



Predator CNC Service™

Ethernet Based Data Monitoring For CNC's, PLC's and Robots



predator
SOFTWARE INC.

GEARED FOR MANUFACTURING™

Predator CNC Service is designed to run as a Windows Service, which can monitor signals from Ethernet based CNC machine controls, robots, and PLCs in real-time. It works directly with the Predator MDC Data Collection System, to collect, process, report, and chart real-time processes on the shop floor.

Ethernet Supported Protocols:

- Fanuc FOCAS
- Fanuc Robotics RSR
- MTConnect
- Okuma THINC
- OPC
- XML

Improve:

- Job planning and quoting accuracy
- Personnel productivity
- Machine and resource usage
- Maintenance planning

Collect Machine Status, including:

- Cycle Time
- Feed Hold
- Emergency Stop
- Spindle Speed
- Feed Rate
- Variables
- Digital IO
- And more...

What is Predator CNC Service?

Predator CNC Service is a software application designed to run as a Windows Service, which can monitor signals from Ethernet based CNC Machines Controls, Robots, and PLC's in real-time. Numerous CNC machine, robot, and PLC specific events are sent to one or more Predator MDC PCs as Ethernet data messages. These data messages can be used to trigger MDC events, DNC events, E-Mail messages, printing tasks, the launching of other applications, updating an Excel spreadsheet, or a number of other tasks.

Why use Predator CNC Service?

- Easy to install
- Runs in the background as a Windows Service
- Support for more than one protocol from a single interface
- Can be installed on one networked PC and handle up to 256 devices
- Can be installed directly on supported Windows based CNC controls
- No proprietary hardware required (except for what may be required by protocols)

Support for multiple Protocols

- Fanuc FOCAS
- Fanuc Robotics RSR
- MTConnect
- Okuma THINC
- OPC
- XML

An effort has been made to provide a standard configuration across all supported Ethernet protocols. But protocol differences do exist. For example, MTConnect is different from Fanuc FOCAS, which is different from Okuma THINC. The above protocols support multiple CNC vendors and CNC models.

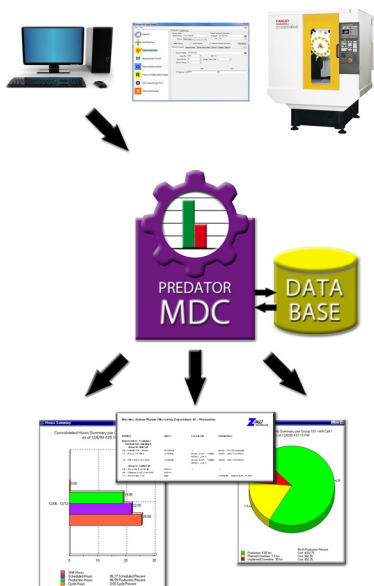
Fanuc FOCAS Protocol

The Fanuc FOCAS

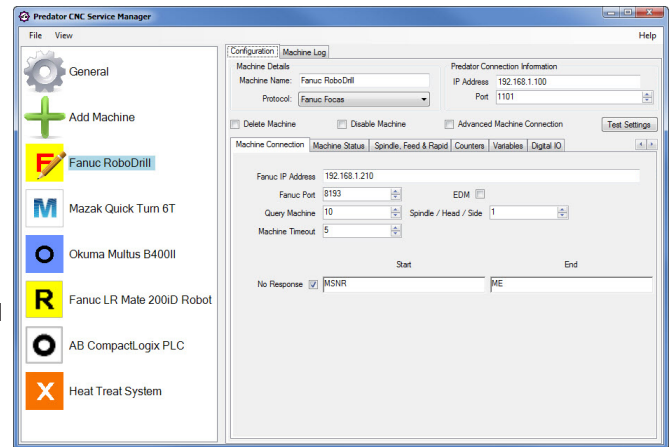
(FANUC Open CNC API Specifications) protocol

supports FANUC CNC Controls from a wide range of Machine Tool builders, such as: Doosan, Daewoo, DMG, Fadal, Fanuc, Kitamura, Hardinge, Makino, Monarch, Mori Seiki, Studer, and many others. The Predator CNC Service works with any FANUC based CNC Control that has the Ethernet and Fanuc FOCAS options available and installed.

Fanuc FOCAS is a supported option on many Fanuc CNC models including: OiA-D, 15, 15i, 16, 16i, 18, 18i, 21, 16iA, 18iA, 21iA, 16iB, 18iB, 21iB, 30i, 31i, 32i and Power Mate I, regardless of the machine builder. Availability will need to be verified on a specific machine, since not all machine builders include this option as standard (additional hardware and software options may be required from the OEM).



Predator MDC data collection to useable reports and charts.

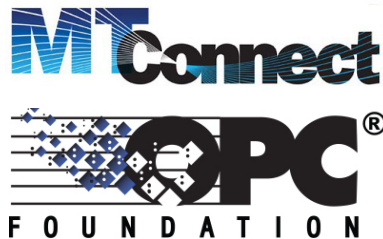


Additional Requirements:

- Predator MDC Administrator
- Predator MDC Client
- Predator MDC/x Software

MDC Standard Features:

- Manufacturing Data Collection
- Realtime Answers
- Flexible Data Collection
- Reports and Graphs
- Database Flexibility
- Integrated Solution
- MDC Clients
- Data Collection Objects



Supported Databases:

- Microsoft Access
- Microsoft SQL
- Oracle

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Fanuc Robotics RSR Protocol

The Fanuc Robotics RSR (Robot Server) Protocol, which allows full monitoring and remote control of most functions on the Fanuc Robotics R-J3x and newer Controls, is also supported by the Predator CNC Service. This protocol is only supported on FANUC robots with a FANUC R-J3iB Control or newer (R-J3iB, R-J3iC, R-30iA, and R-30iB). A copy of the FANUC Robotics Run-Time License for Robot Server (RTL-RSR) on the PC side, and the FANUC PC Interface Option (RTL-R641) on the robot side, must be purchased from FANUC Robotics and installed, for this Protocol to work with the Predator CNC Service.

MTConnect Protocol

MTConnect is a manufacturing industry standard to facilitate the organized retrieval of process information from numerically controlled machine tools. MTConnect is a lightweight, open, and extensible protocol designed for the exchange of data between shop floor equipment and software applications used for monitoring and data analysis. In its current form, MTConnect is referred to as a "read-only" standard, meaning that it only defines the extraction (reading) of data from control devices, not the writing of data to a control device.

Data from shop floor devices is presented in a common XML format, and is retrieved by the Predator CNC Service and passed on to Predator MDC modules for reporting, charting, live analysis, and historical collection. Since the MTConnect standard may be implemented to expose different data by different machine builders, not all machines may offer the same data to be monitored. Also, MTConnect does not expose all the same data as other proprietary formats such as Fanuc FOCAS or Okuma THINC. With this in mind, the Predator CNC Service can only get to information available through the MTConnect Adapter and Agent. These options, if not installed, will need to be installed by your machine tool builder.

Okuma THINC Protocol

THINC is Okuma's revolutionary Intelligent Numerical Control (INC). It is a highly reliable, easy to use control system, capable of integration with the latest generations of software and hardware technology. It uses the power of the Microsoft WINDOWS™ operating system to provide Okuma's OSP control with an open architecture PC-based operating platform. The THINC control has standard Windows Ethernet capabilities, which enable the Predator CNC Service to be installed directly on the OSP Controller, and monitor the status of the machine while it is in operation or sitting idle. The Predator CNC Service supports the Okuma OSP-P100, P200, and P300 series Controls running on Microsoft Windows XP Pro (SP1) or higher.

XML Protocol

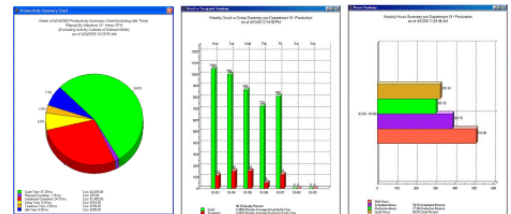
Predator CNC Service supports the use of XML (EXtensible Markup Language) which is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. This is also used as a standard of information transfer by custom machine tool builders. This standard is typically a "read only" standard very similar to MTConnect.

Software Installation Overview

Support for multiple CNCs and types of Protocols from the same PC are supported by Predator CNC Service. For most customers we recommend installing the Predator CNC Service on the same PC as the Predator DNC/x or MDC/x server. Only Protocol where this is different is with Okuma THINC and there the Predator CNC Service must be installed on the supported OSP Controller on a one to one basis.

Open API and database architecture

Predator CNC Service can be integrated to your ERP and MES system with Predator MDC's open APIs (application programming interface). Select from Microsoft Access, Microsoft SQL Server, or Oracle.



System Requirements

- Windows XP, Vista, 7 & 8 and 2003 & 2008 Server
- Intel® Pentium 4 based processor or AMD Athlon or newer CPU
- 100 MB hard disk space
- 1GB or more Ram
- 1024x768 Minimum Graphics Resolution
- USB Port & Serial Ports

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