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SU/IFS/003

benefits agency

POST OFFICE

To: Roy Smethurst ICL Pathway
Ray Jackson POCL
Mike Trotter PDA Library

Date: 16-December-1997

From: Bob Booth

Subject: Landis & Gyr Document

Attached the last part of Landis & Gyr's promised Quantum documentation.

Please remember that this is commercially sensitive and in line with other documents should not be left out unattended etc.

Regards

GRO

DO NOT COPY

Bob

GRO

(Attached 22 pages)

Anne, Please see page 2 re: Page numbering

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Our reference
Date December 9, 1997
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Quantum Specification - H1 1290 6974 Pages 1 to 21 only.

Dear Bob

Please find attached the relevant sections of the above document, for use in the Horizon development.

Yours sincerely

Landis & Gyr Utilities (UK) Ltd
Project Management Team

GRO

Raj Rao
Project Manager

Enc.

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Landis & Gyr Utilities (UK) Ltd

AGENCY UTP PROJECT

FILE INTERFACE SPECIFICATIONS

Drawn by: S. Larkin		Agency UTP Project File Interface Specifications
Checked by: M. Smith		
Issued on: 13/2/97	RD11363	
LANDIS & GYR		H 1 1290 6974 a Sh1 of 34

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1. Introduction

This document defines the format of the files that will be used as interfaces between the BGT Quantum System and Third party polling agencies.

1.1 Abbreviations

TPPA - Third party polling agencies
CS - Customer Specific
QCC - Quantum Customer card

1.2 Definitions

Message Type : A 2 byte array of characters used to store a marker to show if the record is a header or a trailer. It can only have two values :

"00" - Standard Header
"99" - Standard Trailer

Message Type is NOT a string, as it is not terminated with a NULL.

File_Date : A 10 byte array of characters used to store a date in the format
YYYY/MM/DD
Note - Slashes are included.
Date is NOT a string, as it is not terminated with a NULL

File_Time : An 8 byte array of characters used to store a time in the format
HH:MM:SS
Note - Colons are included
Date is NOT a string, as it is not terminated with a NULL

Sequence Number : A 6 byte array of characters used to represent the sequence number of the file For compatibility with the existing Quantum Sequence file layout, the first three digit will always be padded with spaces
e.g. " 576" represents the number 576.
Sequence number is NOT a string, as it is not terminated with a NULL..

Originator : A 12 byte array of characters used to mark the origin of the file . It can contain one of four values(where s indicates an ASCII SPACE character):

"BGTssssssssss" - British Gas Trading
"PAYPOINTssss" - PayPoint
"POCLssssssss" - Post Office Counters
"LANDGssssssss" - Landis & Gyr

Originator is NOT a string, as it is not terminated with a NULL

Destination : A 12 byte array of characters used to mark the origin of the file . It can contain one of four values(where s indicates an ASCII SPACE character):

"BGTssssssssss" - British Gas Trading
"PAYPOINTssss" - PayPoint
"POCLssssssss" - Post Office Counters
"LANDGssssssss" - Landis & Gyr

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Destination is NOT a string, as it is not terminated with a NULL

Message Count: An 8 byte array of characters used to represent the number of records in the file e.g. "00003001" represents the number 3001.
Some files contain different types of record (e.g. see definition of .DUP file definitions). In these cases, extra information will be added after the Standard header.

Filler: A 42 byte array of characters used to mark the end of a file.
Filler is not a string, as it is not terminated by a NULL.

Auto/ Manual (applies to .DCM file only):
A two byte variable (integer) that is used to flag the event that caused the .DCM file to be created from a .CMD

0 - .CMD file processed as timed event (automatic)
1 - .CMD file processed in response to user input

Time (Note - This is different from File_Time)
This is the time stored in DATAGYR format, and is used internally in some files.
It is defined as follows:
A 6 byte structure used to store a date and time

Byte year - Least significant byte
Byte month
Byte date
Byte hours
Byte minutes
Byte seconds - Most significant byte

An example will be given for clarity:
The time - 15th day 1st month 1997 year 14 hours 16 minutes 23 seconds
Viewed in HEX

Byte year - 97
Byte month - 01
Byte date - 15
Byte hours - 14
Byte minutes - 16
Byte seconds - 23

Viewed in DECIMAL

Byte year - 151
Byte month - 01
Byte date - 21
Byte hours - 20
Byte minutes - 22
Byte seconds - 35

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Date (Note - This is different from File_Date)
This is the date stored in DATAGYR format, and is used internally in some files.
It is defined as follows:

Byte year - Least significant byte
Byte month
Byte date
Byte padding - Most significant byte

An example will be given for clarity:
The date - 15TH Day 1st month 1997
Viewed in HEX

Byte year - 97
Byte month - 01
Byte date - 15

Viewed in DECIMAL

Byte year - 151
Byte month - 01
Byte date - 21

General
All offsets and sizes in this document are given in decimal. not hexadecimal.

Byte Ordering
In some files. certain bytes will be reversed. This will only effect integers(2 bytes) and long integers (4 bytes). This will lead to the definition of two new types. **Mot integer** and **Mot long integer**.

Integers
Example representation of 2.012 decimal in binary. In 16 bits (2 bytes) this number is represented as follows:

0000011111011100

The table below will show the difference between the normal representation of this number. and it's Mot integer representation.

Type of integer	Lowest Address	Highest Address
Mot integer (Motorola format)	00000111 (Most significant byte)	11011100 (Least significant byte)
Regular integer (Intel format)	11011100 (Least significant byte)	00000111(Most significant byte)

As can be seen from the above table. Mot integers are stored with the byte order reversed

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Longs

Example representation of 70,000 decimal in binary. In 32 bits (4 bytes) this number is represented as follows:

00000000000000010001000101110000

The table below will show the difference between the normal representation of this number, and it's Mot long integer representation.

Type of long integer	Lowest Address			Highest Address
Mot long integer (Motorola format)	00000000(Most significant byte)	00000001	00010001	01110000(Least significant byte)
Regular long integer (Intel format)	01110000(Least Significant byte)	00010001	00000001	00000000(Most significant byte)

As can be seen from the above table, the order of the 4 bytes is totally reversed.

Note

Unless specified as otherwise, all integers and long integers will be in Intel (not Motorola) format.

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2. File Definition Overview

The following files will be defined :

The Command File (.CMD)

The Upload File (.DUP)

DATAGYR Regional Data (.DRD)

DATAGYR Customer Specific Message (.DCM)

CS Messages Ack (.CSM)

2.1 Standard Header and Trailer

The . DUP, .DRD and .DCM file will each start with a Standard Header and End with a Standard Trailer. These are defined below:

Standard Header

Offset into Header (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Message Type	Marker for Standard Header (always 00)
2	10	File_Date(see definitions)	YYYY/MM/DD Date file generated
12	8	File_Time(see definitions)	HH:MM:SS Time file generated
20	6	Sequence Number	Sequence number of file
26	12	Originator	Location where file originated
38	12	Destination	Location where file is to be delivered to
50	4	Long int	*Checksum

Total size of Header - 54 bytes

*Checksum will be calculated by adding every byte in the file with the **exception** of the Standard Header and Standard Trailer. i.e. the total sum of the binary values stored in each byte, with this total result stored as a 4 byte binary number.

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Standard Trailer

Offset into Trailer (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Message Type	Marker for Standard Trailer (always 99)
2	8	Message Count	Number of records, including Standard header and Trailer.
10	42	filler	Marks end of file

Total size of Header - 52 bytes

The .CMD file does not have a Standard Header and Trailer

.CMD - record count will consist of the number of Commands in the file (number of binds + number of CS Message adds + single eof command).

The following files will each have a standard Header and Trailer:

.DUP - record count will consist of number of transactions + 1 Standard Header + 1 Standard Trailer

.DRD - record count will consist of number of sets of regional data + 1 Standard Header + 1 Standard Trailer

.DCM - record count will consist of CS Messages + 1 Standard Header + 1 Standard Trailer

The UTP2RMC files and the .LOG file will not start with the Standard Header and will not end with the Standard Trailer.

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3. The Command File (.CMD)

CMD INFO
CMDSTART DETAILS CMDEND
CMDSTART DETAILS CMDEND
CMDSTART DETAILS CMDEND
CMDSTART EOF

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.CMD File - General

The prefix of the .CMD file will be as follows :

"PAYPXXX" or
"POCLXXX" or
"BGTXXX""
Where XXX is the last three digits of the sequence number (the first three are padding spaces).

The .CMD File consists of CMD INFO, a series of text Command Messages, and a Standard Trailer.

The start of the first message is marked by the text string CMDSTART
The end of the series of Command Messages is defined by the text string CMDSTART EOF

Breakdown of CMD INFO

Offset into CMD INFO (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	4	Long int	Number of CS Messages
4	4	Long int	Number of outlet/meter binds

Total size of CMD INFO - 8 bytes

Command Message

These are delimited between the text

CMDSTART
details of command message.
CMDEND

All text not contained within these two delimiters is ignored.
The end of the Command File is flagged to the parser by the text string

CMDSTART EOF

Three commands are supported :

1) Meter Outlet bind
Forms a relationship between a meter and an outlet. The METER will be created in the database if it is not already there.

2) CS Message Add
Add a CS Message to a meter

3) End of File. Informs the parser that the .CMD file has finished.

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The Command File will be sorted by Outlet order. Each CS Message add will be preceded by a Meter Outlet bind command. This means the commands will occur in the following order:
(obviously, the outlet and meter numbers shown here are abbreviated representations)

Meter outlet bind for meter 1 to outlet 1
    Add CS message to meter 1
Meter outlet bind for meter 1 to outlet 1
    Add CS message to meter 1
Meter outlet bind for meter 2 to outlet 2
    Add CS message to meter 2
Meter outlet bind for meter 2 to outlet 2
    Add CS message to meter 2

Log file (.LOG)
A log text file will be produced when the .CMD file is processed by the Agency/District PC.
The prefix of the log file will be as follows :

- "PAYPXXX" or
- "POCLXXX"
- "BGTXXX"

Where XXX is the last three digits of the sequence number (the first three are padding spaces).

The prefix of the .LOG file will correspond to the name of the .CMD File from which it was produced. It's format will be defined in the Agency PC Requirements Specification by Landis & Gyr. It will not have a Standard Header and Trailer.

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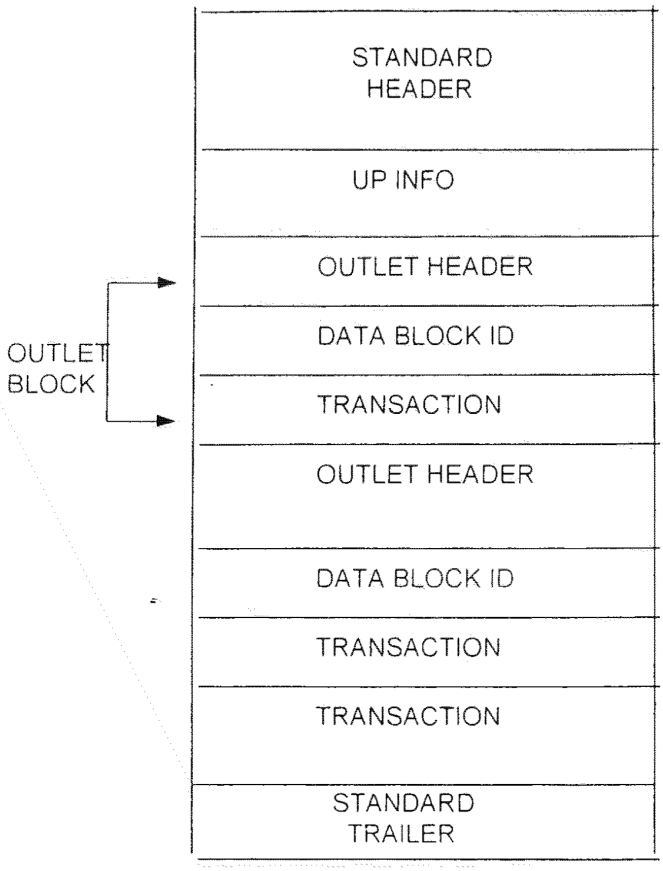
4. The Upload file (.DUP)



NOTE
Size of Outlet Block is
Size of Data Block ID +
total size of transactions
for

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.DUP file - General

The prefix of the .DUP file will be as follows :

"PAYPXXX" or
"POCLXXX"
Where XXX is the last three digits of the sequence number (the first three are padding spaces).

The .DUP File consists of a Standard Header, followed by UP INFO, a series of Outlet Headers. Data Blocks, Cash transactions and a Standard Trailer.
Each Outlet Header usually contains a single data block (it may contain more in certain conditions). and each Data Block will be followed by one or more Transactions (there are three types. defined below).

Breakdown of UP INFO

Offset into UP INFO (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	4	Long Int	Size of File
4	4	Long Int	Total Number of Outlets
4	4	Long Int	Total Number of Transactions

Total size of UP INFO - 12 bytes

Breakdown of Outlet Header

Offset into Outlet Header (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	13	String	Outlet ID
13	1	Byte	Padding Byte
14	4	Long int	Size of Outlet Block

Total size of Outlet Header - 18 bytes

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Breakdown of Data Block ID

Offset into Data Block ID (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Mot integer	Length of Block ID record. Always 6
2	2	Reserved	Reserved (0)
4	2	Mot integer	Block ID number

Total size of - 6 bytes

There are three types of Cash Transaction.

Breakdown of Basic Cash Transaction

Offset into Transaction (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Mot integer	Length. Always 80
2	1	Byte	Transaction type (always 1)
3	1	Reserved	Reserved (0)
4	2	Mot integer	Cash Value of Transaction (Whole pounds)
6	1	Byte	PoS Employee Number (0 if not used)
7	1	Reserved	Reserved (0)
8	6	Time(see definitions)	Transaction time stamp
14	66	Byte	Meter Data copied from QCC Dump File

Total size of Basic Cash Transaction - 80 bytes

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Breakdown of Extended Cash Transaction

Offset into Transaction (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Mot integer	Length. Always 790
2	1	Byte	Transaction Type (Always 2)
3	1	Reserved	Reserved (0)
4	2	Mot integer	Cash Value of Transaction
6	1	Byte	PoS Employee Number
7	1	Reserved	Reserved (0)
8	6	Time	Transaction Time stamp
14	66	Byte	Meter Data copied from QCC Dump File
80	196	Byte	Customer Specific data from QCC Dump File
276	1	Byte	Number of Customer Message acknowledgement slots used (1 to 8)
277	1	Byte	Padding Byte
278	64	Byte	1st slot
342	64	Byte	2nd slot
406	64	Byte	3rd slot
470	64	Byte	4th slot
534	64	Byte	5th slot
598	64	Byte	6th slot
662	64	Byte	7th slot
726	64	Byte	8th slot

Total size of Extended Cash Transaction - 790 bytes

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Breakdown of Dummy Cash Transaction

Offset into Transaction (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Mot integer	Length. Always 594
2	1	Byte	Transaction Type (Always 3)
3	1	DATAGYR	DATAGYR data (0)
4	2	Mot integer	Cash Value of Transaction
6	1	Byte	PoS Employee Number
7	1	DATAGYR	DATAGYR data (0)
8	6	Time	Transaction time stamp
14	66	Byte	Meter data copied from QCC Dump File
80	1	Byte	Number of Customer Message acknowledgement slots used (1 to 8)
81	1	Byte	Padding Byte
82	64	Byte	1st slot
146	64	Byte	2nd slot
210	64	Byte	3rd slot
274	64	Byte	4th slot
338	64	Byte	5th slot
402	64	Byte	6th slot
466	64	Byte	7th slot
530	64	Byte	8th slot

Total size of Dummy Cash Transaction - 594 bytes

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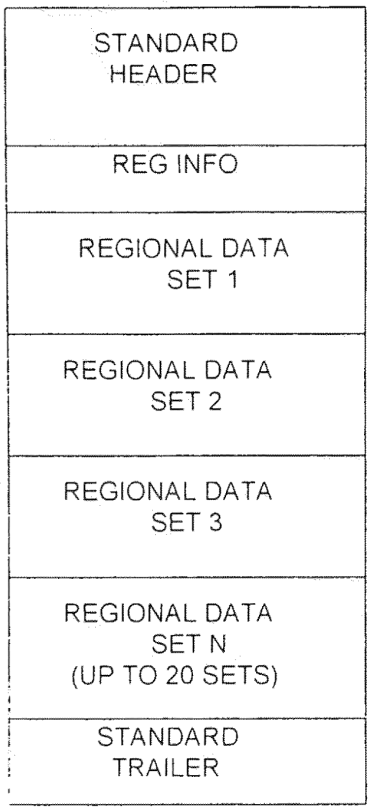
5. The Download files

5.1 DATAGYR Regional Data (.DRD)



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.DRD File - General

The file consists of a Standard Header, followed by a REG INFO record, and then a series of up to 20 sets of Regional Data. The file will end with a Standard Trailer.

The prefix of the .DRD file will be as follows :

"PAYPXXX" or
"POCLXXX"
Where XXX is the last three digits of the sequence number (the first three are padding spaces).

Breakdown of REG INFO

Offset into REG INFO (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	2	Mot integer	Number of sets of Regional Data

Total size of REG INFO - 2 bytes

Regional Data

Offset from start of Regional Data set (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	1	DATAGYR	DATAGYR data
1	1	Byte	Region Code
2	6	Time(see definitions)	Regional Data issue time
8	750	DATAGYR	DATAGYR data

Total size of each Regional Data set - 758 bytes

Regional data repeats as above for up to 20 sets

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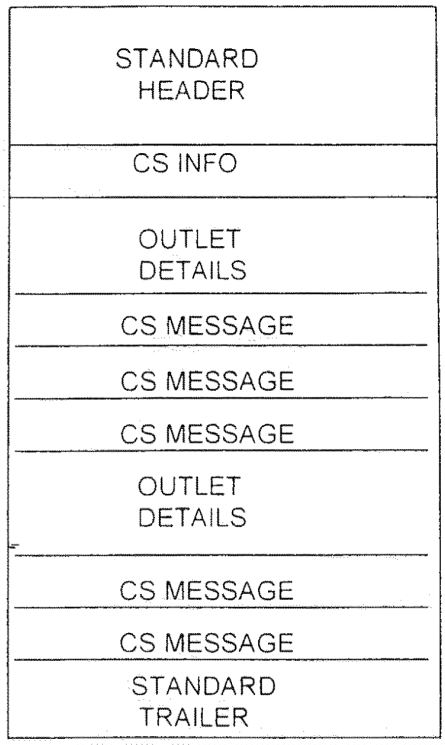
5.2 DATAGYR Customer Specific Message (.DCM)



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.DCM File - General

The prefix of the .DCM file will be as follows :

"PAYPXXX" or
"POCLXXX"
Where XXX is the last three digits of the sequence number (the first three are padding spaces).

The file consists of a Standard Header, followed by a CS INFO record, and then a series of Outlet Details and CS Messages. The file will end with a Standard Trailer.

Breakdown of CS INFO

Offset into .DCM File (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	4	Long int	Total number of CS Messages in File
4	4	Long int	Total number of Outlets in File
8	2	Auto/Manual	Auto or Manual Event

Total size of CS INFO - 10 bytes

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Outlet Details

Offset from start of Outlet Details (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	13	String	Outlet ID
13	1	Byte	Padding Byte
14	2	Int	Number of CS messages for this outlet

Total size of Outlet Details - 16 bytes

CS Message Details

Offset from start of CS Message (Bytes)	Length (Bytes)	Variable Type	Description and Comments
0	1	Byte	Message Acknowledgement status(see note 1 on page 24)
1	7	Byte	DATAGYR data
8	1	Byte	Customer Region Code
9	21	String	Customer ID
30	34	Byte	DATAGYR data

Total size of CS Message details - 64 bytes