Defense Automatic Addressing System (DAAS) Global Exchange (GEX)

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Defense Automatic Addressing System (DAAS) Overview

Who We Are:
• An End-to-End System Design Center Operating 24x7, 365 Days
• DoD’s Workhorse for Transaction Processing

What We Do:
• Provide a full range of Transaction Processing capabilities (Receipt, Edit, Route, Translate, Convert, Deliver)
• Support Acquisition, Financial, Logistics, Transportation, Healthcare and Travel Business Areas
• Enables interoperability between disparate DoD networks/systems
• Process 24 Million Transactions (Daily) in support of 225,000+ DoDAACs and 40,000+ Electronic Data Interchange (EDI) Trading Partners
Global Exchange

GEX Provides Capabilities to Support DAAS:

• The GEX provides broker or mediation services that enable the exchange of transaction data between DoD entities and private sector commercial industry

• Facilitates integration between government eBusiness systems and our private sector trading partners

• GEX validates, secures, translates, routes, archives, and delivers mass volumes of EDI and other transactions with guaranteed delivery and end-to-end accountability

Focus on Program Manager Support:

• GEX mitigates integration risk for DoD Business Systems Program Managers allowing them to focus on their core missions

• Streamlined data flow and connections to support Business Systems’ security requirements
GEX History

• **ECPN (Electronic Commerce Processing Node) - 1995**
  - DISA replacement for Network Entry Point (NEP)
  - Comms and Routing

• **DEBX (DoD E-Business EXchange) - 1998**
  - JECPO – Joint Electronic Commerce Program Office
    - Joint effort between DISA and DLA
  - Introduction of DEBX at DAASC to Support Logistics DLMS Processing
  - Data Translation

• **GEX (Global EXchange Service) - 2004**
  - Continued evolution to utilize new technologies and expanding use of GEX to support increasing volume

• **GEX Program Management Transition to DLA - 2011**
  - DLA assumed responsibility upon shutdown of the BTA (Business Transformation Agency)
GEX Capabilities

• Front door for EDI transactions
  • Modern, variable length transaction sets such as X12, XML, iDoc and User Defined Format (UDF) transaction file types
  • Supports 50+ different transaction sets
  • Supports Defense Logistics Management System (DLMS) transactions and many other X12 EDI transactions
  • Supports interoperability
• Mapping, translation, and data conversion services
  • Routing of EDI data (38,000+ trading partners)
  • Connections to commercial Value Added Networks (VANs), DoD Service and Agency business systems, Commercial companies, Federal systems
GEX Design Themes

- Auditability
- Reliability
- Global Exchange
- Security
- Agility
- Scalability
- Traceability
GEX Capabilities

• Translation
  • Decoding and validation of X12, XML, and UDF transactions
  • Application of appropriate translation and mapping rules
  • Provides opportunities for trading partners to migrate to compliance w/standards

• Sorting and Routing
  • Secure transmission and receipt of transactions
  • Use of multiple different telecommunications protocols
  • Configurable processing alerts
  • Application of routing/distribution list processes

• Metrics
  • Monitoring, Logging and archiving of all data/activities

• Scalability
  • Dynamically sizes to increased volumes of transactions
DoD System Interoperability
DoD System Interoperability
Global Exchange Services (GEX) User Community

GEX Core Services/GEX Map Interfaces

**SHAREDD SERVICES**
- PDS
- PRDS
- SLOA
- CLS

**FINANCE**
- Authoritative Data Source (ADS)
- Defense Finance and Accounting Service (DFAS)
- Defense Cash Accountability System (DCAS)
- Electronic Certifying System (ECS)
- ASFOF Shipboard Ordering System (SPOS)
- Standard Accounting and Reporting System (STARS)
- Financial and Cost Tracking System (FACTS)
- Electronic Funds Distribution (EFD)
- Business Enterprise Integration Solution (BEIS)
- US Air Force Security Assistance Center
- Office of Naval Research
- Mechanicsburg STARBAT

**HR/TRAVEL**
- Defense Travel System (DTS)
- Marine Corps Total Force System (MCTFS)
- Synchronized Pre-Deployment Operational Tracker (SPOT)
- Air Force Human Resources (AFIPPS)

**TRANSPORTATION**
- Defense Automatic Addressing System
- Integrated Data Environment
- IDE/Global Transportation Network (GTN) Convergence (IDE)
- PowerTrack

**ENTERPRISE RESOURCE PLANNING**
- Defense Agencies Initiative (DAI)
- Enterprise Business System (EBS)
- Defense Enterprise Accounting and Management System (DEAMS)
- General Fund Enterprise Business System (GFEBS)
- Navy ERP

**PROCUREMENT**
- Purchase Card
- Wide Area Workflow (WAWF)
- Electronic Document Access (EDA)
- Item Unique Identifier (IUID)
- Defense Contract Management Agency (DMCA)
- Standard Procurement System (SPS)
- Procurement Data Standard (PDS)
- Mechanization of Contract Administration Services (MOAS)
- Defense Property Accountability System (DPAS)
  - Invoice Receipt Acceptance and Property Transfer (IRAPT)
  - Purchase Request Data Standard (PRDS)
  - Procurement Automated Data and Document System (PADDS)
  - Standard Accounting Budgeting and Reporting System (SABRS)

**SHARED SERVICES**
- PRDS
- SLOA
- CLS

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GEX Capabilities Evolution

**GEX 1.0/2.0**
- Audit/Alerts
- SFTP/MQ/HTTP
- Encryption
- Content Router
- Data Correlation
- Web Services
- X509 Certs
- FIPS 140-2 Spt
- Priority Queues

2004-2006

**GEX 3.0/4.0**
- Enhanced Data Processing
- GEX Dashboard
- Datamarts/Reports
- CAC Authentication
- WS Security
- JMS and WebDAV
- Enhanced Admin/Audit
- Priority Comms
- System Health Monitor
- Performance Enh
- CEP-based Alerts
- Performance Metrics
- Expanded BI

2008-2014

**GEX 5.0**
- Centralized Config
- GEX Nodes
- 64-bit Migration
- Distributed Processing
- Remote Comms
- Enhanced Sys Tuning
- Enhanced Prioritization
- Expanded Audit
- Performance Upgrades
- Auto Error Handling
- Enhanced Metrics
- Ab Initio Performance
- Health Monitoring Enh
- Expanded Datamarts
- Enhanced XML Proc
- LDAP Integration

2016

**GEX 6.0**
- Centralized Admin/UI
- Centralized Data Store
- Admin Efficiency Enh
- Distributed Processing
- Enhanced Failover
- Load Balancing
- Multi-version support
- Auto Msg Reprocessing
- Expanded Audit
- Performance Upgrades
- Enhanced Dashboard
- Configuration Wizard
- Configuration Tags
- High Perf Passthrough
- Multi-System Summary
- Centralized Reports
- Reduce Node Footprint

2018

"Proven Capability – ready off the shelf"
How GEX Works

CUSTOMERS

DoD
- Departments of:
  - Army
  - Navy
  - Air Force
  - Marine Corps

- Defense Agencies
- Intelligence
- DoD Dependent Schools
- NATO
- FMS Countries

Civilian
- Departments of:
  - Commerce
  - State
  - Justice
  - Transportation

- NASA
- GSA
- FAA
- VA

Secure Comms
- SFTP
- HTTPS
- MQ

Translation/Validation
- IBM WebSphere TX
- Ab Initio

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Routing
Many-to-Many – Content-based – Multiple Criteria

Data Access Layer
Audit Trail – Data Content – System Config – Datamarts – Metrics
Oracle DB w/Partitioning

OS (HPUX 11 or Linux)
GEX Growth

Between 2014 and 2017:
- Data Mediations increased 40%
- GEX Instances increased 75%

<table>
<thead>
<tr>
<th></th>
<th>Files</th>
<th>Transactions</th>
</tr>
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<tbody>
<tr>
<td>2017 Yearly Total</td>
<td>1,354,962,857</td>
<td>4,636,603,119</td>
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<tr>
<td>% Increase Over 2016</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>2017 Monthly Average</td>
<td>112,913,571</td>
<td>386,383,593</td>
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<tr>
<td>2016 Monthly Average</td>
<td>100,690,151</td>
<td>352,784,632</td>
</tr>
</tbody>
</table>

**GEX processed nearly 21 Trillion Bytes of data in 2017!!**
Scalable Software Architecture

**GEX Scalability**
- Configuration/Tuning for steady state and data surges
- Configurable Data Prioritization
- Allocates System Resources based on Data Volumes
- Health Monitoring and Alerts for automated or administrator actions to resolve issues

**Infrastructure Scalability**
- Robust VM environment provides flexible, efficient model to add GEX instances to support increasing volumes
- GEX enclave and DMZ instances work together for both load balancing and COOP scenarios
Scalable Software Architecture

Continuity of Operations
- GEX operates out of two data centers
- Hot-Hot processing with both sites capable of handling full workload
- GEX enclave and DMZ instances work together for both load balancing and COOP scenarios
- GEX production traffic can be quickly moved between production data centers
- Customers are encouraged to take advantage of hot-hot processing mode and connect their systems to both GEX production sites
Scalable Software Architecture

Dual Sites Provide Concurrent Transaction Processing Capability.
DAAS Auditability

- GEX is a part of the Defense Automatic Addressing System (DAAS)
  - DAAS is accredited via Risk Management Framework (RMF)

- DAAS undergoes a Statement on Standards for Attestation Engagements (SSAE) annually
  - DAAS report can be requested via auditreadinessliason@dla.mil

- Note: Data currently processing on the GEX hosted at DISA is not in scope of the DAAS SSAE
  - As data is moved to the GEX hosted at DLA, the feeds become immediately subject to audit examination
  - Migration will be completed in FY18, currently estimated for mid-May
• GEX audits transactions for conformance to X12/XML syntax, and message content if customer developed requirement.
• Invalid transactions can be returned to submitter for correction/retransmission.
• Help Desk available to provide customer assistance in trouble-shooting and tracking transactions.
DAAS Customer Requirements

• DAAS customers must:
  – Produce/maintain a valid Authority to Operate (ATO) for their system
  – Sign/maintain an agreement with DAAS
  – Provide funding for required new or updated mappings
    – Cost based on the number of maps and complexity of the requirements

• Provide technical support staffing capable of:
  – Establishing secure connectivity between their system and the GEX as required by DoD security requirements
  – Preparing and submitting test transactions during set-up/test phase
  – Monitoring/operating the local system originating the transactions
  – Processing and resubmitting error transactions received from the DAAS Customer Support personnel
GEX Website

- GEX Information
  - Fact Sheet
  - Operational Views
- Mapping Information
  - Contents of Map Updates
  - Map Release Schedule
- How to Place a Task Order for GEX Services
- Connection Guide
- FAQs
- Website is CAC protected

https://www.transactionservices.dla.mil/gex
How to Acquire New GEX Integrations/Capabilities

• Identify requirements for data transactions or GEX capabilities
• Coordinate with DAAS EBUS Office
• Northrop Grumman available via a single award contract vehicle to provide customer funded integration/GEX capabilities support
• Integrations/capabilities developed and tested
• Coordinate security requirements and connectivity agreements with DAAS
• GEX new business needs contact:
  
  Gary Wooddell  
  Chief, DAAS Electronic Business and Global Exchange  
  gary.wooddell@dlamil / 937-343-8437
Reprocessing Requirement

Issue

• MOCAS receiving the initial contract award and a modification to the award in the same batch can lead to the modification posting first, which errors

Solution

• GEX will identify modification actions in which there is a matching contract on the same day’s transmission
• Hold modification and retransmit 24 hours after transmission of base contract
• Requires use of GEX core to keep repository of transactions in a datamart as well as a map change to conduct the necessary lookups when data is being processed
• Functionality can be extended to other transaction types
What’s the GEX’s Role in Procure2Pay?

GEX is used broadly across many of the P2P Handshakes to...

• Reduce significant amount of point-to-point interfaces
• Achieve system to system interoperability
• Provide traceability of transactions
• Apply internal controls
• Provide metrics on adherence to data standards
**PDS Funds Verification Pre-Award (HS-2)**

- PDS SLOA Validation graph is dependent on presence of a valid AAI in the AAI routing table
- PDS SLOA Validation graph applied checks and reports only on ^ delimited BLOB; PDS non-SLOA pass through
DAAS Business Services

Customers

DoD (98% of workload)
- Departments of:
  - Army
  - Navy
  - Air Force
  - Marine Corps
- Defense Agencies
- Intelligence
- DoD Dependent Schools
- NATO
- FMS Countries

Civilian (2% of workload)
- Departments of:
  - Commerce
  - State
  - Justice
  - Transportation
  - Treasury
- NASA
- GSA
- FAA
- VA
- FEMA
- USPS
- GAO
- CG

Suppliers

Defense Logistics Agency

Military Services

General Services Administration

Commercial Suppliers

259,558 Business Partners Worldwide

Volumes
- CY 2017: 7.8 Billion MILS & EDI
- CY 2016: 7.5 Billion MILS & EDI
- CY 2015: 8.0 Billion MILS & EDI
- CY 2014: 8.7 Billion MILS & EDI
- CY 2013: 7.4 Billion MILS & EDI
- CY 2012: 8.3 Billion MILS & EDI

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