

## A close-up photograph of three rectangular blocks and one circular object. The blocks are colored green, blue, and red. They have a textured, slightly grainy surface. The green block is on the left, the blue block is on the right, and the red circular object is in the foreground. The background is a plain, light-colored surface.

The Cogiscan Traceability module is a software application that provides the complete material and process history related to the manufacturing of products, from material receiving to final product packing and shipping. With the Cogiscan Traceability system, efficient data collection is combined with error proofing solutions to demonstrate process compliance while reducing material and assembly costs. All transactions monitored by the Cogiscan Material Tracking Platform are recorded into a historical database. This includes all the process steps performed on a work order or serialized product, along with the components, consumables, special tooling, machines, program name and version, used throughout the manufacturing process.

**Cogiscan Material Tracking Platform for Track / Trace / Control**

Receiving Warehouse Manufacturing Test Shipping

**Cogiscan**

**Product Traceability Report**  
Generated on 2009-05-26 15:04:57

Let Number: D10EN00012  
Batch ID: 5035 TAGS  
Part Number:  
Revision:

Product Type: Non Validated on a rule  
Current Operation: Non Validated on a rule

**Material Data**

**Process Data**

**Defect Data**

**Rework and Repair**

**Test data**

Timestamp	Event type	Operation	Reason	Tool	Program ID	Rem. Pk	User ID
D10EN00012							
2009-05-05 02:00:00	RELEASE PRODUCT	UN	NON VALIDATED	5035			admin@...
2009-05-05 02:00:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:02:40	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:03:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:03:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:03:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:03:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:04:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:04:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:04:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:04:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:05:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:05:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:05:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:05:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:06:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:06:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:06:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:06:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:07:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:07:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:07:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:07:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:08:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:08:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:08:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:08:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:09:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:09:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:09:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:09:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:10:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:10:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:10:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:10:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:11:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:11:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:11:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:11:48	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:12:00	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:12:18	END OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:12:30	START OPER	SMT	NON VALIDATED	5035			admin@...
2009-05-05 02:12:48	END OPER	SMT	NON VALIDATED	5035			admin@...

## BENEFITS

- Modular, easy and rapid deployment
- Demonstration of process compliance
- Increased end customer satisfaction
- Reduced end customer service cost – proactive repair, recall of products in the field can be initiated quickly and narrowed down to a minimum
- Reduced manufacturing cost – effective failure analysis, suspect bad components can be purged



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# Traceability

## FEATURES

- Modular and scalable
- Full factory traceability available, from receiving to shipping
- Traceability of rework and repair
- Easy to implement; an entry level traceability system can be installed and running in a matter of a few days
- Ability to harvest process data from machines using the CAMX Message Broker
- Support of serialized and non-serialized products
- Easy to use Web reporting interface for standard traceability reports
- Ability to export traceability data into a CSV or Excel.XLS worksheet
- System architecture designed and proven for large factory deployments
- Automatic database back-up and database maintenance
- Open architecture that enables customers to access the historical database

## ORDERING INFORMATION

Part number	Description
95S231	Product Traceability License – Placement machine, unit license
95S232	Product Traceability License – Other operations, unit license
95S431	Product Traceability License – Placement machine, site license
95S432	Product Traceability License – Other operations, site license

## PREREQUISITE AND SYSTEM REQUIREMENTS

Cogiscan Server Software license (site license)  
Client PC and Server not included. PC and Server requirements available on request  
Network infrastructure and wireless access point not included

Scope and size of traceability projects can vary greatly from one customer to the other. Please consult Cogiscan for recommendations about system architecture and server.



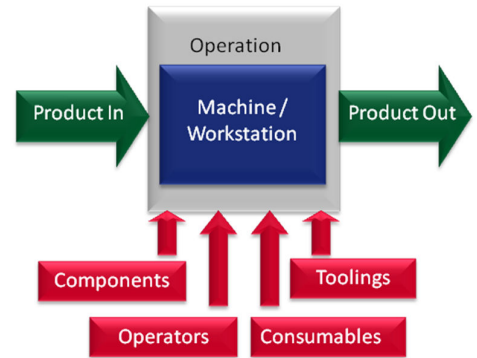
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# Traceability

## HOW IT WORKS

The foundation of a good traceability system is the ability to track materials and products through the factory.

The adjacent diagram illustrates the operational model used by the Cogiscan Tracking Platform. A timestamp is recorded each time a product enters or exits at an operational machine or workstation. Similarly, a timestamp, and optionally the operator ID, is recorded whenever materials or tooling are loaded or unloaded from a machine or workstation. The Cogiscan Traceability module then links the material, tooling and operator data with the product passing through the operation.



The capture of a timestamp typically requires a scanning operation. Cogiscan provides different ways to perform the scanning operations to adapt to any process, eliminate scanning duplication and automate the scanning process to reduce human intervention. For monitoring product movement, the following 3 methods are available:

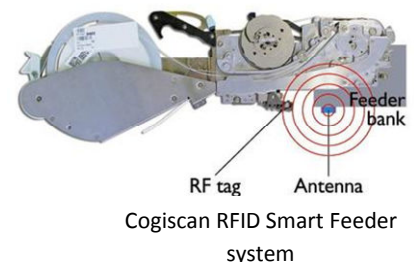
- Manually scan each product ID or work order ID in the Cogiscan Client PC Application, or using the Pocket PC Operator Interface
- Automatically scan each product ID using the Cogiscan Product Flow Controller (PFC) and in-line scanners
- Automatically transfer each scanned product ID from a third party software system using the Cogiscan RPC Web services



Since products are scanned at the entry of a process, the process validation, or error proofing, can be performed before the product is allowed to enter the process, without the need for any additional scanning steps.

For materials and tooling, the load and unload transactions can be performed using one of the following methods:

- Manually scan the material or tooling ID's in the Cogiscan Client PC Application, or using the Pocket PC Operator Interface
- Automatically scan material or tooling ID's using Cogiscan RFID solutions
- Automatically transfer scanned ID's from a third party software system using the Cogiscan RPC Web services



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# Traceability

Depending on the system configuration, the Cogiscan Traceability module is able to record traceability data that falls into the following 3 complementary categories.

## Product Route Traceability

Product route traceability provides the history of the process steps and machines that were used to produce a product serial number or work order (for non-serialized products). This includes assembly, inspection, test, rework and repair steps.

## Material Traceability

Material traceability links the materials (part number, lot number, date code along with corresponding material supplier and supplier part number) that were used at the different steps of the manufacturing process, with the product serial numbers or work order number (for non-serialized products). The Cogiscan Material Tracking Platform also provides all the historical data related to storage and prior use of materials, including special handling related to moisture sensitive devices (MSD) and time-sensitive materials.

## Process Traceability

For each step of the product route, process data can be captured and linked to a product serial number or work order number. This is typically accomplished using the CAMX Message Broker Interface. Following are typical examples of process traceability.

- Collection of placement data from pick&place machines for material traceability to the reference designator
- Harvesting of oven process data
- Harvesting of product status and defect codes from SPI's and AOI's
- Harvesting of product status and test data from functional testers

## Reporting

Included with the Traceability module is a Web reporting interface that lets users, with limited or no software experience, generate traceability reports to answer the following typical traceability questions:

- Demonstrate process compliance
- Generate list of product serial numbers affected by a process or material non-conformance
- Combine failures with historical data for effective failure analysis

Each report can be exported as a CSV or Excel.XLS worksheet for further analysis. For customers that wish to create specific traceability reports, Cogiscan provides access to the historical database along with a

The screenshot displays the Cogiscan Traceability Web Reporting interface. It features two main report sections. The top section, titled 'Floor Activity History Report', shows a table with columns for 'Lot Number', 'Part Number', 'Revision', 'Event Type', 'Event Date', 'Event Time', 'Event Location', 'Event Description', 'Event Status', 'Event User', and 'Event Comment'. The bottom section, titled 'Product Traceability Report', shows a table with columns for 'Serial Number', 'Lot Number', 'Part Number', 'Revision', 'Event Type', 'Event Date', 'Event Time', 'Event Location', 'Event Description', 'Event Status', 'Event User', and 'Event Comment'. Both reports include a 'Cogiscan' logo and a 'Report' button.



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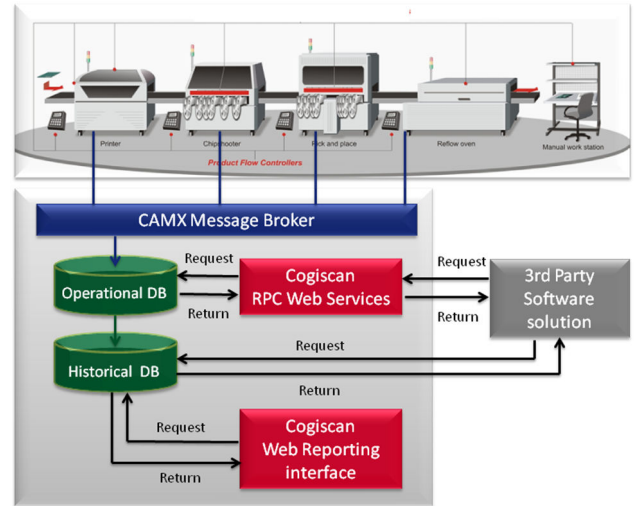
# Traceability

specification that describes the structure of the tables of the database.

## Advanced Traceability

To fulfill more advanced traceability requirements, it is necessary to collect data from the machines performing the processes. For this purpose, Cogiscan provides a CAMX Message Broker interface, based on the industry standard IPC-2501 for machine communication.

This CAMX message broker is the backbone of the Cogiscan data collection engine and provides uniformity in the data collection process. For machines that are not CAMX compliant, Cogiscan provides CAMX data collection points that tap on the available data sources at the machine level. These data sources are typically in the form of log files or databases. The CAMX data collection points translate the available data into CAMX messages that are then sent to the broker.



## COMPLEMENTARY HARDWARE AND SOFTWARE

The following Cogiscan products complement the Traceability software module. Details and quotation will be provided upon request.

### Handheld barcode scanner

USB scanner that is connected to the Client PC hosting the Cogiscan Client PC application for performing system transactions.

### Wireless Pocket PC

As an alternative to the Client PC, the Wireless Pocket PC can be used to perform various system transactions.

### Barcode printer

For printing Material ID, Feeder ID and Trolley ID labels.

### Product Flow Controller (PFC)

The PFC connects to the SMEMA line between a conveyor and a machine or between 2 conveyors. Up to 2 barcode scanners can be connected to each PFC (top and bottom) to capture product serial numbers moving from the conveyor to the downstream station. The PFC guarantees 100% reading of the serial numbers and can be used to prevent production when a process error occurs on the downstream station.



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## **Cogiscan RFID Smart Feeder System**

Using the RFID Smart Feeder System, the loading and unloading of feeders to and from trolleys and machines is automatically detected. It eliminates scanning errors and improves productivity by eliminating manual scanning transactions.

## **Line Set-Up Software module**

The Line Set-Up Software module provides a line level solution for validating the set-up of various machines and processes including screen printing, reflow, manual assembly and AOI.

## **Offline Job Set-Up Software module**

The Offline Job SetUp software module is a tool that manages the setup of manufacturing jobs on Pick & Place equipment, in preparation for a product changeover. The objective of the Offline Job Setup process is to reduce to a minimum the downtime associated with product changeover while eliminating setup errors.

## **Data Warehouse Access**

The Data Warehouse Access is for customers that wish to access the historical database for creating their custom traceability reports.

## **Defect data Collection software module**

The Defect Data Collection software module provides the capability to claim defects on products and keep track of product status during inspection, rework and repair.

## **CAMX Message Broker and CAMX Data Collection Points**

The CAMX Message Broker is the backbone of the Cogiscan engine for data collection from machines. It is based on the IPC 2501 machine communication specification. For machines not CAMX compliant, Cogiscan provides CAMX Data Collection Points that translate available data into CAMX messages that are sent to the broker.

For more information or for contact information, please visit us at:

**[www.Cogiscan.com](http://www.Cogiscan.com)**



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