



## The Director for Enterprise Architecture

The quality of data is an issue that stretches across every enterprise: across business units, across business processes, across departments, across geographies, and across time. Each place where data is created, each time data is moved or transformed, each time data is modified, the opportunity for errors is introduced, the potential for duplicates is revisited, and the likelihood for data-related problems is re-introduced.

### The Director: A Data Quality Application Server

The Director is an application server that provides data quality processing to multiple applications in a high availability environment. The Director is ideal for deploying data quality within legacy systems (e.g. written in C, COBOL, RPG, etc.), mixed or heterogeneous environments, web-based applications, and networked applications. It is the best option for organizations that have more than one system that requires data quality processing in real-time.

The Director is delivered with a series of interfaces so that it can be used in conjunction with applications. These interfaces are written using industry standards: C, C#, C++, Java, XML over HTTP, Microsoft .NET, Enterprise Java Beans, and Web Services. Interfaces are available for Microsoft .NET and J2EE-compliant web application servers, including IBM's WebSphere BEA's WebLogic. Interfaces are customizable so the Director can be called from any application, regardless of the technology standards upon which it may have been built.

**Reusability  
across:**

- Applications**
- Business processes**
- Geographies**
- Departments**
- Lines of business**
- Operating systems**
- Time**

**with consistent  
results**

## The Director: How it works

The Director is a resource manager that acts as a registry for all Trillium Software data quality processing servers in the enterprise. Cleansing and matching servers register with the Director at startup and provide one or more ready-to-use data quality functions. When a server is started, its Trillium Software System services are made available to your calling application. When an application requests those services, the Director sends the application a process handle from a pool of available handles, enabling the application to communicate directly with an available cleansing or matching server.

The Director manages the data quality services deployed across the network, and regulates traffic between calling applications and the cleansing and matching servers. This highly-scalable architecture means your data quality services can keep up with your growing data quality requirements, and with changing workloads.

### Components

The Director architecture is split into three components: the Director transaction manager, cleansing services performed by dedicated cleansing servers, and matching services performed by dedicated matching servers. The Director can be called via Java JNI, C, C++, C#, and XML or via Web Services. The Director, cleansing servers, and matching servers communicate using standard TCP/IP networking. Modules run as services, on Windows, or daemons on UNIX. These modules need not be located on the same physical server or on servers running the same operating system.

The Director is administered through the Director Console. This interface allows a system

administrator to suspend and resume servers, stop servers, query service statistics, and activate tracing. It also includes a Monitor, designed to provide fail-over protection in an environment supporting multiple Directors.

### Functions

**Data Quality Functions**— The cleansing server(s) cleanse, standardize, and enrich records by performing several functions corresponding to specific Trillium Software System engines: the Transformer, Global Data Router, Parser, Geocoder, Census Geocoder, Data Reconstructor, and the Window Key Generator. The Matching server(s) link records together with the Relationship Linker module, using standardized data passed from the cleansing server and external quality processing match rules files.

**Director Functions**— The Director architecture is an infinitely scalable, high-performance, network-based implementation of Trillium Software System. The Director provides the following services:

- Transaction load-balancing
- Statistical report management
- Server processes management
- Multithreading

### External Rules

Cleansing, standardization, and matching rules are defined in external XML rules files that can be located anywhere on the network. Rules file locations are communicated to various servers through a single configuration file. A common set of rules can be used, or application specific rules can be used. The Director holds information regarding the association between an application and the quality rules that should be applied to its transactions.

### Benefits

#### Architectural Benefits

Trillium Software System® has been uniquely architected based on the premise that enterprise-wide data quality solutions must work seamlessly with all platforms, in any application, and should be able to integrate into any technical environment. As a result, our single, core product can be deployed in many different ways, throughout the enterprise.

This approach offers significant benefits:

- Maintain a single instance of Trillium Software System
- Leverage a standard (base) set of quality rules
- Streamline development and deployment efforts
- Support portability across platforms
- Produce the same results across heterogeneous platforms, regardless of how functions are invoked
- Scale easily to grow with an organization and industry
- Fit into any data movement architecture

While your immediate requirement may be to implement a data quality solution that serves a single application, our product allows you at any time to scale your solution across your enterprise: across platforms, across applications, across geographies, as you work towards a Total Data Quality solution. Know the investment you make initially has been built to serve many other purposes seamlessly, giving you countless options as your technical environment and business requirements change over time.

### Technical Benefits

There are significant technical benefits to this architecture—network transparency to applications, scalability, reduced development time, and flexible deployment of technical resources.

**Transparency**— The location of servers is transparent to client applications. Multiple processing servers can easily be added over time, without impacting the interaction between applications and the Director. This insulates applications from the network topology and any data quality server infrastructure changes. Tasks such as updating production postal directories, rolling out new regions/countries, or modifying rules is simplified, and no down time is experienced, as the Director routes incoming transactions to the cleansing server(s) that remain operational as others are undergoing directory update procedures.

**Scalability**— The Director's application architecture is highly scalable and tuned for real-time performance. The Director load balances across various servers. When a server is taken offline, the Director stops sending requests to that server and utilizes other available resources. It is also failover safe, so multiple Directors, cleansing servers, and matching servers, can be deployed

to ensure no single point of failure occurs.

**Reduced development**— The Director offers a significant reduction in development.

**Initial:** Because the Director manages multiple cleansing and matching servers, it eliminates the need to write a multi-threaded application to handle high volumes of records.

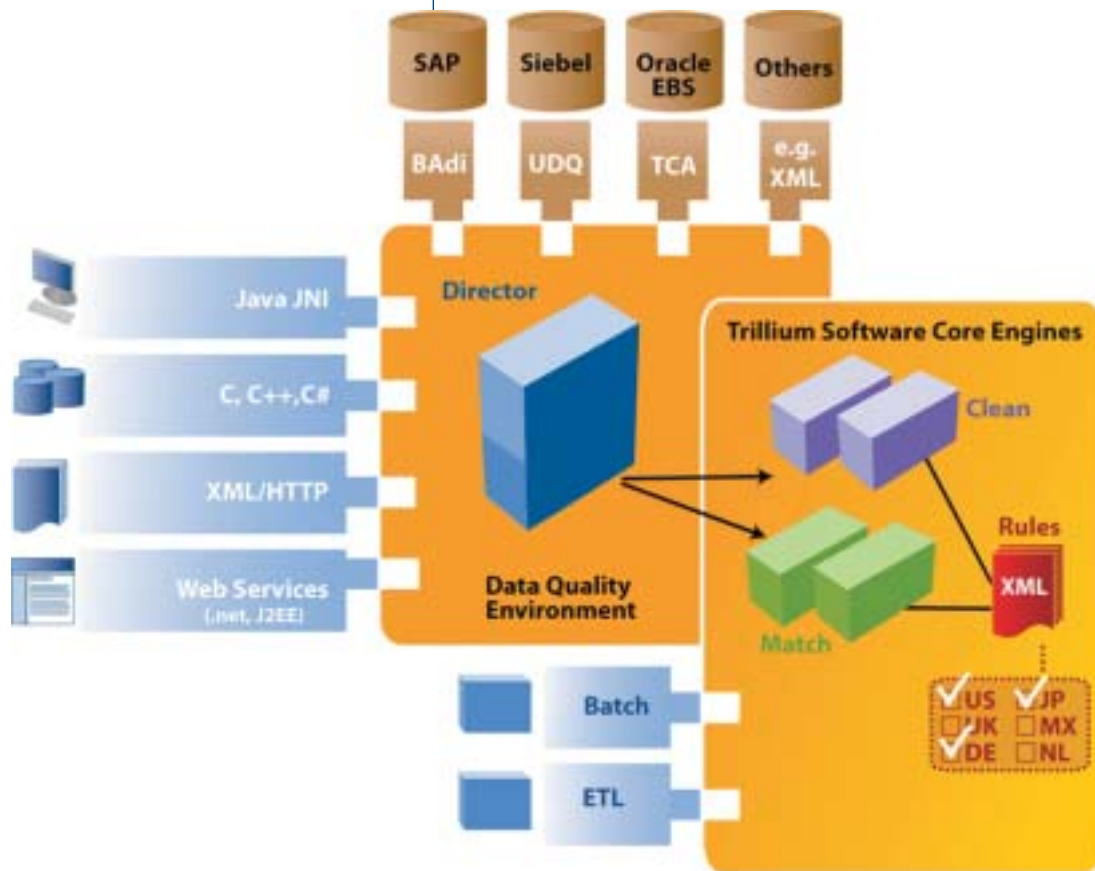
**Ongoing:** As it becomes necessary to extend data quality processing to additional applications within your enterprise, new development efforts are extremely minimal. The Director supports both a centralized data quality strategy, where a single set of quality processing rules are enforced throughout an entire organization, as well as a distributed data quality strategy, where each application utilizes either completely custom quality rules or a mix of corporate rules and custom rules.

**Global:** As an enterprise grows globally, the external nature of quality processing rules allows for a simple response to implementing new country-specific rules.

**Flexibility**— Each server (Director, cleansing, and matching servers) can run on one or multiple UNIX or Windows based networked machines. It is not necessary to create a uniform server environment; rather you can mix and match server environments as desired: i.e., cleanse data on a Windows server, match data on a HP server; cleanse data on an AIX server, match data on a Solaris server. Multiple cleansing and matching servers can be initialized at startup to handle high transaction volumes.

Trillium Software System is architected to, at any time, meet the needs of organizations moving towards a Service Oriented Architecture (SOA), offering a scalable, flexible data quality platform designed for high performance environments.

**Trillium Software Director: for a Service Oriented Architecture (SOA)**



**Integration Options**

The Director provides interfaces and API's which provide a number of different integration options, described below:

**Third Party Enterprise Applications**

The Director interfaces with specially developed TS Connector products for easy integration with large, third-party enterprise applications such as:

- Oracle eBusiness Suite (through CDH)
- Oracle Siebel applications (through UCM)
- SAP applications such as mySAP ERP, mySAP CRM, and SAP MDM
- Siperian MDM Hub

and others, with simple configurations.

**Open Standards Interfaces**

The Director interfaces with custom applications and other third-party applications without pre-developed Connectors via open standards API's, primarily:

- Web Services
- Java, JNI
- C, C++, C#
- XML

The Director is a separately sold product that extends the Trillium Software System suite of functionality throughout your enterprise.

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