

DEPARTMENT OF EDUCATION-FSA
FMS INTEGRATION PARTNER
INTERFACE FUNCTIONAL DESIGN



GAPS TO FMS INTERFACE UPDATE

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Subject: GAPS to FMS Interface Functional Design
Phase: TO 119 - Transaction ID
Version: 3.0

Prepared by: Mike Connors

Date:
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Document Change Control

Date	Author	Version	Change Reference
11/04/02	Mike Connors	1.0	Document Creation
11/14/02	Mike Connors	2.0	Updated based on review comments
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Approval

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Specification

Interface Name:	GAPS to FMS Interface
Functional Design Document ID & Title:	GAPS_FMS_Inteface_Update_FD
Application:	Oracle G/L
Priority:	High
Estimated Production Date:	April 2003
Other Affected Applications:	N/A
Comments:	N/A



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General Requirements

Interface Short Description:

The GAPS to FMS Interface program was originally implemented as part of FMS Phase III efforts. This interface was designed to facilitate FMS interaction with Grants and Administrative Payments System (GAPS). This allowed FMS to process files from GAPS containing accounting transactions related to Direct Loans, Campus Based, Pell, and LEAPP/SLEAPP.

The purpose of this document is to provide a detailed functional description of the updates to the interface program. As part of the TO 119 - Transaction ID effort, FMS has been tasked with the following enhancement requirements (as stated in section 4.0 of the Core FMS Requirements Matrix document):

- Ability to process all transactions from one common output file from GAPS.
- Ability to accept 18 character transaction ids for transactions from GAPS that have Transaction IDs.
- Ability to assign 18 character transaction ids to transactions from GAPS that do not have Transaction IDs.
- Ability to generate correct accounting based on changes to reverse code for Pell AD transactions (to be consistent with Direct Loan Origination).
- Ability to mark all Campus Based transactions originating from GAPS (that do not contain a Transaction ID) with Program Code of 'GB'.
- Ability to mark all Pell transactions originating from GAPS (that do not contain a Transaction ID) with Program Code of 'GP'.
- Ability to mark all LEAPP transactions originating from GAPS (that do not contain a Transaction ID) with Program Code of 'GL'.
- Ability to mark all SLEAPP transactions originating from GAPS (that do not contain a Transaction ID) with Program Code of 'GS'.
- Ability to mark all Direct Loan Origination transactions originating from GAPS (that do not contain a Transaction ID) with Program Code of 'GO'.
- Ability to mark all Direct Loan Consolidation transactions originating from GAPS (that do not contain a Transaction ID) with Program Code of 'GC'.
- Ability to accept DD transaction acknowledgements for PY transactions sent to GAPS.
- Ability to store the FMS Item Number in a reference field in FMS for each transaction from GAPS.

Data Interface Expectations:

Currently, FMS is accepting five different file formats from GAPS: Pell Acknowledgement File, Direct Loan Origination Acknowledgement File, Direct Loan Consolidation Acknowledgment File, FMS Common Output File, and Temporary FMS Common Output File. The updated GAPS to FMS Interface program will allow FMS to accept all transactions in the FMS Common Output File format instead of five different files (Requirement 4.1.1).

The updated GAPS to FMS Interface program will capture and store the Transaction ID from GAPS in FMS (Requirement 4.1.2). Subsequently, the Transaction ID will be sent to COD along with the transactions through the FMS to COD Interface program. Transactions that are generated by GAPS that are not acknowledgements will not have a unique identifier (Transaction ID) assigned when interfaced to FMS. As a result, FMS will generate a Transaction ID for these transactions (Requirement 4.1.4 – 4.1.9). The purpose of the Transaction ID is to enhance the reconciliation effort between COD and FMS and GAPS.

The updated GAPS to FMS Interface program will capture the FMS Item Number in FMS. The Item Number is used to derive the accounting for each transaction that is processed in FMS. Storing the Item Number in FMS for each record will enhance the FMS reporting efforts (Requirement 4.1.12).



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Currently, the reverse code for AD transactions is inconsistent for Direct Loan Origination and Pell. A reverse code of 1 is interpreted as an increase in net draw for Pell and decrease in net draw for LO. A reverse code of 2 is interpreted as decrease in net draw for PELL and increase in net draw for LO. The reverse code for Pell will be changed to be consistent with LO (Requirement 4.1.11). Although the logic of the reverse code will be changed, the actual accounting to record the transactions should remain the same in FMS. The reverse code logic for UD transactions will not change.

Currently, PY transactions to GAPS are acknowledged and returned from GAPS as PY transactions. GAPS will no longer send PY acknowledgements. The transactions will be sent as DD transactions from GAPS. As a result, the GAPS to FMS Interface program will be updated to be able to accept and process DD transactions from GAPS (Requirement 4.1.10).

Business Event That Initiates Interface:

The GAPS to FMS Interface program is scheduled to run daily.

Interface Characteristics:

Interface Direction:	GAPS to FMS
Interface Type:	Batch
Interface Category:	Update to current GAPS to FMS Interface
Instances:	N/A
Frequency:	Daily
Volume:	The volume of transactions may vary.
From System: GAPS	To System: FMS

Selection Criteria:

Same as the existing GAPS to FMS Interface program.

Scheduling Requirements:

Same as the existing GAPS to FMS Interface program.

Transaction Purge Criteria:

Same as the existing GAPS to FMS Interface program.



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Contingency Procedures:

Same as the existing GAPS to FMS Interface program.

Development Complexity:

- Transaction ID – Low
- Item Number - Low
- Reverse Code change for PELL AD transactions - Low
- Accepting DD acknowledgements instead of PY – Low
- Generating Transaction IDs for transactions received from GAPS without Transaction IDs – Low
- Accepting all transaction in one file format (Common File Format Type) - Medium

Assumptions:

- GAPS will provide the same Transaction ID as the original for all acknowledgements except for transactions sent to GAPS without the Transaction ID.
- COD will provide Transaction IDs using the predefined specified format.
- GAPS will provide an acknowledgement for all transactions sent from FMS to GAPS.
- GAPS will use the common file layout for all transactions sent to FMS.
- REFERENCE6 field of the GL_JE_LINES table will be used for storing the Item Number in FMS.
- REFERENCE26 field of the GL_INTERFACE table will be used for storing the Item Number in FMS.
- ATTRIBUTE13 field of the GL_JE_LINES table will be used for storing Transaction IDs in FMS.



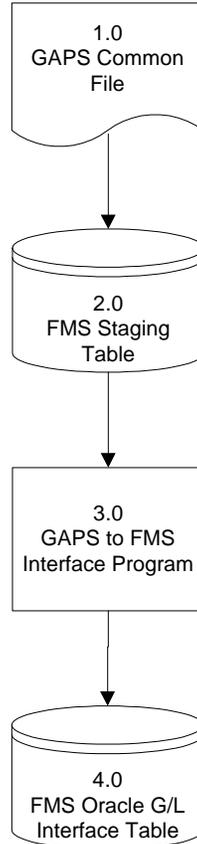
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Design

Data Flow Diagram:



Data Flow Diagram Narrative:

1.0 GAPS Common File

All transactions from GAPS will now be sent in one file format (Common Output File). This file is sent via FTP to a predefined directory on the UNIX box. Refer to the Common File layout specified later in this document.

2.0 FMS Staging Table

The GAPS to FMS interface program will read transaction data from the common file and store it in an FMS staging table. If the transaction received from GAPS contains a Transaction ID, the value will be stored in this table. If not, a value will be generated and stored in this table.

3.0 GAPS to FMS Interface Program

The GAPS to FMS Interface program will sweep the data from the FMS Staging Table and load the G/L Interface Table. The Transaction ID will be stored in ATTRIBUTE13 of the GL Interface table. Item Number will be stored in REFERENCE26 of the GL Interface table. REFERENCE26 of the GL Interface maps to REFERENCE6 of the GL_JE_LINES table.



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4.0 FMS Oracle G/L Interface Table

The FMS Oracle GL Interface table is loaded by the GAPS to FMS Interface program. The Standard Oracle Journal Import program will transfer transaction data from the interface table to GL. The Transaction ID and Item Number will be included in the transfer.

Transaction ID

Transaction IDs that are received from GAPS:

Example: PL2002101500000001

- Program ID (PL, DL, CB, LO, LC, RF)
 - PL = COD Pell Transactions.
 - DL = COD Loan Origination transactions.
 - CB = Campus Based transactions.
 - LO = Loan Origination transactions.
 - LC = Loan Consolidation transactions.
 - RF = RFMS transactions.
- Date (YYYYMMDD)
- Sequence # (8 digit number)

Transaction IDs that are generated by FMS:

Example: GP2002101500000001

- Program ID (GP, GO, GC, GB, GL, GS)
 - GP = Pell Transaction from GAPS.
 - GO = Direct Loan Origination transaction from GAPS.
 - GC = Direct Loan Consolidation transaction from GAPS.
 - GB = Campus Based transaction from GAPS.
 - GL = LEAP transaction from GAPS
 - GS = SLEAPP transaction from GAPS
- Date (YYYYMMDD)
- Sequence # (8 digit number)

Data Mapping:

The table below describes the format of the transactions within the Common Output file from GAPS. The transaction id has been added to this file since original development in Phase III.

Common File Transaction Format:

Field Name	Field Number	Field Type	Field Size (Characters)	Field Position	Description
Transaction Code	1	A	2	1-2	Transaction type codes. Valid values: AD Drawdown Adjustment CA Payment Cancellation CC Direct Loan CCA DB DUNS No. Change DD Draw Down Acknowledgement DF Offset (Disbursement)



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Field Name	Field Number	Field Type	Field Size (Characters)	Field Position	Description
					ER Error FR Treasury Return Confirmation OB Obligation PK Perkins Loan Adjustment PL Direct Loan Participation Level Change RE Return RF Refund TC Treasury Confirmation UD Un processed De-Obligation
Batch Number	2	A	3	3-5	Batch number from transaction file header sent from the feeder system. For transaction codes RF, OB and DD transactions that acknowledge feeder generated RF, OB and PY transactions, this field is mandatory.
Run Date	3	A	8	6-13	Run Date from transaction file header sent from the feeder system. Format is CCYYMMDD. For transaction codes RF, OB, and DD transactions that acknowledge feeder generated RF, OB and PY transactions, this field is mandatory.
GAPS Award Number	4	A	13	14-26	Contains document number within it in the following structure (number indicates no. of digits): PO 1 CFDA 3 Subprogram 1 Year 4 Award ID 4
Reverse Code	5	N	1	27	Valid values: 1 – Normal Debit/Credit. 2 – Reverse Debit/Credit.
Amount	6	N	14	28-41	Transaction amount; 2 decimal places are implied.
GAPS Transaction Date	7	N	8	42-49	Date processed in GAPS. Format is CCYYMMDD
Grant Award Phase	8	A	5	50-54	Life phase of the award. Valid values: PERF, LIQ, SUSP, CLOSE
Fund Code	9	A	5	55-59	First part of GAPS accounting code.
Funding Fiscal Year	10	A	4	60-63	Second part of GAPS account code.
Category	11	A	1	64	Third part of GAPS accounting code.
Budget Fiscal Year	12	A	4	65-68	Fourth part of the GAPS accounting code
Organization Code	13	A	8	69-76	Fifth part of GAPS account code.
Limitation	14	A	3	77-79	Sixth part of GAPS account code.



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Field Name	Field Number	Field Type	Field Size (Characters)	Field Position	Description
Object Class	15	A	5	80-84	Seventh part of GAPS account code.
Activity	16	A	3	85-87	Eighth part of GAPS account code.
CFDA	17	A	3	88-90	Ninth part of GAPS account code.
Cohort Year	18	A	4	91-94	Tenth part of GAPS accounting code.
Sector	19	A	1	95	Eleventh part of GAPS accounting code.
Fund Control Code	20	A	5	96-100	Twelfth part of GAPS accounting code.
Future Use (FUTURE)	21	A	6	101-106	Future accounting code.
Office Finance Code	22	A	12	107-118	Required field for RF "DSLPCOLL7" – Feeder generated refund "DSLPCOLL6" – GAPS generated refund
SF215 Schedule Number	23	A	14	119-132	For transaction codes RF and FR, this field is mandatory.
Treasury Confirmation Date	24	A	8	133-140	Deposit Date. – Custom field for RF transactions.
Treasury Confirmation Number (5515)	25	N	6	141-146	Accompanies TC transactions only.
Error Code	26	N	2	147-148	Required for ER (Error) transactions.
Error Transaction Type	27	A	2	149-150	Required for ER (Error) transactions. Blank for all other transaction types.
Pay Control Number	28	N	13	151-163	Required for DD transactions; otherwise, all blanks.
Grantee DUNS Number	29	A	11	164-174	This field is mandatory for all the transactions.
Grantee DUNS Type Code	30	A	1	175	Retrieve with the DUNS Number: 1 – Organization 2 – Individual Constant: "1"
Participation Level	31	A	2	176-177	Participation Level for the School. Valid values are: 1, 2, 3, 4, or 5. Required for DLO - 'CC' and 'PL' transactions.
GAPS Debit/Credit Detail Number	32	N	30	178-207	Unique identifier sent from GAPS.
FSA Transaction ID	33	A	18	208-225	Unique identifier. For transaction codes RF, OB, and for DD transactions that acknowledge feeder generated RF, OB and PY transactions. If the transaction id does not exist for some transactions then one will be generated. Please review the transaction id section below for more details.



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Field Name	Field Number	Field Type	Field Size (Characters)	Field Position	Description
Filler	34	A	29	226-254	Earlier the space reserved for FSA Transaction ID field was 47 characters of which only 18 characters is being used for FSA Transaction ID. The remaining space will be left as it is for future use.

Database Objects:

Database Object Name	Object Type	Oracle Application	Comments
IPPP_LEAPP_TRANS_ID_S	SEQUENCE	IPPP Extensions	Used to generate sequence number within the transaction id for LEAPP transactions from GAPS
IPPP_SLEAPP_TRANS_ID_S	SEQUENCE	IPPP Extensions	Used to generate sequence number within the transaction id for SLEAPP transactions from GAPS
IPPP_PELL_TRANS_ID_S	SEQUENCE	IPPP Extensions	Used to generate sequence number within the transaction id for PELL transactions from GAPS
IPPP_DLO_TRANS_ID_S	SEQUENCE	IPPP Extensions	Used to generate sequence number within the transaction id for Direct Loan Origination transactions from GAPS
IPPP_DLC_TRANS_ID_S	SEQUENCE	IPPP Extensions	Used to generate sequence number within the transaction id for Direct Loan Consolidation transactions from GAPS
IPPP_CB_TRANS_ID_S	SEQUENCE	IPPP Extensions	Used to generate sequence number within the transaction id for Campus Based transactions from GAPS



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Dependencies

Data Cleansing:

Task	Responsibility	Dependency
N/A		

Dependencies on Other RICE Components:

N/A

Dependencies on Other Business Components:

- FMS to GAPS Interface
- COD to FMS Interface
- FMS to COD Interface
- GAPS Feeder Systems to FMS Interfaces

Design Constraints:

N/A

Performance Considerations:

N/A

Implementation Considerations:

N/A

Other Dependencies/Special Concerns:

N/A

Error Handling

Potential Errors	Possible Reasons	Solution Strategy
Added Grantee Duns # Validation -- Null Grantee Duns #	Grantee Duns # has not been populated for at least on transaction in the common file from GAPS	Reject the file and have GAPS sent a corrected file.



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Testing Requirements

Test Condition	Expected Results
Refer to Unit Test Scripts in F: TO 119 - Transaction ID\ Core FMS\ Interface Design Updates\ Unit Testing\TEST SCRIPTS	

Issues and Additional Considerations

The following Issues were defined during Functional Design:

Issue	Raised By / Date Needed	Resolution/Answer	Resolved By / Date Completed
Will GAPS return Transaction ID for all transactions that are sent to GAPS with one?	Mike	Yes	Tremayne 11/04/02
Accounting determination for Pell and Direct Loan AD transactions should be consistent? Currently seems like the accounting determination is already consistent. Issue needs to be resolved by FMS Operations.	Mike		
Is Transaction Code referring to Transaction Type?	Mike	Transaction code was actually referring to the FMS Item Number. Currently, the Item Number is stored in REFERENCE6 of the GL_JE_LINES table for other programs in FMS. The Item number for GAPS to FMS transactions will be stored in REFERENCE6 field as well.	Mike 01/07/02