

PEERFactory® DMF™

Data Management Framework

Fast, flexible data delivery infrastructure for advanced manufacturers

The Challenge

World-class manufacturers demand more data from process equipment, but information infrastructures just can't manage the volumes and speeds required, and cannot service the variety of applications that need this data. To complicate the situation, each customer desires a different solution—an HSMS port, Modbus, XML/SOAP, or the OPC standard. How do you meet all their needs?

The Solution

PEERFactory Data Management Framework (DMF) makes it all possible. This toolkit of software components lets advanced manufacturers build and support collection, storage, and visualization applications. The PEERFactory DMF Collector merges data from multiple sources (such as automation equipment, sensors, and instruments) and can deliver it to multiple applications over any protocol. And, PEERFactory DMF stores this data at a high rate—up to 150,000 samples per second.

PEERFactory DMF Highlights

FEATURES	BENEFITS
<i>High-performance storage and retrieval</i>	<ul style="list-style-type: none">▶ A hybrid storage system (a database and binary files) boosts performance and minimizes storage space.▶ The database indexes files based on context (such as lot, serial number, recipe, equipment, and so on) for fast, flexible retrieval.
<i>Visualization capabilities</i>	<ul style="list-style-type: none">▶ A set of visualization components enables the creation of data display applications.▶ Real-time charting of live equipment data is available immediately.▶ Web services transport the data for firewall-friendly connectivity.▶ The extensible Windows® forms-based components provide a rich user experience.
<i>Data collection</i>	<ul style="list-style-type: none">▶ Equipment data can be merged with external data, such as sensor data.▶ Configurable collection plans empower fabs to specify data acquisition details.▶ Optimized data collection minimizes the load on data sources and the CPU.
<i>Scalable deployment</i>	<ul style="list-style-type: none">▶ PEERFactory DMF can run on low-cost PCs and high-end server solutions.▶ Components can be distributed over a factory network (for example, the Collector component can reside next to the equipment while the Storage application resides on a server).
<i>Enabling technology</i>	<ul style="list-style-type: none">▶ Collection, storage, and visualization capabilities are available immediately after installation.▶ The extensible framework lets you build custom solutions and differentiate your data delivery application.▶ This toolkit provides fast implementation, easy deployment, and reliable, secure data management.

PEERFactory DMF Functional Overview

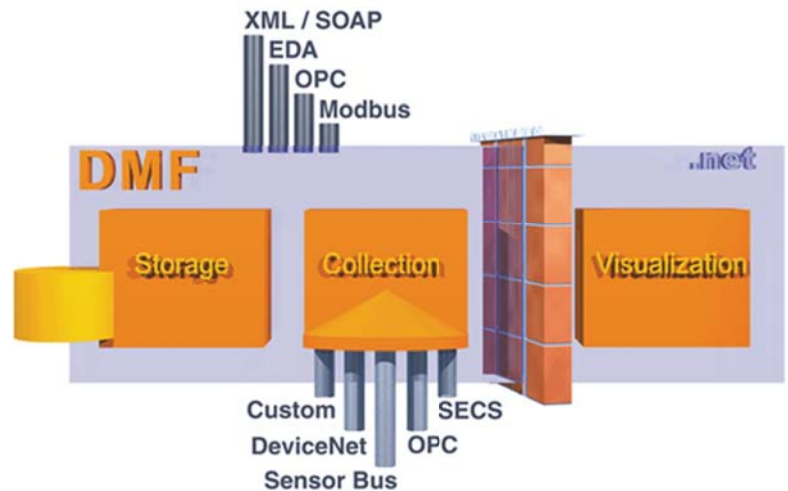
PEERFactory DMF is an extensible framework of software components for building collection, storage, and visualization applications.

Collection

- ▶ Collects trace, alarm, and event data
- ▶ Supports independent sample and publication rates
- ▶ Collection optimization minimizes the load on data sources (for example, two clients asking for the same data results in one request from the source)
- ▶ Controls publication through start and stop triggers, such as SVIDs or events
- ▶ Can throttle collection to prevent an overload on computer resources (for example, on the CPU)

Storage

- ▶ Hybrid storage system stores data in binary files and a database
- ▶ Database indexes files based on context information (for example, lot and serial number, recipe and step, equipment and chamber, and so on)
- ▶ Database queries provide a list of files which contain the data, then the data is extracted from the files



Visualization

- ▶ Provides a set of Windows forms components for building UI applications
- ▶ Allows users to view both real-time and historical (stored) data
- ▶ Implemented as a Windows .NET application rather than as a browser
- ▶ Provides rich user interaction (scrolling charts, point annotation with “hover-over”, panning, zooming, context markers, multiple charts, and so on)
- ▶ Enables easy deployment (automated client updates from server on startup)
- ▶ Web services allow the data to flow through firewalls easily and securely

Deployment options

- ▶ Components can all run on a single computer or be distributed across many computers
- ▶ One Collection component may service multiple Storage and/or Visualization components

PEERFactory DMF Summary

DEVELOPMENT ISSUES

SPECIFICATIONS

Language

- ▶ All PEERFactory DMF components run in the Microsoft® .NET 2.0 Common Language Runtime environment

Connectivity

- ▶ Firewall-friendly through Web services technology
- ▶ Internal communications via .NET Remoting technology
- ▶ Uses ASP .NET Web services for client connectivity

Communications standards

- ▶ Supports open, standards-based technologies such as SECS/GEM, OPC and SOAP.
- ▶ Designed to accommodate others, such as COM, DeviceNet™, Modbus®, and so on

Data storage formats

- ▶ PEERFactory DMF can run on low-cost PCs and high-end server solutions
- ▶ Raw data is stored in binary files
- ▶ Alarms and events are stored in XML files
- ▶ Indexed data is stored in a Microsoft SQL Server 2005 database

Operating system options

- ▶ Windows 2000 and Windows XP (server and client); Windows Server™ 2005
- ▶ Supports cross-platform applications (that is, PEERFactory DMF can be fed into .NET, VB6, Java®, and non-Windows based systems)

Footprint

- ▶ Typically, less than 10% of a 2 GHz CPU

About PEERFactory

PEER Group's PEERFactory is a toolkit of comprehensive integrated software modules that provides tailored, high-performance manufacturing operation solutions proven to meet specific customer needs for plant visibility, data collection, and line monitoring and control. PEERFactory combines the strengths of both enterprise and SCADA/HMI MES products while minimizing associated risks and costs. PEERFactory's Data Collection, MES, Asset Management, and APC modules feature high-performance storage and retrieval, flexible and scalable deployment, interoperability, and visualization.

About PEER Group

PEER Group provides innovative factory automation software solutions and consulting services to the semiconductor, photovoltaic, and electronics industries. The world's best manufacturing companies turn to PEER Group to solve their most challenging equipment automation, data management, and process control problems. With more than 100,000 licenses shipped, we are the world's leading supplier of equipment connectivity and testing products to automated factories around the globe. Our innovative and reliable products and services help lower the cost of automation for high-volume manufacturers and their equipment suppliers.

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