



convertLogic
Operational White Paper

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Introduction

convertLogic is an integration to 3DExperience/ENOVIA designed to transparently automate the conversion of files into PDF format. Since **convertLogic** is fully integrated and works exclusively in the background (as a Service), there is no required user interface. Files are queued for conversion and can be metadata stamped based on administrative determined parameters and internal ENOVIA triggers. Converted, stamped files are automatically checked into an administrator specified Format within the object from which they originated. Users are not required to perform any tasks outside of their normal operations to initiate a conversion. As well, users cannot override or interfere with the process in any way. With these constraints in place, **convertLogic** helps organizations comply with virtually all Regulatory requirements.

The concept for **convertLogic** originated from the recognition of the functionality gap between the core features of 3DExperience/ENOVIA and the demands of the users. PDF has become the standard viewable file format. The expense of providing viewing capabilities to an entire enterprise either with a third party viewer or the native applications can be prohibitive. By converting files to PDF, organizations can implement a world-wide standardized format and utilize a free viewing application (Adobe Reader or compatible), thereby decreasing costs.

In addition to conversion, **convertLogic** provides the ability to stamp metadata onto converted PDFs adding an additional level of security and compliance to the 3DExperience/ENOVIA implementation.

convertLogic provides a cost-effective solution to PDF generation and maintenance:

- 1) Flexible and rapid configuration
- 2) Simple installation process (typically under 30 minutes)
- 3) Point-and-click administrator module ensures simple, accurate configuration
- 4) Low maintenance costs
- 5) Automatic cleanup of old or unmatched PDF
- 6) Notification of errors or server problems
- 7) Investment protection
- 8) Upwardly compatible with the latest generation of 3DExperience/ENOVIA
- 9) Compatible with 3DExperience/ENOVIA – all versions and all interfaces
- 10) User friendly
- 11) Conversion remains transparent to the user
- 12) User can be notified on conversion success, failure, both, or neither depending on a simple administrative setting

Component Structure of convertLogic

convertLogic is comprised of the components described below:

1) **convertLogic Triggers**

convertLogic uses the standard ENOVIA method of event based triggers to build a queue for conversion and metadata stamping. By using this method, users sessions are never tied up beyond the normal trigger execution time. A users ability to continue working within ENOVIA is never impeded upon by **convertLogic**. Files are not moved, copied, checked out or otherwise touched until the queue is processed.

There are 12 ENOVIA standard triggers, OnDemand, and CLConvert (a custom action) which can be used to queue files and are set up from within the **convertLogicAdmin** utility (discussed below) – Checkin, ChangeName, ChangeOwner, ChangePolicy, ChangeType, ChangeVault, ModifyAttribute, ModifyDescription, RemoveFile, Revision, Promote, and Demote. When executed, the trigger determines the user’s Site which is then used for queuing the files. Multiple servers can be used for processing the files allowing localized conversions (FCS compatible) and thereby minimizing network traffic and assuring conversion of the current file. In this manner, **convertLogic** can be configured with a minimal amount of effort to provide conversion capabilities throughout an entire enterprise.

2) **convertLogicAdmin Utility**

The **convertLogicAdmin** utility is a powerful application that allows an administrator to use a point-n-click interface to configure the parameters used for conversion, queuing, and management. This module also provides the ability to administer any **convertLogic** Server Object defined within the ENOVIA database. Users of **convertLogicAdmin** are required to have ENOVIA Business Admin privileges. **convertLogicAdmin** runs on a Windows PC (Windows XP or later). Connection to the database is achieved via MQL or eMatrixJava.dll which must also be installed and operational on the same PC as the **convertLogicAdmin Module**.

3) **convertLogic Service**

The **convertLogic Service** component queries the ENOVIA database (frequency set by the admin) and extracts the queue information from the Server Object (as described in the “Trigger” section above). Working from both the queue and the parameter information stored in the Server Object, the **convertLogic** Service performs the tasks of checking out files, monitoring the conversion process and checking the resulting PDF file into the originating object.

In addition to these tasks, optional capabilities include:

- a. ENOVIA IconMail or standard email sent to the user who originated the event to notify success and/or failure of the conversion.
- b. ENOVIA IconMail or standard email sent to ENOVIA Administrators for critical errors.
- c. Status logging of all processes.

4) Companion Components

- a. In addition to the 3 **convertLogic** components, a variety of companion components may be required. These application must reside on the same server as the **convertLogic** Service component to allow for **convertLogic** control. Typically, companion components are native applications such as Microsoft Office, NX, CATIA, and AutoCAD.
- b. Several methods of file conversion can used by **convertLogic** including multiple internal engines. These engines each have strengths and weaknesses in converting specific file types and therefore a mix of engines may be used to provide the best file fidelity during the conversion process.
- c. Native Applications such as Microsoft Word and Microsoft Excel are popular formats to convert from their native format to PDF. If the customer has a site/enterprise license (or licenses available) of the native application(s) used to create the source file, these applications are required to be installed on the same server as **convertLogic**.

ENOVIA Schema Structure

convertLogic uses its own contained schema constructs and is not reliant upon the AEF schema implemented within ENOVIA. It is completely non-invasive to existing schemas, and fully compatible with the ENOVIA AEF schema.

Within the **convertLogic** schema components, one Type is created and used for storing the parameters associated with the conversion process. This Type is used to instantiate the Site Objects each of which also store the queue information for conversion. ENOVIA Sites are echoed as the **convertLogic** Site Objects within the ENOVIA database. The Site Objects contain all parameters required for conversion including location of the **convertLogic** server, batch processing intervals, and page-size characteristics.

Site Structure

convertLogic works in conjunction with the ENOVIA concept of Sites. Typically, users within ENOVIA are designated to exist at a particular Site usually (but not necessarily) defined geographically. Because of this inherent structure, **convertLogic** can take advantage of this distinction among users.

In addition to Site distinctions, **convertLogic** works with the concept of conversion servers. Because of the flexibility of this concept, an enterprise can set up **convertLogic** in a variety of ways. In fact, the number of possibilities can grow exponentially.

Metadata Stamping Capabilities

convertLogic provides the multiple capabilities to stamp metadata onto documents at the time of their conversion to PDF. This feature is not limited to new conversions and can be used to apply metadata to existing PDFs which are re-processed via a trigger such as "promote".

The determination of whether or not to stamp a document is related to the type of trigger which caused the queuing of the specific file. The system administrator can make this determination using the **convertLogicAdmin** utility, turning on stamping for any or all of the available triggers.

The stamp is designed within **convertLogicAdmin** in a point-n-click interface. The layout tools provide the ability to determine fonts, font sizes, colors, margins and specific location of the watermark text. Included within the layout tools are 11 standard metadata types which are evaluated at the time of conversion:

Type	Date
Name	Time
Revision	User (ENOVIA User ID)
Policy	File name
State	Pages (total)
Page (current)	

One additional type of metadata is provided – “Program”. This is a special indicator used within the metadata stamp layout. Provided with **convertLogic** is a shell program within which an administrator can create an ENOVIA JPO program of any complexity.

When this program is called via **convertLogic Service**, a string of parameters are passed to allow for detailed metadata retrieval: Object ID, Zone (indicating the location on the page where the “Program” parameter was placed such as “TopLeft”) and Event (indicating the triggering event, such as “checkin” or “promote”). The returned string of information will be used as the metadata stamp in place of the “Program” indicator.

Another option for stamping is the Dynamic Stamping function, which is essentially an extension of the “program” option. With this capability, stamps for an entire page are created via a client-maintained JPO. The JPO is called per-page (or per-document) with a specific set of parameters, and the JPO returns an xml-based string containing the resulting stamp details, including font name, font size, color, etc. Six additional zones are available (13 total) when using this method.

In addition to the point-n-click interface provided within **convertLogicAdmin**, an additional dll, “Annotate” can be used to create stamping layouts with virtually unlimited complexity. Stamps can include drawing elements (squares, circles, etc.) and positional capabilities to place metadata anywhere on the converted pages. Detailed information about the dll component is beyond the scope of this document.

Hardware Requirements

We recommend the following Windows based specs:

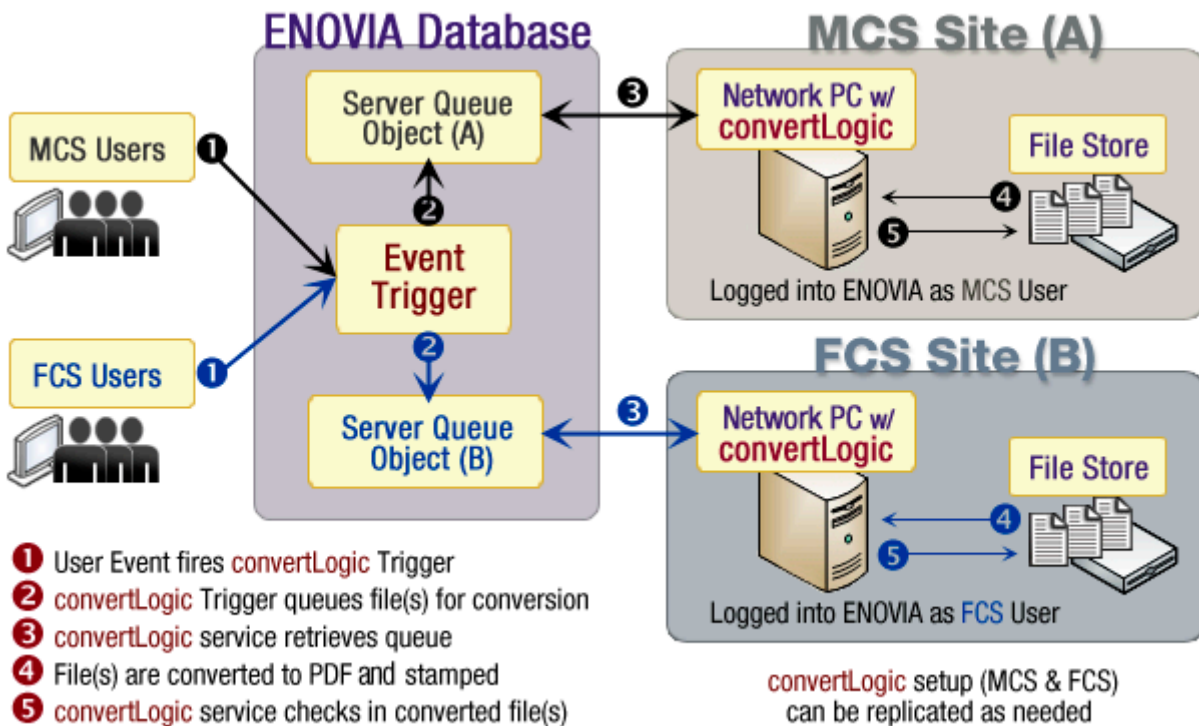
OS: Windows Server 2008 R2 or later **RAM:** 1gb or greater
HD: 300mb Hard Drive space or greater **CPU:** Pentium 4, 1ghz or greater
ENOVIA: ENOVIA database connection via Thick Client MQL or eMatrixJava.dll

Server/Network Structure

Sites in ENOVIA are used by **convertLogic** to resolve which conversion server will be used. Typically, users within ENOVIA are assigned to a "Site" that normally coincides with a distinct geographic location on the customer WAN. The Site usually has its own ENOVIA Store containing the CAD files or documentation that requires conversion. **convertLogic** can take advantage of this distinction among Users and Sites to support different customer configurations.

When more than one **convertLogic** server is deployed, the use of ENOVIA Sites will ensure the conversion requests are handled by the nearest **convertLogic** server. Pertinent information about the ENOVIA file server is automatically added to the appropriate **convertLogic** Server Object. This object manages the conversion queue after the PDF conversion request is initiated.

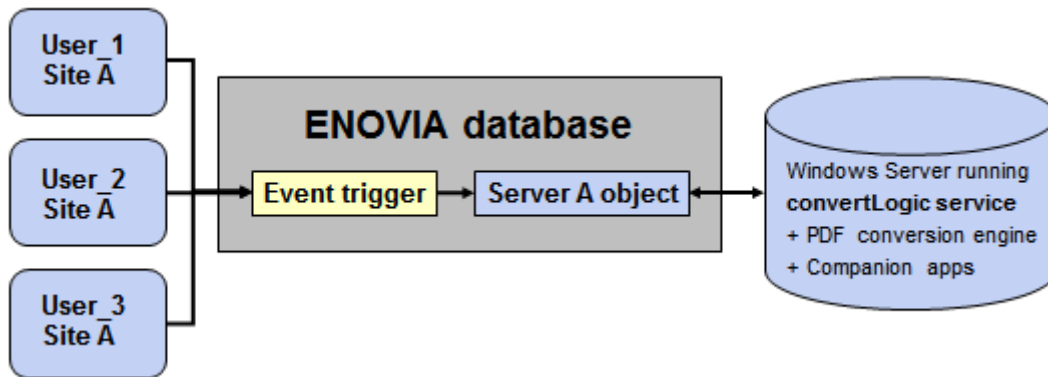
The diagram below shows the basic structure and process flow for **convertLogic**:



SAMPLE CONFIGURATION SCENARIOS

Single Site / Single License Scenario

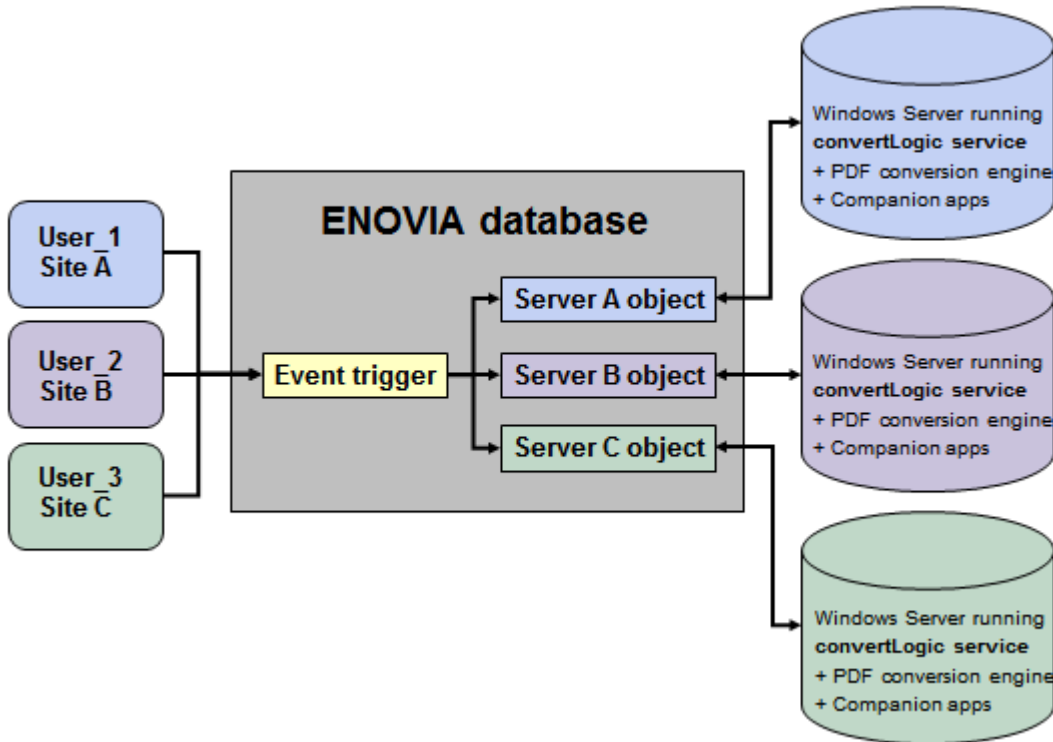
Under this scenario, an enterprise designates that all users belong to a single defined Site. For example, Corp A has defined one Site within ENOVIA, and has assigned every user to this Site. Corp A is using a single license of **convertLogic** installed at their Corporate Headquarters. When any user initiates an appropriate event, the **convertLogic** trigger determines the User's Site (as defined within ENOVIA) and queues the file information to the associated Server Object. The Site resolution is identical for each user, since they all belong to the same Site. The **convertLogic** Service is attached to the single Server Object for the purpose of retrieving parameter and queue information and ENOVIA database interaction.



Multi-Site / Multi-License Scenario

Under this scenario, Corp B owns 3 **convertLogic** licenses and designates that each user belongs to one of three Sites. Using **convertLogicAdmin**, each Site (A, B, C) is easily mapped to one of the three **convertLogic** licenses.

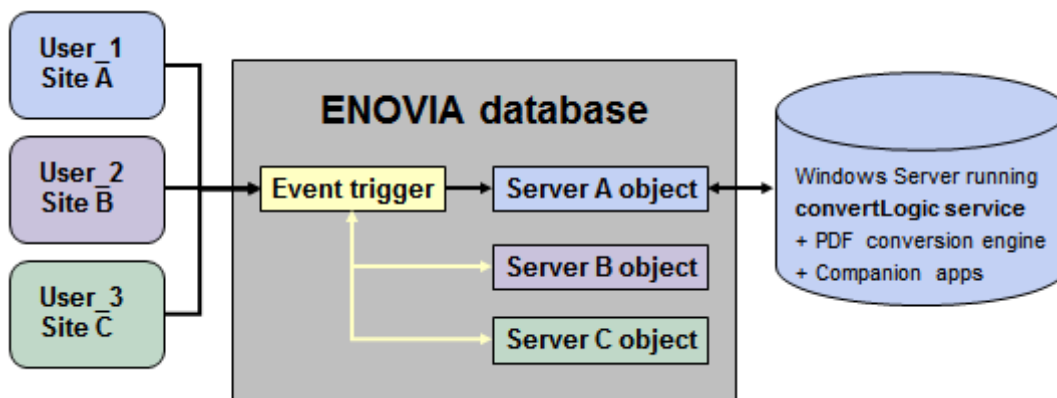
The three licenses could be installed at entirely different locations on the WAN; however, they normally reside near the key design or manufacturing centers (data creation locations). **convertLogic** would create and manage 3 Server Objects, each potentially containing distinct conversion parameters and file queues. When a user (assigned to Site A) initiates an appropriate event, the **convertLogic** trigger determines their Site (as defined within ENOVIA) and queues the file information to the associated Server A object. When a second user (assigned to Site B) initiates an appropriate event, their conversion is directed to a different **convertLogic** license. The **convertLogic** trigger determines their Site, and queues the file metrics to the Server B queue object, and so on.



Multi-Site / Single License Scenario

Under this scenario, Corp C owns one license of **convertLogic**, but has three separate Sites on their corporate WAN. The convertLogic administrator designates that each user belongs to one of three defined Sites. However, only a single **convertLogic** license is available to service all Sites. **convertLogicAdmin** can create and manage Server Objects by using Server Syncing features.

With this scenario, each Site still has a related Server Object, but the parameter information contained within the object and the queue information is ignored. Instead, the **convertLogic** trigger determines the Parent Server Object, and sends file information to that queue. The **convertLogic** Service is attached to the single Server Object for the purpose of retrieving parameter and queue information and ENOVIA database interaction.



convertLogic Functionality

Note: Functionality is subject to change with each new version of **convertLogic**.

- ❑ Entirely server based - No user interface
- ❑ No user wait time – session is immediately released to user
- ❑ Multi-site, Enterprise ready
- ❑ FCS (File Collaboration Server) ready
- ❑ Multi-conversion server ready
- ❑ Compatible with all versions of 3DExperience/ENOVIA
- ❑ Completely automated process
- ❑ Runs as a Windows Service – requires no admin interaction
- ❑ Non-invasive, self-installing, AEF compatible schema
- ❑ Self-diagnostics and repair of schema components
- ❑ Detailed metadata stamping capabilities via 12 triggers, OnDemand, CLConvert
 - Via convertLogicAdmin point-n-click interface:
 - Up to 13 distinct banner zones plus 1 watermark zone
 - Font name, size, and color specifications
 - 11 standard types of metadata
 - Program execution metadata
 - Limitless zones and layout capabilities (via annotation dll)
- ❑ Point-n-click administrator interface
 - ENOVIA login and privilege secure
 - Server mapping/syncing
 - Point-n-click Stamp layout
 - Admin email and/or IconMail notifications for severe errors
 - User/Admin email and/or IconMail notifications for success/failure of conversions
 - Detailed process logging
 - Continuous or daily
 - Direct viewing of log files across network
 - US and Metric page sizes (A through F, A5 through A0)
 - Actual Size conversion
- ❑ Multiple conversion parameters
 - 12 trigger types plus OnDemand, and CLConvert
 - Multiple or Compound trigger application
 - Conversion Formats
 - Converted file check-in format
 - Timeout control
 - Batch process timing
- ❑ File Prep – ensures native and PDF matching (configurable)
- ❑ Service automatic pause on critical errors
- ❑ File merging of multiple files into a single PDF
- ❑ Bulk conversion via file input
- ❑ Emergency Admin Email and multiple Login attempts
- ❑ Removal of duplicate queue entries (configurable)
- ❑ Queue rebuild on critical errors – maintains FIFO order and trigger information
- ❑ Supports all common file formats
- ❑ Import/Export functions for **convertLogic** Schema and Business Objects