Sixnet

Quick Start Training

RTU Software

JOE SLATTERY
SR. TECHNICAL SUPPORT ENGINEER
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FLEXIBLE. RELIABLE. POWERFUL.

Overview

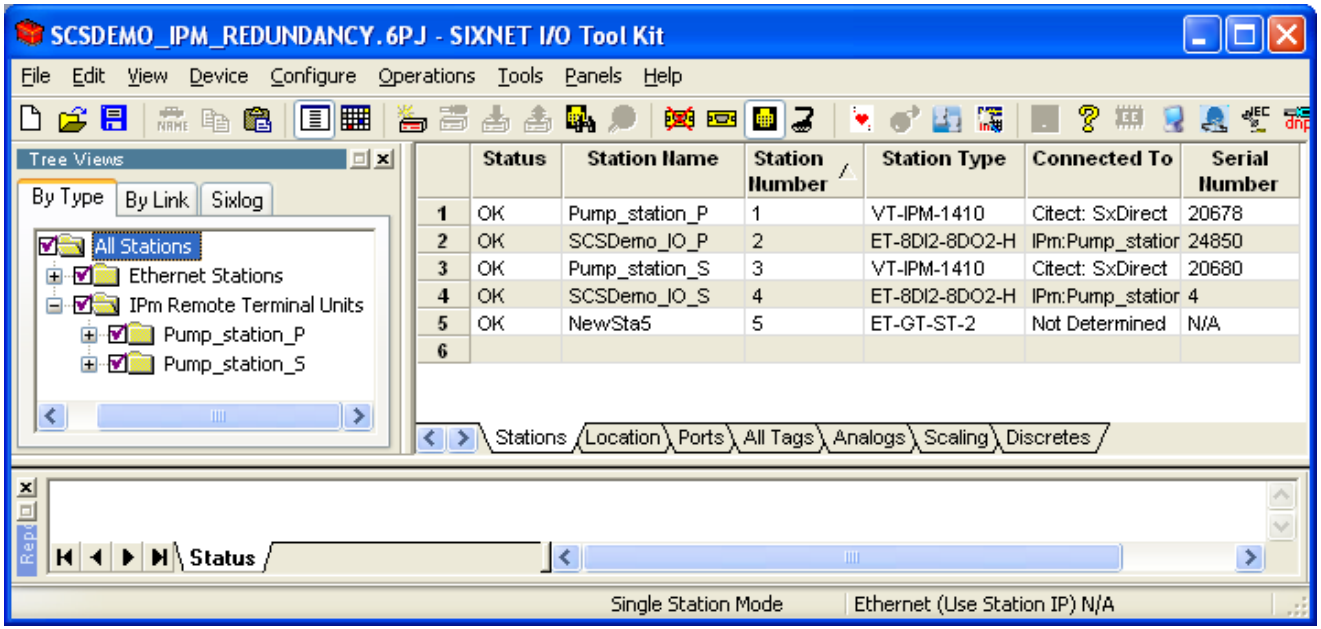
- Software Overview
- RTU Overview
- Start an ISaGRAF Open project
- Configure an RTU using SXTOOLS (basic setup with tags and export)
- Develop simple program and “Build” (compile) ISAGRAF project
- Download to RTU using the Tool Kit and ISaGRAF

Requirements

- **SIXNET I/O Tool Kit**
- **ISaGRAF Open Workbench**
- **IPM RTU Controller (with Ethernet or Serial connection)**
- **Licensing:**
  - ISaGRAF Open Key (SX-1131-S-x)
  - SIXNET Tool Kit licensing (SXTOOLS-2; SCS option)

Sixnet Tool Kit

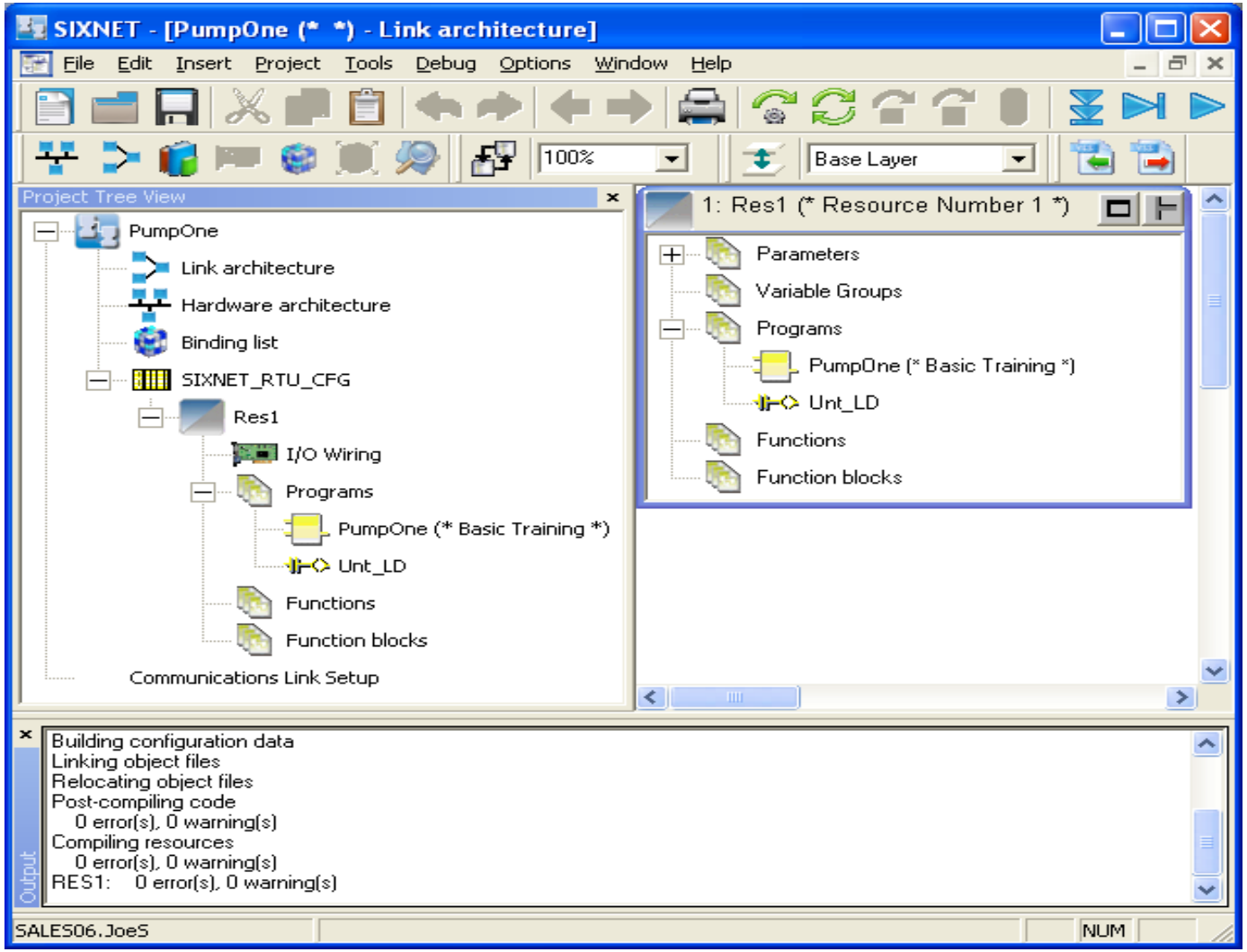
- **Used to configure, load and maintain Sixnet RTUs and I/O modules**
- **Project management software**
- **Works with ISaGRAF Open programming software**



ISaGRAF Open

- **ISaGRAF Open includes:**
  - ISaGRAF v5 editor
  - Sixnet enhancements
  - v3 features for backward compatibility to installed Sixnet RTU base
  - Differences.pdf > C:\Program Files\SIXNET ISaGRAF Open\Documentation 5.1\Users Guide\English
- **Based on the International Standard IEC 61131-3**
- **ISaGRAF supports all five programming languages:**
  - Sequential Function Chart
  - Ladder Diagram
  - Structured Text
  - Instruction List
  - Function Block Diagram
  - (also supports Flow Chart)

ISaGRAF Open



IPM Controller

- **Quick start for software programming that will work with any RTU**
- **Embedded Linux controller**
- **Shared IO database**
- **Supports a number of running applications**
  - Alarming, datalogging, custom C application, protocol conversion, web server

Main Summary

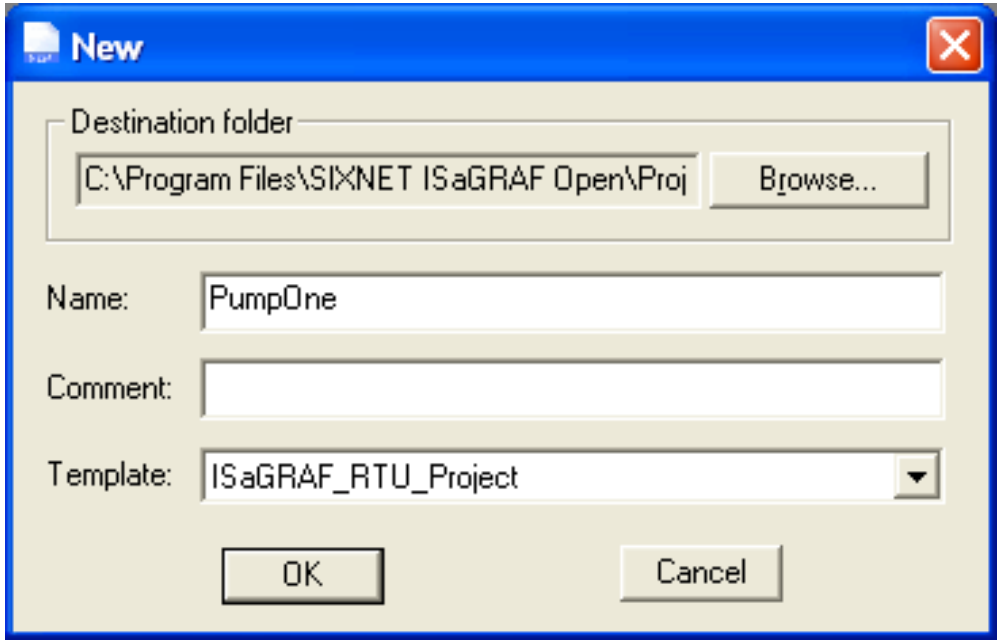
1. ISaGRAF Open - Create and name new project
2. Sixnet Tool Kit - Start project
3. Configure RTU
4. Export Tags to ISAGRAF Project
5. Develop simple program & build (compile) ISAGRAF program
6. Load IPM Controller with Tool Kit
7. Load ISAGRAF Program with the Open Workbench
8. Load Tool Kit & ISaGRAF program in one step
9. Exercise program

Let's get started …

ISAGRAF Open:
Create & Name New Project

- **Run the Open Workbench**
- **File > New Project (name = PumpOne)**
- **Name and select Template (ISaGRAF_RTU_Project)**
- **Save**

Step one complete!

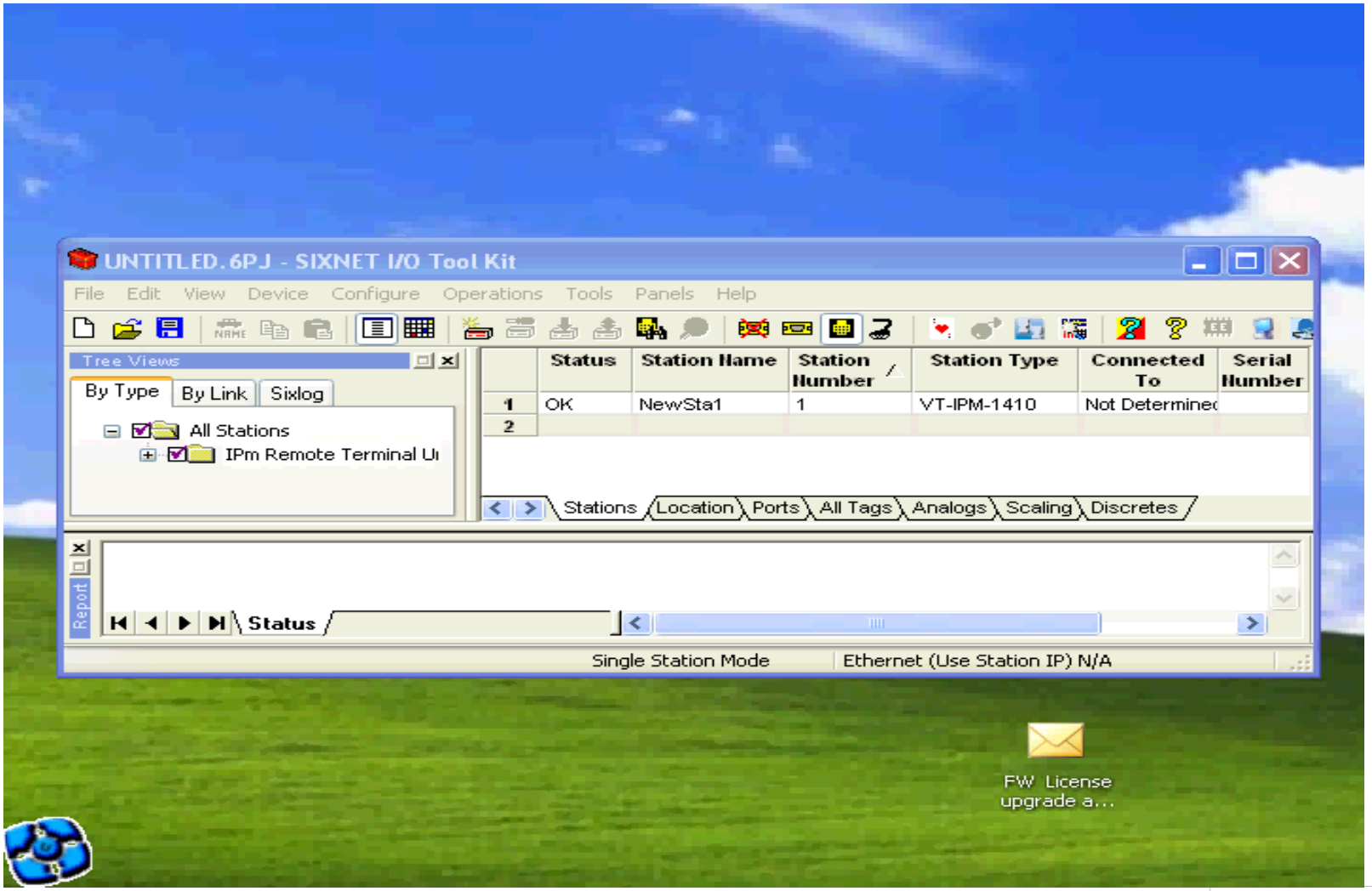


Sixnet Tool Kit: Start Project

- **Open Tool Kit**
- **Start new project (File > New Project)**
- **Select project name**
  - Default project location = C:\SIXNET Tools\Projects
- **Save: this will automatically lead to the RTU configuration**
- **Add RTU station to configuration**
- **Configure station:**
  - RTU Type
  - Setup ports
  - Add a virtual I/0
    - *Add a DI module and Tag I/O (Tags = TurnOnMotor1 & Level)*
    - *Add a DO module and Tag I/O (Tag = Motor1)*

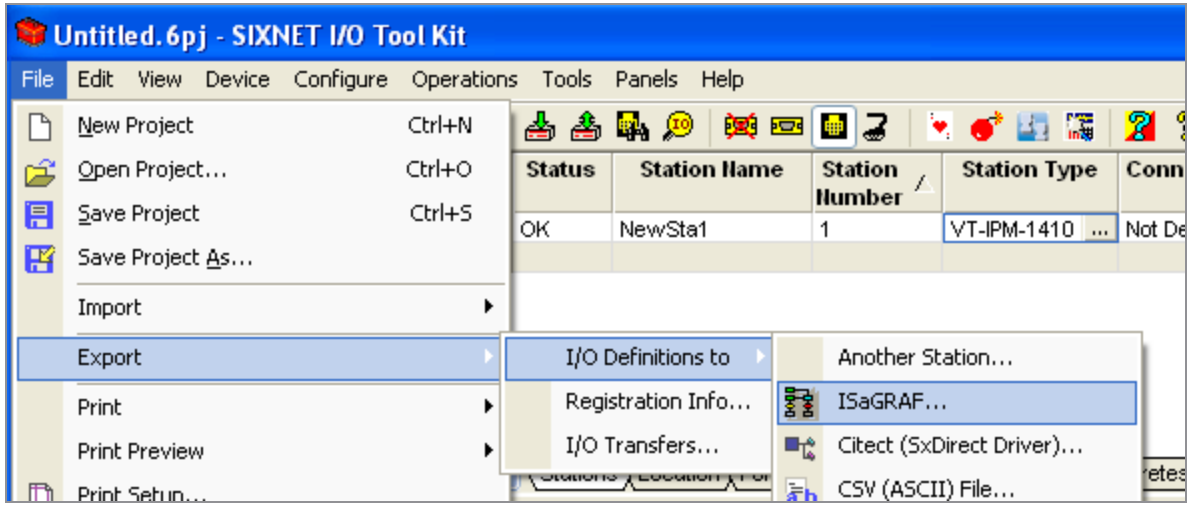
Step two and three complete!

Sixnet Tool Kit IPm Setup



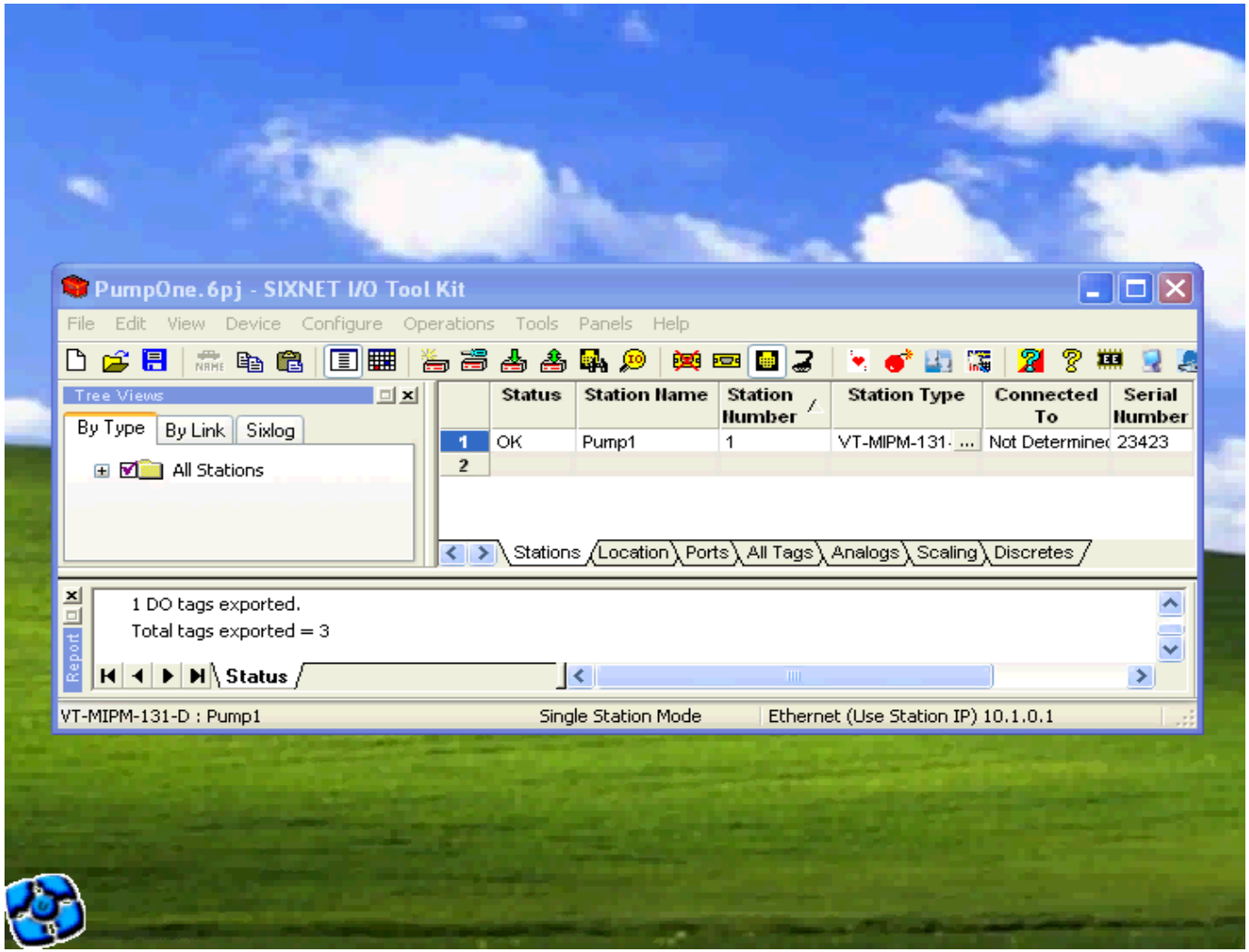
Export Tags to ISAGRAF Project

- **Goto File Menu > Export > I/O Definitions > ISAGRAF**
  - Select ISAGRAF Open
  - Browse to Project file: Location = C:\Program Files\SIXNET ISaGRAF Open\Projects\ISaGRAF 5.1\Prj
  - Select RTU
  - Finish
  - Note: View video to review process



Step four complete!

Export Tags

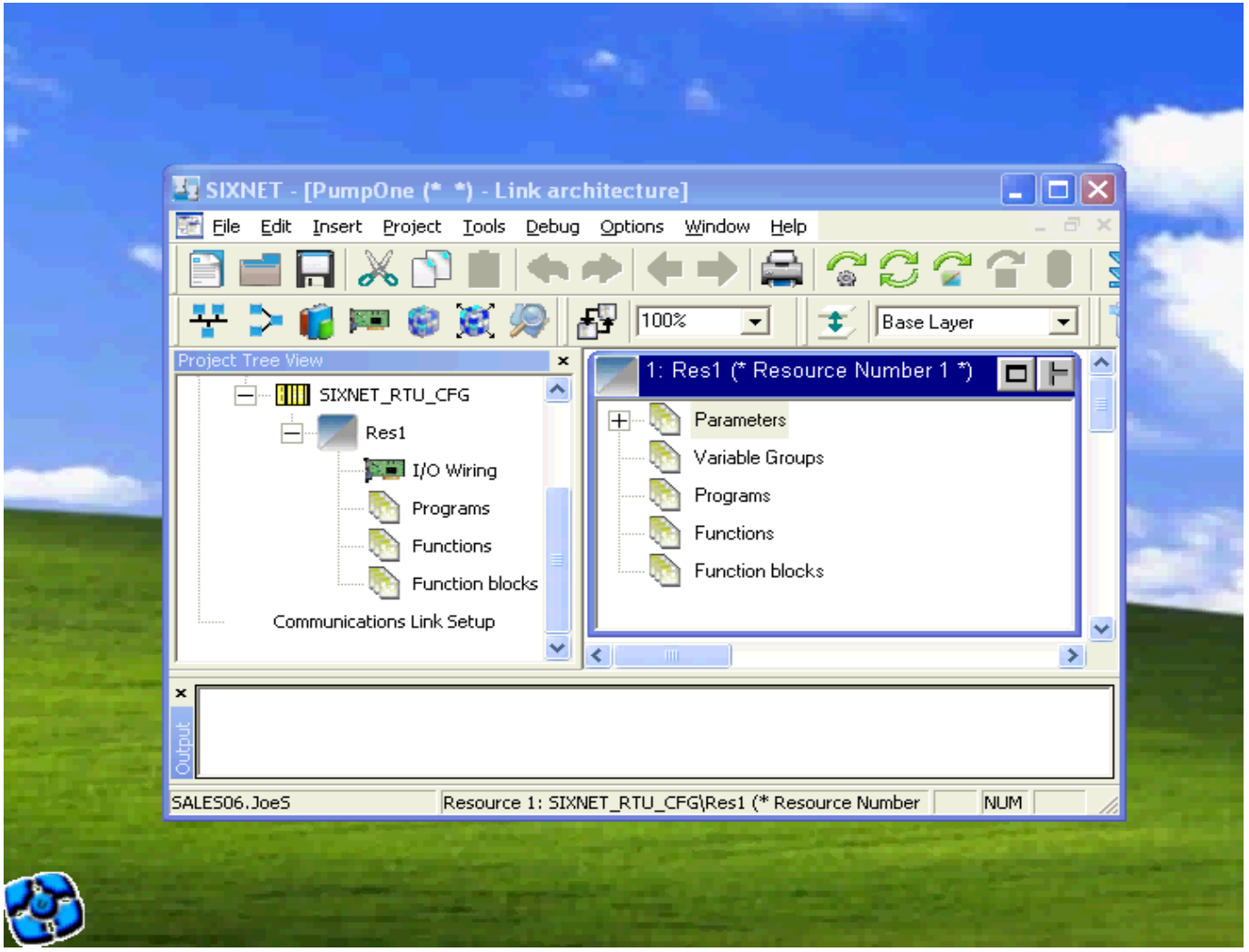

PumpOne.6pj - SIXNET I/O Tool Kit
File Edit View Device Configure Operations Tools Panels Help
Tree Views
By Type By Link Sixlog
All Stations
Status Station Name Station Number Station Type Connected To Serial Number
1 OK Pump1 1 VT-MIPM-131 Not Determine 23423
2
Stations Location Ports All Tags Analogs Scaling Discretes
1 DO tags exported.
Total tags exported = 3
Report
Status
VT-MIPM-131-D : Pump1
Single Station Mode
Ethernet (Use Station IP) 10.1.0.1

Develop Program & Build (Compile)

- Open project
- From Resource window right click on Programs and Add Program Type (use FBD)
- Open FBD program
- Select F3, or the Function block symbol and add AND block
- Select F2, or Variable symbol and add variables accordingly
- Select F4 function to connect variable to function block
- Save
- Compile

Step five complete!

Build ISAGRAF Program

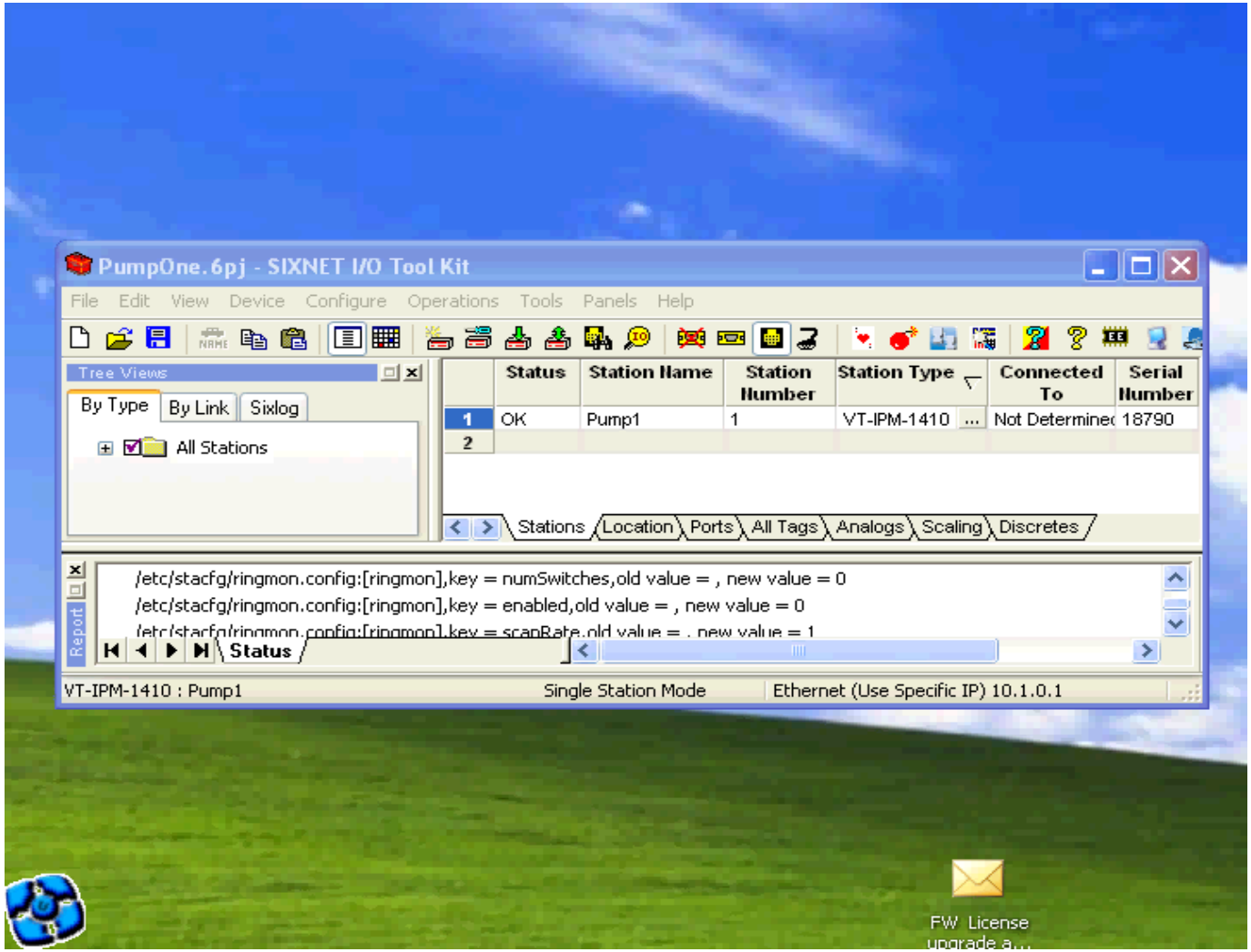


Load IPM Controller with Tool Kit

- **Load Tool Kit configuration first to be sure the port settings are correct**
- **By default all IPM stations are 10.1.0.1**
- **Tools > Device Menu > Select**
  - Choose Serial or Ethernet
- **Ok**
- **Operations Menu > Load > Basic Settings**

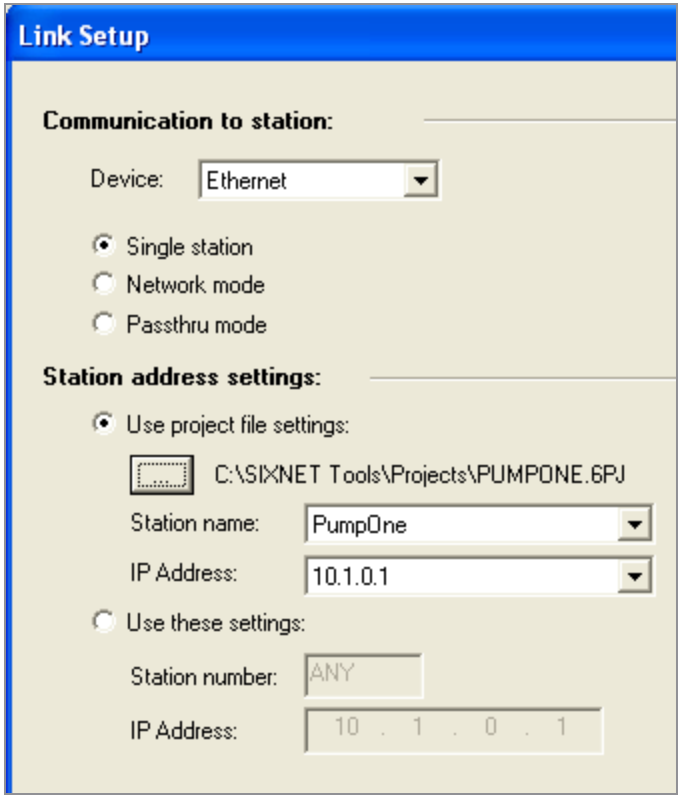
Step six complete!

Load Tool Kit Project



Load ISAGRAF Program with the Open Workbench

- Goto Tools Menu (or Project Tree View) > Communication Link Setup
- Select Device > Single Station
- Select “use project file settings” Browse to project file
- Ok

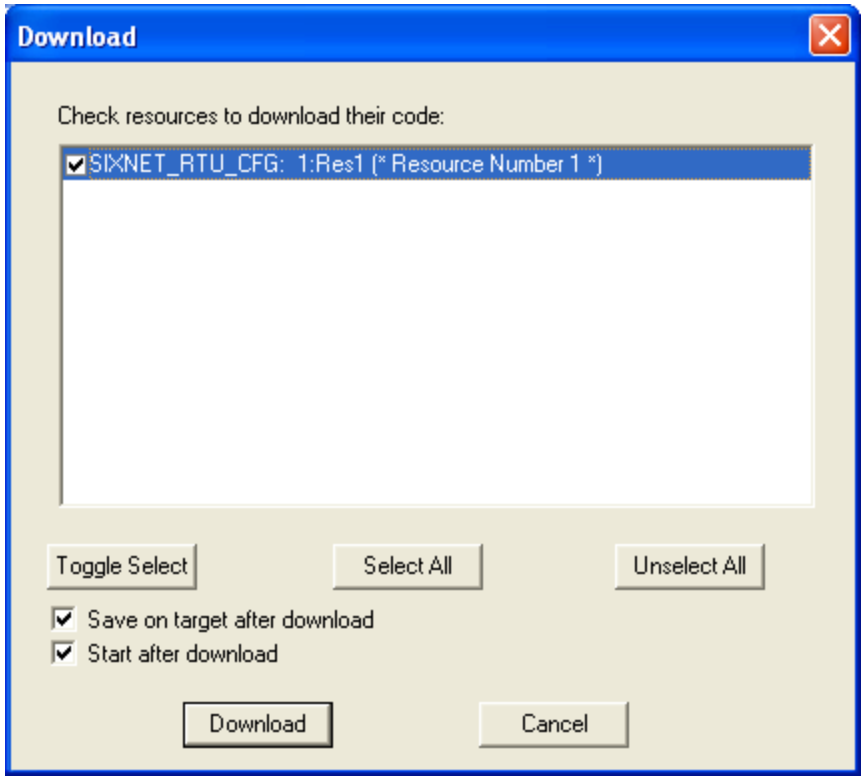


Note: The IP address or serial port settings are found in the Tool Kit project file automatically. Otherwise, select “Use these settings” for manual purposes.

See next slide to complete the load.

Load ISAGRAF Program

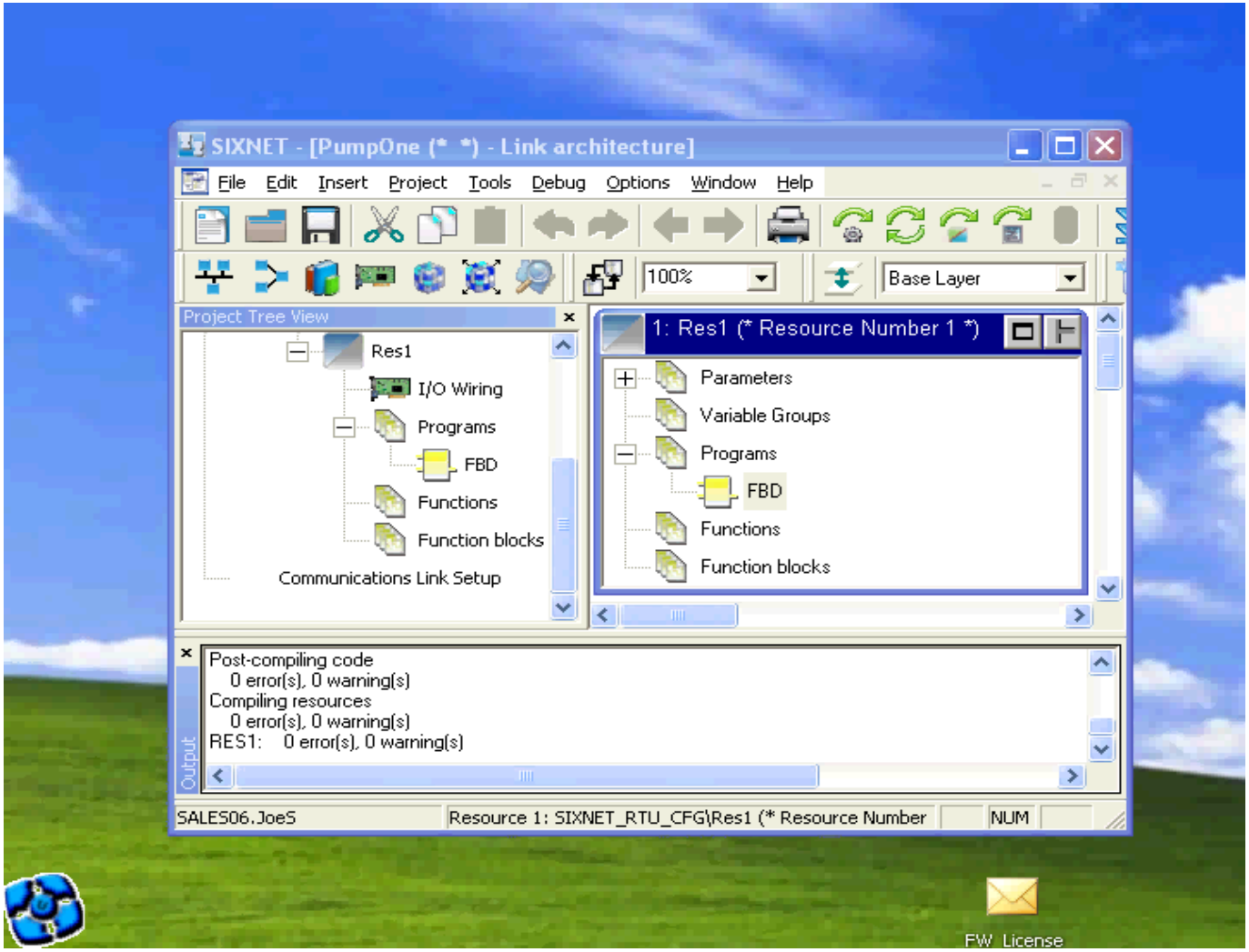
- From Main Workbench window select Debug Menu > Download
- Select Resource (Check box)
- Save on target after download
- Start after download
- Download



Program is now running in RTU!

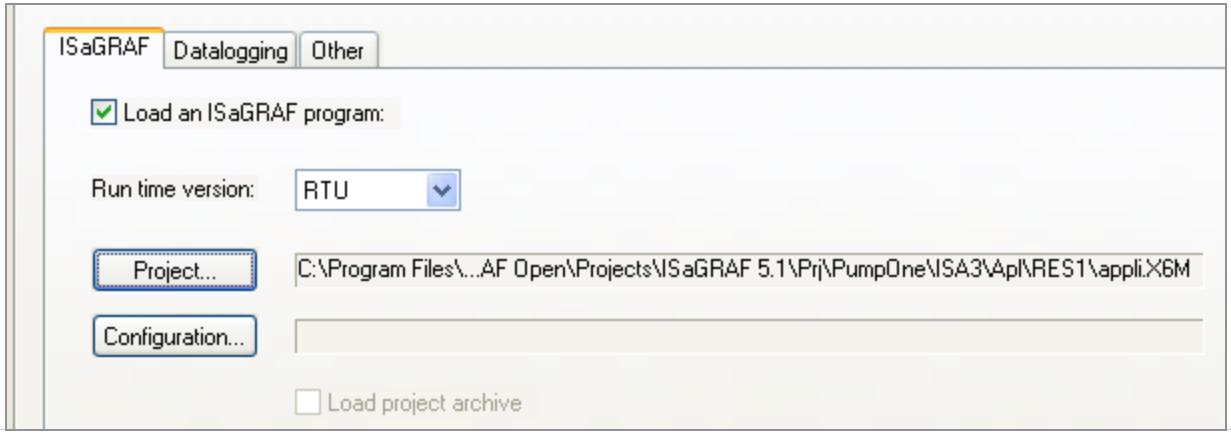
Step seven complete!

Load ISAGRAF Project



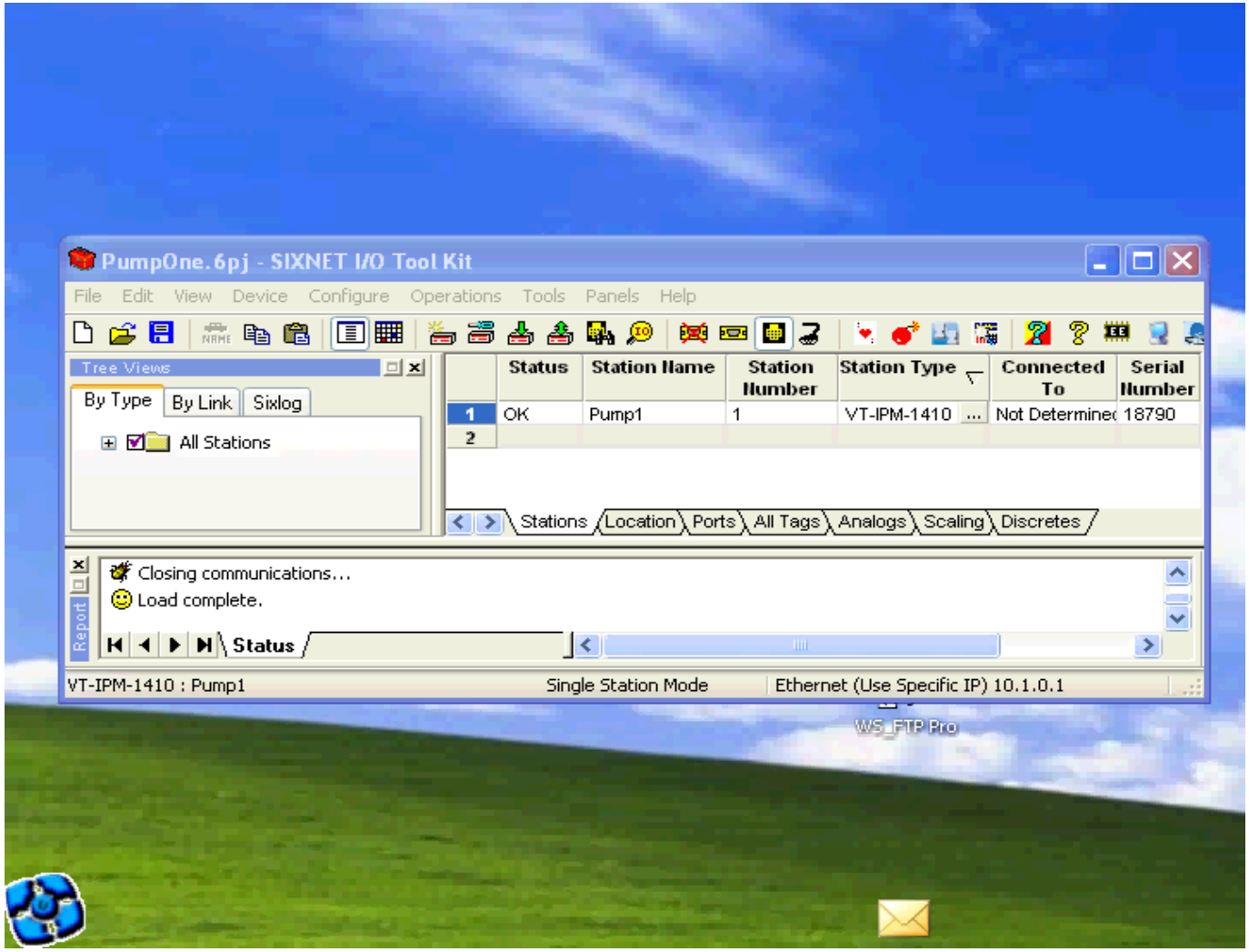
Load Tool Kit & ISaGRAF program in one step

- From the Tool Kit setup “Files to Load” in RTU configuration
- From the ISaGRAF Tab Check “Load an ISaGRAF program”
- Run time version RTU
- Select project: appli.X6M
- To Load: Operation Menu > Load > Advanced Selected, or Predefined files



Step eight complete!

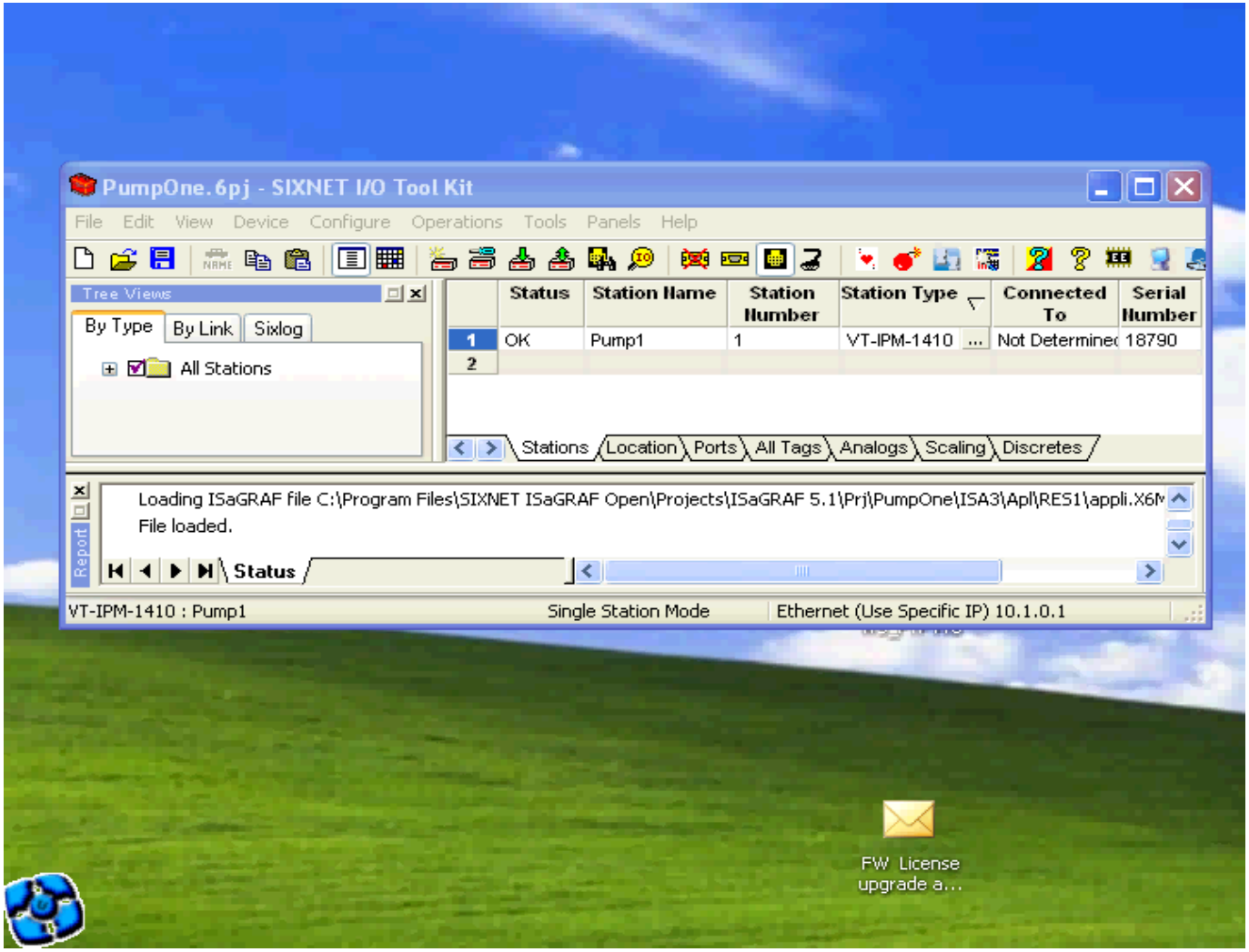
Load Tool Kit and ISaGRAF Project



Exercise Program

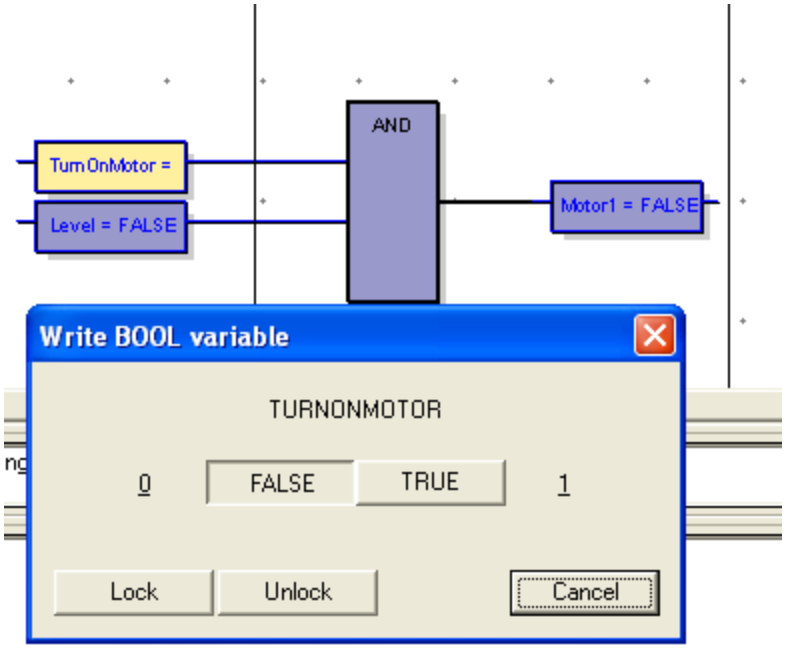
- **From the Sixnet Tool Kit run Test I/O to station**
  - Test IO will work if Virtual Input modules are used. If Onboard Inputs are used a the RTU will need to have a wired input or use the Workbench debug lock feature.
  - Make sure the device menu is setup accordingly
- **Operations: Test I/O**
- **Turn on DI Tags “TurnOnMotor” & “Level”**
- **Result = DO Tag “Motor1” will turn On**

Test Program with Test I/O



Test Program with the ISaGRAF Debugger

- Run ISAGRAF Debugger: Debug > Debug Target
- Open the program
- Double click on Input Tag
- Select Lock
- Double click on Tag again
- Select “True”
- Do this for both Inputs & Motor1 will turn ON



Step nine complete!

Sixnet

Sixnet, LLC
331 Ushers Road
Ballston Lake, NY 12019

T +1 518 877 5173
F +1 518 877 8346

joe.slattery@sixnet.com
sales@sixnet.com

www.sixnet.com

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