

Woodward VxWorks[®]
Real Time Operating System (RTOS)
AtlasPC[™] ServLink/OPC Conversion

FROM: 8273-2xx
TO: 8273-4xx



General Precautions

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment.

Practice all plant and safety instructions and precautions.

Failure to follow instructions can cause personal injury and/or property damage.



Revisions

This publication may have been revised or updated since this copy was produced. To verify that you have the latest revision, check manual **26311**, *Revision Status & Distribution Restrictions of Woodward Technical Publications*, on the *publications page* of the Woodward website:

www.woodward.com/publications

The latest version of most publications is available on the *publications page*. If your publication is not there, please contact your customer service representative to get the latest copy.



Proper Use

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.



Translated Publications

If the cover of this publication states "Translation of the Original Instructions" please note:

The original source of this publication may have been updated since this translation was made. Be sure to check manual **26311**, *Revision Status & Distribution Restrictions of Woodward Technical Publications*, to verify whether this translation is up to date. Out-of-date translations are marked with . Always compare with the original for technical specifications and for proper and safe installation and operation procedures.

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Warnings and Notices

Important Definitions



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

- **DANGER**—Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING**—Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION**—Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE**—Indicates a hazard that could result in property damage only (including damage to the control).
- **IMPORTANT**—Designates an operating tip or maintenance suggestion.

WARNING

Overspeed / Overtemperature / Overpressure

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.

WARNING

Personal Protective Equipment

The products described in this publication may present risks that could lead to personal injury, loss of life, or property damage. Always wear the appropriate personal protective equipment (PPE) for the job at hand. Equipment that should be considered includes but is not limited to:

- Eye Protection
- Hearing Protection
- Hard Hat
- Gloves
- Safety Boots
- Respirator

Always read the proper Material Safety Data Sheet (MSDS) for any working fluid(s) and comply with recommended safety equipment.

WARNING

Start-up

Be prepared to make an emergency shutdown when starting the engine, turbine, or other type of prime mover, to protect against runaway or overspeed with possible personal injury, loss of life, or property damage.

WARNING

Automotive Applications

On- and off-highway Mobile Applications: Unless Woodward's control functions as the supervisory control, customer should install a system totally independent of the prime mover control system that monitors for supervisory control of engine (and takes appropriate action if supervisory control is lost) to protect against loss of engine control with possible personal injury, loss of life, or property damage.

NOTICE**Battery Charging
Device**

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.

Electrostatic Discharge Awareness

NOTICE**Electrostatic
Precautions**

Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts:

- Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control).
- Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards.
- Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual **82715**, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

Follow these precautions when working with or near the control.

1. Avoid the build-up of static electricity on your body by not wearing clothing made of synthetic materials. Wear cotton or cotton-blend materials as much as possible because these do not store static electric charges as much as synthetics.
2. Do not remove the printed circuit board (PCB) from the control cabinet unless absolutely necessary. If you must remove the PCB from the control cabinet, follow these precautions:
 - Do not touch any part of the PCB except the edges.
 - Do not touch the electrical conductors, the connectors, or the components with conductive devices or with your hands.
 - When replacing a PCB, keep the new PCB in the plastic antistatic protective bag it comes in until you are ready to install it. Immediately after removing the old PCB from the control cabinet, place it in the antistatic protective bag.

VxWorks® RTOS AtlasPC™ ServLink/OPC Conversion

AtlasPC™ CPU Application Software Upgrade Instructions

This document explains the steps required to implement the change suggested in the AtlasPC™ VxWorks®—ServLink Communications Robustness service bulletin 01308.

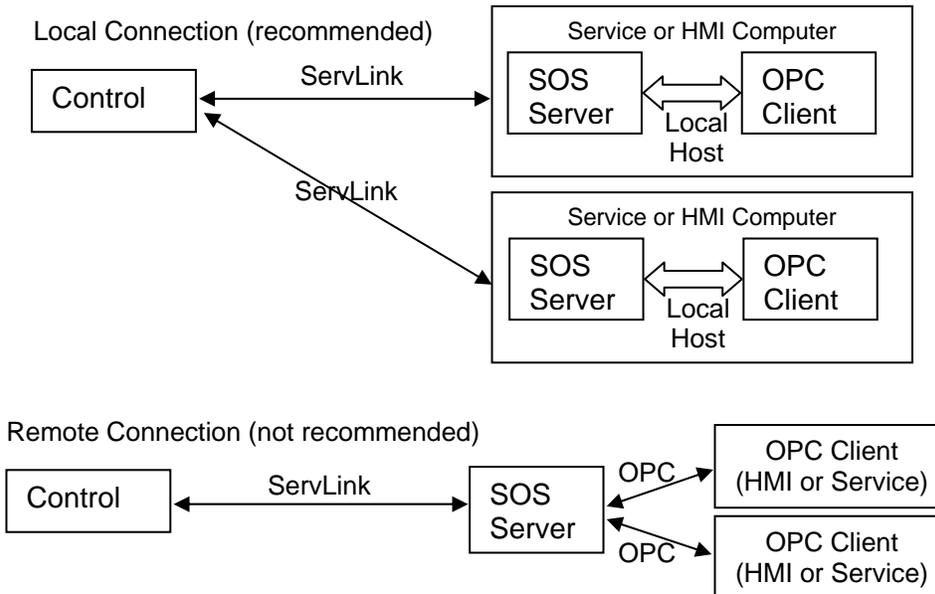
IMPORTANT

All file paths and Start Program Folder paths specified in this document assume that default options have been chosen during program installation. If non-default locations were selected, these variations must be factored in while using the path information of this document. It is strongly recommended to use the default installation locations for all programs.

1. Install Microsoft's ".NET Framework" on each service PC*. The .NET Framework is required by some of Woodward's service tools.
 - If the service PC does not already have the .NET Framework, run the install program "setup_ms_net.exe" from the field upgrade CD

IMPORTANT

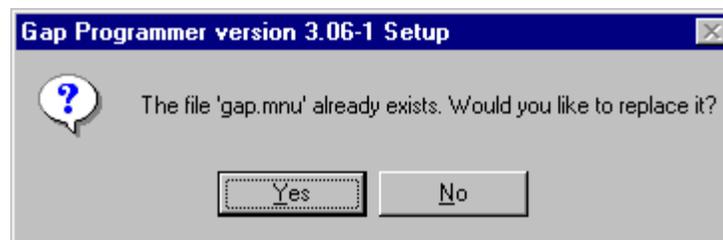
* Although it is possible to establish remote connection to the OPC ServLink server, Woodward does not recommend remote configurations. Instead, Woodward recommends running the ServLink OPC server locally on each node that accesses data on the control.



2. On each service PC, run the install program "Setup.exe" from the field upgrade CD (1796-1055New). This will install the following Woodward programs on the service PC:
 - VxWorks AtlasPC Field Conversion (8928-1076New)
 - Coder306-1 (9927-1278New)
 - GAP216..... (9927-790D)
 - Watch Window II 2.5 (9927-427G)
 - AppManager 2.4..... (9927-785D)
 - ServLink DDE Server 1.58.5 (9926-380)
 - SOS ServLink OPC Server 1.0 (9927-1223New)

Installation Notes:

The following prompt will be displayed while running the GAP216 installation program.



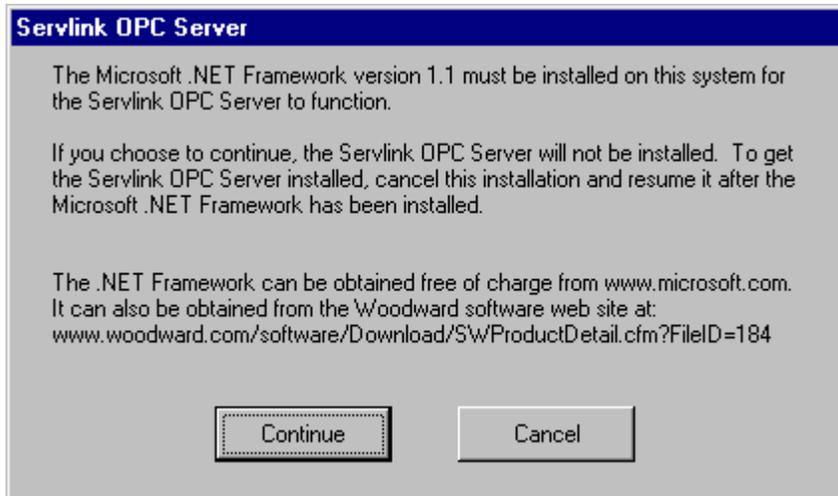
Answering YES will cause the existing .mnu file to be overwritten. This will cause the GAP program to revert to the default RUN menu. If the user has configured the RUN menu then select NO.



Answering YES will associate the .GAP file extension with GAP 2.16 (double clicking a .gap file will cause GAP2.16 to be used to open the file) To keep .GAP associated with a previous version of GAP select No.

When prompted to restart the computer, Select YES to reboot.

Possible Errors:



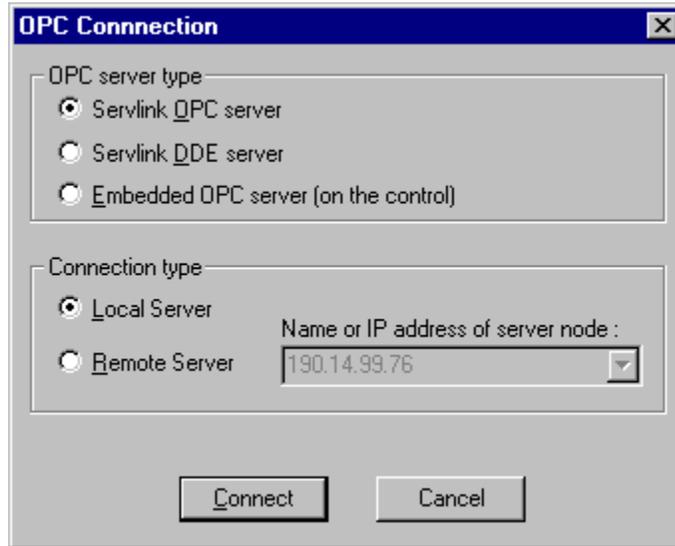
If Microsoft .NET is not installed the above error message will be displayed. Cancel the installation at this point, Install Microsoft .NET (run the install program "setup_ms_net.exe" from the field upgrade CD) and then restart the installation process.

3. Coding the existing application for the 3.06-1 coder:
 - a. If Woodward has not provided a new application file, re-code the existing application.
 1. To re-code the existing application, refer to section, "Converting Existing Application to Coder 3.06-1".
 2. When the existing application has been converted continue with 3-b.
 - b. Using GAP216, load your GAP application. GAP216 will be located under Start/Programs/Woodward/GAP or a shortcut to GAP216 can be created by following the steps outlined in the section titled, "Creating a shortcut to GAP2.16".
 - c. Run the completeness check (File/Completeness Check). This will produce a file with the ".cdr" extension.
 - d. From the "Run" menu, select "Code for Control" to execute coder306 on the current ".cdr" file. This will produce a file with the ".out" extension. If this step does not successfully run the Coder to compile the application into a ".out" file, create a shortcut to Coder3.06 by following the steps outlined in the section titled "Creating a shortcut to Coder 3.06".
4. Update the footprint on the control:
 - a. Run the program AppManager 2.4. It will be located under Start/Programs/Woodward/AppManager.
 - b. Using AppManager, ensure that the application running on the control is stopped (if necessary, select the application and then select "Control/Stop Application").
 - c. Select the menu option "Control/Install Service Pack" and select the file named "ServicePack5418-2073New.exe" from the field upgrade CD. This will cause the control to reboot.

5. Transfer the new application to the control and start it:
 - a. After the control has rebooted, use AppManager to transfer the “.out” file created in step 3c to the control. You may use the “Control/Transfer Application Files” menu command of AppManager to do this.
 - b. Select the new “.out” file in the application names window of AppManager and issue the “Control/Start Application” command.
6. Verify the following items. If any of the version numbers are incorrect, verify that the newly installed program is being used. All of the programs are available for download at www.woodward.com:
 - a. If you have already installed licenses for Monitor GAP or Watch Window II and have installed these applications to the same directories, the licenses will still be valid. Verify that these products have the correct level of licensing.
 - b. The version in the About window of the GAP program is 2.16.
 - c. The version in the About window of the AppManager program is 2.4.1.1.
 - d. The version in the About window of the Watch Window II program is 2.5.0.13.
 - e. There is an entry called “SOS ServLink OPC Server in your Program Files path (“Start/Programs/Woodward/SOS ServLink OPC Server”).
 - f. Using AppManager, select the control and then select “Control/Control Information” and verify that the Footprint part number is “5418-2073” and the Footprint revision and AMService versions are “New”.
7. To use OPC-based tools (including Monitor GAP and Watch Window II) to communicate with the control, it will be necessary to configure the SOS ServLink OPC Server. Please consult the topic “Running the SOS ServLink OPC Server” below.
8. For each control that is being upgraded, write the old and new part numbers of the control on one of the enclosed labels and stick it on an open surface of the control chassis.
9. Complete the “Atlas PC CPU Application/Software Upgrade Verification” form at the end of this manual and return to Woodward.

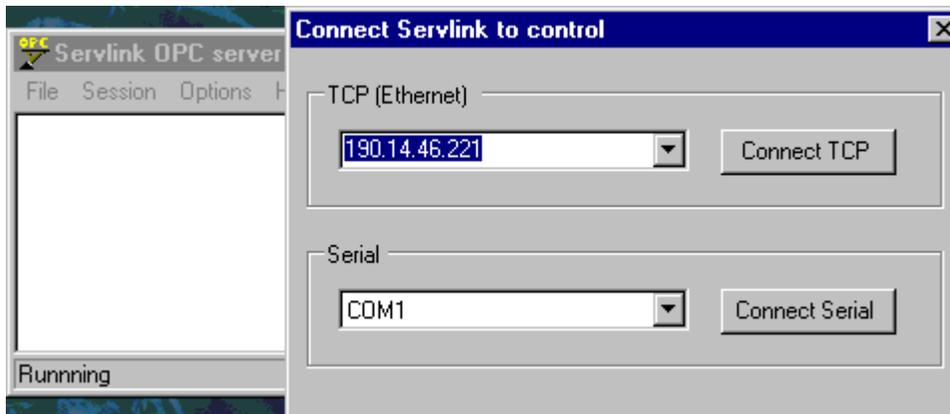
Running the SOS ServLink OPC Server

When a service tool like Monitor GAP or Watch Window II attempts to make an OPC connection, it presents the dialog below:



Selecting the options “ServLink OPC server” and “Local Server”, as above, will cause the OPC ServLink server to run. If it was already running from a previous use, it will use that instance.

If this is the first time the ServLink OPC Server has run on the client machine, the following interface will be presented:



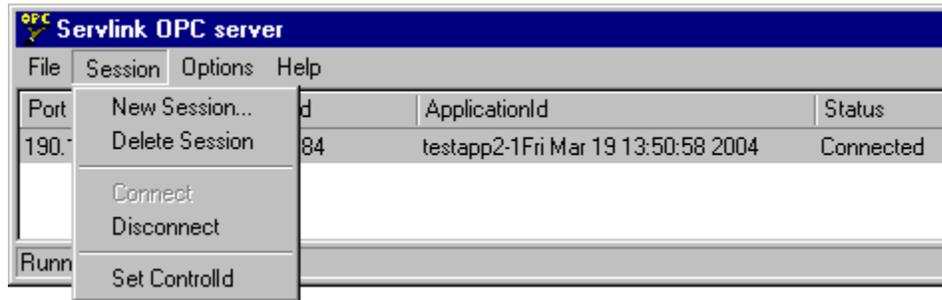
To connect to the control using TCP (Ethernet), it is necessary to type in or select the IP Address of the target control(s). To connect Serial, select the appropriate available port descriptor (for example, “COM1”).

After the control has connected, the ServLink OPC server window can be closed or minimized. It will go to the system tray (at the lower-right of PC monitor) where it looks like this:



The next time the SOS ServLink OPC server runs, it will attempt to resume connections to the same controls as in the previous session.

To modify the connections or operating parameters of the SOS ServLink OPC Server, double-click on the icon in the system tray at any time. To add or remove connections, select from the Session menu:



The “New Session” command will result in a dialog (as above) that allows you to select a new TCP or Serial connection.

The sessions that are running on the SOS ServLink OPC Server determine which controls’ values that OPC clients (like Watch Window II and Monitor GAP) will have access to.

How to Use the SOS ServLink OPC Server with non-Woodward OPC Client Tools

Due to the variations in the configuration of third party OPC client drivers, it is not possible to document all the specific steps to connecting to the SOS ServLink OPC Server. The following information is intended to be a generalized guide to configuring the HMI driver.

The HMI OPC client driver must be configured to connect to LOCAL HOST. The OPC server must be running on the local HMI computer.

The client tool should have an interface for selecting an installed OPC server. The name of the Woodward ServLink OPC Server is:

“Woodward.ServLink.OpcDa.1”

The HMI tool can launch Woodward’s ServLink OPC Server, or it can be launched manually by running the file “SOS.exe” from the install directory (“C:\Program Files\Woodward\SOS ServLink OPC Server”). Connections can be managed as in the above example (“Running the SOS ServLink OPC Server”).

The client tool should also have an interface for selecting values. The ServLink OPC values in GAP adhere to the following naming pattern:

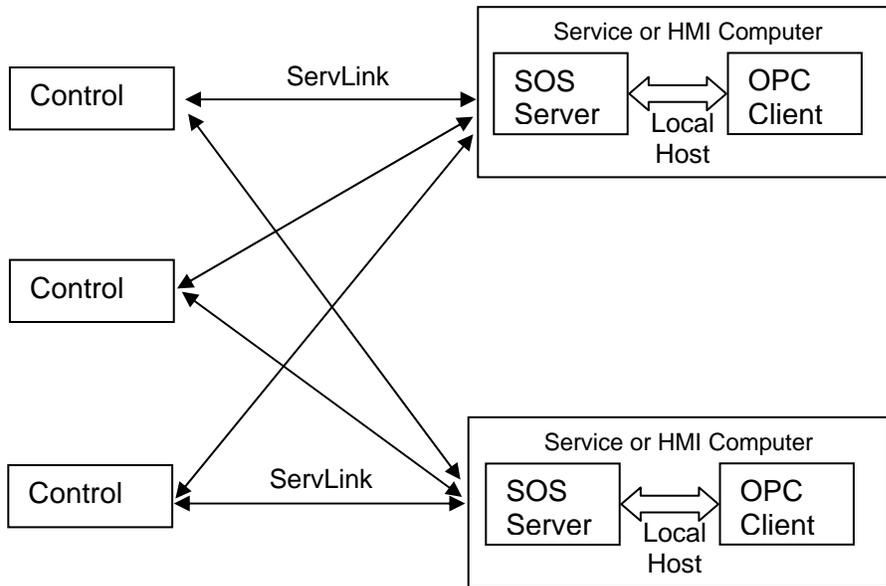
“<Control ID>.<GAP tag name>”

For example:

“VXA11184.EMDRP_RMP.IN_RAMP.RAMP”

If you previously had a Woodward control with an embedded OPC server connected to an OPC-based HMI, you will have to update the OPC server name and tags to match these conventions.

Recommended HMI Networking



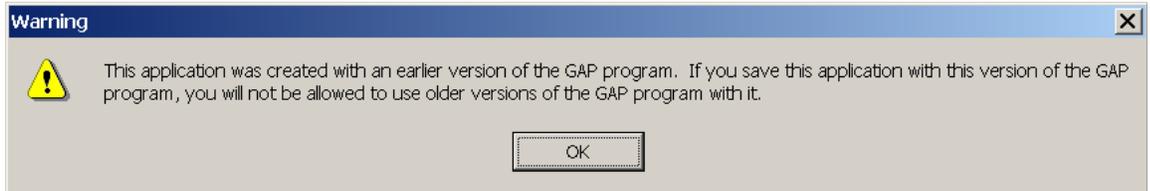
IMPORTANT

More information is available in the SOS ServLink OPC Server help documentation ("Start/Programs/Woodward/SOS ServLink OPC Server/ServLink OPC Server Help").

Appendix. Converting Existing Application to Coder Version 3.06-1

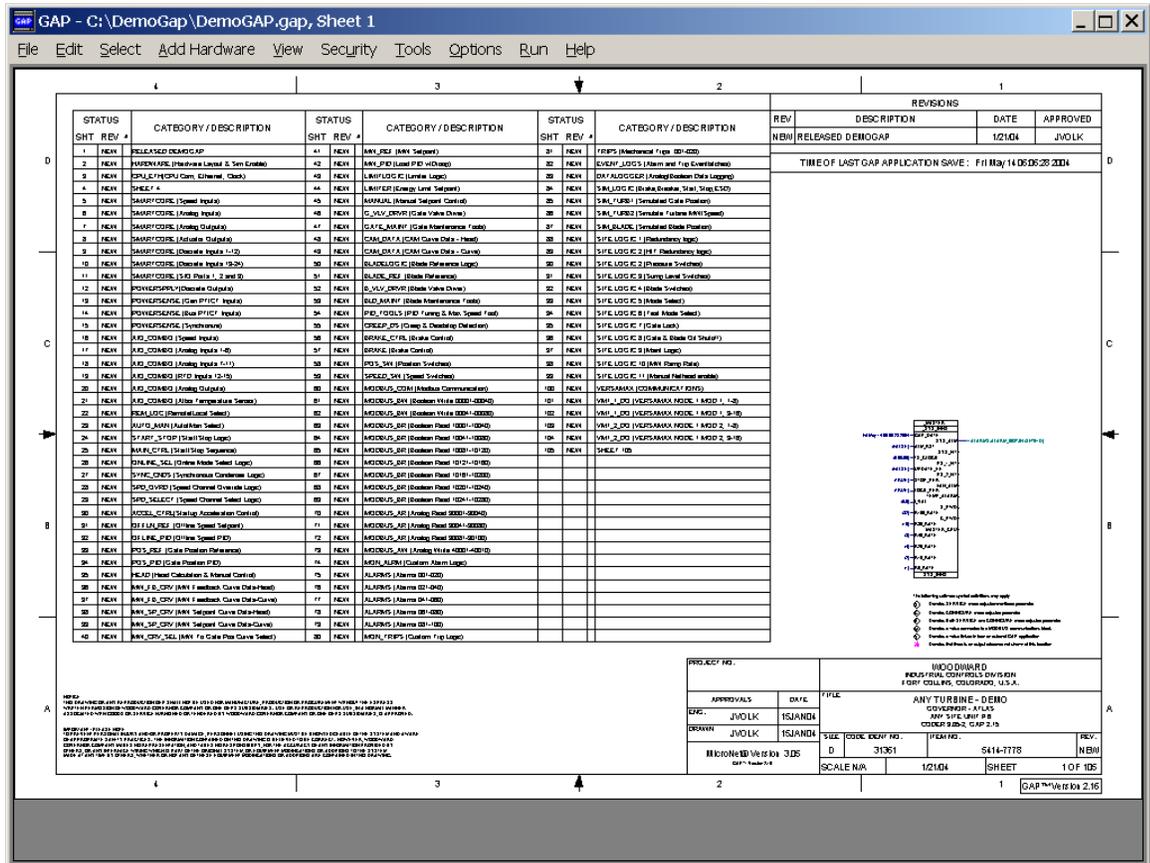
Create Export File of All Sheets in Existing Application File

- Open Existing GAP file with GAP2.16.**
Because the GAP application was created with a previous version of GAP, the following error box will appear.

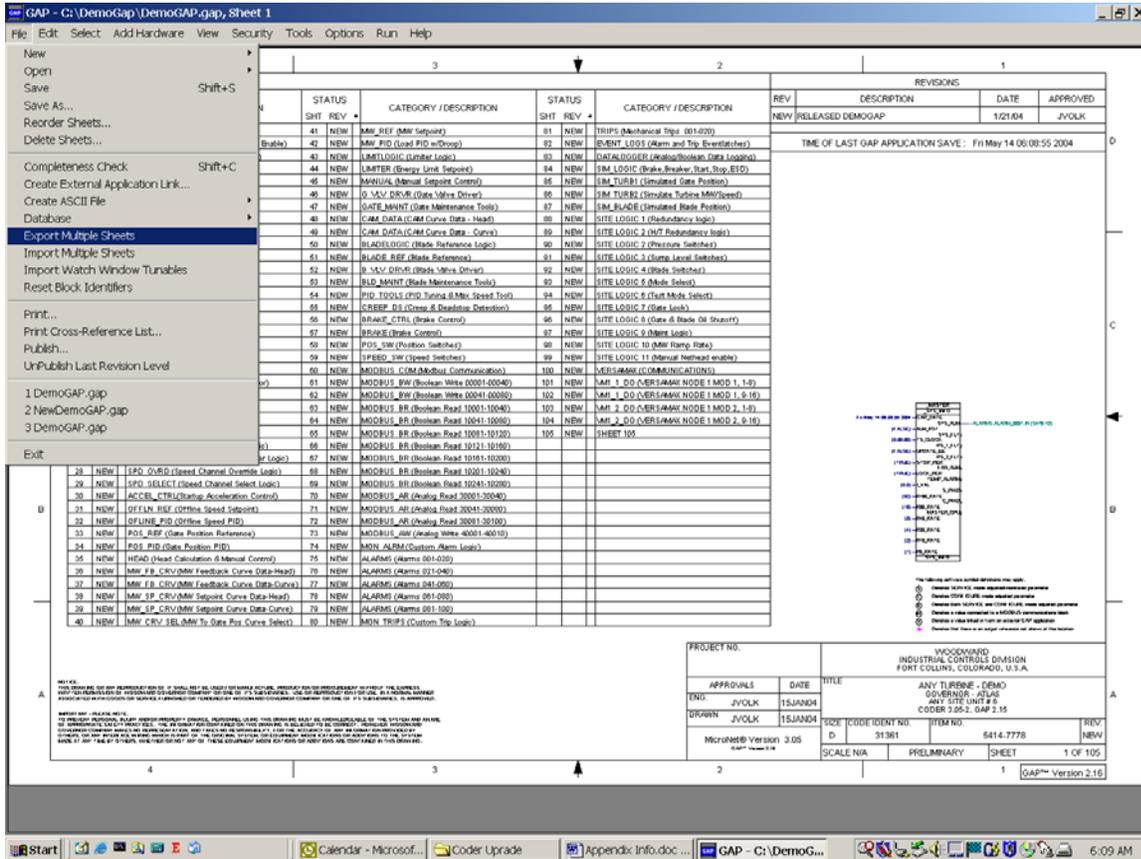


Check OK. Once the application has been saved in GAP 2.16, the application will not open with previous versions of GAP.

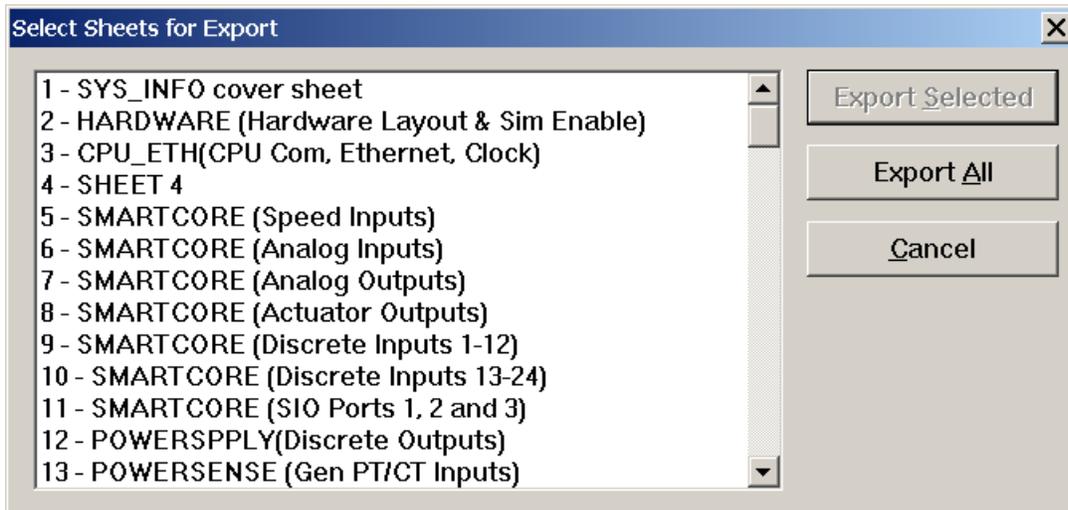
- Print Sheet #1 of the GAP application.** This step is recommended as the Revision Data and coversheet data is not retained when the application is exported.



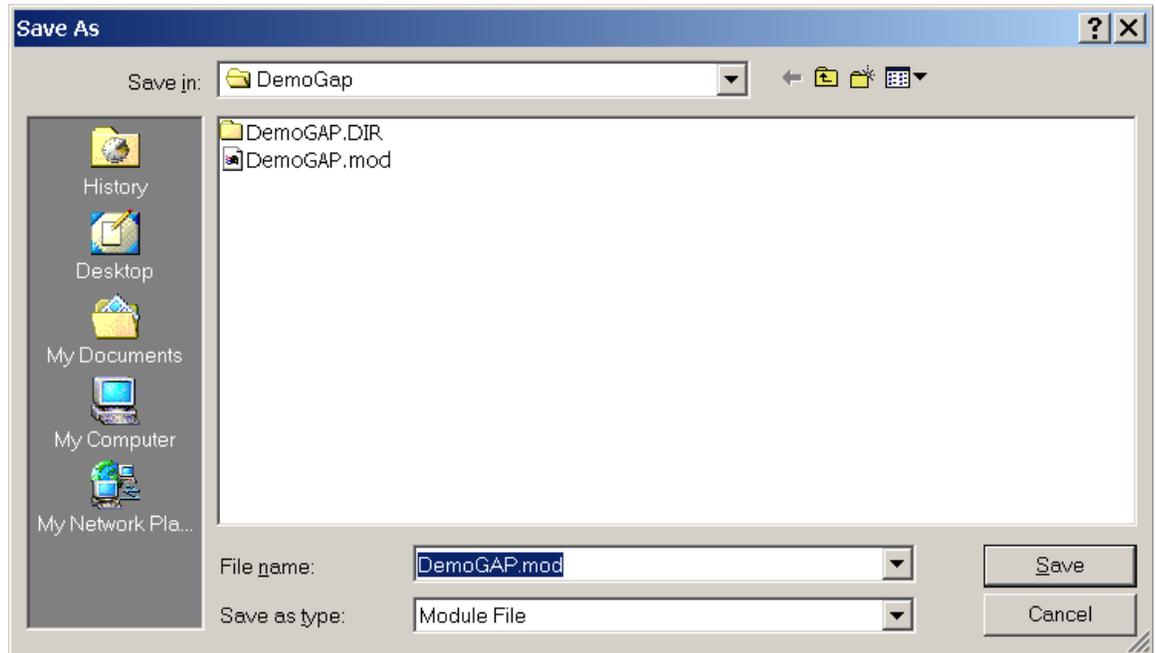
- Export all the Sheets in the Application
Go to File > Export Multiple Sheets



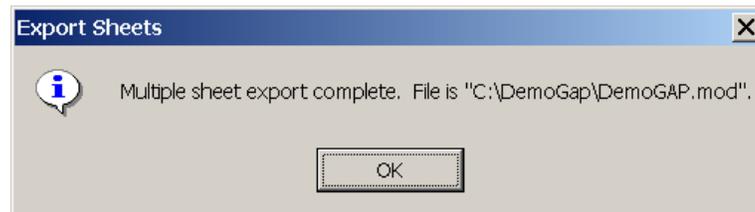
- Select Export All. This will bring up a file save dialog box.



5. Enter the file name and location of where the .mod file is to be saved.

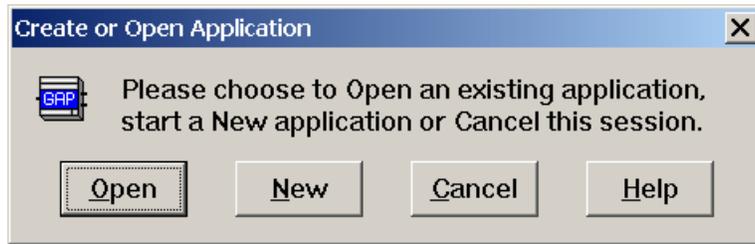


6. When the export file is completed, the following dialog box will appear. Click OK to complete the export.

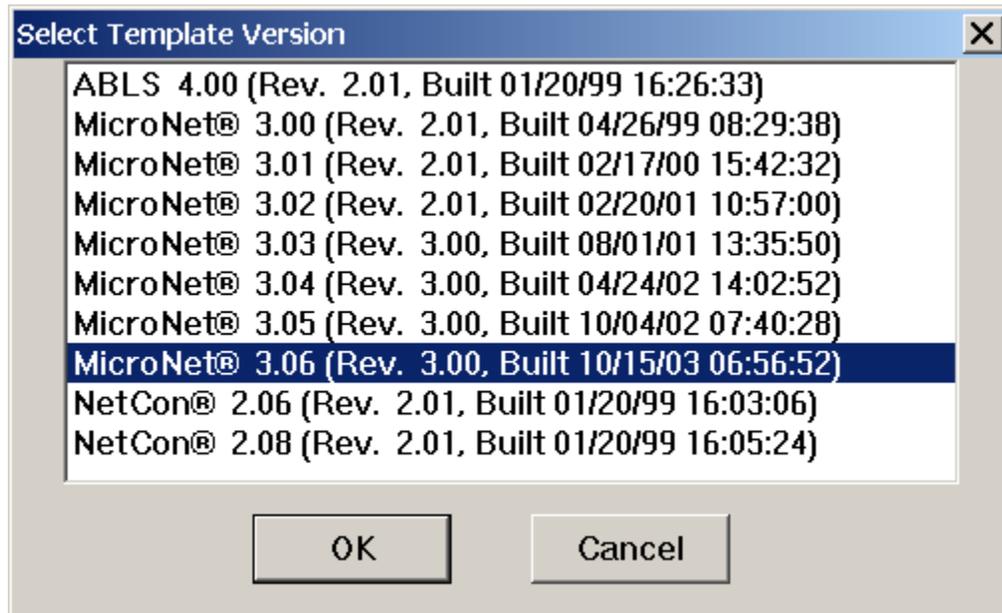


Importing the .MOD file into Coder Template 3.06-1

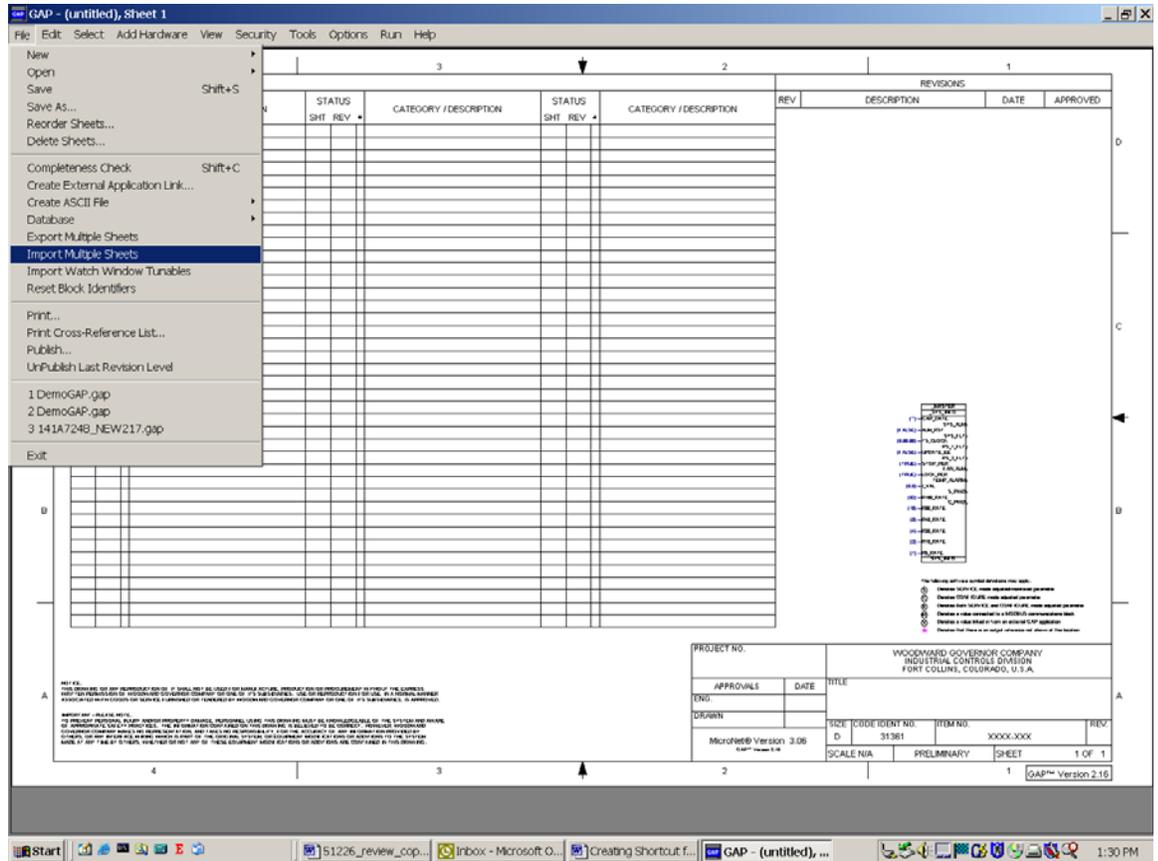
1. Open a new instance of the GAP2.16 program. The following dialog box will be displayed. Select NEW.



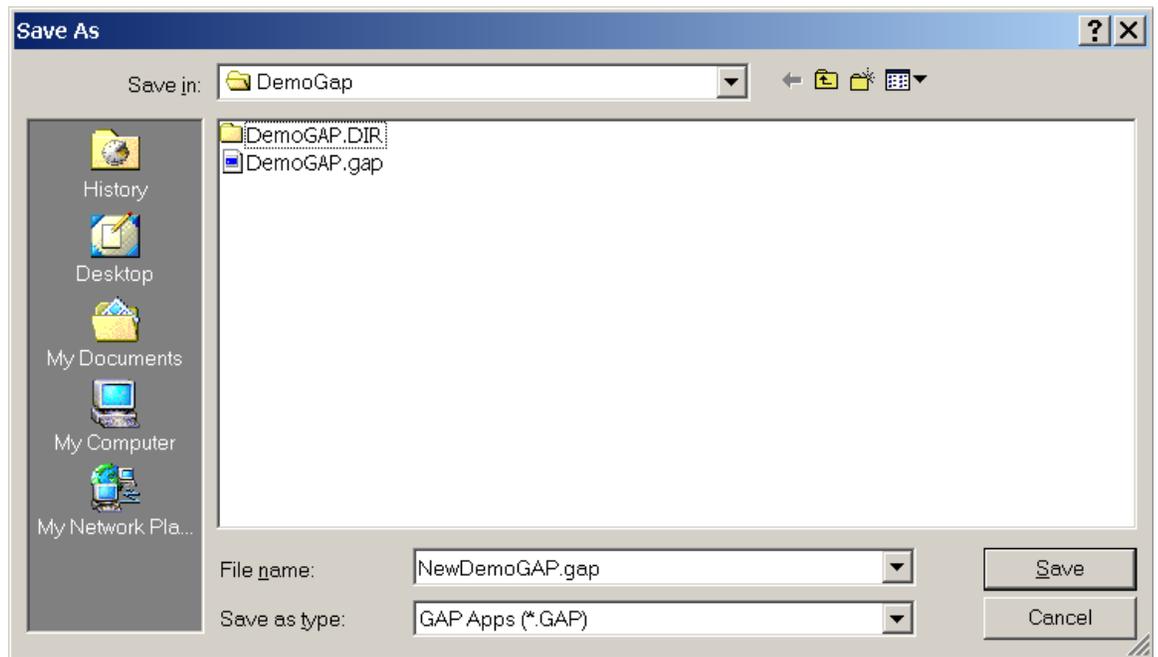
2. Select the Template Version 3.06, then click OK.



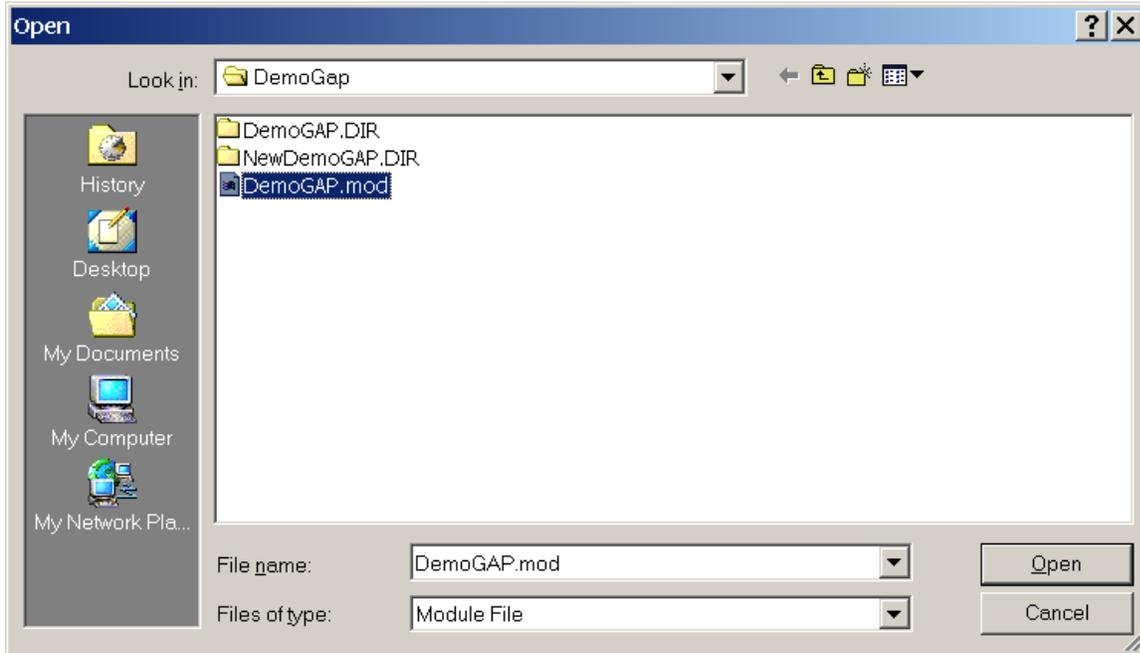
3. A new application will be created. Go to File > Import Multiple Sheets.



Before importing the .mod file, the user will be prompted to save the .GAP application. Enter the desired file name and location then click on OK.



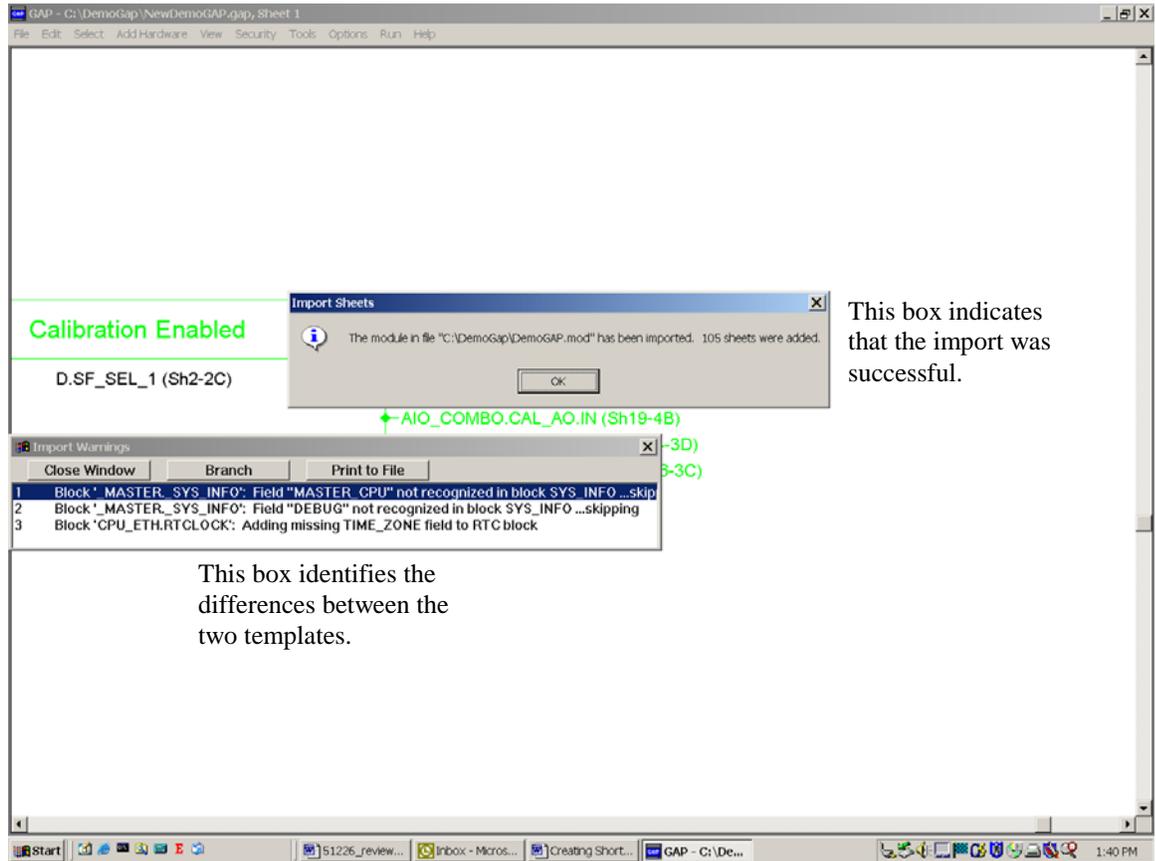
- Once the file is saved, the next dialog box will prompt the user to open the desired .MOD file. Select the file created during step 4 of "Create Export File of all sheets in existing application file".



Clicking on OPEN will start the import process. Occasionally during the process, an error dialog box will be displayed.



This error is not critical and does not indicate that the import has failed. Simply click on OK to complete the import process. When the import is completed the following dialog box will be displayed:



- Complete the Import by filling in the Title Block and Revision Information. To enter the title data, reference the Cover Sheet that was printed in a previous step. Then position the mouse in the TITLE area of the lower right hand corner and double click. This will bring up the title block information dialog box.

The screenshot shows the GAP software interface with a large table of components. The table has columns for STATUS, SHT, REV, CATEGORY / DESCRIPTION, and a corresponding column for each of the three main sections (1, 2, 3). A 'REVISIONS' table is also visible at the top right, with columns for REV, DESCRIPTION, DATE, and APPROVED. The main table lists various hardware and software components such as COVER, HARDWARE, CPU, SMARTCORE, and various sensors and actuators. At the bottom right, there is a 'PROPERTY NO.' field and a 'TITLE' field, which is the area mentioned in the text as being used to bring up the title block information dialog box.

The screenshot shows the 'DemoGAP - Template 3.05 (Rev. 3.00 Built 10/04/02 07:40:28)' dialog box. It contains several input fields and dropdown menus for project information:

- Company: WOODWARD
- Division: INDUSTRIAL CONTROLS DIVISION
- Location: FORT COLLINS, COLORADO, U.S.A.
- Title: ANY TURBINE - DEMO
- Item Number: 5414-7778
- Project No.:
- Code Ident.: 31361
- Eng. Appr.: JVOLK
- Eng. Date: 15JAN04
- Drawn Appr.: JVOLK
- Drawn Date: 15JAN04
- Default Coder File Name:

At the bottom of the dialog box, there are three buttons: OK, Cancel, and Help.

The exact information that is entered into the title block will depend on the engineering change / review process that is in place for controlling the controller application software. Entering a default Coder File name is optional: this will automatically populate the coder file name when the completeness check function is run.

Use the last line of the Title block to enter the Coder version and GAP version that were used to create the application. This provides an easy way to identify which GAP / Coder versions were used to create the application file.

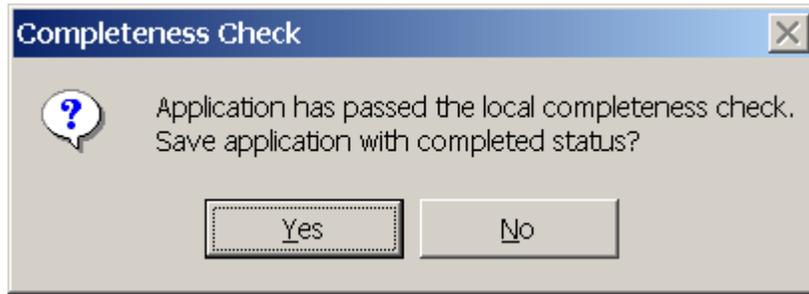
If it was desired to retain the revision information of the application file, go to FILE > Publish.

The screenshot shows the MicroNet software interface with a project sheet titled "GAP - C:\DemoGap\NewDemoGap.gap, Sheet 1". The interface includes a menu bar (File, Edit, Select, Add Hardware, View, Security, Tools, Options, Run, Help) and a toolbar. The main area contains a table with columns for STATUS, SHT, REV, CATEGORY / DESCRIPTION, and REVISIONS. The table lists various components such as MMV_REF, MMV_PID, LIMITER, MANUAL, G_MV_DRIVE, GATEMANT, CAM_DATA, BLADELOGIC, BLADE_REF, G_MV_DRIVE, PID_MANT, PID_TODUS, CREEP_PID, BRAKE_CTRL, POS_SW, SPEED_SW, MODBUS_COMM, MODBUS_RW, MODBUS_WR, MODBUS_BR, MODBUS_AR, MODBUS_AI, MODBUS_AO, ALARMS, MMV_FB, MMV_FB, MMV_SP, MMV_SP, and MON_TRIP3. The table also includes a REVISIONS section with columns for REV, DESCRIPTION, DATE, and APPROVED. The bottom right corner of the sheet contains a title block with project information, including the project name "WOODWARD INDUSTRIAL CONTROL DIVISION", the title "ANY TURBINE - DEMO", and the version "GAP™ Version 2.16".

If the completeness check has not been run, the following dialog box will appear.

The screenshot shows a "Publish" dialog box with a question mark icon and the text: "This application has not been marked as having passed the completeness check. Run completeness check?". The dialog box has three buttons: "Yes", "No", and "Cancel".

Select Yes to run the completeness check. A dialog box should appear that indicates that the completeness check was successful. If the completeness check was not successful, the cause must be identified before continuing.



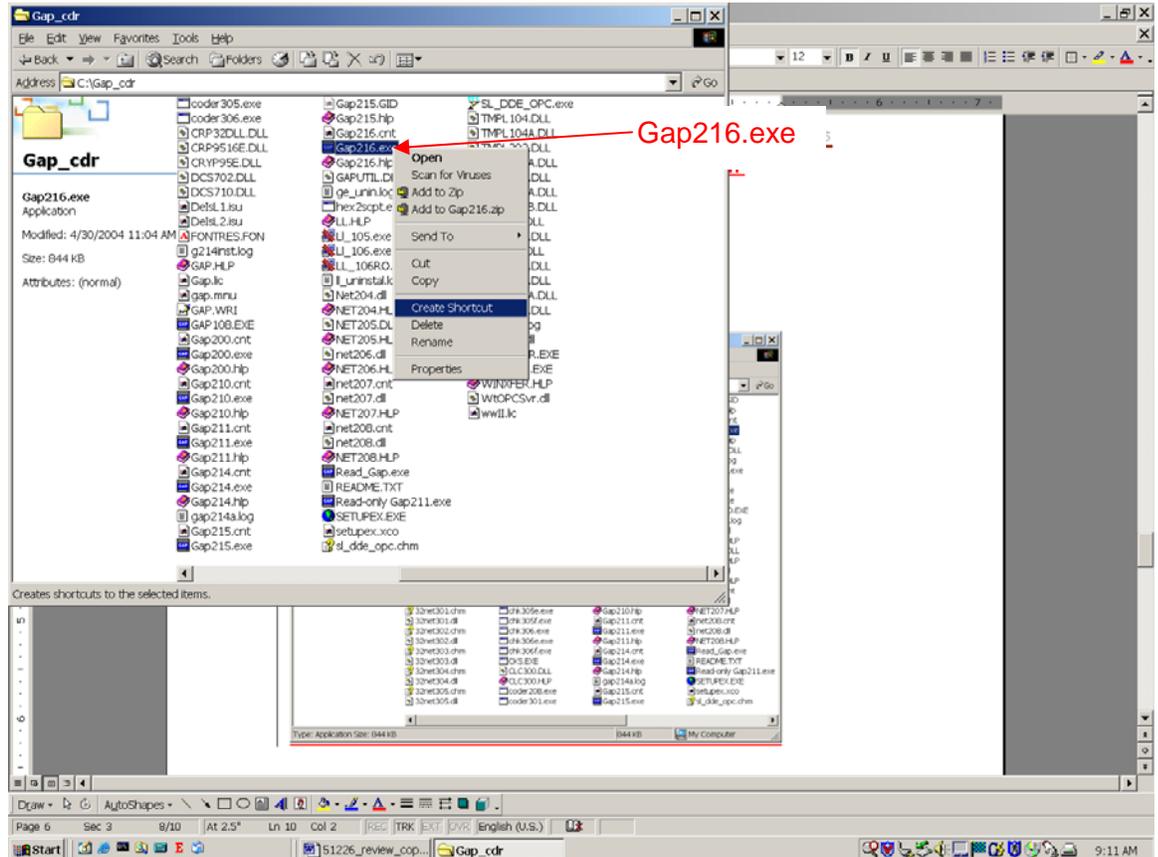
Select File > Publish and enter the desired revision data. If it is desired to retain the old revision information, enter each line from the original application revision box.

IMPORTANT

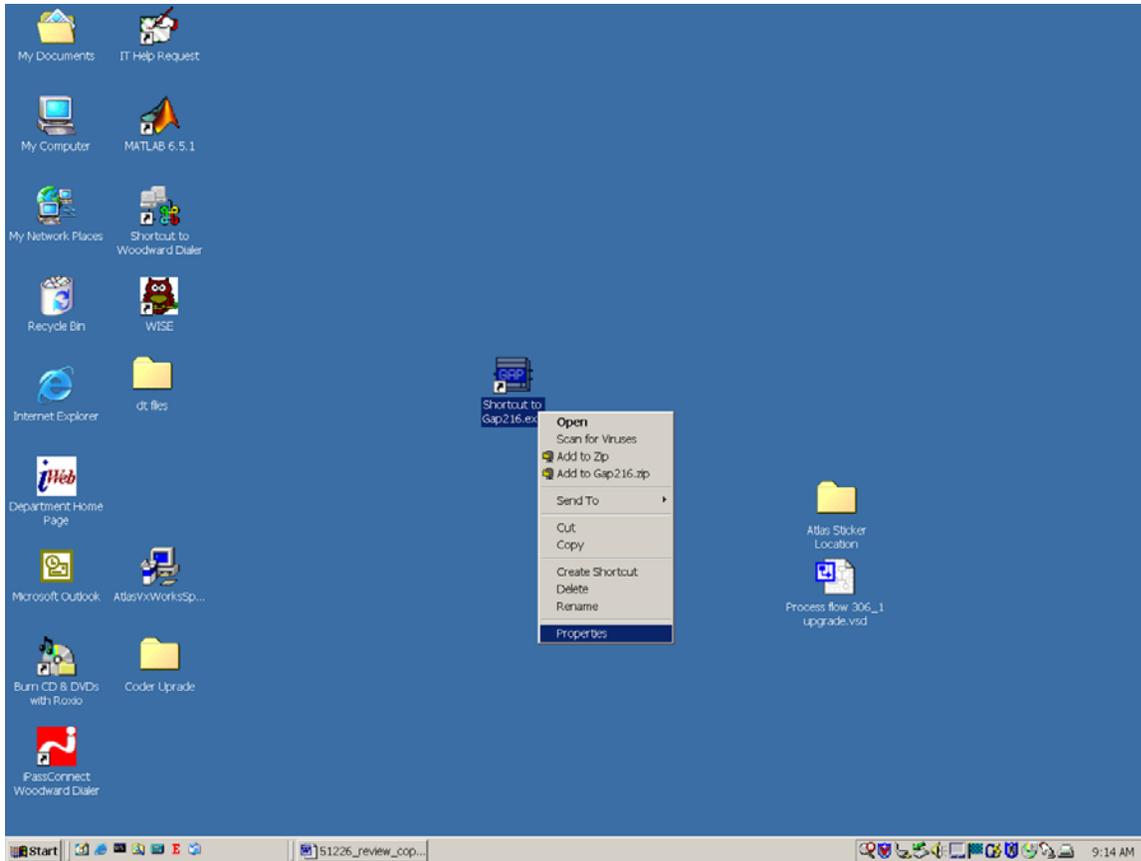
The REV status of the pages is not exported when the .MOD file is created. All sheets will stay at revision status NEW.

Creating Shortcut for GAP2.16

1. Go to the c:\Gap_Cdr directory and search for the GAP216.exe file.
2. Right click on the file name and select Create Shortcut.
The shortcut will be created in the c:\Gap_cdr directory. Move this shortcut to the desired location. In this example the shortcut was moved to the desktop.

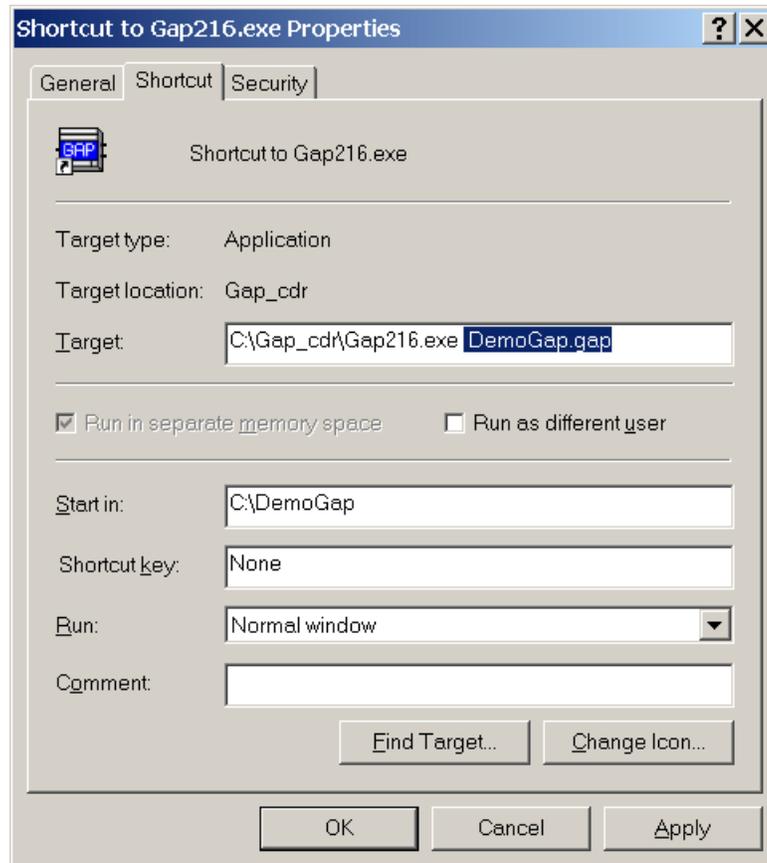


3. Select the shortcut, right click and then select Properties.



If it is desired to have the shortcut open a specific GAP application, enter the file name at the end of the TARGET command line.

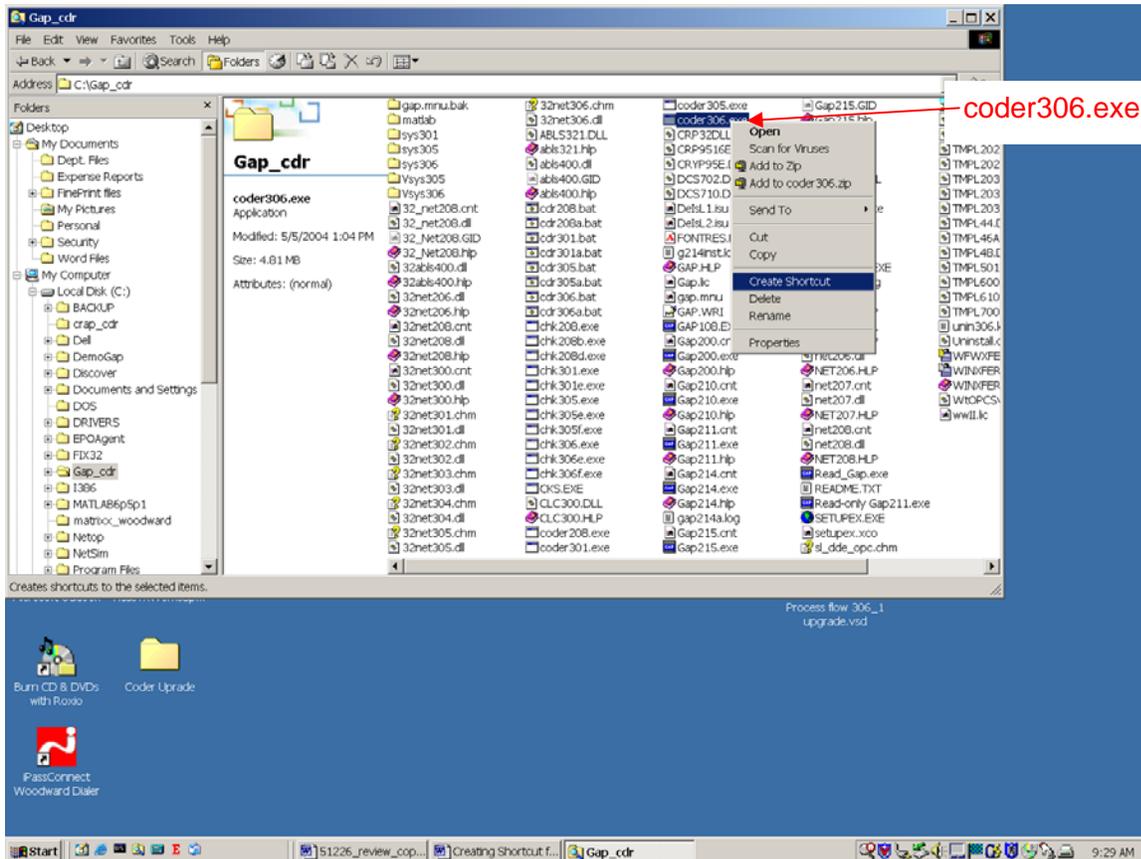
In the Start In line, enter the directory location where the DemoGAP.gap file is located.



This example will open the DemoGAP application file that is located in the C:\DemoGap directory, using GAP2.16 each time that the shortcut is double-clicked.

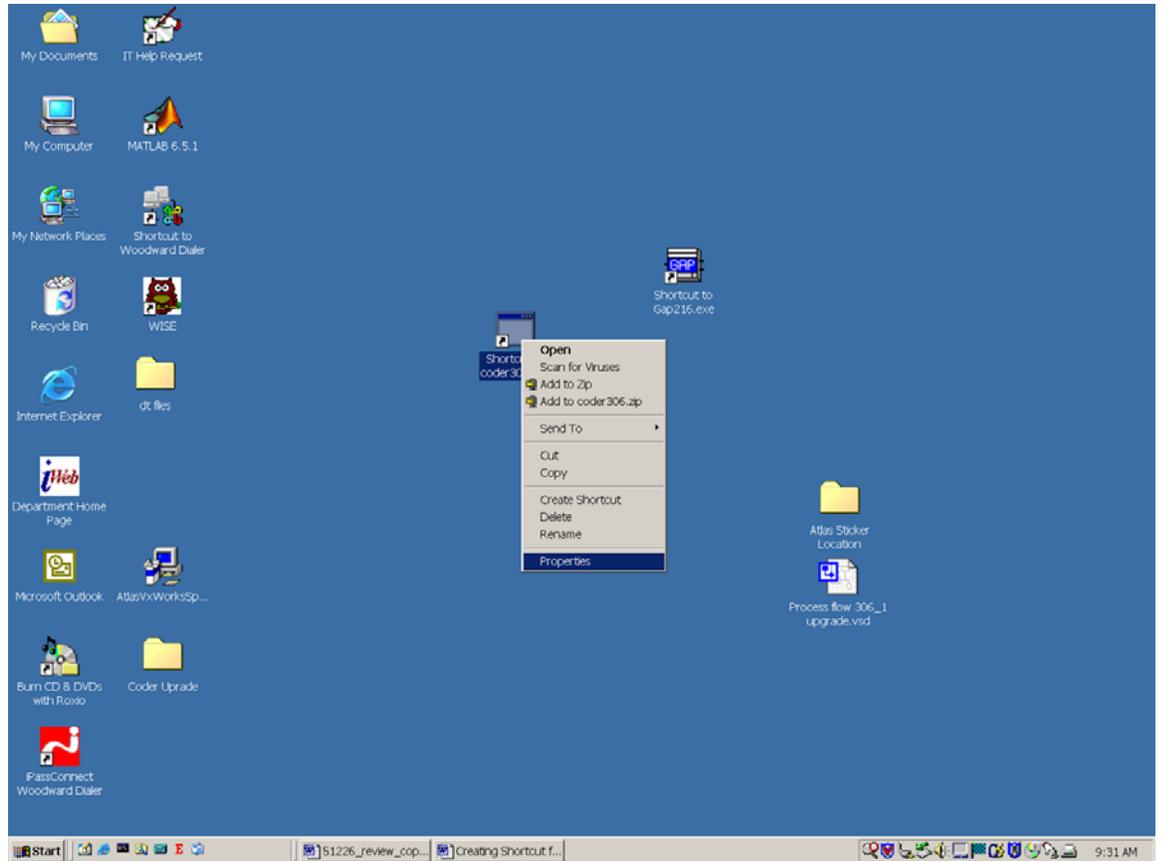
Creating Shortcut for Coder 3.06-1

1. Go to the C:\Gap_cdr directory and locate the file Coder306.exe.
2. Select the file and right click using the mouse.
3. Select Create Shortcut
4. Copy the shortcut to the desired location. In this example the shortcut was copied to the local desktop.



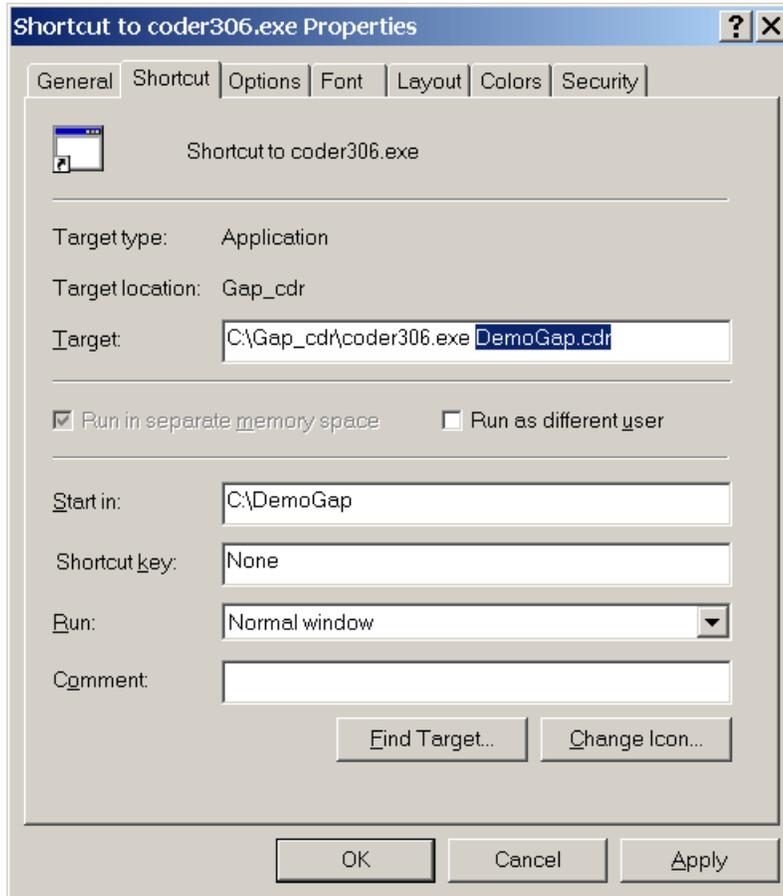
5. Select the shortcut and right click to access the Properties menu.

6. Select Properties to configure the shortcut.



If it is desired to have the shortcut code a specific .cdr file, enter the application .cdr file name at the end of the TARGET command line.

In the Start In line, enter the directory location where the DemoGAP.cdr file is located.



This shortcut will compile the DemoGap.cdr file, located in the C:\DemoGap directory using the Coder3.06-1 compiler.

Atlas PC CPU Application Software Upgrade Verification

Submitting this completed form to Woodward will allow us to update our records in order to serve your future needs better.

Old Atlas PC System P/N _____

New Atlas PC System P/N _____

Atlas PC System S/N _____
(from the back cover of the Atlas)

After performing the system upgrade, please verify and sign the following information:

1. Installation complete and operational? Yes / No
2. New label has been applied to chassis? Yes / No

Signed: _____ Date: _____

Upon completion, return this form to:

**Woodward—Customer Service Department
1000 East Drake Road
Fort Collins, CO 80525**

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