String	128	Optional	
Additional Info 9	String	128	Optional	
Additional Info 10	String	128	Optional	
Additional Info 11	String	128	Optional	
Additional Info 12	String	128	Optional	
Additional Info 13	String	128	Optional	
Additional Info 14	String	128	Optional	
Additional Info 15	String	128	Optional	
Additional Info 16	String	128	Optional	

Field	Format	Max Width	Mandatory / Optional	Notes
Additional Info 17	String	128	Optional	
Additional Info 18	String	128	Optional	
Additional Info 19	String	128	Optional	
Additional Info 20	String	128	Optional	

Nb. Additional Info Fields will be present for each record regardless of whether they contain any data.  
If they are empty they will contain opening and closing double quotes only.

## Appendix 3 – CDR File Header and Footer Records

**Table 2 - CDR File Header Record**

Field	Format	Max Width	Values	Description
Record type	Integer	2	0-9	Will be: 0
Source system	String	128		Emersion
Destination	Integer	3	0-9	Unique service provider Identifier (Receiver ID)
File registration sequence number	Integer	9	0-9	Unique batch number which applies to file
File event date	Date	10	YYYY-MM-DD	Date file was created
Account ID	Integer	17	0-9	The Account ID for the Service Provider being supplied the CDR

**Table 3 - CDR File Trailer Record**

Field	Format	Max Width	Values	Description
Record type	Integer	2	0-9	Will be: 99
Source system	String	128		Emersion BMS
Destination	Integer	3	0-9	Unique service provider Identifier (Receiver ID)
File registration sequence number	Integer	9	0-9	Unique sequence ID which applies to file
File event date	Date	10	YYYY-MM-DD	Date file was created
Charge	Decimal	16		This will contain the total charge for the file as a float with up to 7 digit precision, excluding any tax components.
Charge DRCR	String	2	Mandatory	This field is used by the Service Provider to asses if the amount is a credit ( <b>CR</b> ) or a charge ( <b>DR</b> )
Invoiced Amount	Decimal	16		This will contain the total Invoiced Amount as a float with up to 7 digit precision, excluding any tax components. (Includes any discounts, billing profile calculation adjustments, Free calls etc).
Invoice DRCR	String	2	Mandatory	This field is used by the SP to asses if the amount is a credit ( <b>CR</b> ) or a charge ( <b>DR</b> )
Record count	Integer	9	0-9	Number of records in the file excluding header and trailer record

## Appendix 4 – CDR Field Values

**Table 4 - Record Type**

Value	Description
0	Header Record
1	Usage Record
2	Non Usage Record
3	Reversal Record
4	Access Record
5	Adjustment Record
99	Trailer Record

**Table 5 – Tax-ID**

Value	Description	Percentage
1	Tax Exempt	0%
2	Australian GST	10%

**Table 6 Charge-ID - Full National Telephone Number**

Service Type Code = “A”

Examples: Charge-ID = “20398689300” or

Charge-ID = “20396345154 0 0000”

Charge-ID Use (subparts are fixed width)	Format	Fixed Width	Values	Description
Area Code Length	String (Numeric)	1	2, 3, 4	Indicates the length of the area code in the EPAC field in the common number layout.
EPAC Code	String (Alpha Numeric)	6		A national telephone number consists of 3 parts: Area Code, Exchange Prefix and Line Number. For example, for 03-9868 9300, 03 = Area Code, 9868 = Exchange Prefix and 9300 = Line Number.  The combination of Exchange Prefix and Area Code is known as EPAC. EPAC is an entity used to identify data groupings.
Line Number	String (Numeric)	4		The last four digits of a national telephone number. This 4 digit line number is one of the three components that make up the complete national telephone number.

Primary Extension Suffix	String (Alpha Numeric)	1		A one character code that indicates the type of extension on a primary service number.
Primary Extension ACL	String (Numeric)	1		The area code length of a primary extension service of a service number.  Only present if Primary Extension Suffix non-blank. Usually same as main number.
Primary Extension EPAC Code	String (Alpha Numeric)	6		The exchange prefix area code data grouping of a primary extension service of a service number.  Only present if Primary Extension Suffix non-blank. Usually same as main number.
Primary Extension Line Number	String (Numeric)	4		The last four digits of a primary extension service number.  Only present if Primary Extension Suffix non-blank

**Table 7 - Charge-ID –Simplified Full National Number**

Service Type Code = “B”

Examples: Charge-ID = “61398689300”

Charge –ID use	Format	Max Width	Values	Description
e.g. PSTN	String (Numeric)	11		Presented like the following example 61398689300 not 0398689300.

**Table 8 - Charge-ID -Mobile Service Number**

Service Type Code = “M”

Examples: Charge-ID = “61417102815”

Charge –ID use	Format	Max Width	Values	Description
e.g Mobile Service MSN	String (Numeric)	11		Presented like the following example 61417102815 not 0417102815.

**Table 9 - Charge-ID - Uniform Resource Identifier**

Service Type Code = “E”

Examples: Charge-ID = “XXX#1234567890” or

Charge-ID = “222.122.122.122” etc.

Charge –ID use	Format	Max Width	Values	Description
Uniform Resource Identifier	String (Alpha Numeric plus some special characters	255		RFC 3986 used for URL's (DNS locations, web addresses) and URN's (e.g. DSLID's),  E.g. Email address will follow standard convention xxx@xxxx.xxx(.xx)

**Table 10a - Charge-ID - Username**

Service Type Code = “U”

Examples: Charge-ID = “email@realm.com.au”

Charge-ID = “Bill\_Jones”

Charge –ID use	Format	Max Width	Values	Description
Username	String (Alpha Numeric plus some special characters	255		RFC 3986 used for Usernames),

**Table 11 - Service Type Code**

Value	Description
A	Full National Telephone Number
B	Simplified Full National Number
M	Mobile Service Number
E	Uniform Resource Identifier
U	Username



**Table 12 - Unit-type-id**

Value	Description
1	Seconds
2	Event
3	Kilobytes
4	Minutes
5	Pulses
6	Item
7	Megabytes (1,000 Bytes)
8	Bytes
9	Gigabytes (1,000 Megabytes)

## Further Information

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For further information about Emersion's Services please contact Emersion.

If you are using Emersion on agreement from a supplier (i.e. in connection with the supply of a particular service or product), and have been provided a login for Emersion by your supplier, please contact your supplier directly for assistance.

### Emersion Software Systems

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### Emersion Web Site

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## Notes