

FSA Integration Partner

United States Department of Education

Federal Student Aid



**EAI Operations Services Performance Report III
(Core Services)**

Task Order #117

Deliverable # 117.1.1c

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1 Introduction

1.1 Summary

The purpose of this report is to document the EAI Core Operations services performed in support of Task Order 117, EAI Release 4.0 during the period of April 26, 2003 through June 30, 2003.

Task Order 117 provides for operational support and maintenance of the EAI architecture and infrastructure. Additionally, EAI Core services enable business application teams to implement application interfaces built upon the existing EAI architecture.

The efforts of the Core Operations services are summarized in the following sections:

- **Section 2: Major Accomplishments** - Provides an overview of the major accomplishments of the EAI Team over the course of the reporting period.
- **Section 3: EAI Architecture Overview** - Provides an up-to-date view of the EAI Architecture as it evolves over the duration of the task order.
- **Section 4: Infrastructure Change Requests, Upgrades, and Enhancements** - Provides a summary of the change requests, significant updates and enhancements to the EAI infrastructure.
- **Section 5: Environments** - Provides an overview of the environment infrastructure supporting the EAI Release 4.0 development and testing efforts.
- **Section 6: Test Summary** - Provides a summary of application EAI interface testing activities for the reporting period.
- **Section 7: Integrated Planning Summary** - Provides a high level summary of infrastructure planning and support for new initiatives and applications coming onto EAI.
- **Section 8: EAI Communication** - Provides a summary of EAI external communication activities.
- **Appendix A: EAI Software Installation Report**- Documents the current status of all installed software for all EAI environments.
- **Appendix B: EAI Core Release 4.0 Organization Chart** - Documents the organizational structure and the resources assigned to the release for this reporting period.
- **Appendix C: EAI Core Release 4.0 Contact List** - Provides contact information for the EAI team.
- **Appendix D: EAI Environment Diagrams** - Documents the detailed EAI Development, Test, and Production environments.



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- **Appendix E: EAI Change Request Summary, May - June 2003** – Provides the summary and detailed information for all EAI submitted Change Requests for the reporting period.



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- **Appendix F:** *EAI Operations Support Schedule, May - June 2003* – The support instructions and schedules provided to the Virtual Data Center (VDC) for EAI Operations.
 - **Appendix G:** *COD 2.1 Development and Test Documentation*- A compact disc containing the technical design and testing documentation to implement the EAI related changes for COD 2.1.
 - **Appendix H:** *EAI Workshop II*- the presentation delivered during the EAI Workshop.



2 Major Accomplishments

The following list of accomplishments represents the major efforts and initiatives for this reporting period:

- Supported COD R2.1 Product Test and IST. Deployed EAI Code and configured both environments. Completed environment shakeout and connectivity testing in both environments. Provided 24/7 on-call support to the COD test teams for all EAI related issues.
- Supported the COD R2.1A implementation in Production on June 22nd. Deployed EAI Code while the COD system was down for implementation. Stopped and started the COD Schools interfaces throughout the implementation weekend as required by COD for processing and validation before final “go” decision.
- Developed transformation code to replace four MQSI message flows for messages sent from COD to FMS and from FMS to COD and deployed it to the IST environment for testing with COD R2.1B.
- Developed EAI Message Status Inquiry tool to provide a web user interface to the Data Integrator Logger database and began creating of a user guide for the tool.
- Conducted an EAI Workshop on May 7, 2003. Gave presentations and answered questions about the EAI Architecture, COD Transformation, Transactional Interfaces, and EAI Performance testing/tuning.
- Assisted the VDC with installation and configuration of QPasa! in the development and production environments. The EAI team provided installation advice and configuration instructions to VDC system administrators performing the installation.
- Provided 24 hours-a-day operations support for EAI Architecture. Performed issue tracking and resolution and responded to daily adhoc support requests. Compiled detailed operations support metrics. Detailed production operations information is contained in the *EAI Production Architecture Performance Report* deliverables.
- EAI Capacity Planning. Provided input to and presented section for EAI Capacity Planning meeting on June 4th.



- EAI Evergreening –
 - MQSeries v5.3 upgrade of SU35E16 on 6/1 with plans to upgrade additional EAI test servers (SU35E17, SU35E5).
 - MQSeries v5.3 upgrade of HPN3 (5/27), and HPA2 (planned) for FAFSA Development and test environments
 - Attended initial planning meeting for CPS CICS, DB2, and z/OS 1.4 upgrades on 6/4, 6/18.
 - Reviewed specification (5/27) and attended initial meeting for Hardware Refresh
- Developed a generic architecture program to make efficient use of allocated disk space through a configurable and automated purging and archiving. Testing is currently being conducted. Once complete, the program will be migrated to all EAI enabled Production servers.
- Created and distributed EAI Operations support schedule to VDC. Refer to *Appendix F – EAI Operations Support Schedule May - June 2003* for detailed information.
- Provided documentation and conducted EAI Knowledge transfer sessions to facilitate transitioning of EAI Architecture Tier I support to the VDC. EAI coordinated to have all system generated (MQMON) pages transferred to VDC pagers. The Tier I support transition was completed on 6/8. Refer to *117.3.2 EAI Knowledge Transfer Report* for detailed information for all knowledge transfer sessions which was completed on 6/13.
- Assisted with the identification and resolution of SU35E17 NFS Mount timeout issue. The issue impacted the EAI IST and UAT environments and COD testing. The resolution required migration of the /export/data/mqm filesystem to SAN which was completed on 5/16/2003.
- Provided input and assisted with TO 80 Post Implementation Review (PIR).
- Delivered, updated, and received approval for the following deliverables:
 - 117.1.2b EAI Production Architecture Performance Report II – 5/14
 - 117.1.1b EAI Operations Services Performance Report II – 5/14
- Collaborated with VDC to define the Roles & Responsibilities matrix. Attended numerous planning and review meetings.



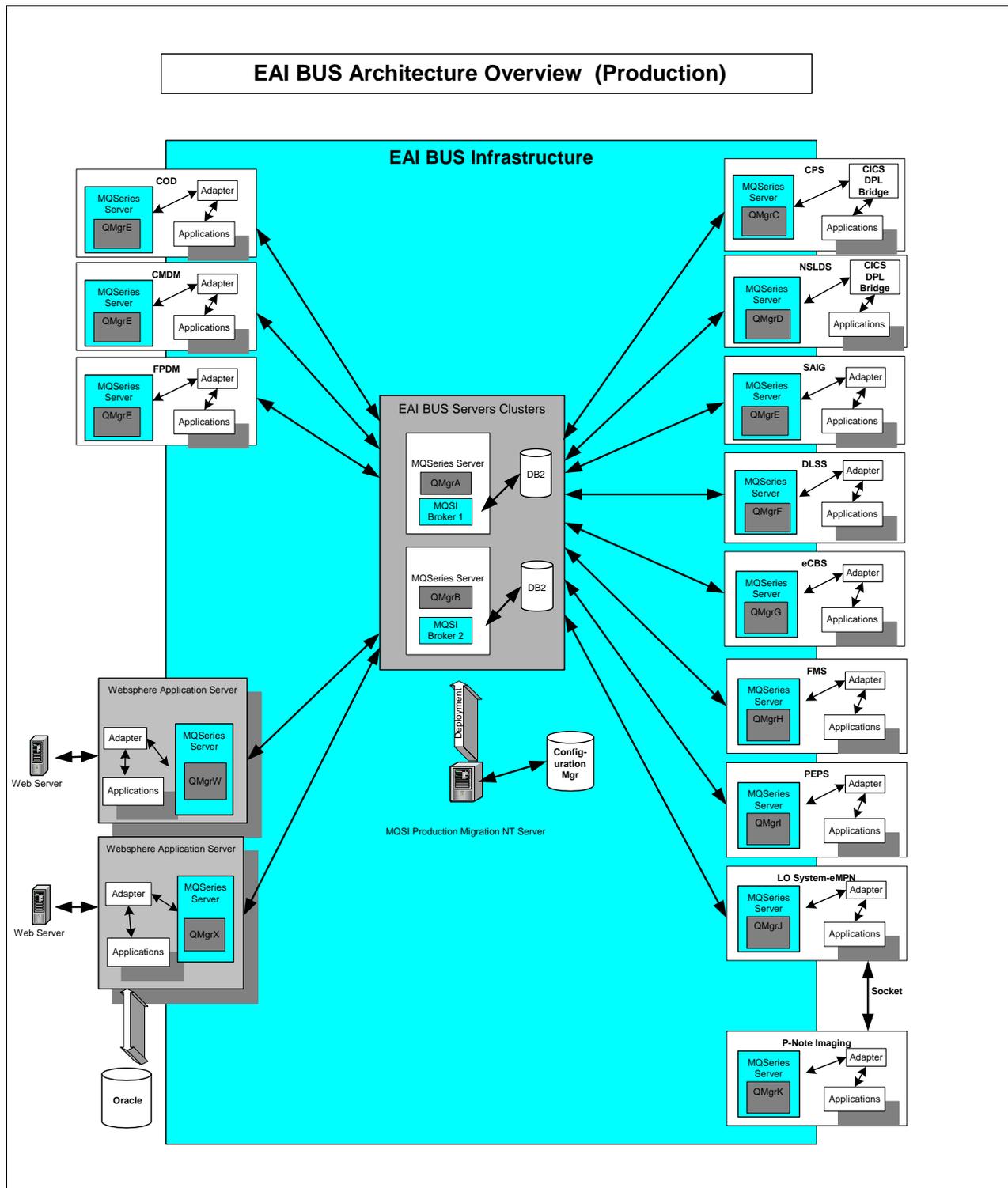
3 EAI Architecture Overview

The EAI Architecture is comprised of legacy systems, interfaces to the legacy systems, interfaces to modernization systems, and interfaces to FSA's Integrated Technical Architecture (ITA).

The FSA Enterprise Application Integration Core Architecture includes the following five component areas:

- Legacy Systems – Mainframe and Mid-Tier
- Modernization Systems
- Internet – Websphere Application Server
- EAI Bus Servers
- EAI Development Workstations

The following diagram is a high level view of the EAI Architecture.





4 Infrastructure Change Requests, Upgrades, and Enhancements

One of the key objectives of EAI Core Operations Services is to provide infrastructure maintenance. This section provides a summary of the EAI submitted change requests and the significant updates and enhancements to the EAI infrastructure, including the reason for these enhancements.

4.1 Change Requests

The Change Request management process provides the structure to implement fixes, upgrades, or enhancements to the EAI environments. Change Requests are submitted, tracked, and implemented using a Rational ClearQuest tool called ECM Change Request Tracking Tool. During the first quarter of FY2003, the EAI Team logged and assisted in the implementation of 31 Change Requests affecting the Development, Test, and Production environments. Before a Change Request is submitted to Production, the EAI Team thoroughly tests the change, which is subsequently packaged with instructions and/or other supporting documentation for implementation. Additionally, the EAI Team provides the VDC with implementation and post-implementation support and validation for the majority of the Change Requests.

Refer to *Appendix E – EAI Change Request Summary, May - June 2003* for a detailed summary of all change requests.

4.2 Upgrades

Upgrades of the EAI infrastructure are being performed to continue vendor support and to obtain enhancements provided by new releases. For the purposes of this report, an upgrade is defined as a maintenance patch, release, or other fix that has been applied to the existing infrastructure (i.e., new software, new hardware). Detailed software upgrade information is contained in the *117.1.3 EAI Evergreening Schedule and Approach* deliverable.



The following software upgrades were completed:

Date	Software	Environment	Server(s)	Old Version	New Version	Reason
5/27/2003	MQSeries	FAFSA Development	HPN3	MQSeries v 5.2	MQSeries v 5.3, CSD03	This is required as part of the ITA team's upgrade to WAS 5.0.
6/6/2003	MQSeries	Development	SU35E16	MQSeries v 5.2	MQSeries v 5.3, CSD03	To keep the version of MQSeries consistent across EAI, the EAI Bus servers are also being upgraded.
4/20/2003	MQSeries	Production	SU35E18	MQSeries v5.2 Client	MQSeries v5.2 Server, CSD06	The upgrade was performed to increase the stability of the interface to the Data Marts and to bring the interface configuration in line with the other EAI enabled servers.
4/20/2003	Data Integrator	Production	SU35E18	Data Integrator Client v4.2.4	Data Integrator Server v4.2.4	The upgrade was performed to increase the stability of the interface to the Data Marts and to bring the interface configuration in line with the other EAI enabled servers.
6/1/2003	MQSeries	Production	SU35E9	MQSeries v 5.2, No CSD applied	MQSeries v 5.2, CSD06	The upgrade was performed per IBM to resolve an MQ Cluster definition refresh issue impacting the FAFSA Demo Production environment.
6/1/2003	MQSeries SupportPac - MA88 MQSeries classes for Java and MQSeries classes for Java Message	Production	SU35E9	N/A	Build 7/27/2002	This SupportPac was installed for the Exit Counseling Interface.



Date	Software	Environment	Server(s)	Old Version	New Version	Reason
	Service					
6/22/2003	MQSeries	Production	SU35E13	MQSeries v 5.1, CSD01	MQSeries v 5.2, CSD06	The upgrade was made to bring the server in line with all other EAI enabled servers and to prepare for additional FAFSA Demo Production environment.
5/24/2003	Oracle	Development	HPN25	Oracle 8.1.6.3	Oracle 8.1.7.4	VDC initiated upgrade.
6/29/2003	Oracle	Production	HP-V2	Oracle 8.1.6.3	Oracle 8.1.7.4	VDC initiated upgrade.



4.3 Enhancements

The EAI team continually evaluates products that would improve the EAI infrastructure. For the purposes of this report, an enhancement is defined as new component that has been added to the existing infrastructure (i.e., new software, new hardware). No enhancements were performed during this period.

4.3.1 MQ Software QPasa!

QPasa! is an application that will help to standardize and improve MQSeries configuration management, deployment and monitoring capabilities. EAI is assisting the VDC to install and implement QPasa!. The agent software is currently being installed in the EAI and CSC Development and Production environments. The VDC is currently working with the vendor or resolve a number of issues that are delaying the deployment of this product to Production. Refer to *Appendix A – EAI Software Installation Report* for a list of all servers and environments that QPasa! is installed. Once implemented, QPasa! will replace MQMon for monitoring MQSeries.



5 Environments

This section provides detailed diagrams of the EAI environments, configurations, and interface connectivity to support all phases of the EAI System Design Life Cycle (SDLC). A critical component of Core Operations Services is the maintenance of all EAI environments in addition to Production.

- Development
- System Integration Test (SIT)
- Inter System Test (IST)
- Product Test (formerly called UAT)
- Staging
- Production
- FAFSA EAI Development
- FAFSA Development
- FAFSA Test
- FAFSA Performance Test
- FAFSA Demo Production
- FAFSA Production

Refer to *Appendix D – EAI Environment Diagrams* for detailed diagrams of the current configuration of the above listed environments.

5.1 Environment Updates

5.1.1 Development

We are in the process of building out SU22E28 to replace SU35E16 in the EAI Development environment.

5.1.2 COD 2.1 Product Test / IST

The EAI source code build was migrated to Product Test and IST to support COD 2.1 testing. No other major environment updates were made.

5.1.3 FAFSA 7.0

The EAI team is currently assisting the creation of a second FAFSA Demo Production environment on SU35E13. Additionally, the EAI team is assisting the ITA team with the upgrade of WAS to 5.0 which requires an upgrade of MQSeries to WebSphere MQ v5.3. These upgrades are currently being implemented in the Development and Test environments.

Refer to *Appendix D – EAI Environment Diagrams, FAFSA-Production tab* for a diagram of the current configuration.



5.1.3.1 Development and Test

Computing Environment	Server Manufacturer & Model	Queue Manager (Port)	Queue Manager Cluster	CPS Manager Cluster
EAI Dev	HPA2	FAFSAD2 (1420)	FAFSADC1	CPD1
FAFSA Development	HPA2	FAFSAD1 (1416)	FAFSADC1	CPD1
FAFSA Test	HPA2	FAFSAT1 (1417)	FAFSATC1	CPT1
FAFSA Performance	HPN3	FAFSAI1 (1414)	FAFSAIC1	CPA1
FAFSA Performance	HPN8	FAFSAI2 (1414)	FAFSAIC1	CPA1
Demo Development	SU35E5	FAFSAT1 (HPA2: 1417)	FAFSATC1	CPT1
Demo Production	SU35E9	FAFSAT2(1417)	FAFSATC1	CPT1
Demo Production (TBD)	SU35E13	FAFSAT3(TBD)	FAFSATC1	CPT1

5.1.3.2 Production

Computing Environment	Server Manufacturer & Model	Queue Manager (Port)	Queue Manager Cluster	CPS Manager Cluster
Production	HPN4	FAFSAP5 (1414)	FAFSAPC1	CPP1
Production	HPN15	FAFSAP2 (1414)	FAFSAPC1	CPP1
Production	HPN16	FAFSAP3 (1414)	FAFSAPC1	CPP1
Production	HPN2	FAFSAP4 (1414)	FAFSAPC1	CPP1

Additional information for FAFSA 7.0 can be found in the following FAFSA 7.0 Production Readiness Review documentation:

- FAFSA_7.0_Operations Checklist v3_12_20_02.doc
- FAFSA_7.0_TroubleShootingGuide_12-19-02.doc
- FAFSA_7.0 TechArchRequirements_v1.1_12-20-02.doc
- FAFSA 7.0 Performance Test_ver1.6_12-19-02.doc
- FAFSA_7.0_Install Guidelines (ITA) v1.2_12-20-02.doc



5.1.4 Staging

To assist in the construction of the Stage environment, the EAI team provided the MQSeries and Data Integrator configurations (VDCMP00003131) to the VDC. The configuration provided an abbreviated EAI architecture to facilitate message communication for a subset of applications. The EAI architecture in the Stage environment is complete.



6 Test Summary

This section provides a summary of application EAI interface testing activities during the reporting period.

Type	Effort	
Integration	COD to/from FMS	EAI Transformation Engine developed in Java to replace the existing MQSI message flows
Integration	SAIG to COD	RFMS Conversion – developed interface to pull data from the RFMS mailbox on SAIG and send it to COD
Integration	SAIG to/from COD	EAI Adapter modified to use the new Btrade adapter for SAIG mailbox access
Integration	SAIG to/from COD	Transformation code and configuration developed for new School interfaces supported in COD R2.1.
Integration	NSLDS to/from COD	New Data Integrator interfaces created for COD R2.1 functionality
Performance	SAIG	The EAI team began planning of performance testing of EAI components on SAIG to determine the performance impact of EAI on SAIG peak processing periods.

Refer to *Appendix G – COD 2.1 Development and Test Documentation*. The enclosed CD contains Interface Control Documents (ICD) s and Testing Documentation. The complete list of files on the CD is included below:

Interface Control Documents:

- EAI_COD_to_NSLDS_ICD_001at_v2.0.doc
- SAIG_COD_ICD_Transformation_R2.1_v1.1.1.doc

Test Documents:

- CODFMS-FinNonFin_IID.xls
- CODFMS-Response_IID.xls
- CODFMS-TestConditions.xls
- CODFMS-Vendor_IID.xls
- eCBFMS_UTCL_test.xls
- FMSCODFinNonFin_test.xls
- FMSCODResponse_test.xls
- 24.05 Pell Legacy Batch Level Edits 0001 Unit Test Conditions.xls
- 24.05 Pell Legacy Batch Level Edits 0001 Unit Test Scripts.xls



- 24.05 Pell Legacy Batch Level Edits 0102 Unit Test Conditions.xls
- 24.05 Pell Legacy Batch Level Edits 0102 Unit Test Scripts.xls
- 24.05 Pell Legacy Batch Level Edits 0203 Unit Test Conditions.xls
- 24.05 Pell Legacy Batch Level Edits 0203 Unit Test Scripts.xls
- 24.05 Pell Legacy Batch Level Edits 0304 Unit Test Conditions v01.xls
- 24.05 Pell Legacy Batch Level Edits 0304 Unit Test Scripts.xls
- 24.05 Pell Legacy Batch Level Edits 9900 Unit Test Conditions.xls
- 24.05 Pell Legacy Batch Level Edits 9900 Unit Test Scripts.xls
- 24.06 Pell Legacy Specific Edits 0001 Unit Test Conditions v01.xls
- 24.06 Pell Legacy Specific Edits 0001 Unit Test Scripts v01.xls
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- 26.07 Pell Legacy Disbursement 9900 Unit Test Conditions v01.xls
- 26.07 Pell Legacy Disbursement 9900 Unit Test Scripts v03.xls



7 Integrated Planning Summary

The EAI team is working with the Data Strategy and the Technology Strategy teams by meeting with them and reviewing their deliverables to ensure that the strategies they develop leverage the EAI Architecture effectively. The EAI team also met with the Security team to discuss potential uses of EAI as component of the overall security solution.

8 EAI Communication

To facilitate communication of EAI accomplishments, capabilities and services, the EAI Core Team conducted the second in a series of two workshops designed to educate the attendees on both business and technical aspects of EAI. The workshop was held on May 7, 2003.

The workshop agenda:

- Introduction - Bruce Kingsley
- FSA EAI Architecture - Bruce Kingsley
- COD Transformation - Theresa Pak
- Transactional Interfaces - Jeff Goldhirsch
- EAI Performance - Eric Suzuki & Scott Gray

Refer to *Appendix H – EAI Workshop II* for a copy of the presentation delivered.