Gentran Integration Suite™ 4.3
Overview Guide

Gentran Integration Suite™

Overview Guide

Version 4.3

sterling commerce

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Welcome to Gentran Integration Suite

Thank you for choosing Gentran Integration Suite! In choosing Gentran Integration Suite, you join hundreds of companies around the world using the leading business integration platform to streamline business processes.

Gentran Integration Suite is a transaction engine that runs processes you define and manage according to your business needs. The platform supports high volume electronic message exchange, complex routing, translation, and flexible interaction with multiple internal systems and external business partners. Gentran Integration Suite:

✦ Ties together applications, processes, data and people, both within and outside of your immediate organization

✦ Offers flexible options for deployment, configuration and customization, including the ability to add capabilities one at a time

✦ Complements rather than disrupts your critical existing systems

✦ Provides a robust security infrastructure

✦ Includes innovative visual management tools for easy configuration and visibility into work flows, system and trading partner activities, translation maps, and business process implementation

✦ Works with existing and emerging business and communication standards

Combined, these assets enable you to configure Gentran Integration Suite components to meet your evolving application integration needs.

Evolving Business and Integration Objectives

Application integration has been crucial since the dawn of e-business, but never to the degree that it is today. Accelerated demands of the global marketplace force businesses to adapt constantly to changing communications requirements, shrinking product cycle times, and increased competitive pressures.

While past approaches to integration brought important efficiencies, they do not represent full end-to-end integration. Like many firms, you probably have in place limited-purpose middle-ware such as file transfer, EDI, message queuing, Internet B2B gateways, direct database access and synchronization, EAI brokers, and custom-coded interfaces.

The resulting pockets of integrated applications across a landscape of mainly un-integrated and unmanaged applications leave you ill-prepared to keep up with today's demands. You need ambitious new ways to do e-business—to retain your competitive edge through increased efficiency. Gentran Integration Suite is the solution.

Many of the business challenges you face can be addressed through integration initiatives. With Gentran Integration Suite, you can solve business problems related to integration and achieve your integration goals in many different ways.

Solving Business Problems Through Integration

You may be experiencing any combination of the following business challenges related to integration:

✦ Backlog of E-Business Initiatives

✦ Internal and External Interaction Demands Growing

✦ Meeting Regulatory and Industry Mandates

Backlog of E-Business Initiatives

Many factors can contribute to a backlog of e-business projects, including:

✦ A growing number of business applications needing to be integrated

✦ Your total volume of business may be growing

✦ Mergers and acquisitions compound integration challenges

✦ Tightening IT budgets force you to achieve more efficiencies with fewer resources

The Gentran Integration Suite modular licensing and implementation model lets you make progress against that backlog quickly by starting small and incrementally introducing enhanced automation to your processes. In this way, you can avoid the pain of a revolutionary upheaval.

Internal and External Interaction Demands Growing

Factors driving IT requirements include:

✦ New and increasing demands for real-time information interactions

✦ A need for real-time visibility into business activities such as order processing, status checking, and inventory optimization

✦ External requirements to deploy new standards-based XML-centric B2B protocols

✦ A need for deeper levels of internal application integration

Gentran Integration Suite is designed to operate with emerging standards and protocols, and you can add the appropriate components to your system as the need arises.

The Gentran Integration Suite interface includes wizard-driven configuration and deployment steps, eliminating the need for custom coding. This accelerates your transition times and return on investment, so that your company can focus on higher level business problems.

Product architecture lets you integrate new procedures into your processes on the fly. And the tracking capabilities of Gentran Integration Suite provide a 360-degree view of customer transactions. The user interface provides a single console offering real-time monitoring of your processes and transactions.

The optional Gentran Integration Suite Community Management application makes it easy to organize your trading partners into groups so that you can quickly and easily track related documents, trends, and other supply chain information for the group as a whole.

Meeting Regulatory and Industry Mandates

Regulatory initiatives and industry mandates such as AS2 document transport, Uniform Code Council-compliant data synchronization, HIPAA compliance (Health Insurance Portability and Accountability Act) and RosettaNet implementation guidelines are some of the business drivers that require advanced integration.

In the United States, if you are an organization in the utilities, logistics or financial industry, you are likely to be facing deregulation concerns. Organizations in general in Europe and Asia, as well as U.S. automotive industry companies, must be ebXML-compliant. And U.S. federal mandates related to corporate accountability, such as the Sarbanes-Oxley act, may be increasing your internal and external application and partner integration requirements.

Gentran Integration Suite enables you to rapidly modify your processes or deploy new technology as the need to meet these types of demands arises.

Meeting Integration Challenges with Gentran Integration Suite

Integration challenges can be grouped into the following categories:

✦ Trading Partner Management

✦ Data Transformation

✦ Process Automation

✦ Human Workflow Automation

✦ Monitoring and Managing Processes

✦ Enterprise Integration

Trading Partner Management

To be competitive, you must be responsive to constant change within your trading partner community. Changes driven by new requirements such as new data formats and communication protocols, new business exchanges, and a broad range of partners varying in size, type, and sophistication, mean your organization must be flexible enough to adapt quickly and efficiently.
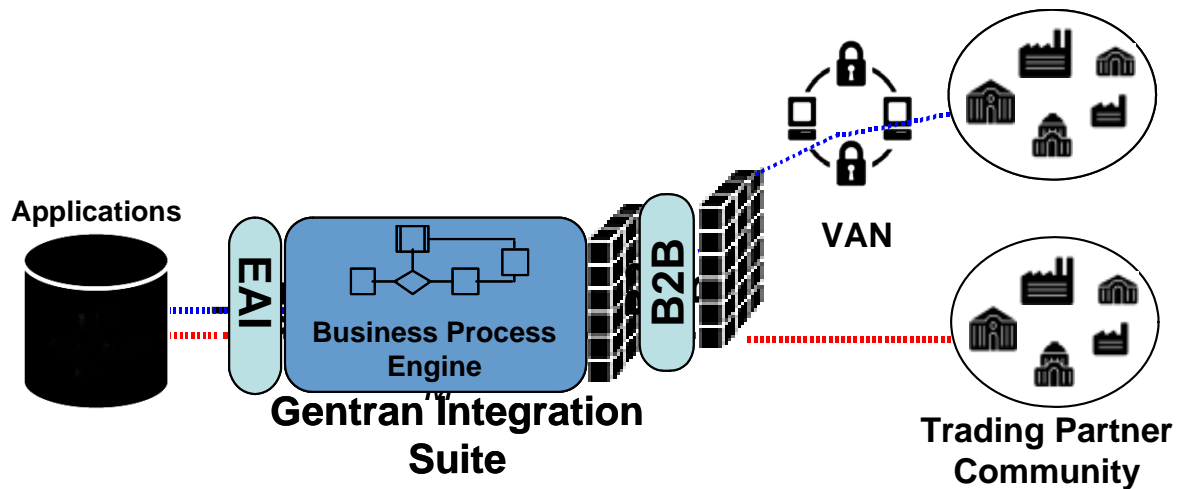
Gentran Integration Suite:

✦ Works over practically any communications protocol, including HTTP(s), FTP(s), SMTP, SOAP, EDIINT (AS1, AS2, & AS3), so you have the flexibility to respond to changes in communication methods (async, and bisync communications are supported through Connect:Enterprise interoperability)

✦ Provides scalability to meet fluctuations in transaction volume

✦ Enables end-to-end order visibility for tracking transactions throughout the lifecycle and ensuring that orders are never lost

✦ Provides mailbox store-and-forward services

✦ Interfaces with B2B exchanges, marketplaces and services such as the Global Data Synchronization Network, RosettaNet, Sterling Information Broker, and the GSX and IBM networks

You can use Gentran Integration Suite to facilitate e-business with your trading partners for a vast assortment of transactions, including EDI, e-mail, and reliable bulk file management. You can build human intervention points such as approvals into your processes, and set up self-service access to information across trading partner systems. You can:

✦ Reduce or eliminate the need to re-key data.

✦ Speed order reconciliation through automation.

✦ Drive the cost out of integrating trading partners.

The following diagram illustrates the path data takes from your applications to your trading partner community. Enterprise Application Integration (EAI) components and B2B services facilitate the transfer of information while the Gentran Integration Suite processing engine, the Business Process Engine, manages the processes.

Data Transformation

Data transformation is the cornerstone of electronic commerce. With Gentran Integration Suite, you have virtually any-to-any manipulation at your fingertips. Data formats supported by Gentran Integration Suite include Electronic Data Interchange (EDI), positional, variable-length-delimited, Japanese Center for Informatization of Industry (CII), and Extensible Markup Language (XML). Using Structured Query Language (SQL), Gentran Integration Suite can read, write and update databases.

Gentran Integration Suite provides sophisticated transformation logic, including if-then-else, Boolean logic, conditional operators, look-up tables, user-defined constants, and user exits.

With support for pre-existing and emerging standards, you are prepared to meet new requirements as they develop. You can add complexity and build new structures into your translation processes using the configurable Gentran Integration Suite components.

A Java translation engine provides scalability, fault tolerance and reliability—all powerful assets for sophisticated translations. Gentran Integration Suite enables you to respond quickly to changing translation needs, improving your quality of service through data integrity.

Included with Gentran Integration Suite is a graphical interface for the design and collaborative development of data transformation maps. The interface simplifies map creation by enabling you to build translation maps using point and click technology. You can reuse the maps you have already created, to cut data management costs.

Process Automation

With Gentran Integration Suite, you can achieve your automation goals with reusable code that you can configure through the easy-to-use Gentran Integration Suite graphical interface.

The Gentran Integration Suite graphical pallet (the Graphical Process Modeler, or GPM) is an application that depicts predefined system activities using icons, letting you easily create links between them to design comprehensive process flows, called business process models.

The GPM converts your graphical representation of business processes to well-formed business process code, saving you the effort of writing code. Your process models are immediately executable, and the process development cycle time is short.

You can search in the system by process, partner, and document content, and you can configure persistence into your processes to ensure message delivery.

The following figure shows a simple sample business process model as it would display in the Graphical Process Modeler.
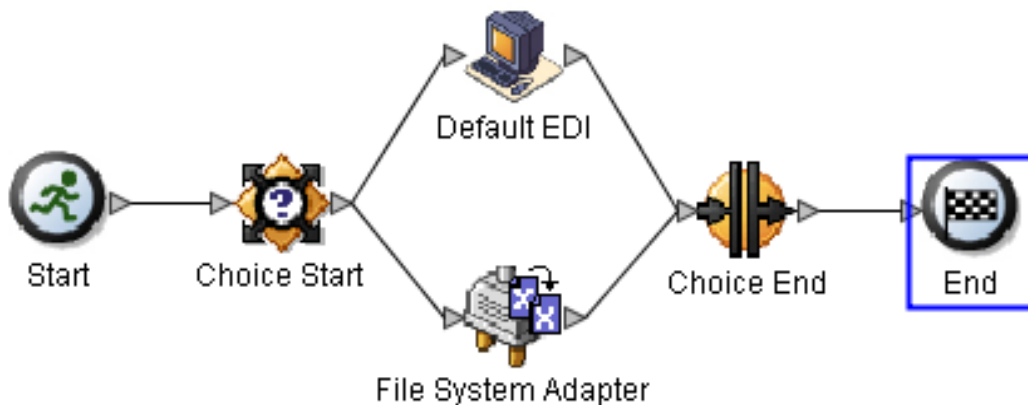
Human Workflow Automation

To reduce costs, you must replace manual intervention points in your business processes with automated capabilities. Exception management such as escalation and transaction reconciliation, error handling, and content-based routing are classic examples.

With Gentran Integration Suite you can create online forms for reviewing, entering, and otherwise interacting with data in a process. You can even enable your business partners to access custom-created online forms, so that they can interact as part of your process.

For example, you can create self-service payment, order and shipment status forms, and use them to improve partner and customer collaboration through secure selective data sharing online.

Monitoring and Managing Processes

Even when your processes are integrated, day-to-day monitoring and management activities may be complicated and redundant. To eliminate these pains and get maximum value from your integration technology, you need a central location offering end-to-end transaction visibility, where you can also configure and manage operations and transactions.

The Gentran Integration Suite browser-based interface offers a central hub for managing your monitoring and maintenance tasks. For monitoring and tracking purposes, the interface enables you to:

✦ Track processing history.

✦ View transaction details and real-time system events.

✦ Obtain processing state information.

✦ Create reports specific to your needs.

For managing your processes and the entities related to them, the console allows you to:

✦ Configure system processing parameters.

✦ Manage data transformation maps.

✦ Create and manage business process models.

✦ Automate alerts.

✦ Configure security including perimeter services.

✦ Start, stop and resume processes.

✦ Configure user and trading partner accounts.

✦ Configure logging and auditing levels.

✦ Set up communications configurations.

For full-spectrum transaction visibility, Gentran Integration Suite interoperates with other enterprise system management products, including Tivioli, BMC Patrol, and Computer Associates UniCenter.

The dashboard interface design makes monitoring and managing trading partner communities intuitive, shows operations statistics such as database use and log entries at-a-glance, and enables administrative activities all from one location. According to your needs, you can modify the name and theme of a page and pick and choose from a range of information components called portlets to determine which elements to display on a page, and in what configuration. For information, see *Dashboard Interface* on page 43.

Enterprise Integration

Gentran Integration Suite supports your end-to-end integration goals by enabling you to integrate applications using batch, synchronous, and asynchronous processes. Gentran Integration Suite:

- ✦ Allows you to incorporate messaging, human interventions, and file and database activities within your integrated business process models.

- ✦ Supports real-time request/reply processing.

- ✦ Supports high volume batch processing.

- ✦ Offers non-invasive, rapidly deployable messaging and data storage systems, as well as application adapters to facilitate enterprise resource planning goals.

- ✦ Can be easily integrated with SNMP network management, LDAP directories, Web services, and more.

The following figure shows the Gentran Integration Suite processing engine coordinating communications to your trading partners through communications adapters. The processing is based on data transformation and processing involving other integrated systems, all accessed through adapters.
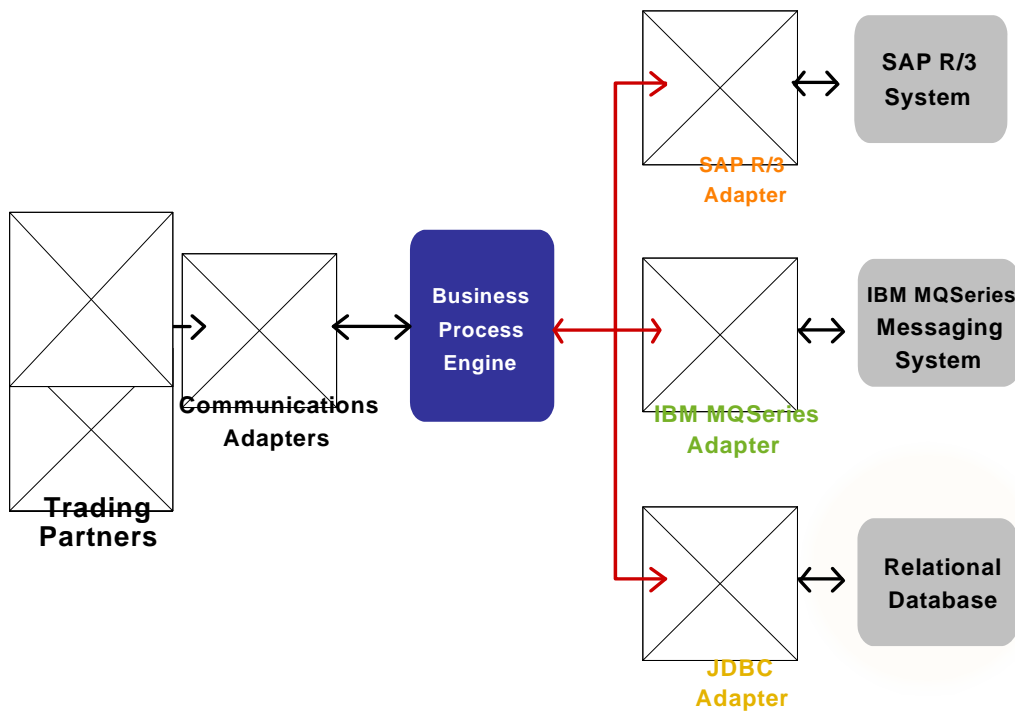
Why Gentran Integration Suite?

Gentran Integration Suite is designed to be configured strategically around the specific processes crucial to your company's success.

The managed, systematic Gentran Integration Suite approach supports your integration needs for both transaction-oriented and batch processes, and works with both pre-existing EDI protocols and Internet-based XML protocols.

With Gentran Integration Suite, you can drive the evolution of your existing systems to integrate past, present and future technologies and practices. Gentran Integration Suite characteristics set it apart from the competition and make it the most complete solution for your integration needs.

Business Process Approach

The Gentran Integration Suite approach to integration centers on business process management. A *business process* is a goal-driven, ordered flow of activities that accomplishes a business objective. Using Gentran Integration Suite, you integrate the activities that make up the processes your company completes to do business. Common examples of activities that make up a business process include:

✦ XML, EDI, and proprietary file translation, transformation and filtering

✦ Human interaction through a browser interface (such as reviewing and approving data)

✦ Content-based routing of messages

✦ Data publishing

✦ Extended process models that integrate the execution of a B2B protocol, such as AS2, with enterprise system integration, such as invoking the SAP adapter

Using Gentran Integration Suite, you can create and coordinate activities into *business process models,* extending automation of your processes and increasing the value of your e-business operations.

An example of a simple business process is fire-and-forget publishing of a business event to a group of interested participants. The steps in the process would be triggering the process and the subsequent publishing of the event to the interested parties.

A complex business process might require multiple interactions among many applications in a start-and-stop, request-response mode, along with human interaction, occurring over a long period of time.

For more information about how Gentran Integration Suite uses business processes, see *Business Process Engine* on page 28.

Modular Design

Gentran Integration Suite is designed around a core transaction engine, which orchestrates your message exchange, routing, translation and other processes. For enhanced flexibility in adapting your system as your needs change, the Gentran Integration Suite design enables you to add capabilities for specific activities to the core as needed.

Examples of components you can add include B2B services, adapters for specific applications and technology, and a Web-based forms-creation component that lets you create interfaces for human interaction. Licensing for the various components of Gentran Integration Suite is per-module, making adding or combining components simple. You can custom-tailor your solution to your needs.

Building on Your Existing Assets

Gentran Integration Suite components not only work together, they work with the systems you already have in place, including the Gentran family of products and Connect:Direct®, Connect:Enterprise®, and Sterling Information Broker®. By tightly coordinating your systems using Gentran Integration Suite to streamline processes across them, you will realize savings that you can apply to your core business or to additional integration-related components.

The compatibility of Gentran Integration Suite with your existing systems, combined with the modular design, drastically reduces the standard pains associated with large-scale systems changes.

For more information about interoperability with Gentran:Server and Connect products, see *Interoperability with Gentran:Server and Connect Products* on page 19.

Leveraging Industry Standards

To meet your ongoing integration goals and business automation directives, you must rely on software that works within accepted industry standards. Otherwise, you waste time and money playing catch-up.

The Gentran Integration Suite platform is built on publicly agreed-upon specifications for data formats, communications protocols, workflow modeling, and security. This design structure maximizes interoperability between systems and trading partners, thereby:

✦ Reducing integration complexity and cost by minimizing the need for custom programming and re-training of support staff

✦ Supporting the rapid and secure delivery of emerging solutions for collaborative processes between businesses and business units

Sterling Commerce has a long history as a leader in standards development. Sterling Commerce was a leading participant in the development of the EDIINT AS1 and AS2 protocol designs (providing interoperations testing), and was instrumental in the development of RosettaNet, ebXML, and business process modeling initiatives, as well as global data synchronization initiatives.

The following table details the industry standards upon which Gentran Integration Suite processing is based:

Design Level	Gentran Integration Suite Standards
Process modeling	Business Process Modeling Language (BPML, an XML-based meta language), XPATH (a non-SML language that can identify parts of XML documents for later use), XSLT (Extensible Style Language Transformation)
Integration	◆ B2B management: XML, EDI (EDIFACT, ANSI X12), B2B protocols (ebXML, EDIINT), RosettaNet ◆ Internet transports: Hyper Text Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP for e-mail), File Transfer Protocol (FTP), SOAP, AS1, AS2, AS3 ◆ Security: Secure Sockets Layer (SSL), X.509, S/MIME, XML DSIG (digital signatures and data encryption) ◆ Open standards: XPATH, XML schema, XSLT ◆ Network management: SNMP (Simple Network Management Protocol), which enables exchange of information between network devices
Low-level infrastructure	J2EE Technology: JMS, JNDI, JDBC, and RMI

Configurable, Robust Security Model

The Gentran Integration Suite security model enables you to create custom security and to manage related user-based routing within a process based on the security settings for a user.

You can designate entities (such as a trading partner) and groups (users of a type, depending on their role), and assign permissions to them that you configure.

Security standards supported by Gentran Integration Suite in its B2B services, optional components include:

✦ AS2 & AS3 transport

✦ Digital certificate management

✦ Document encryption in the Gentran Integration Suite database

✦ Secure Sockets Layer (SSL) for HTTP

✦ S/FTP server capability

✦ A trading partner-specific process firewall

✦ Digital signatures with ebXML messaging

✦ User ID and password authentication for user interface applications

✦ A service that revokes compromised digital certificates

Perimeter Services

Gentran Integration Suite also includes a perimeter server communications management component. A perimeter server is a single entry point installed in a demilitarized zone (DMZ) to manage communication flows between a perimeter network and Gentran Integration Suite transport adapters.

A perimeter network is a computer network configured to be between a secure internal network and an unsecure external network, as an additional layer of security. A perimeter server communicates with Gentran Integration Suite through special perimeter services in Gentran Integration Suite that enable an adapter to communicate through an internal firewall with a perimeter server within the DMZ.

Perimeter servers enhance security by moving security threats further from your secure network and data.

Full Process Recoverability

At every step in the execution of a business process, Gentran Integration Suite maintains the status of the process, as well as the current version of the business data associated with the process step. Whenever a business document associated with a process changes (such as with translation), Gentran Integration Suite maintains a copy of the document. This ensures full process recoverability, long-lived processes, and efficient problem diagnosis.

Connecting People to Data with Web Extensions

The Gentran Integration Suite optional Web Extensions component enables human interaction with business data. With Web Extensions, you can create and customize pages that users can access over the Internet to interact with data. The browser-based technology works hand-in-hand with other Gentran Integration Suite components.

For example, the Business Process Engine component can route invoices to a manager for approval, while a Web Extensions form created for your process presents the invoice in a browser window. Web Extensions forms can also be used to enable input and data validation prior to sending data along to the next point in its process.

You can use Web Extensions to extend B2B services to small or non-integrated business partners by letting them complete simple forms that generate electronic documents.

Interoperability with Gentran:Server and Connect Products

Gentran Integration Suite operates in conjunction with your existing Gentran:Server products, or you can import pre-existing EDI data into Gentran Integration Suite and let Gentran Integration Suite process the EDI data. With either scenario, you will find that Gentran Integration Suite contains features and functions to help you achieve your EDI processing goals.

Interoperation between Gentran Integration Suite and Connect:Enterprise UNIX or Connect:Direct enables easy communication between your company's internal applications and with external business partners.

Gentran:Server UNIX

You may want to manage all operations from the Gentran Integration Suite administrative console. When you run Gentran Integration Suite with Gentran:Server UNIX, you can use Gentran Integration Suite operations, monitoring, and trading profile tools to perform the following Gentran:Server UNIX functions:

✦ Starting and stopping Gentran:Server UNIX data managers

✦ Viewing Gentran:Server UNIX data manager statuses and log files, and process log files

✦ Monitoring and searching for data processed in Gentran:Server UNIX

✦ Importing trading partner information from Gentran:Server UNIX into Gentran Integration Suite.

Gentran:Server Windows

Current users of Gentran:Server Windows can use data from Gentran:Server Windows concurrently with Gentran Integration Suite.

The Gentran Integration Suite trading profile tool enables you to import Gentran:Server Windows trading partner information into Gentran Integration Suite.

Gentran Integration Suite enables data exchange between Gentran:Server Windows and Gentran Integration Suite using the Gentran:Server Windows adapter. Before you can exchange data between Gentran Integration Suite and Gentran:Server Windows, you must install and configure the adapter.

Connect:Enterprise UNIX

Connectivity between Gentran Integration Suite and Connect:Enterprise UNIX lets you exchange business documents and data between the two applications in a near seamless environment. You can also create automated business processes to intelligently interact with your enterprise systems, eliminating the need to manually create customized scripts to handle processing in your enterprise systems.

Gentran Integration Suite and Connect:Enterprise UNIX interoperability also provides end-to-end file processing management and visibility and access to a broader set of business level protocols including ebXML, SOAP (Web services), GDSN and RosettaNet.

Connect:Direct

Connect:Direct securely transfers large files between applications within the enterprise and with external business partners. It also allows for basic activities such as running jobs or processes on remote business partners' servers.

In effect, Gentran Integration Suite becomes a Connect:Direct node. Connectivity between Gentran Integration Suite and Connect:Direct enables you to:

✦ Securely copy large files and exchange data between the two applications in a near seamless environment.

✦ Create sophisticated, automated business processes to intelligently act on the data sent to Gentran Integration Suite.

Additional Components Available

For a complete list of available Gentran Integration Suite components, see the Sterling Commerce Self-Service Web site at www.productupdates.stercomm.com.

You must use your CD key to view the list of packages.

Putting Gentran Integration Suite to Work for You

With a high-level understanding of the key Gentran Integration Suite components and their capabilities, you are ready to identify the process improvement opportunities within your organization.

To review the Gentran Integration Suite introduction information, see the following topics:

✦ *Welcome to Gentran Integration Suite* on page 8

✦ *Why Gentran Integration Suite?* on page 15

For the process you will follow to implement Gentran Integration Suite, see *Implementation Overview* on page 51.

For a features overview and description of Gentran Integration Suite architecture, see *Architectural Overview* on page 23.

Identifying Process Improvement Opportunities

Determining the Gentran Integration Suite configuration strategy that suits your organization requires careful planning and an understanding of where the majority of your pains reside.

As you work with Sterling Commerce to determine your Gentran Integration Suite implementation strategy, you will determine the areas in which making changes to your current processes will have the most impact on revenue and lowering costs.

The following table describes problem areas that you can look for.

Problem	Description
Manual information handling or processing steps that are definable and repeated	Any information-based task that can be defined can be automated. Automated tasks are typically performed faster and with fewer errors than manual tasks. Definable tasks that are repeated with sufficient frequency and quantity are almost always less expensive after automation.

Problem	Description
Information stored and transmitted on paper	This requires either key-entry into the business application that will process it, or manual processing followed by key-entry of the results. Key entry and manual processing are slow and error prone, and therefore are an inefficient use of human resources. The delays and high rate of errors raise expenses. Errors and missed windows of opportunity can cause negative effects further down the process stream.
Information in a non-codified form (such as text)	Non-codified information must be manually processed, creating the problems addressed elsewhere in this table.
Process obstructions	Any point at which a process slows or stops because of some aspect of information movement, presentation or processing presents an opportunity for improvement. Examples of process stall points include: ◆ Waiting to obtain information from another source ◆ Expending extra time finding information ◆ Slowing because of information that is in an inefficient form for use ◆ Actions pending human information processing ◆ Time spent finding, researching, and correcting an information-based error.

After identifying problem areas that will benefit from automation and integration improvements, analyze which of the potential changes will most significantly improve your organization's target performance measurements, and make those the priority.

Sterling Commerce Resources Available to Help

Sterling Commerce offers the following resources to assist you with your Gentran Integration Suite implementation:

✦ Consulting services to assist with analysis, design and planning

✦ Education in the form of training programs and documentation

✦ Implementation assistance for development and testing of your system

✦ Community enablement services to assist in integrating your business partner community

✦ Both live and online Customer Support for help, as needed, with sustaining your solution

The array of services and support offered by Sterling Commerce helps to accelerate your installation and deployment phases, transferring knowledge from our integration specialists to your staff and reducing the risk of project delays.

When you realize business results more quickly, you can focus on maximizing the return on your investment.

Chapter 4

Architectural Overview

Gentran Integration Suite architecture is structured on a single code base, which enables efficient development of new features. This design enables you to respond rapidly to business and technology change.

The Gentran Integration Suite platform:

✦ Supports a business process management approach to integration

✦ Provides enterprise scalability, manageability and security

✦ Delivers non-invasive integration with pre-existing systems

✦ Supports emerging e-business standards frameworks

✦ Enables rapid change management and deployment

✦ Enables multiple interaction styles

✦ Offers a diverse, open-ended functionality set that you can extend in practically unlimited ways

✦ Facilitates integration software interoperability

✦ Promotes widespread adoption of key industry standards

✦ Enables the data transformation and data management activities that are the cornerstone of your processes

The following figure is a detailed diagram of Gentran Integration Suite architecture.
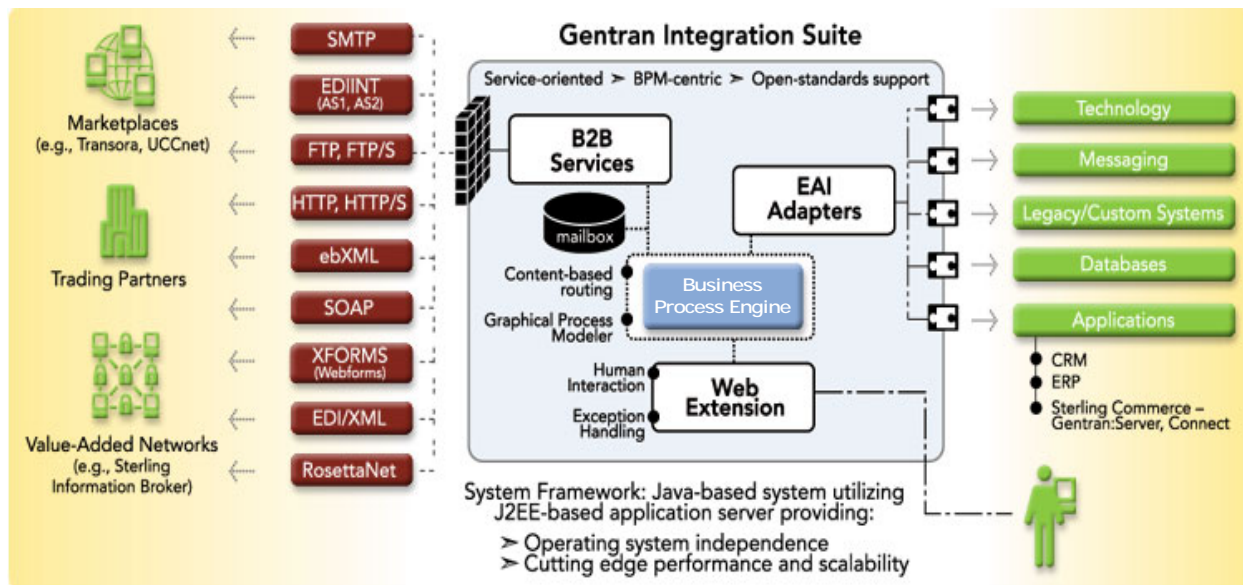
The figure depicts a Gentran Integration Suite system using many B2B services and EAI adapters. Your configuration will use only the services and adapters needed based on your required integration activities. The figure also shows a mailbox component and integrated human interaction points through Web Extensions, which you may or may not employ.

The following steps explain the progress of an example process moving through this architecture:

1. A trading partner sends a document such as a purchase order through a B2B transport protocol (SMTP, EDIINT, FTP, or HTTP) to your organization, to the appropriate service.

2. The arrival of the document triggers the appropriate business process that you have configured for these documents, and possibly for this specific trading partner. The Business Process Engine manages the progression of steps in the business process.

3. The business process de-envelopes the document to obtain instructional information such as routing directions in addition to the body content of the document.

4. Based on the data in the document, the business process progresses to the next step. This might include passing the document (through EAI adapters) into one or more internal applications such as:

    ◆ A PeopleSoft™ order management system

    ◆ A Web Extensions application (online form) for human interaction with the data, such as a manager's review and approval prior to routing to the next step

    ◆ An accounting system for credit verification and then on to an order management system

    ◆ A mailbox application to store the data until a scheduled time when the business process progresses to the next activity

5. The process may end here or it may include additional steps, such as adapter-assisted interaction with one or more enterprise systems, to generate a response document to return to the trading partner, again using B2B transport services.

For information about the various components and features and the ways they interact, see the following topics:

✦ For technical information about system design, see *Gentran Integration Suite Technical Framework* on page 25.

✦ For information about the functions supported by the architecture, see *Gentran Integration Suite Functional Framework* on page 27.

✦ For information about the Business Process Engine, see *Business Process Engine* on page 28.

✦ For details about the core components of Gentran Integration Suite, including B2B Services, EAI Adapters, and Web Extensions, see *Fundamental Components of Gentran Integration Suite* on page 27.

Gentran Integration Suite Technical Framework

Gentran Integration Suite is written in Java™. Gentran Integration Suite can run in an application server independent configuration or alongside an application server such as BEA WebLogic™ and JBoss™ products. Gentran Integration Suite uses Enterprise Java Bean (EJB) adapters when communicating with an application server.

Application server independence (ASI) is a valuable configuration because it:

✦ Requires fewer product pre-requisites, which may reduce your total costs.

✦ Enables greater flexibility in deployment options.

✦ Works well if you use J2EE application servers that Gentran Integration Suite does not support or have a policy not to deploy a different application server in any production environment.

There is no difference in functionality between Gentran Integration Suite used in an application server independent configuration and Gentran Integration Suite used alongside an application server. Integrating with an application server requires the use of an adapter (the EJB adapter), which is included with the product.

The following figure shows a simplified view of the system architecture:
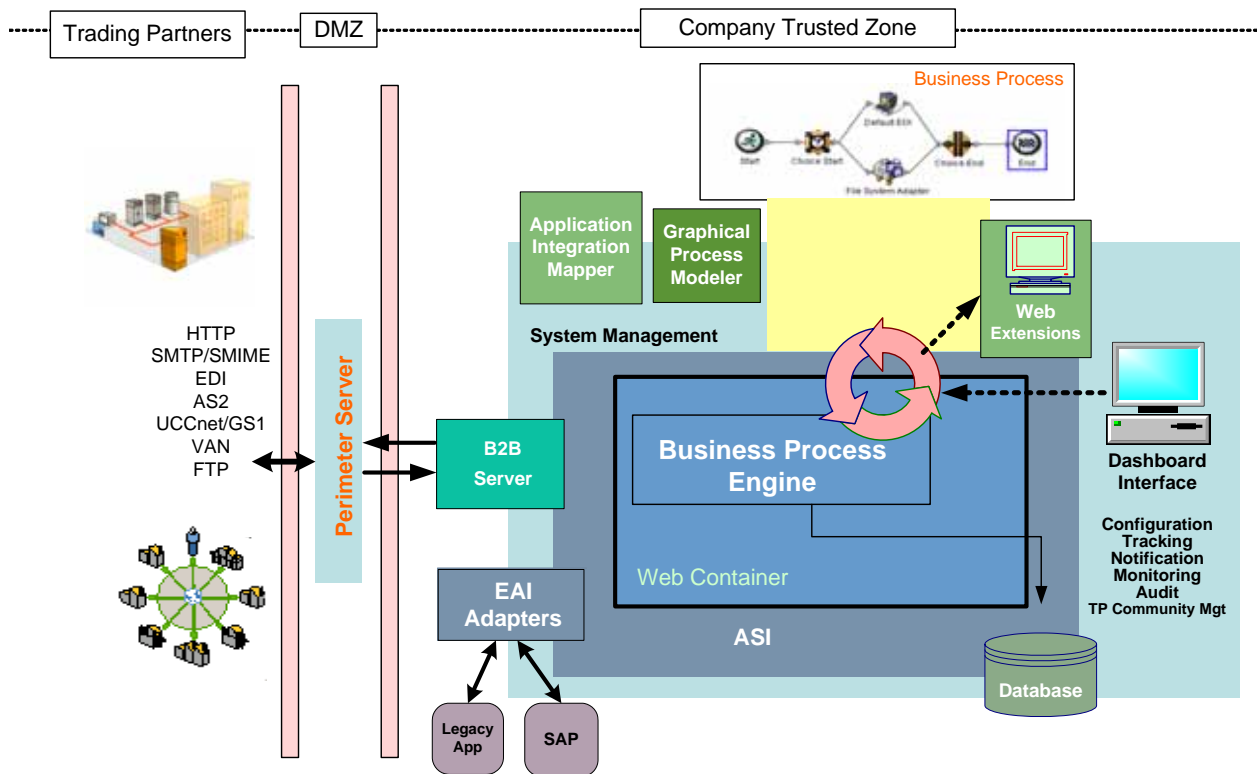
Think of Gentran Integration Suite as a standards-based business process management system together with a toolbox of integration components, on top of a J2EE infrastructure. The integration components include the mapper, Graphical Process Modeler (GPM), B2B services, EAI adapters, and Web Extensions.

The J2EE framework enables many key aspects of the Gentran Integration Suite system, including:

✦ Standards-based interfaces for common middleware functionality

✦ Support for multiple operating systems including UNIX, Windows NT/2000, Linux, and IBM zOS and iSeries

✦ Load balancing

✦ Fault tolerance

✦ An advanced Enterprise JavaBeans object-oriented development and deployment environment that facilitates reuse of existing component software, easier change management and easier application knowledge transfer

✦ Scalable component clustering

✦ Ability to create complex process flows

For more information, see the following topics:

For Information about	See
Map Editor	*Mapping and Data Transformation Components* on page 34
Business processes	◆ *Business Process Engine* on page 28 ◆ *Graphical Process Modeler* on page 32
Services and adapters	*Services and Adapters* on page 30
Web Extensions	*Features Overview* on page 39

Gentran Integration Suite Functional Framework

The Gentran Integration Suite framework uses a *Business Process engine* as its core transaction engine to support all data management, translation, transformation, and routing services. This framework supports:

✦ Advanced parsing, filtering, and content-based routing through the use of XPath parsing and filtering technology

✦ A base set of services that you can use and extend as your needs evolve and new technologies emerge (custom services can also be developed to support the unique needs of your organization)

Complementing the Business engine, other Gentran Integration Suite foundation functions are:

✦ An administration layer as a single point of access for configuring, monitoring, and managing the system and its integration activities

✦ Tracking services that trace the flow of information as a business process runs

✦ Monitoring, which enables you to view business processes as they run

✦ Logging, which records system events such as user interaction, administration, and the execution of business processes

✦ Event notifications that provide alerts in response to events or exceptions, using mechanisms such as e-mail or pagers

✦ Archival storage of business process data

Fundamental Components of Gentran Integration Suite

This section describes the following fundamental Gentran Integration Suite components:

✦ Business Process Engine

✦ Services and Adapters

✦ Graphical Process Modeler

✦ Mapping and Data Transformation Components

Business Process Engine

The Business Process Engine, is the core component supporting the Gentran Integration Suite business process approach to integration. The Business Process Engine enables high-performance flexibility, extensibility, and a consistent environment for deploying EAI, Internet B2B, EDI and business process management projects.

The Business Process Engine is Java-based. For information, see *Gentran Integration Suite Technical Framework* on page 25.

Integration Activities Performed by the Business Process Engine

The Business Process Engine performs integration activities, which are known as *services*.

Nearly any kind of activity can be a service in Gentran Integration Suite. All services achieve some predefined type of integration activity. Examples of service activities performed by the Business Process Engine include:

✦ Communicating with external applications or middleware (using special services called *adapters*)

✦ Performing data manipulations, such as translation, transformation, splitting, and joining

✦ Routing data based on content or other criteria

✦ Publishing data to interested subscribers, which may trigger a new business process or allow a running process to continue

✦ Execution of one or more B2B protocols

✦ Starting a business process

✦ Performing operations on SQL (Structured Query Language*)* database tables

✦ Enabling human interactions within an otherwise automated process

For more information about services in Gentran Integration Suite, see *Services and Adapters* on page 30.

About Business Processes

The services that the Gentran Integration Suite Business Process Engine runs are configured within defined *business process models* that you create and modify within the Gentran Integration Suite system.

A *business process* is a series of linked software (and possibly human) activities that accomplishes a business goal. The activities are called *services,* the modules of work that comprise business processes. The services must complete for the business process to run successfully.

A business process model can be a simple linear configuration or contain one or more decision points requiring human or system determination of the next steps in the process.

In the following conceptual figure of a business process, an oval represents an activity and a diamond represents a decision point:

The high-level process for creating a business process model for Gentran Integration Suite involves:

1. Analyzing your business needs
2. Determining which services, adapters, and components you must involve to accomplish your goal
3. Configuring the services and adapters used in the business process
4. Testing the business process

Business Process Modeling Language

The Gentran Integration Suite Business Process Engine runs business process models that have been created using *Business Process Modeling Language (BPML).* BPML is an XML-based language for describing business processes. It was developed by the Business Process Management Initiative (www.bpmi.org).

You can create business process models several different ways:

✦ Graphical Process Modeler (GPM)

   For information about the GPM, see *Graphical Process Modeler* on page 32.

✦ A simple text editor

✦ Any graphical editor that can export the XML format to Gentran Integration Suite

Unless you are proficient in the use of XML and BPML syntax, use the GPM to create your business process models.

Business Process Flow

The Business Process Engine automatically selects the appropriate business process model to run when data enters the system through an input adapter. When an input adapter receives data from an external system, the Business Process Engine locates the appropriate business process or processes to call, and starts the process or delivers the incoming data to the appropriate already-running process.

Following is an example of how the Business Process Engine executes the steps in a business process as a document progresses through Gentran Integration Suite:

1. Gentran Integration Suite receives the business message or document through an adapter.
2. The Business Process Engine determines which service to start next and starts the service, according to the content of the document.
3. The adapter places the message or document and other appropriate process state information on a queue for the appropriate service in the selected business process.

4. The appropriate service retrieves the initial business process state information from the queue and processes the next step in the business process.

5. Each service in the business process updates the business process state information, and records a copy of the related data or pointers to the data for process recoverability.

6. An adapter sends the modified business process state information, with the data, to a specific application.

For information about how the system maintains process state information, see *Full Process Recoverability* on page 18.

Services and Adapters

A *service* is a set of instructions in Gentran Integration Suite that the Business Process Engine uses to perform an activity in a business process. *Adapters* are services that connect the Business Process Engine and other system components to unlike systems and applications outside of the Gentran Integration Suite environment. Business processes can send, pause, retrieve, and fully interact with adapters.

Services and adapters are reusable—you can include them in multiple business process models.

About Services and Adapters

In all, Gentran Integration Suite includes numerous services. Some are internal system services, while most are external and configurable by users. Configurable services are ready for use in business processes for activities such as running pre-existing programs, ERP systems, Perl (Practical Extraction and Report Language) scripts, Java™ code, decision engines, defined subprocesses or virtually any program. The interface includes wizard-driven configuration and deployment steps to make setup simple.

Technically, Gentran Integration Suite has three service types, as defined in the following table:

Service Type	Description
Internal	◆ Totally inside Gentran Integration Suite. ◆ Accept parameters and produce results, but do not directly interact with outside systems.
Input	Receive data from outside systems.
Output	Send data to outside systems.

Input and output services are generally called *adapters*. Adapters connect to systems and applications outside of the Gentran Integration Suite environment. Adapters can listen for remote calls, then start up business processes. They can be used to start business processes or at any other point in a process.

Another type of input/output service is a *human interaction* service. Human interaction services enable humans to interact with a business process, such as using a Web browser to approve data as a step in a business process.

For a list of the functional types of services and adapters in Gentran Integration Suite, see *Service and Adapters Category List* on page 31.

Standards, Foreign Language and Data Type Support

Gentran Integration Suite services are developed using publicly agreed-upon specifications for data formats, communications protocols, workflow modeling, and security to maximize interoperability between systems and trading partners.

Supported standards include:

◆ Internet transports

◆ Cryptographic services

◆ Document enveloping formats

◆ Document formats

◆ Business process sequencing

◆ Web services

Because Gentran Integration Suite is built on a Java code base, and Java supports Unicode, a universal character-encoding scheme for written characters and text, the programs with which your processes will interact can be written in nearly any language. And Gentran Integration Suite supports virtually any file-, message- or stream-based data type.

Gentran Integration Suite Adapters

Adapters either receive input from or provide output to systems outside of Gentran Integration Suite. Adapters provide noninvasive integration with Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM), other packaged applications, enterprise applications, communications protocols, messaging solutions such as IBM WebSphere®, and databases.

How Adapters Work

The following process summarizes how adapters work within a business process:

1. The business process progresses to the application adapter step.

2. The adapter calls the third-party application to perform an activity.

3. The system records the modified state (context) of the process and related data.

4. The business process continues to the next service or adapter .

Service and Adapters Category List

The following table lists Gentran Integration Suite services and adapters according to the functional category that describes them:

Service or Adapter Category	Description
Application adapters	Connect to packaged business applications external to Gentran Integration Suite, including ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), supply chain management, and procurement software.

Service or Adapter Category	Description
BPML activities services	Support the run-time execution of functions in a business process model.
Communications adapters	Enable Gentran Integration Suite to send and receive messages using the standard Internet communications protocols.
Custom services	Developed and configured by your software developer to use with Gentran Integration Suite.
EDI services	Transaction processing for EDI transactions, including de-enveloping, enveloping, and functional acknowledgment generation.
Internal services	Support the general run-time environment for Gentran Integration Suite and are not user configurable.
Internet B2B standards services	Manage data from your firewall to your trading partners by running interoperable Internet business sequencing protocols such as EDIINT, SOAP, RosettaNet™ RNIF, and ebXML.
Messaging adapters	Enable Gentran Integration Suite to send messages to and from remote messaging queues.
Sterling Commerce adapters	Connect to other Sterling Commerce products.
System services	Support the general run-time environment for Gentran Integration Suite (these are user configurable).
Translation services	Translate or transform data using maps created with the Gentran Integration Suite Map Editor tool.
Web Extensions services or "human interaction" services	◆ Enable human interaction with business processes and support Web services technologies. ◆ Directly start application function calls over the Internet.

Gentran Integration Suite is flexible in enabling you to determine what activities to configure as a service, a business process, or a subprocess. For instance, you could implement ebXML support in the form of multiple activities linked together in a business process, or write a single service. This flexibility ensures that you can adapt Gentran Integration Suite easily to new requirements.

Visit the Sterling Commerce Self-Service Web site at www.productupdates.stercomm.com for the full list of services and adapters available for Gentran Integration Suite.

Graphical Process Modeler

Business process models define how the Gentran Integration Suite Business Process Engine executes the activities in a business process. Creating business process models for the system to follow is the central activity around which your operations hinge.

The *Graphical Process Modeler* (GPM) is a Gentran Integration Suite tool that enables you to create business process models using drag-and-drop technology. The GPM depicts the services you include in your business process models using icons. Each icon translates into multiple lines of code stored by Gentran Integration Suite.

You can drag icons from a pallet of options representing the services and BPML constructions (such as choices, start and stop, etc.) that you need onto the workspace to create your business process model. When you save the business process model, the GPM converts the graphical representation into well-formed and valid Business Process Modeling Language (BPML).

For information about how the Business Process Engine runs business processes, see *Business Process Engine* on page 28.

GPM Examples

The following figure shows GPM icons representing the beginning and end points of a business process model:

The following figure shows some of the GPM icons depicting specialized services:
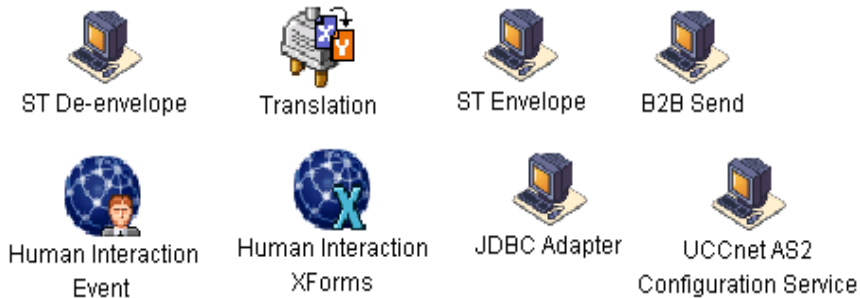
In the GPM interface, a simple business process model might look like this:

Following is an example of a more complicated process depicted in the GPM:
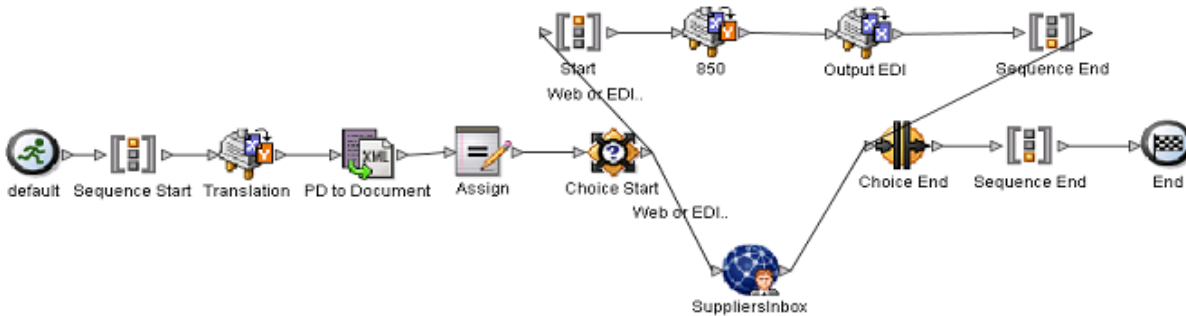
You can reuse entire process models or parts of them to create new or modified versions of existing models. Business processes can start other processes and link to subprocesses.

Mapping and Data Transformation Components

Gentran Integration Suite manages data translation and transformation of complex flat files in positional, fixed length, and variable-length delimited formats, supporting both standard and extended rules.

Gentran Integration Suite translates data according to instructions you provide in the form of translation maps, which you create and manage using the Gentran Integration Suite *Map Editor* tool. A translation map specifies how data in one format relates to data in another format.

Using the JDBC adapter, data can be input or output to databases supporting Java Database Connectivity (JDBC):

✦ Tables defined in translation maps

✦ Structured Query Language (SQL) queries, stored procedures, or stored functions

How Translation Works

From a technical perspective, Gentran Integration Suite *translation services* perform run-time translation based on translation maps you have created, using translation objects and XML encoder objects to translate data from one format to another.

The translation objects (files with a .txo extension) and XML encoder objects (files with an .ltx extension) are the compiled translation maps.

Within a translation process, the services:

✦ Verify that the document received complies with the validation and transformation rules defined for the map.

✦ Store errors in a report and report them to the business process for appropriate action.

Supported Translation Formats

Gentran Integration Suite translates data in the following formats:

✦ Positional

✦ Variable-delimited (including Comma-Separated Values)

✦ XML, with full support for XML schemas, DTD (document type definition) and namespaces

✦ EDI (ANSI X12, UN EDIFACT, Tradacoms, Japanese Center for Informatization of Industry [CII]).

Map Editor Tool

You create, modify, and compile translation maps using the Gentran Integration Suite Map Editor tool. The Map Editor is an offline, Windows-based program that you download from Gentran Integration Suite. It includes preloaded standards and provides flexibility in mapping complex data transformations.

The Map Editor is built on software from the proven Sterling Commerce Gentran:Server product line. Customers familiar with the Gentran:Server Map Editor do not require re-training.

Translation Maps in Gentran Integration Suite

Using the Map Editor, you create data transformation maps for the system to use at run-time. Then, you include the appropriate translation map and related services in your business process models to configure run-time translation activities.

The Map Editor enables:

✦ Direct mapping from an input format to an output format (no intermediate format needed)

✦ Mapping any supported input format to any supported output format

✦ Mapping any field or segment of an input map to any field or element of an output map (for example, fields occurring in the trailer section of an input format can be mapped to header fields in an output format)

✦ Complex rule-based data mappings

✦ Custom calculations and data type conversions

✦ Custom Java code user exits for extended rules enable further customization of map behavior

✦ User exits that support custom Java code

The Gentran Integration Suite Map Editor provides tools that allow you to migrate or convert maps from the Gentran:Server for Windows, Gentran:Server for UNIX, Gentran:Server iSeries, and Gentran:Basic zSeries products.

The following figure is an example of a translation map in the Map Editor:

Input data format layout   Output data format layout
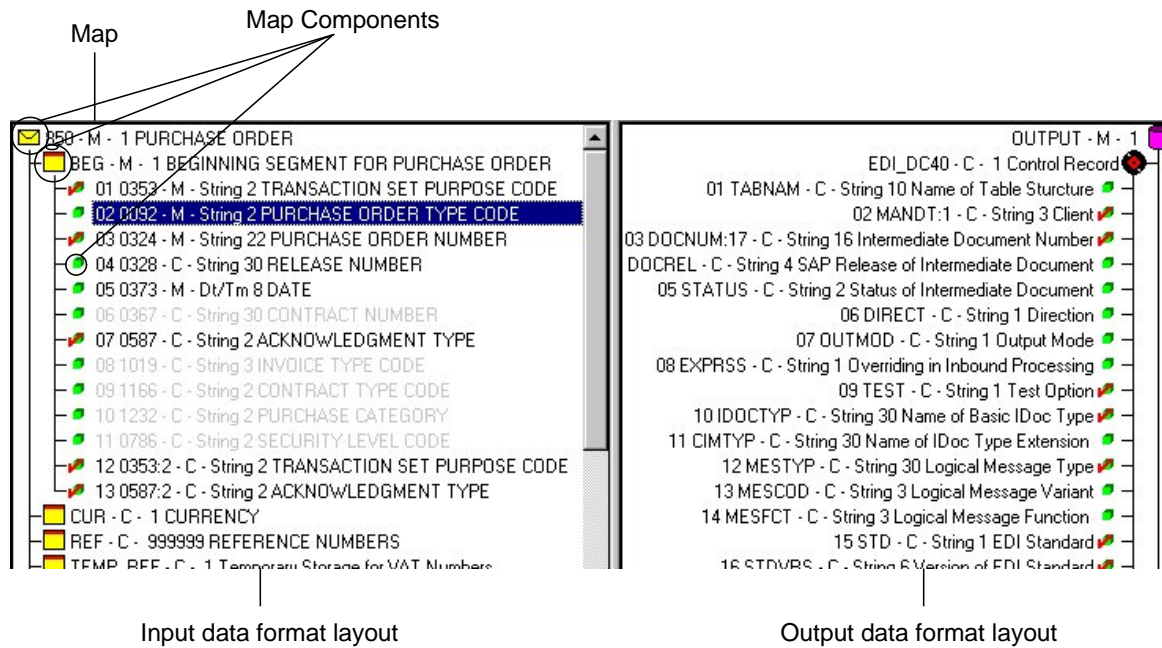
Trading Partner Code Lists

Using the Gentran Integration Suite Map Editor you can create code lists. A *code list* is a list of values for a field and their corresponding descriptions that you can include in a translation map. You can associate a rule in a translation map so that the system either checks values against the code list or selects a value from the specified list.

For example, you can cross-reference a list of internal codes, such as item codes, with corresponding codes from a trading partner. Then, at run time, a map can look up the codes and map the internal item code to an external partner's code (or vice versa).

Without this code list capability, you would have to create such cross-reference functionality using an extended rule, a user exit in an extended rule, or some other custom processing outside of the Gentran Integration Suite translation service.

XML Transformation Components

The following table describes some aspects of XML data transformation support in Gentran Integration Suite:

Feature	Description
XML Encoder	An included XML Encoder component provides high-performance translation of existing application data into XML.
	The XML Encoder receives a given input format and writes an XML-wrapped output document, without requiring an output map. The XML-wrapped document is then available to a business process for manipulation because the Business Process Modeling Language supports XPath specifications.
XML Schema Repository functionality	Gentran Integration Suite enables you to maintain a repository for XML Schemas and DTDs for use by any appropriate component or service in a translation business process. Schemas are stored in the Gentran Integration Suite database much like translation maps. You may store multiple versions of a schema.
XSLT transformations	Gentran Integration Suite enables XML Stylesheet Language Transformation (XSLT) with a special service you can configure in a business process to perform transformations.
	You can use XSLT for XML-to-XML transformation and creation of static HTML pages from XML documents.
XPath Expression Builder	To ease the creation of XPath-based business rules (content-based routing, content filtering and querying, and calculations), Gentran Integration Suite includes an XPath Expression Builder tool. You can save XPath expressions with a logical name, and re-use them.

The following figure shows the XPath Expression Builder:
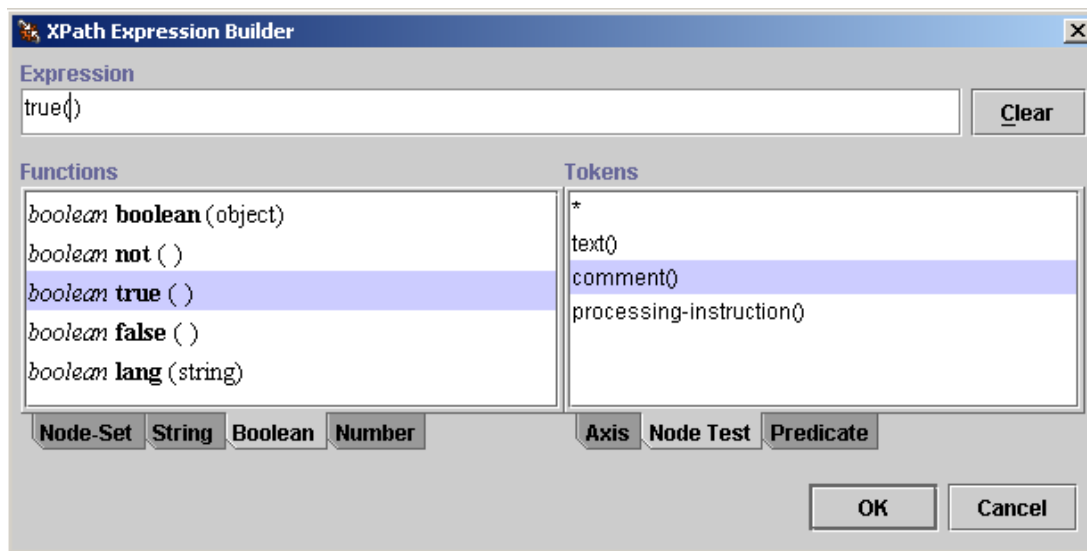
Adapting to Increasing XML Demand

Gentran Integration Suite has comprehensive support for XML technologies throughout the product. In addition to the items listed in the table, this includes:

✦ Use of BPML for process model representation

✦ Web Services support (SOAP [Simple Object Access Protocol] adapters), WSDL

✦ 1SYNC legacy UCCnet Data Pool services and Global Data Synchronization Network (GDSN) XML messaging

✦ RosettaNet PIPs[®] (Partner Interface Processes)

✦ The ebXML Messaging service

✦ XML Digital Signature support (required by the ebXML Messaging service)

✦ Support for various ERP/CRM application XML interfaces, such as PeopleSoft

✦ Representation of process state data in a format (using an XML DOM tree) for presentation in a browser window

Chapter 5

Features Overview

In addition to its fundamental components, Gentran Integration Suite has a wide range of features. This section covers the following topics:

✦ *Role-Based Security*

✦ *Perimeter Server*

✦ *Internationalization and Localization Support*

✦ *Predefined Business Process Models*

✦ *Service Software Developer's Kit (SDK)*

✦ *Trading Profile Management*

✦ *Advanced File Transfer*

✦ *Dashboard Interface*

✦ *Community Management Application*

✦ *Mailbox Service*

✦ *Web Extensions*

✦ *AS2 Edition*

✦ *AS3*

✦ *Sterling e-Invoice Gateway*

✦ *Data Synchronization Components*

✦ *Tracking and Searching Capabilities*

✦ *Online User Documentation*

For information about the fundamental components, see *Fundamental Components of Gentran Integration Suite*.

Role-Based Security

Gentran Integration Suite uses *role-based security* so that you can configure different levels of access permissions for different users within your organization.

About Role-Based Security

With role-based security, you may limit a user's access to certain files, business processes, browser-based interfaces, services, and other product features and components according to the permissions you associate with that user's account.

You can define *groups* associated with a set of permissions, based on user activities or roles. A *user account* specifies the group(s) the user belongs to, along with the associated permissions. *Permissions* allow access to the different modules within Gentran Integration Suite and are the foundation of role-based security.

Your user account is linked to an associated Gentran Integration Suite user name and password. Each time you log in, Gentran Integration Suite verifies that you are a valid user and grants access only to the appropriate areas, based on the permissions assigned to you in the user account.

Role-Based Security and Message Management

Role-based security helps you manage message queues related to Web Extensions applications. Gentran Integration Suite uses user's security parameters when directing messages and documents to the appropriate user.

For example, when a business process requires the approval of a user having specific permissions as a step in a business process, a human interaction service obtains the appropriate approving authority's identification from the Gentran Integration Suite database, where it is stored as the user account data, and routes the document to that person.

Perimeter Server

Gentran Integration Suite uses perimeter servers to minimize demilitarized zone (DMZ) issues, enhance scalability, enhance handling of large files, and improve performance.

A *Perimeter server* is communications management software installed in a DMZ that manages communication flows between a perimeter network and Gentran Integration Suite TCP-based transport adapters. Perimeter servers help reduce network congestion issues and enhance security and scalability for high volume environments.

A perimeter network is a computer network configured to be between a secure internal network and an unsecure external network, as an additional layer of security. A perimeter server communicates with Gentran Integration Suite through special perimeter services in Gentran Integration Suite that enable an adapter to communicate through an internal firewall with a perimeter server within the DMZ.

Perimeter servers help reduce network congestion issues and scalability for high volume environments through session and thread management, and enhance security by moving security threats further from your secure network and data. This is especially useful for high-volume B2B "gateway" environments.

Gentran Integration Suite perimeter services:

✦   Works with the full Gentran Integration Suite-supported range of transport protocols

✦   Enables data to traverse your firewall while ensuring security

✦   Supports both small messaging and massive file size needs

✦ Is a lightweight solution so you can use inexpensive machines in the DMZ.

Internationalization and Localization Support

Gentran Integration Suite supports multiple languages (internationalization) and multiple regional data formats (localization) by using encoding and XML resource bundles.

✦ *Encoding* is the representation of data in a particular character set. A character set is a list of characters (letters, numbers, and symbols such as #, $, and &) that are recognized by computer hardware and software. A string of numbers represents each character.

  Gentran Integration Suite supports specific encoding sets for double-byte character set (DBCS) languages to allow correct handling and display of languages that have more than the 256 ANSI-supported characters.

✦ *XML Resource Bundles* are groups of XML properties packaged together for easy deployment. Gentran Integration Suite handles displaying screens, messages and reports in a specific language using resource bundles. Each supported language has a separate XML resource bundle containing the XML properties to localize the date and time, numbers, and currency formats to a specific country or regional format.

Predefined Business Process Models

Gentran Integration Suite provides a limited number of predefined business process models that you can use when creating models for your own business processes. For a definition of *business process* and information about how Gentran Integration Suite uses business process models, see *Graphical Process Modeler* on page 32.

About Predefined Business Process Models

Predefined business process models are preconfigured business process models included with Gentran Integration Suite for your convenience. These are like any other business process models that you create, in that each consists of a series of software (and possibly human) activities that accomplishes a business goal.

The benefit of predefined process models is that you can use them as a starting point when you create your own models by modifying them as needed rather than starting from scratch.

Some predefined business processes are designed to work with specific Gentran Integration Suite components in conjunction with other business processes; you can use these with the process models you create to save configuration steps as you create your process models.

Service Software Developer's Kit (SDK)

The *Service SDK* is a tool that enables you to create custom services and adapters. The Service SDK is a stand-alone graphical interface tool that you can access from the Gentran Integration Suite interface.

The Service SDK uses wizard technology to lead you through the steps of creating a service in Gentran Integration Suite.

Trading Profile Management

Gentran Integration Suite uses trading profiles to simplify your configuration of data related to your trading partners.

A *trading profile* is a collection of records that describe the technology, business capabilities, and communication capabilities of a trading partner to engage in e-business with other trading partners.

Gentran Integration Suite uses the trading profile data to link the trading partner with the business process models you create to handle that partner's documents. The profile describes the partner's role in those business processes as a producer of messages, consumer of messages, or both.

Trading profile settings determine which documents are allowed into or out of Gentran Integration Suite.

In the Gentran Integration Suite interface, creating trading profiles is a simple process. The system uses wizard technology to guide you through the steps of entering the required information.

Advanced File Transfer

Gentran Integration Suite Advanced File Transfer (AFT) features provide reliable, secure, scalable B2B content distribution and Web services across business boundaries, communication modes, and document formats.

AFT is a centralized, dynamic file-exchange platform for secure transfer of files within and between organizations. It provides end-to-end visibility of file movement in an event-driven, process-oriented, highly scalable framework. These capabilities enable you accelerate new product introduction, improve customer service, rapidly enable AFT partners, and improve operational efficiencies.

Gentran Integration Suite AFT is built on an extensible Java and J2EE-based architecture that supports comprehensive Internet protocols, document-oriented as well as stream-oriented processing, advanced application integration, mailboxing, and tight integration with Connect:Direct and Connect:Enterprise UNIX server products. AFT supplies a reliable and secure operational data exchange environment, implementing a policy-based automation and file transfer routing infrastructure.

Within Gentran Integration Suite, you can configure the monitoring capability of the AFT *Router*. Routing enables a producer of data to direct a file to a particular consumer of that data, where the producer and

consumer are AFT partners of the Router. Partners can be external, such as customers or suppliers, or internal, such as business units of the entity hosting the Router.

Administrators organize partners into AFT communities for ease of administration and to tailor the set of protocol choices that different AFT partners can employ. Every AFT partner belongs to a defined AFT community.

An AFT partner with a mailbox accessed over a protocol set up by the administrator initiates protocol connections. Or, AFT partners can listen for connections from the Router. AFT partners can be consumers or producers of data. If they initiate connections to their own mailbox, they are both consumers and producers.

Dashboard Interface

The Gentran Integration Suite interface features a dashboard design that provides at-a-glance system, process, and trading partner information through elements called portlets arranged on the pages.

Much like the dashboard in a car that displays easy-to-scan information about your speed, fuel level, and temperature, the dashboard interface in Gentran Integration Suite shows you information about things like trading partner relationships, document transaction counts, and process activity.

The following figure is a dashboard in Gentran Integration Suite:

You can customize the dashboard display to make completing procedures and gathering information quicker and easier than ever before. Four preconfigured display themes are provided, or you can create your own. For instance an "operator" theme provides an administrator quick looks into how the system is functioning by displaying current log and event entries, a database usage indicator, and more.

Additionally, the dashboard enables you to access specific Gentran Integration Suite features and functions by effectively minimizing the clicks to get there—for example, you can search for business processes or EDI documents through pre-defined channels.

The dashboard design offers a variety of benefits. You can:

✦ Customize a dashboard to provide individual users a home page specific to the tasks they are responsible for, or create your our dashboards.

✦ Customize the contents of a page display to make the information most important to you be most prominent. For instance, you may place monitors showing database usage or trading partner activity at the top of the page.

✦ Remove components you don't need from your page displays.

✦ Link to data maintained in locations outside of the interface, such as news or stock market reports for display on your page.

Community Management Application

The Gentran Integration Suite Community Management application enables you to organize your trading partners into groups so that you can quickly and easily track related documents, trends, and other supply chain information.

When you create a community, you notify and invite your trading partners to join so that you can exchange documents with them. Data from these transactions are then grouped in Gentran Integration Suite for easy identification and tracking.

You can also join communities created by trading partners who also use Gentran Integration Suite. Community Management displays both your hosted and joined communities and trading partners.

Community Management:

✦ Speeds ramping up of trading partners associated with a community

✦ Facilitates reporting

✦ Enables advanced tracking of documents of users in your communities

✦ Enables you to send notifications to a community as a whole

✦ Makes it easier for trading partners to join your community

The following figure is the Community Management interface in the dashboard:

For more information about the Community Management application dashboard interface, see *Dashboard Interface*.

Mailbox Service

Gentran Integration Suite includes a Mailbox service that provides store-and-forward capabilities. You can configure the Mailbox service to organize, store, monitor, and manage trading partner documents and transactions using AS2 protocol (the EDIINT service and the HTTP/S communications adapter).

You can use the Mailbox service for:

✦ Scheduled batch processing – Gentran Integration Suite processes all documents together on a schedule that you define.

✦ Asynchronous document processing – Gentran Integration Suite processes documents as they arrive in the mailbox.

✦ Document publishing – Gentran Integration Suite places documents into the mailbox for trading partners to access for a specified amount of time.

Web Extensions

The processes that support your business usually include both human activities and computer-assisted automation. Yet historically, integration technologies have targeted only the automated aspects of an integration project, such as low-level messaging, file transfer, or EDI. With Gentran Integration Suite Web Extensions, you can build those human interaction points into your business process models.

Web Extensions Technology

Web Extensions uses advanced XML standards so that you can easily integrate your Web Extensions applications (forms) into your business process models and use Java Server Pages to create forms pages.

Technically, Web Extensions is a collection of Gentran Integration Suite services called Human Interaction services. The Graphical Process Modeler (GPM) depicts these services as icons in the user interface, which you include in your business process models by selecting the appropriate service wherever human interaction should occur.

Using Web Extensions

Common applications for Web Extensions are:

✦ Supporting human interaction steps within otherwise automated processes, such as:

◆ Advanced exception or approval processing before data automatically passes into enterprise systems or out to business partners

◆ Expense reporting

✦ Creating e-Commerce Web sites such as an online store with shopping cart functionality.

✦ Improving partner and customer collaboration through secure selective data sharing by easily deploying partner self-service applications (such as payment, order and shipment status forms).

✦ Enabling small trading partners to interact with your business processes by configuring data transformation from the online forms to EDI or XML.

AS2 Edition

The AS2 Edition™ combines the strengths of Gentran Integration Suite with Applicability Statement 2 (AS2) EDIINT technology. *AS2 EDIINT* is a protocol for securely exchanging data with non-repudiation of receipt over the World Wide Web.

The AS2 Edition is an easy-to-use AS2 EDIINT management solution that you can use with existing EDI or other business document management processes. The AS2 Edition sends and receives documents and interacts with your existing processes.

AS3

Gentran Integration Suite allows you to exchange AS3 messages with your trading partners either through a custom business process or through a schedule created during contract creation. AS3 systems exchange EDIINT messages using FTP as the transport method (EDIINT messages are either MIME or S/MIME (secure MIME) messages).

Sterling e-Invoice Gateway

The Sterling e-Invoice Gateway enables you to use electronic invoices (e-Invoices) while also maintaining the requisite legal compliance. This enables elimination of paper trails that companies have to maintain for compliance with Value Added Tax (VAT) laws, including complying with all the audit requirements for tax purposes.

The Sterling e-Invoice Gateway uses the e-signature method of compliance. This is the digital signature approach in which the invoices are digitally signed by the seller using keys approved by the government of that country, and then the signature is verified by the buyer. Future audits can be verified for their authenticity and integrity by re-verifying the signatures on the archived invoices. The e-signature method of compliance is the preferred option of the tax authorities. It is a technical solution and it provides an unequivocal technical guarantee of the authenticity and integrity of the invoice. The Sterling e-Invoice Gateway provides the following:

✦ A supplier process, supporting invoice validation and signing.

✦ A buyer process, supporting signature verification and invoice validation.

✦ An archive of the invoice functions that enable a customer or a tax auditor to search, view, and report on invoices and also to re-verify the signature on those invoices in the event of an audit.

✦ Timestamping facility for archived invoices having country code IT (Italy), which is used in the audit trail of an invoice.

✦ Mapping functionality that enables you to translate the invoice from any supported EDI format to the canonical invoice format.

Sterling Commerce has partnered with TrustWeaverTM to provide e-signature signing and verification through its on-demand service. TrustWeaver offers products and on-demand services that support all of the necessary hardware and certificate authorities.

Data Synchronization Components

Gentran Integration Suite offers several components for data synchronization.

✦ Synchronization Engine adapters – Enable you to send data synchronization messages in network-specific format.

✦ Item Synchronization application – Validates item data for 1SYNC legacy UCCnet Data Pool services compliance and enables you to store, register and publish product item data to your data synchronization business partners. Optional Enterprise Edition enables workflow management for review and approval of your product item data and advanced subscriber management.

✦ Web Extensions-based functionality and specialized adapters support global data synchronization initiatives.

You can use Web Extensions templates as a starting point for your data synchronization activities such as item data approve/reject processes. With data synchronization adapters, you can communicate with GDSN networks and data pools to exchange item attribute data with your business partners.

Tracking and Searching Capabilities

Gentran Integration Suite provides several features to help you monitor operations, track the state of data in your processes, and search for the specific information you need. The following table describes the features:

Feature	Description
Business Process Monitor	Interface page that displays a list of the 10 active or most recent processes that have run. The page refreshes automatically and shows the status of the process. From the list you can access detailed, step-by-step information about process activity.
System logs	Gentran Integration Suite generates log files. Currently, transaction data is collected for the operations servers and for the J2EE™ environment.
	Each operations server on a host has its own operations log file in the appropriate directory.
	You can view current log file contents through portlets in the Gentran Integration Suite interface. You can view older, stored log files in your file directory by opening them in a text editor application.

Feature	Description
Reports	The Reports feature allows you to supply different parameters to the report engine to organize your data and produce a report configured in a manner that is meaningful to you.
	The Reports feature enables you to schedule reports to be generated automatically and will even automatically E-mail a report to a designated recipient.
	The Reports feature also offers preconfigured reports that you can run "as is" or copy and edit to suit your needs.
Interface search capabilities	The Gentran Integration Suite interface supports a variety of simple and advanced searches. For example, you can perform a simple search to locate a business process by name, and you can perform an advanced search for a business process by specifying multiple criteria including name, date, start time, and so forth.
	You can search for nearly any entity related to your use of the system, from system processes to sets of data used to regulate or enable processes. For example, you can search for:
	◆ Active, archived and restored business processes
	◆ Trading partner profiles and related data such as identities, transport and packaging information, contracts and code lists; processing or processed documents; service activity information and service configurations; transaction information; maps, user accounts, and so forth.
Event Viewer	Community Management application dashboard portlet that displays real-time information about the most recent 50 events occurring in Gentran Integration Suite. Events are any actions that occur within the system, such as adapters starting and stopping, business process status or state changes, errors and exceptions, and trading partners joining a community.
Tracking features	Portlets you can display in the Community Management application dashboard enable you to track:
	◆ Document processing (current progress and processing over a specified time period)
	◆ Queue priority statistics – a graph showing the average wait time for each queue, by queue priority
	◆ The status of trading partners in your sponsored communities
	◆ Events as they happen (see above)
	◆ Database access activity and database usage

Online User Documentation

User documentation for Gentran Integration Suite is provided online in the documentation library. The documentation library is designed to make locating the information you need convenient for both online and hard copy viewing.

You can browse the topics or search for the specific information you need, bookmark favorite topics, print the documentation by topic or book, and access PDF-format documents for download or printing.

Access to the documentation library is provided through links in the Gentran Integration Suite interface and the Sterling Commerce Support on Demand Web site.

A CD-rom copy of the user documentation is available on request through Support on Demand.

Chapter 6

Implementation Overview

This section provides a sequential overview of the process you follow to implement Gentran Integration Suite. The information is designed to familiarize you with the general tasks for most users.

To use Gentran Integration Suite you must complete a series of steps. The following table provides the process for implementing Gentran Integration Suite:

Stage	Description
1	Create architectural design plan.
2	Determine system and hardware requirements.
3	Obtain product training.
4	Network Deployment Planning.
5	Install Gentran Integration Suite.
6	Tune Gentran Integration Suite.
7	Configure permissions and set up user accounts.
8	Configure services and adapters.
9	Create or migrate translation maps.
10	Create business process models.
11	Schedule the business process models.
12	Associate communications adapters with business processes.
13	Create trading partner profiles.
14	Test the business processes.
15	Schedule archiving and purging.

Implementation Process

The topics in this section describe the implementation stages for Gentran Integration Suite. The topics are presented in logical order.

The stage descriptions do not indicate the role of the user performing the tasks in each stage, but assume the appropriate user is doing each step in the process. The user may be a system administrator or any other user having responsibility for the described tasks.

Creating Architectural Design Plan

Your architectural design plan details the ways you will use Gentran Integration Suite and the components and features you will employ in the process. This stage is perhaps the most intensive part of your overall implementation of Gentran Integration Suite. The more accurate and detailed your plans are, the more efficiently your implementation will progress.

Your plan centers on determining what the processes are that your business needs to automate and integrate, and those processes will include high-level considerations such as plans to:

✦ Create peer-to-peer federated systems

✦ Set up clusters or use multiple nodes of Gentran Integration Suite

✦ Do internodal document tracking

✦ Create trading partner communities

✦ Use the Perimeter service and other components in the DMZ

The planning process becomes complex as you study it from a software perspective and consider how you will achieve the objectives.

For each process, Sterling Commerce professionals can help you to define the business process model you will create in Gentran Integration Suite, including the services, adapters, components and technologies you need, the systems that Gentran Integration Suite will interact with, and exactly what has to happen to the data at each step in a process. All of these determinations affect your required system size.

Determining System and Hardware Requirements

Before installing Gentran Integration Suite, you must ensure that your operating system and hardware meet published Gentran Integration Suite requirements and the requirements specific to your customized Gentran Integration Suite implementation.

To approximate your system requirements, you will determine the processes, components, and transaction volume required for your implementation. Sterling Commerce personnel are available to assist you in this effort.

For minimum requirements, see the Gentran Integration Suite *System Requirements* document. For the latest information, you can always call Gentran Customer Support.

Size Requirements

System size is the volume of activity your system can support. The size is computed by measures such as processing speed, RAM (random access memory), CPUs (central processing units) and free disk space.

When you plan your implementation, remember that the published minimum size requirements support the Gentran Integration Suite application, but may not allow for any increased capability required by the particulars of your implementation, such as the number of transactions processed and the amount of data transferred.

Your implementation may include one or more test environments in addition to the production environment. Running a test environment is recommended, and Gentran Integration Suite enables you to bundle the work from the test environment and migrate it to the production environment when you are ready.

Obtaining Product Training

Sterling Commerce consultants may install Gentran Integration Suite for you, along with a Jump Start Package for your convenience. The Jump Start package provides a preconfigured simple inbound and outbound flow, including trading profiles, enveloping activities, simple mapping for a purchase order and invoice, and so forth.

The Jump Start package is designed to let you see Gentran Integration Suite in action and experiment with how it works—a first step in training. If you like, you can use the business process models and preconfigured data from the Jump Start Package as a starting point for your own implementation by modifying them according to your own requirements.

After you have familiarized yourself with the Gentran Integration Suite interface through the Jump Start Package, you may decide to attend formal Gentran Integration Suite training.

Formal training provides detailed instruction for configuring and interacting with Gentran Integration Suite. Training is provided in classrooms at select Sterling Commerce locations, but may also be provided on site at your company. Contact your Sterling Commerce sales representative for details.

Network Deployment Planning

Before deploying Gentran Integration Suite, you must evaluate the different deployment options and determine which one best fits your budget, current infrastructure, and provides the most secure environment for your data.

Because Gentran Integration Suite handles critical and sensitve data, it should be deployed in a secure zone behind a firewall within your network. A firewall is a blockade between a secure internal network and an untrusted network such as the Internet. You can also use a firewall to secure one internal network from another on an intranet. If you do not deploy Gentran Integration Suite behind a firewall, you will be exposing your system to unwanted and possibly undetected attacks by unauthorized users.

Depending on your industry, there may be regulatory compliancies that require Gentran Integration Suite to NOT be deployed in a non secure zone (forward zone of a demilitarized zone) of a network.

When you use a firewall as your gateway to the Internet (or other network), you reduce the risk to your internal network considerably. This enables safe, secure e-business by controlling all communications to and from the Internet.

See the Perimeter Server and Security topics in the documentation library for more information on Gentran Integration Suite deployment options.

Installing Gentran Integration Suite

Sterling Commerce Consulting Services may install Gentran Integration Suite for you, or your system administrator may install it.

DMZ Considerations

You can install Gentran Integration Suite so that different components are installed on different machines.

The processing engine (Business Process Engine) must be installed in your most secure LAN (local-area network) in order to efficiently process your mission critical data.

However, you can install some components in your DMZ ("demilitarized zone"—a computer or small subnetwork that operates between a trusted internal network, such as a corporate private LAN, and an untrusted external network, such as the public Internet). Typically, a DMZ contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers, as well as a perimeter server for security.

Gentran Integration Suite components typically installed in the DMZ are communications adapters that act as HTTP servlets interfacing with the Business Process Engine inside your LAN. Communication channels are opened only from the secure LAN to the DMZ, and all data traveling through the DMZ is encrypted.

Any or all Gentran Integration Suite components may also reside on the same computer, if your network does not have a DMZ.

Tuning Gentran Integration Suite

Performance tuning enables you to configure Gentran Integration Suite for the most efficient performance according to your specific needs. After installation you must tune Gentran Integration Suite—change the database settings, memory allocations, and other settings—so that Gentran Integration Suite performs as you want it to. You may allocate more or less system memory to specific components, more or less database pools, or more or less cache to specific components of Gentran Integration Suite.

A wizard-type interface guides you through the Performance Tuning pages of the Gentran Integration Suite application. The system suggests property settings based on your operating system; you can let the Gentran Integration Suite automatically make these settings or you can manually enter other settings.

Any time you add volume or hardware to your system, review your performance tuning settings.

Configuring Permissions and Creating User Accounts

Role-based security enables you to assign permissions to users or groups of users based on the tasks they must use Gentran Integration Suite to complete. Carefully consider the users who will access the system, and create the appropriate user groups with the related permissions for those users, and then create the user accounts so that the users may access Gentran Integration Suite.

Menu options for system components to which users do not have permission do not display for those users in the interface.

Configuring Services and Adapters

When you created your architectural design plan, you planned the structure for each of your business process models, and noted the services required to execute each process. Configuring services and adapters

makes them available in the Graphical Process Modeler so that you can include them in your business process models.

You configure your services (including adapters) in the Gentran Integration Suite interface, where a setup wizard lets you select the desired service and guides you through the settings. The settings dictate the specifics of the activities to be performed by the services, such as files in which to place extracted data, required IP addresses or ports, time-out values, and so forth.

If you need to develop custom services for any of your business process models, use the Service SDK. For information about the Service SDK, see *Service Software Developer's Kit (SDK)* on page 42.

Creating or Migrating Translation Maps

Translation maps specify the proper transformation of data at a particular point in a process.

When creating your business process models, you associate translation services with the appropriate translation maps you have created for that step in the process.

Use the Map Editor to create any translation maps you need to include in your processes and check them in to Gentran Integration Suite.

Checking Documents In and Out of Gentran Integration Suite

Gentran Integration Suite treats process models, maps, and Web templates (created using Web Extensions) as business documents for which it has a version control system. To use these documents, you must check them into and out of the system. When a document is checked out, the system locks it so that other users can not modify it at the same time. When you check in a document, Gentran Integration Suite stamps it with a version. You may use a previous version for editing, activating or replacing more recent versions at any time.

Importing Translation Maps from Gentran:Server

If you are converting from Gentran:Server to Gentran Integration Suite, you can import existing translation maps, and then modify any database references in the maps to the Gentran Integration Suite database.

Creating Business Process Models

Your architectural design plan includes details describing the business process models you must create to instruct Gentran Integration Suite regarding the specifics of your processes.

To create your business process models, use the Graphical Process Modeler (GPM). For information about the GPM, see *Graphical Process Modeler* on page 32.

You may modify predefined business process models (including any sample business process models) instead of creating your models completely independently.

After creating the business process models, check them in to Gentran Integration Suite through the interface.

Scheduling the Business Process Models

You must create schedules for any business process models that you want the Business Process Engine to initiate at specific intervals, dates or times.

Using the scheduling tools in the Gentran Integration Suite, you can configure periodic intervals or a regular time of the day or week for the Business Process Engine to run a business process, as well as schedule a business process to run at system startup.

Wizard technology enables you to select the business process model you want to schedule and leads you through the steps.

Associating Communications Adapters with Business Processes

After your business process models are created and checked in, you must associate any communications adapters that will be used to accept unsolicited communication with the business process models that include them. These adapters have a field in their configuration parameters to select the business process.

Creating Trading Partner Profiles

Trading profiles are collections of records that describe the technology and business capabilities of your business partners to engage in e-business with each other. Gentran Integration Suite uses the trading profile data to link your trading partners with the business process models you create to handle that partner's documents.

While you can create trading partner profiles at any time, they are commonly created after you have defined a business process or translation map. Trading profiles referenced in EDI transactions require envelope information you will know after creating the map.

Within the Gentran Integration Suite interface, you can access Basic and Advanced options for creating your trading profiles. The process involves multiple steps as you enter information related to identification, document transport and exchange, delivery channel, packaging, and more. Security information unique to the partner is also stored here, such as digital certificate identification.

Testing the Business Processes

As a test, run the business processes you have created. You can start them manually or schedule a run time and test that the scheduled start works in conjunction with the rest of a process.

Monitor the processes to ensure that they run properly and make any modifications as needed.

Scheduling Archiving and Purging

In the same manner that you schedule business processes you have created, you can schedule the intervals at which you want Gentran Integration Suite to archive and purge the contents of the database. Predefined Gentran Integration Suite business processes manage these activities.

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