Cardax FT
Application Programming Interfaces (APIs)

Integration delivers cost and time efficiencies, improves data integrity and can help meet your occupational safety and health obligations. Cardax FT Server and Controller Application Programming Interfaces extend the functionality and flexibility of Cardax FT as the platform for integration.

Cardax FT Server Application Interfaces

XML Import/Export Interface
Cardax FT uses standard software functionality known as XML Interface to import and export data between Cardax FT and external sources.

Why import data from and export data to external sources?
Often there are external sources of data on a customer's computer network that may be used as a basis for information such as access control schedules or cardholder records in the Cardax FT system.

Cardax FT Cardholder Import/Export and Cardax FT Schedule Import provide means of transferring the data between existing systems and Cardax FT, via a common file format. These XML Interfaces have been developed to allow third parties to dynamically update information in existing Cardholder databases or schedules. Data can be synchronised on an on-going basis with other applications within the organization.

Typical sources of Cardholder data include an organisation's HR database from a system such as SAP®, payroll databases, student enrolment databases, time and attendance databases, and OH&S databases.

Typical sources of resource scheduling data include facility resource booking systems.

The advantages of using XML Interface are:
• The process can be set up to run automatically reducing manual operator data entry.
• Predetermined access criteria based on the source record data can be set up.
• For Cardholder records, a single source of records is used, minimizing the possibility of data entry errors.

Data Transfer Process
Data transfer allows the external database application to put the records that are intended to be imported, into a specific file location in a common data format (such as CSV format) for the Cardax FT Cardholder

Import/Export or Schedule Import utilities to access. The Cardax FT utility then picks up the data and imports the data records into the specified Cardax FT Cardholder records or schedules. This process is mirrored for exporting Cardholder information.

An exception report listing any records that failed the import/export process is produced for later resolution.

Implementation
Utilities developed by Gallagher Security Management Systems are available providing maximum flexibility to allow connection to virtually any system. Software database knowledge is required to successfully implement the Cardholder Import/Export feature.

The mapping of third party information to the database fields requires an understanding of XML programming. A Developer Guide has been produced to assist software engineers to carry out this work. The guide can be found on the Cardax FT Command Centre Installation CD.

From the GALLAGHER suite of security systems

Enterprise Data Import Interface
The Enterprise Data Import Interface tool allows configuration and synchronisation of Cardholder data with external enterprise systems. Data maintained in a primary database (e.g.Human Resources database) can be automatically reflected in the Cardax FT database on an ongoing basis, in order to maintain data integrity and reflect business approved changes to Cardholder information and access rights. The Enterprise Data Import Interface tool also allows sites migrating from an obsolete security system to migrate existing Cardholder details from the legacy system over to Cardax FT.

The Enterprise Data Import Interface tool enables mapping of existing employee fields (e.g. personal details, group memberships, licenses etc.) to their Cardax FT Command Centre equivalent (e.g. Personal Data Fields, Access Groups, Competencies etc). An intuitive interface allows 1-1 or 1-many relationships to be mapped between systems. Transformations of data can be easily configured, allowing abbreviations used in the external system to be translated to a more meaningful descriptions on import to Cardax FT.

The Enterprise Data Import Interface can be used for manual one-off migrations of Cardholder data to the Cardax FT Database and/or set to automatically update in Cardax FT any changes made in a primary employee database.

OPC Alarms and Events API
Cardax FT Command Centre Server supports the OPC Alarms and Events standard.

The OPC Alarm and Events API allows external systems (AE Client) to acknowledge alarms and add comments when acknowledging them. It also allows external systems to request extra 'attributes' that a server may make available.

The connections between an OPC AE Client and the Cardax FT Server are in the form of 'subscriptions' where the client registers a subscription to the server. For OPC Alarms and Events this subscription can be for all, or a filtered subset of the server alarms and events.

Third party systems such as CCTV, time and attendance, pager systems, building management systems (e.g. lighting and air-conditioning systems) which have an OPC AE Client running can subscribe to and receive the relevant data from the Cardax FT OPC Server operating on the network. A CCTV system, for example, can receive specific types of messages via its OPC Client.

When an event occurs, the CCTV system reads the event message and initiates a sequence of actions such as starting a VCR or zooming into a specific area. One or more OPC Clients can access the data on the Cardax FT Command Centre and use it as required.

This system is very efficient; the server will send all subscribed events and alarms to the client without being continually polled, thus reducing system load.

Alarms and events can be communicated in a variety of ways to people monitoring them, for example, via SMS, pagers, pop-up windows, email and webpages.

OPC Data Access API
- Status and Overrides
Cardax FT Command Centre allows Status and Overrides to be shared with third party systems.
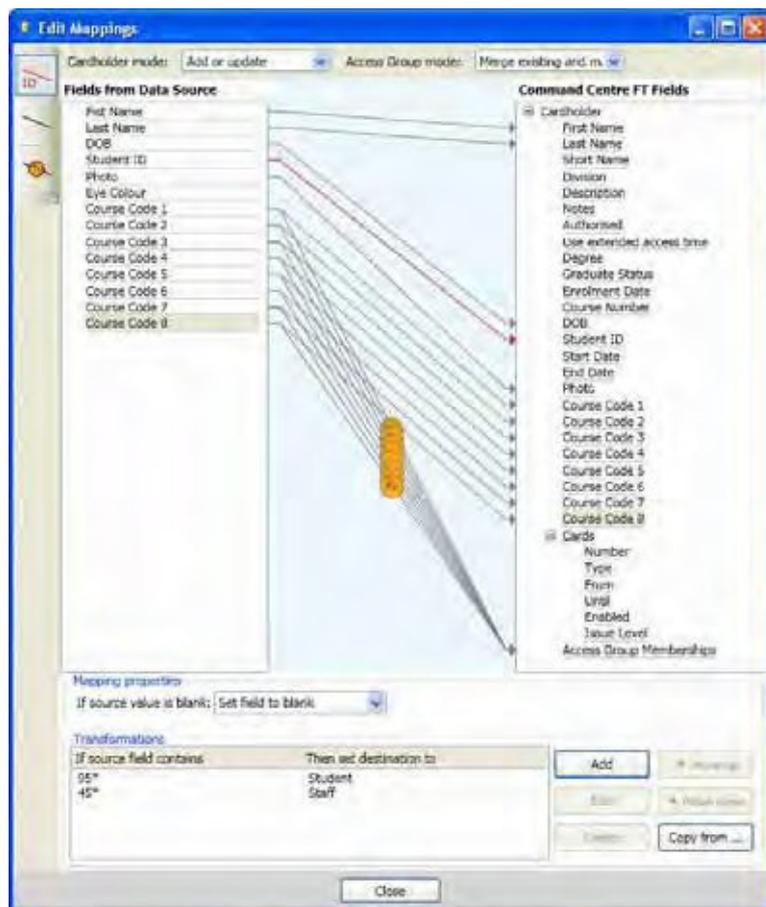
Cardax FT Command Centre can provide the status of Cardax FT items to third party systems, or allow these systems to perform overrides on Cardax FT Items. This is ideal when a 'turnkey' solution involving multiple systems controlled via one Graphical User Interface (GUI) is required. Cardax FT allows this to occur by way of an API, based on the industry standard OPC (OLE for Process Control) Data protocol.

OPC Data Access allows independent systems to share status and override information by providing a standardized framework for this sharing. Any system conforming to this framework is able to do the following:
• Control the state of selected Cardax FT items directly from the third party system by invoking overrides
• Report the state of selected Cardax FT items directly in the third party system.

Access by the third party system to Cardax FT status and overrides is protected by a session logon for all OPC clients before allowing any operations between client and server. Once a valid set of logon credentials have been passed to Cardax FT, a session identifier is exchanged with the client which then is required to verify read/write/view privileges for all operations attempted via the OPC interface.

Middleware development is required to link the two systems with the customer's required status and override information. All events and system activity including operator activity are recorded in the Cardax FT audit trail.

OPC Data Access API is a licence controlled API. Please contact your GSMS rep with details of any intended usage.

Cardax Database Access
A 'Read Only' view of the Cardax Database is available; please contact Gallagher Security Management Systems for more information.

Access to the Cardax Database is possible; please contact Gallagher Security Management Systems for more information.

Cardax FT Controller Interfaces

Cardax FT Controller API
The Cardax FT Controller API allows Controller based events and alarms to be sent to and received from third party systems such as DVR, duress, building management, external alarm, fire alarm, licence plate recognition and biometric recognition systems.

High level integrations between Cardax FT and third party systems often require events and alarms to be shared at the Cardax FT Controller level. This type of sharing is useful for any third party system requiring real-time event and alarm sharing independent of the Cardax FT Server.

The Cardax FT Controller API presents a standard interface for Cardax FT events and alarms, allowing easy mapping of these items to an equivalent event or alarm in a third party system. This mapping is achieved via middleware, typically unique for each integration. The Cardax FT Controller API allows the middleware to reside on the same physical machine as the Cardax FT Server.
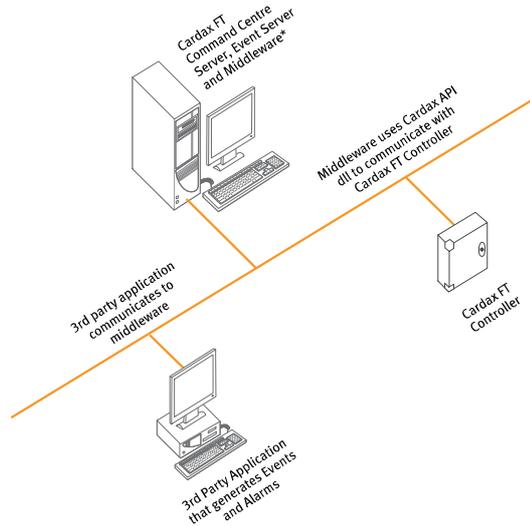
The Cardax FT Controller API allows external system items to be represented within Cardax FT, and to interact with the control functions occurring in the Cardax FT Controller. Third party system events can be used to trigger Cardax FT events such as arming or disarming an alarm zone, triggering an emergency release, or as an input to a Controller Logic Block.

Information in string format can also be sent through to third party systems triggered by a Cardax FT event. This information can include cardholder details, event sources or event types. Potential uses of this include exporting Cardax FT event information to paging systems, alarm displays or text insertion onto video.

The Cardax FT Controller API is not supported on the Cardax FT XtraSec Controllers.

Connectivity Diagram

Cardax FT
Command Centre
Server, Event Server
and Middleware*

Middleware uses Cardax API
dll to communicate with
Cardax FT Controller

Cardax FT
Controller

3rd party application
communicates to
middleware

3rd Party Application
that generates Events
and Alarms

* Cardax FT Server and Middleware can run on separate physical machines

Data Transfer - Cardax FT Server and Cardax FT Controllers

	Cardax FT Server		Cardax FT Controller	
	Incoming	Outgoing	Incoming	Outgoing
Cardholders	✓	✓		
Schedules	✓			
Events		✓	✓	✓
Alarms		✓	✓	✓
Status		✓		
Overrides	✓			

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TECHNICAL SPECIFICATIONS	Cardax FT Application Programming Interface	
Supported Versions	OPC Alarms and Events	Version 1.0
	OPC Data Access	Version 3.0

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