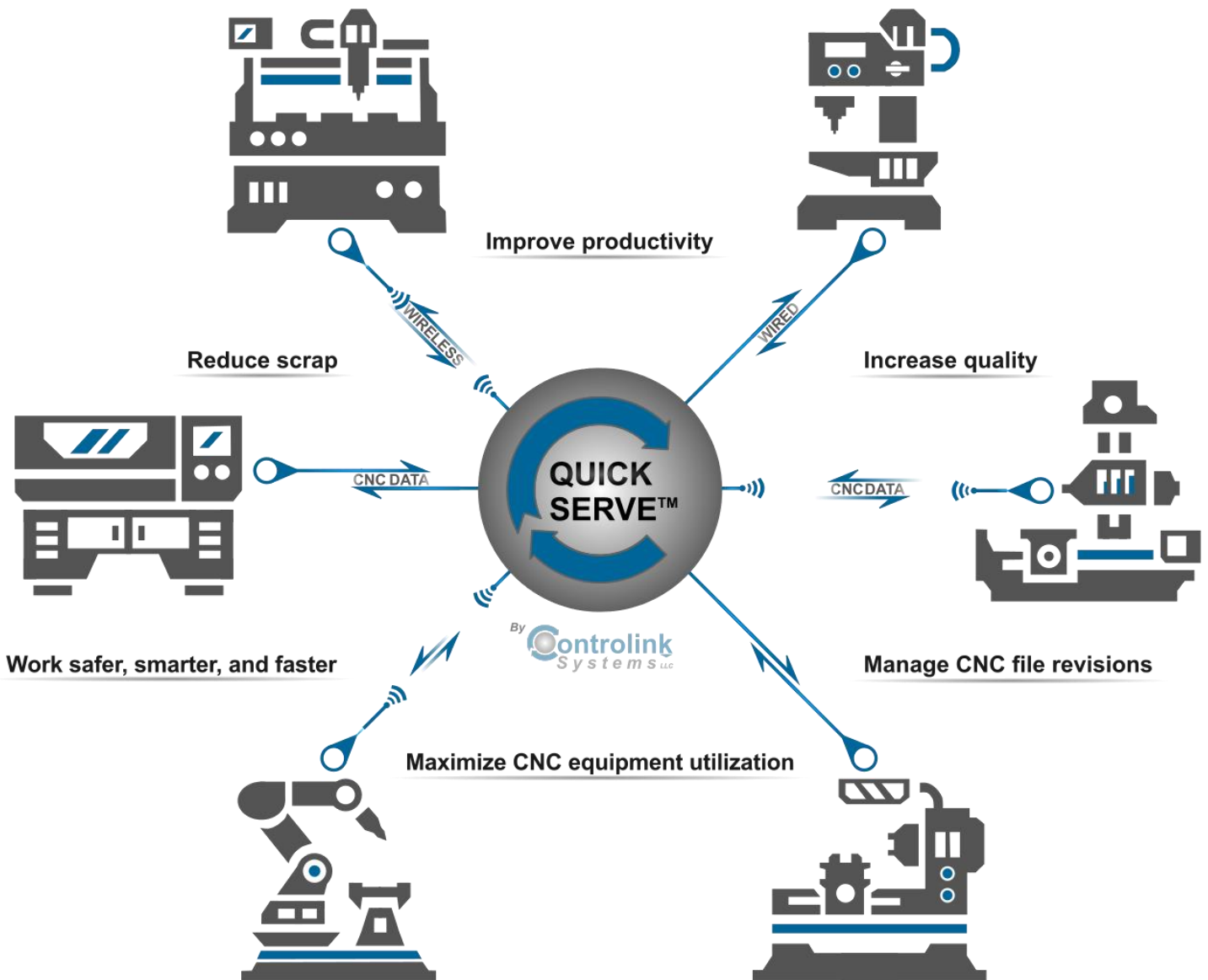


Machine Link™ QUICK Serve

Developed by a company that knows machining...



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1.1 How it Works

To receive a file, open the **CNC Request Program** (O1111) at the machine tool control and enter the desired CNC file name into the **Request Line**.

CNC Request Program

```

%
O1111                               ← Recommended Program Name
(SENDME)                             ← Keyword
(Oxxxx)                               ← Request Line

M30
%
```

Output the edited 'O1111' program from the machine tool control and then prepare the machine tool control to receive the desired CNC file entered into the Request Line '(Oxxxx)'.

After a short, adjustable delay **Machine Link™ QUICK Serve** will serve the requested CNC file back to the machine tool control.

2.1 Configuration Utility

Although the Configuration Table can be edited directly, press [CONFIGURE] to gain access to the Configuration Utility.

The Configuration Utility is used to guide you through the setup parameters necessary for each PORT/CNC Control.

Configuration Utility

Help

Configured CNC Name: FAGOR Scanning Paused

SEND FROM - Folder C:\MLQSERVE\CNCPROGS

SAVE TO - Folder C:\MLQSERVE\CNCPROGS

PORT 4 Active in Scan List

PARAMETERS

baud rate	data bits	parity	stop bits	Protocol	EOL Delay	CHAR Delay
9600	8	no parity	1 bit	XON/XOFF	0	0

ADVANCED

Seconds to WAIT before Sending 25 On Receive: Strip Extra Line Feed

Start of Transmission: None End of Line: CR then LF End of Transmission: None CNC Format: ASCII

ACCEPT DEFAULTS CANCEL

Configured CNC Name: specifies the CNC control name.

SEND FROM – Folder specifies the folder location where CNC files will be pulled from and served to the machine.

SAVE TO – Folder specifies the folder location where received CNC files will be saved.

PORT specifies the *unique* serial communication port.

Active in Scan List specifies if the port will be monitored.

PARAMETERS

(Consult your Manuals, the Control Manufacturer, and/or the Machine Tool Builder to determine appropriate communication settings.)

baud rate specifies the rate of transmission in bits per second. Typical rates are 300, 1200, 2400, 4800, 9600, or faster.

data bits specify the numbers of bits in the incoming data. Typical values are between 5 and 8.

parity specifies the error-checking procedure. Typical value is 'no parity'.

stop bits specifies the number of stop bits. Typical value is 1.

Protocol specifies the communication protocol. Typical serial communication protocol is 'XON/XOFF'.

EOL Delay (End of Line Delay) specifies the number of milliseconds to wait after sending each line of the CNC program. Typical value is 0.

CHAR Delay (Character Delay) specifies the number of milliseconds to wait after sending each character of the CNC program. Typical value is 0.

ADVANCED

Seconds to WAIT before Sending controls the delay interval to wait before the requested file is *served* to the CNC control. This delay gives the operator time to prepare the machine to receive the requested CNC program.

On Receive: Strip Extra Line Feed will force **Machine Link™ QUICK Serve** to wait before sending a CNC file until the machine tool requests the file. *(This is an advanced feature that is designed primarily for DNC sessions and may not be applicable with all machine tool controls.)*

Start of Transmission specifies the character that will be automatically inserted to the beginning (FRONT) of the CNC program during transmission. Use 'None' if the character is already embedded in the CNC program contents.

End of Line specifies the character or character combination that will be automatically appended to the end of each program line prior to sending the file to the CNC machine control. Typical value is 'CR then LF' (Carriage Return then Line Feed).

Auto PREFIX specifies characters to be inserted before the found File Name.

Auto EXTENSION specifies characters to be appended to the end of the found File Name.

Note: this can be used to save operator typing at the CNC control if the CNC programs end with a specific extension.

SEND FROM FOLDER specifies the folder location where CNC files will be pulled from and served to the machine.

2.2.1 AUTO Send Examples

AUTO Send Table Configuration

	SEND COMMAND	Trigger START	Trigger END	Auto PREFIX	Auto EXTENSION	SEND FROM FOLDER
CNC 1	SENDME	[]			C:\CNCPROGS
CNC 2	M74	X	Y		.TPE	C:\YourFolder
CNC 3	SENDPARTNO	()		.NC	C:\CNCMills

AUTO Send Example – CNC 1

```

%
O1111                               ← Recommended Program Name
(SENDME)                             ← Keyword
[O2137.NC]                           ← Request Line

(CONTROLINK SYSTEMS LLC)
(PHONE 812-637-6800)
(ML QUICK SERVE)

M30
%
```

In the example above, after the SEND COMMAND characters 'SENDME' are found, the Trigger START character '[' specifies the start of the File Name, and the Trigger END character ']' specifies the end of the File Name.

Outputting this program from CNC 1 will result in CNC program 'O2137.NC' from 'C:\CNCPROGS' being sent to the CNC control.

AUTO Send Example – CNC 2

```

%
O1111                               ← Recommended Program Name
```

```

(M74) ← Keyword
X02321Y ← Request Line

(CONTROLINK SYSTEMS LLC)
(PHONE 812-637-6800)
(ML QUICK SERVE)

M30
%
```

In example two, 'M74' is the SEND COMMAND. Again, after the SEND COMMAND characters are found, the Trigger START character 'X' specifies the start of the File Name, and the Trigger END character 'Y' specifies the end of the File Name.

CNC 2 has an Auto EXTENSION '.TPE' specified, so outputting this program from CNC 2 will result in CNC program 'O2321.TPE' from 'C:\YourFolder' being sent to the CNC control.

AUTO Send Example – CNC 3 (SPECIAL CASE)

```

%
O1111 ← Recommended Program Name
(SENDPARTNO) ← Keyword
(O6289, PARTNO1) ← Request Line

(CONTROLINK SYSTEMS LLC)
(PHONE 812-637-6800)
(ML QUICK SERVE)

M30
%
```

In this last example, 'SENDPARTNO' (special keyword) is the SEND COMMAND. Like normal, after the SEND COMMAND characters are found, the Trigger START character '(' specifies the start of the File Name, and the Trigger END character ')' specifies the end of the File Name.

CNC 3 has an Auto EXTENSION '.NC' specified, so outputting this program from CNC 3 will result in CNC program 'O6289.NC' being sent to the CNC control; however, with SENDPARTNO as the keyword, the folder location of the CNC program will now be 'C:\CNCMills\PARTNO1'.

Using the 'SENDPARTNO' keyword offers an additional level of flexibility in the CNC program folder structure and is particularly useful for job shops that use the same program number across different part numbers.

2.3.1 AUTO Save Examples

Auto Save Table Configuration

	SAVE COMMAND	Trigger START	Trigger END	Auto PREFIX	Auto EXTENSION	SAVE TO FOLDER
CNC 1	SAVEAS	[]			C:\CNCPROG \RECEIVED
CNC 2	: AND G	S	A		.NC	C:\YourFolder \RECEIVED

AUTO Save Example – CNC 1

```

%
O4005 (DRILLING WITH TORQUE/THRUST)
(SAVEAS)
[O4005EDIT1.NC]

N10 (START)
G20G80G90G40G55
N100 (POSITION AND DRILL)
#127=3.82*#101/#104 (RPM)
#128=#127*#102 (IPM)
M03S#127
  
```

← Keyword
← Trigger Characters

In the example above, after the SAVE COMMAND characters 'SAVEAS' are found, the Trigger START character '[' specifies the start of the File Name, and the Trigger END character ']' specifies the end of the File Name.

Outputting this program from CNC 1 will result in CNC program 'O4005EDIT1.NC' being saved to the folder 'C:\CNCPROGS\RECEIVED'.

AUTO Save Example – CNC 2

```

%
O4005 (DRILLING WITH TORQUE/THRUST)
(: AND G)
(SO4005EDIT2A)

N10 (START)
G20G80G90G40G55
N100 (POSITION AND DRILL)
#127=3.82*#101/#104 (RPM)
#128=#127*#102 (IPM)
M03S#127
  
```

← Keyword
← Trigger Characters

No. of Files to Keep specifies the number of historic files to keep. Additional files are automatically deleted to conserve disc storage space.

3 Requesting a CNC File

CNC Request Program 'O1111' (recommended program name) on each CNC machine should contain the configured SEND COMMAND keyword for that specific machine tool control. As outlined in [Section 2.2.1](#), after the SEND COMMAND keyword is found, the Trigger START and Trigger END characters are used to find the desired CNC file to serve. Between the Trigger START and Trigger END characters is called the **Request Line**. The Request Line is the **only** line that needs to be altered by the user to request a specific CNC file.

CNC Request Program O1111

```
%  
O1111                ← Recommended Program Name  
(SENDME)            ← Keyword  
(OXXXX)             ← Request Line  
  
(CONTROLINK SYSTEMS LLC)  
(PHONE 812-637-6800)  
(ML QUICK SERVE)  
  
M30  
%
```

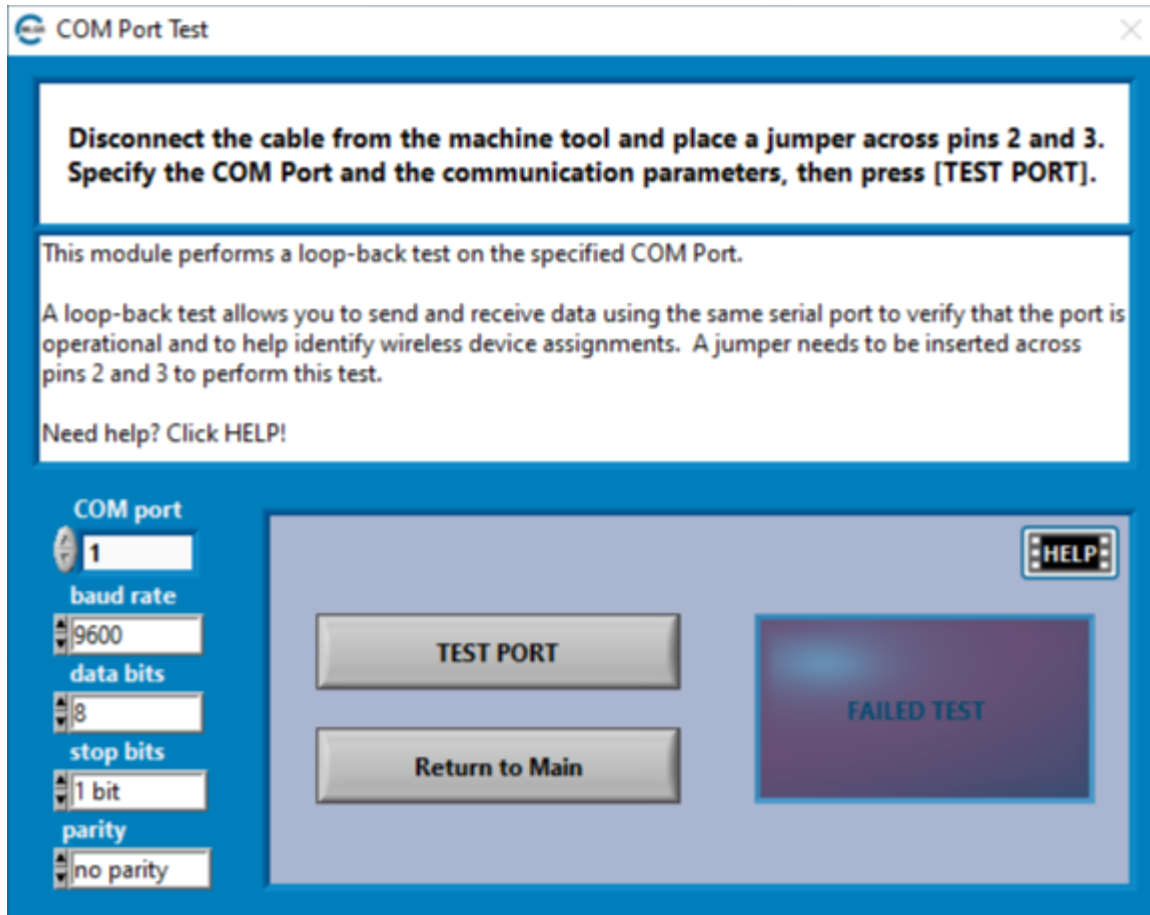
3.1 Steps to Receive a CNC File

- 1) At the machine tool control, open the 'O1111' CNC Request Program.
- 2) Enter the desired CNC file name into the Request Line.
- 3) Output the 'O1111' program from the machine tool control.
- 4) Prepare the machine tool control to receive the desired CNC file.
- 5) Wait the **Seconds to WAIT before Sending** specified for the machine tool control.
- 6) Receive the CNC file.

4 COM Port/Cable Test

The “COM Port Test” is used to validate wireless and wired COM Port assignments and troubleshoot COM Port/Cable problems. It is accessed through the top menu bar by clicking [Operate > COM Port/Cable Test].

The utility is incredibly useful for validating all COM Port assignments.



COM port specifies the communication port to troubleshoot.

TEST PORT initiates the COM Port/Cable Test.

4.1 Performing a COM Port/Cable Test

Select the COM port to test and then disconnect the cable from the selected machine. Once disconnected, insert a jumper across pins 2_(TX) and 3_(RX). Press [TEST PORT]

4.2 Interpreting the COM Port/Cable Test Results

PASS

- 1) Validates the wire and that all connections are unbroken.
- 2) Validates that the correct COM port was selected and that it is working properly.
- 3) Validates that the selected COM port is compatible with the specified communication parameters.

FAIL

- 1) A wire is loose and/or a connection is broken.
- 2) The incorrect COM port was selected.
- 3) The selected COM port is not compatible with the specified communication parameters.

5 Scan Log

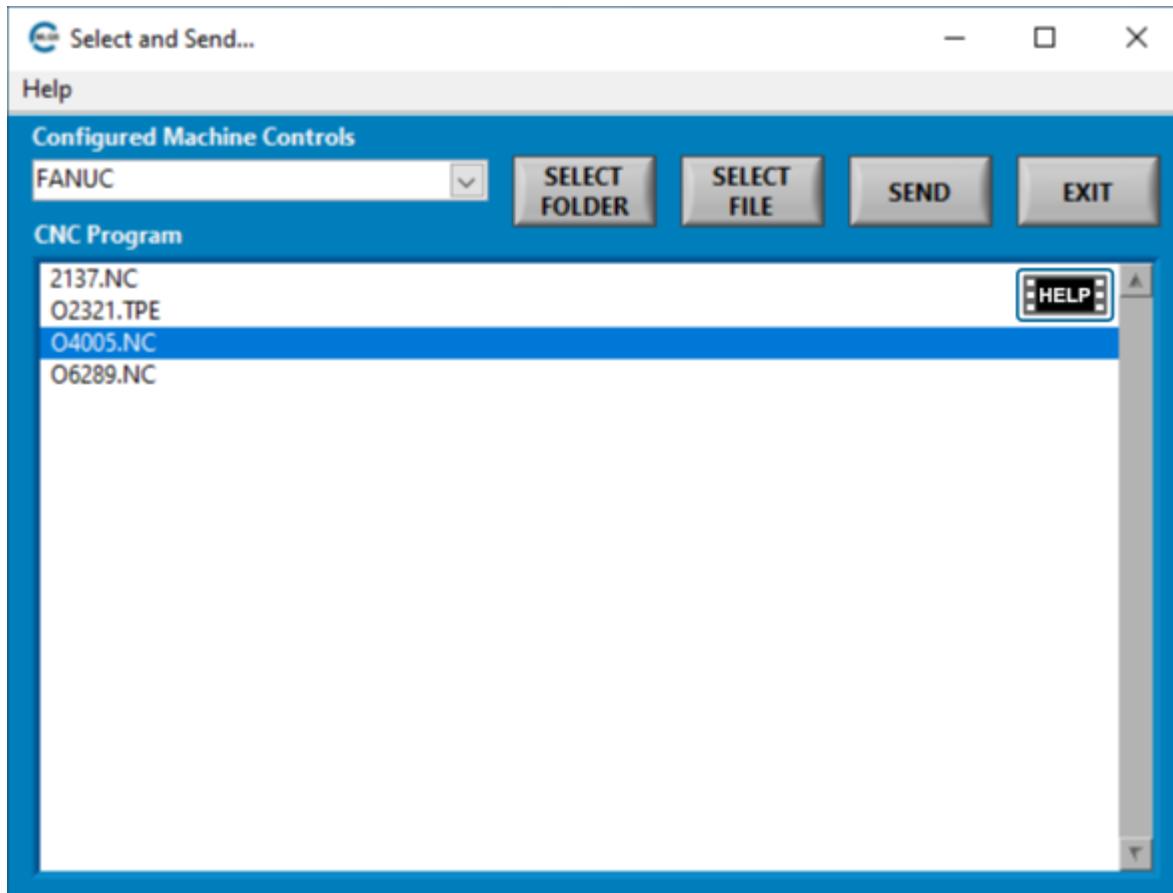
The Scan LOG shows when the program was started and stopped, along with all service activities for each active machine. It is accessed through the top menu bar by clicking [Operate > View Scan Log].

File names and folder path details are provided for a thorough review of any errors or issues. Inaccurate requests initiated from the shop floor can also be investigated when necessary.

CNC Name	Date/Time	Operation	Status
FANUC	2/23/2021, 3:43:38 PM	RECEIVE	C:\MLQSERVE\CNCPROGS\RECEIVED\O62
Shizuoka	2/23/2021, 2:21:03 PM	AUTO SERVE	C:\MACHLINK_Mills\Shizuoka\O4006.NC
FAGOR	2/23/2021, 1:08:54 PM	AUTO SERVE	C:\MLQSERVE\CNCPROGS\O6115.NC
Brothers 22A	2/23/2021, 1:07:33 PM	AUTO RECEIVE	C:\MACHLINK_Mills\004\O2321EDIT.NC
FAGOR	2/23/2021, 1:05:13 PM	ERROR	<Not A Path>
GRINDER	2/23/2021, 12:38:06 AM	AUTO RECEIVE	C:\MLQSERVE\CNCPROGS\O2321EDIT.TPE
GRINDER	2/23/2021, 11:23:32 AM	SEND	C:\MLQSERVE\CNCPROGS\O2321.TPE
FANUC	2/23/2021, 10:54:17 AM	AUTO SERVE	C:\MLQSERVE\CNCPROGS\PARTNO1\O628
Shizuoka	2/23/2021, 10:16:28 AM	AUTO RECEIVE	C:\MACHLINK_Mills\Shizuoka\O4005EDIT
Shizuoka	2/23/2021, 7:42:54 AM	AUTO SERVE	C:\MACHLINK_Mills\Shizuoka\O4005.NC
Shizuoka	2/23/2021, 7:39:02 AM	ERROR	<Not A Path>
Brothers 22A	2/23/2021, 7:04:48 AM	AUTO SERVE	C:\MACHLINK_Mills\004\O2321.NC
FANUC	2/23/2021, 6:31:07 AM	AUTO SERVE	C:\MLQSERVE\CNCPROGS\O2137.NC
FANUC	2/23/2021, 6:22:19 AM	RECEIVE	C:\MLQSERVE\CNCPROGS\RECEIVED\O40
Controlink Systems	2/23/2021, 6:00:00 AM	PROGRAM START	Scanning...

6 Manually Select and Send

The “Select and Send” utility is used to manually send CNC files to the selected machine tool control. It is accessed through the top menu bar by clicking [File > Send to CNC].



Configured Machine Controls specifies the machine tool control to manually send a CNC file to.

SELECT FOLDER browses to a specific folder location. The desired CNC file can then be selected from the CNC Program list.

SELECT FILE browses to a specific CNC program location.

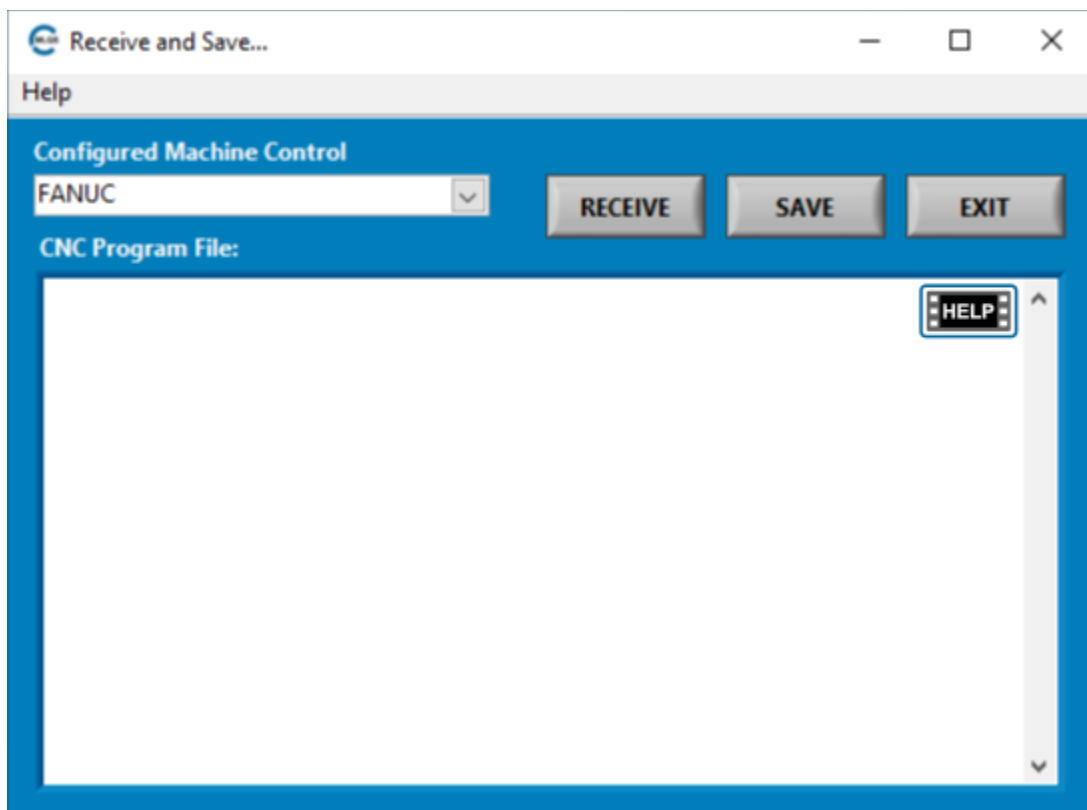
SEND outputs the selected CNC program to the selected machine tool control.

EXIT returns to the main monitor.

7 Manually Receive and Save

The “Receive and Save” utility is used to manually receive CNC files from the selected machine tool control. It is accessed through the top menu bar by clicking [File > Receive from CNC].

The “Receive and Save” utility is a useful tool for troubleshooting CNC file request issues. Using it allows you to capture outputted files from the machine tool control for review.



Configured Machine Controls specifies the machine tool control to manually receive a CNC file from.

RECEIVE launches a communication session to receive a CNC file from the selected machine tool control.

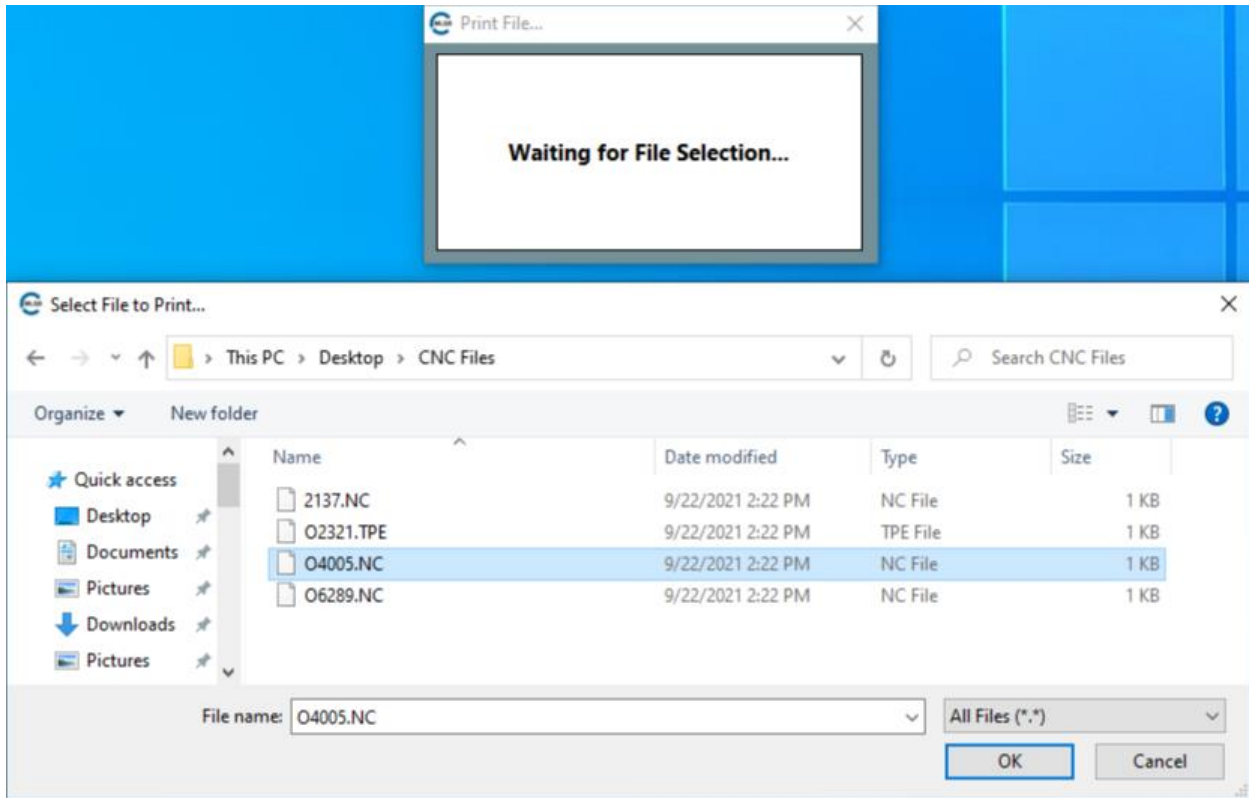
SAVE performs a Save As for the received CNC file.

EXIT returns to the main monitor.

8 Print CNC File

The “Print CNC File” utility is used to manually print the selected CNC file. It is accessed through the top menu bar by clicking [File > Print CNC File].

Printing a CNC file using the “Print CNC File” utility documents the CNC file name, folder location, and CNC file contents and is a useful hardcopy for review and archive purposes.



9 Optional Features

9.1 AUTO Send via Email/Text MSG (ADR BTRs Support)

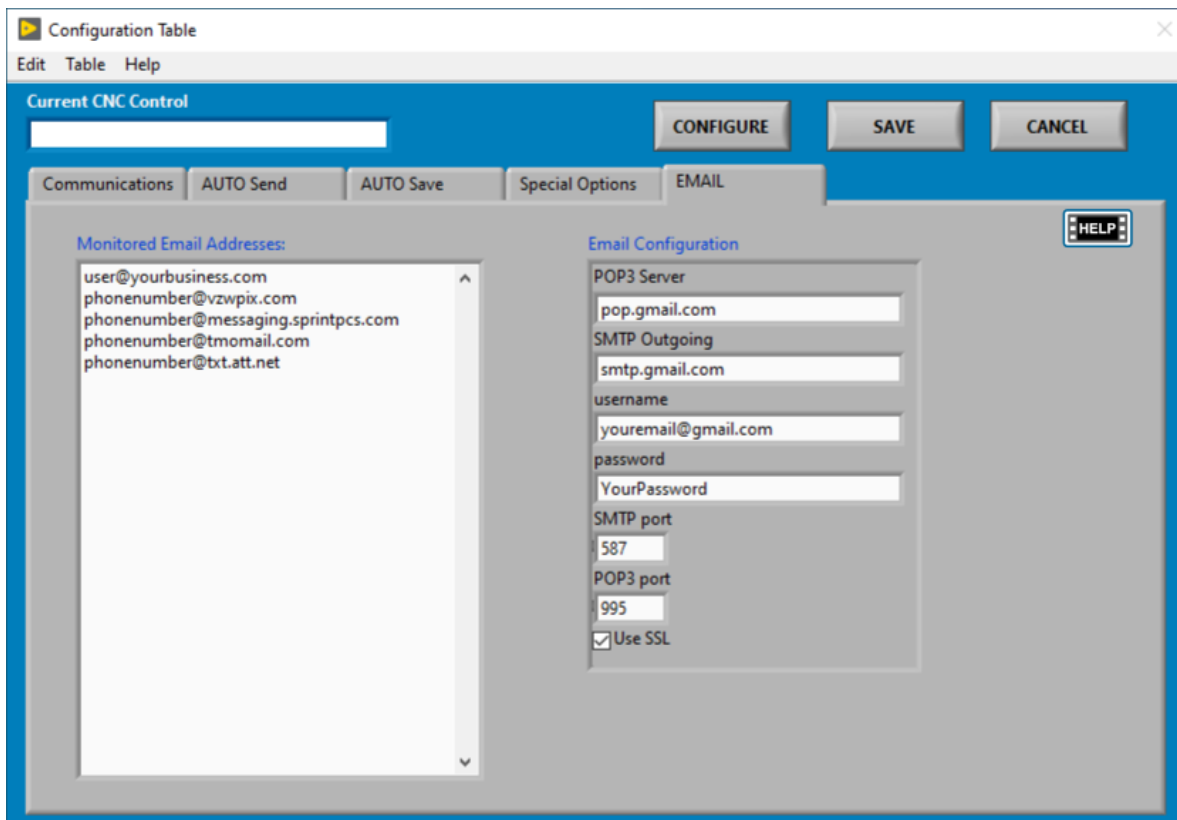
Machine Link™ QUICK Serve with **Email/Text MSG support** allows CNC file requests to be emailed or sent via text message, and then *quickly served* to the specified CNC machine tool control. A message will be returned to the sender after the file request has been served.

Email/Text MSG support is the ideal solution for ADR BTRs that communicate in one direction (to the control). This feature replaces the need for terminal hardware used for machines that cannot output CNC file requests.

9.1.1 EMAIL Configuration

The “EMAIL” section is used to configure email account settings and assign the email accounts and cell phone numbers to monitor for CNC file requests.

An email account is required for Email Support, and it is recommended that the account be dedicated for **Machine Link™ QUICK Serve**. (A Gmail account is recommended).



Monitored Email Addresses specifies the email accounts and cell phone numbers to monitor for CNC file requests. Messages from recipients not on this list will be ignored.

Email Address Format

user@yourbusiness.com

Cell Phone Number Format

Verizon Wireless	phonenumber@vzwpx.com
Sprint	phonenumber@messaging.sprintpcs.com
T-Mobile	phonenumber@tmomail.com
AT&T	phonenumber@txt.att.net
Other	phonenumber@custom

POP3 Server is monitored for incoming emails. Typical value for Gmail account is 'pop.gmail.com'.

SMTP Outgoing manages outgoing emails. Typical value for Gmail account is 'smtp.gmail.com'.

username specifies the email address for **Machine Link™ QUICK Serve** to monitor for CNC file requests.

password specifies the password to log in to the email account.

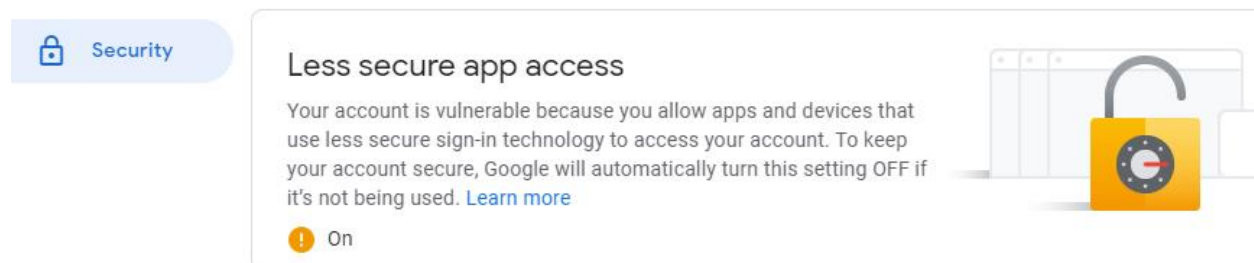
SMTP port specifies the SMTP port. Typical value for Gmail account is '587'.

POP3 port specifies the POP3 port. Typical value for Gmail account is '995'.

Use SSL specifies if the Secure Sockets Layer (SSL) will be used to establish an encrypted link between a mail server and a mail client. Typical value is 'True'.

9.1.2 Gmail Account Security Settings

After creating a dedicated Gmail account for **Machine Link™ QUICK Serve**, it is required to modify the [Security] setting to allow “Less secure app access” (turn it ON).



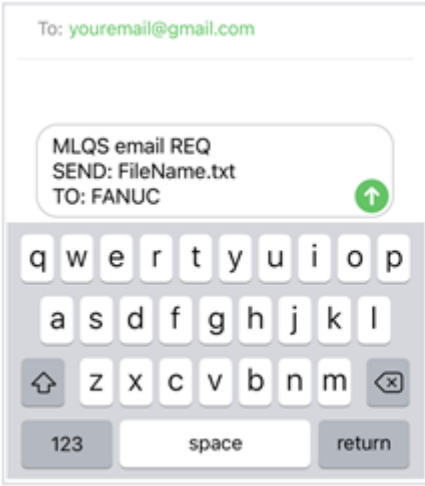
9.1.3 AUTO Send via Email/Text MSG Example

AUTO Send via Email Example

Send	From	<u>user@yourbusiness.com</u>	← Monitored Email Address
	To	<u>youremail@gmail.com</u>	← Machine Link™ QUICK Serve Gmail Account
	Cc		
Subject		MLQS email REQ	← Subject Line
SEND: FileName.txt			← Request Line
TO: FANUC			← Machine Name

AUTO Send via Text MSG Example

To: youremail@gmail.com	← Machine Link™ QUICK Serve Gmail Account
MLQS email REQ	← Subject Line
SEND: FileName.txt	← Request Line
TO: FANUC	← Machine Name



In the examples above, the 'Subject Line' specifies that it is an Email request, the 'Request Line' specifies which CNC file to send, and the 'Machine Name' specifies which active CNC control to send the requested file to.

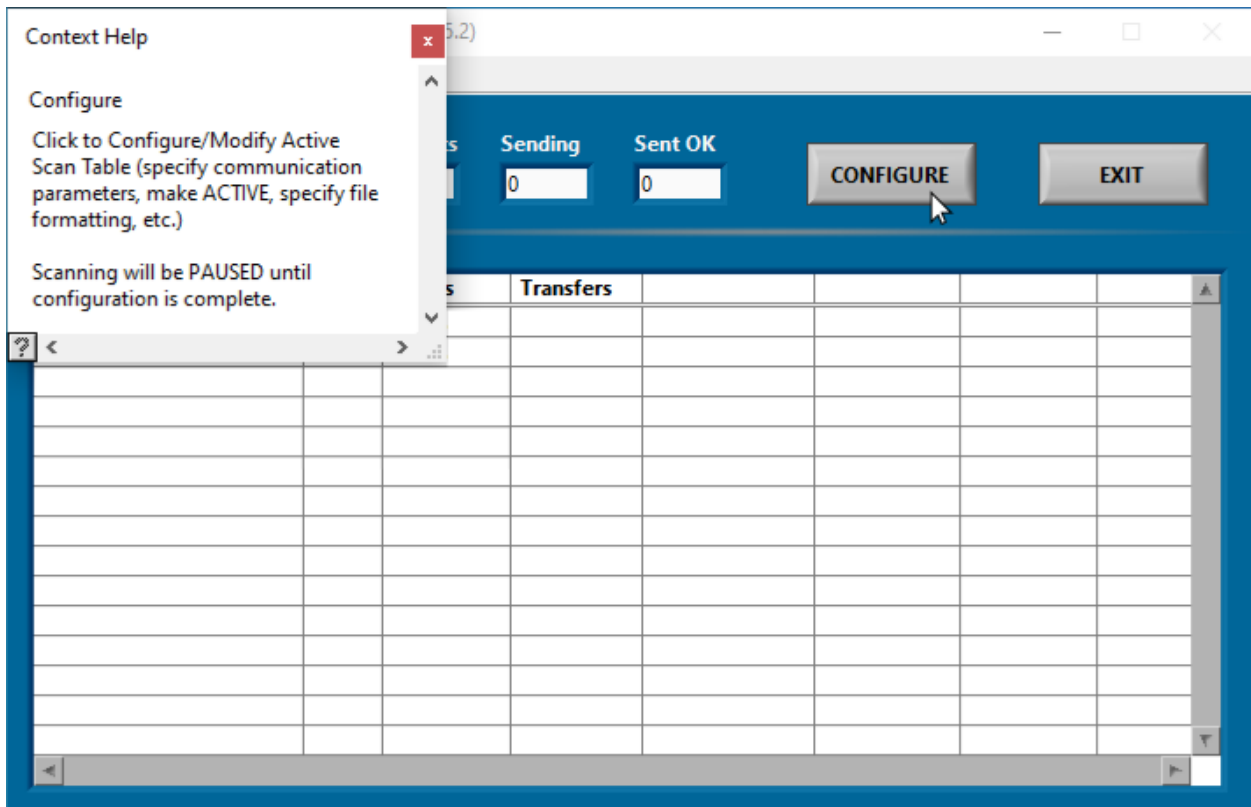
Note: the sender of the message must be on the Monitored Email Addresses list.

After preparing the machine tool control to receive the desired CNC file, sending this request to the dedicated email account will result in CNC program 'FileName.txt' being served back to the 'FANUC' control, and a message indicating the status of the request will be returned to the sender after the file request has been processed.

10 Help

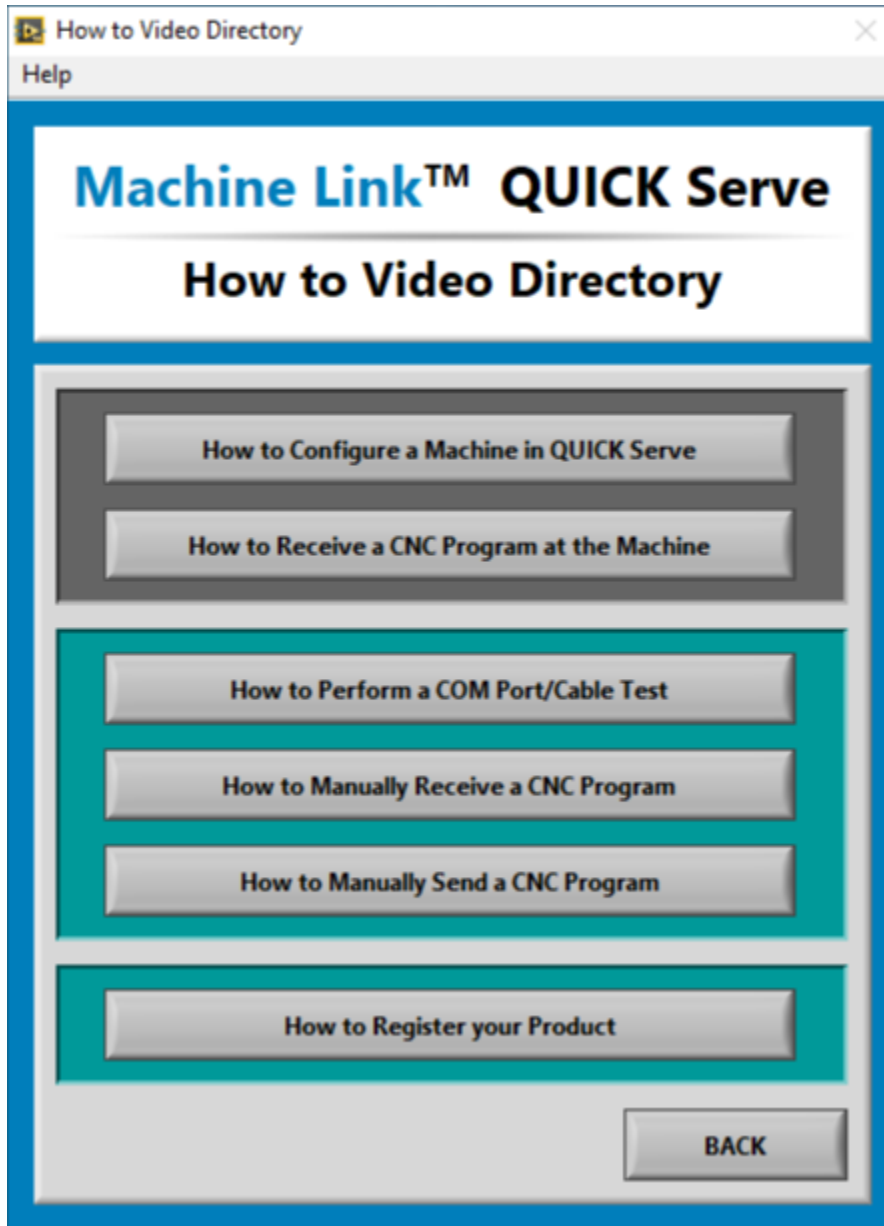
10.1 Context Help

Context Help provides helpful hints, useful details, and explanations. It is accessed through the top menu bar by clicking [Help > Show Help]. Once active, simply hover the mouse cursor over any item to view its details.



10.2 How to Videos

The How to Video Directory provides helpful videos for learning how to configure machines in **Machine Link™ QUICK Serve**, receive CNC programs, register your product, and more! It is accessed through the top menu bar by clicking [Help > How To Videos].



10.3 Help About

Help About provides version and contact information necessary to connect with Controlink Systems LLC for support. It is accessed through the top menu bar by clicking [Help > About].



11 MOXA Wireless Hardware LED Indicators

Top Panel LED Indicators

Name	Color	Function
Ready	Red	Steady on: Power is on, and the NPort is booting up. Blinking: An IP conflict exists, or the DHCP/ BOOTP server did not respond properly.
	Green	Steady on: The NPort is functioning normally. Blinking: The unit is responding to Locate function.
	Off	Power is off, or a power error condition exists.
WLAN	Green	Steady on: Wireless enabled Blinking: The NPort can't establish WLAN connection with AP (Infrastructure) or station (Ad-Hoc)
	Off	Wireless not enabled.
Port 1	Orange	Serial port is receiving data.
	Green	Serial port is transmitting data.
	Off	No data is flowing to or from the serial port.
Signal Strength (5 LEDS)	Red	1 Red - the signal strength (RSSI) is worse than -88 dBm 2 Red - the signal strength (RSSI) is between -87 to -79 dBm
	Green	3 Green - the signal strength (RSSI) is between -78 to -68 dBm 4 Green - the signal strength (RSSI) is between -67 to -60 dBm 5 Green - the signal strength (RSSI) is between -59 to -45 dBm