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Siemens S7 TCP/IP Master with TIA S7 Tag Import Communications Driver

Information Sheet for Crimson v3.0+

Compatible Devices

Siemens S7-1xxx PLC's with CPU Ethernet port using TIA Portal
Siemens S7-300/400 PLC's with CPU Ethernet port using TIA Portal

Verified Device

Siemens S7-1511-1 PLC with CPU Ethernet port using TIA Portal V13
Siemens S7-1212C v1.0 PLC with CPU Ethernet port using TIA Portal V13
Siemens S7-315-2 PN/DP PLC with CPU Ethernet port using TIA Portal V13

PLC Settings

Remote communications must be enabled in the S7 PLC in order to achieve successful communications with the Red Lion device. This can be accomplished by enabling the PLC's PUT/GET communications property.

In TIA Portal, right click on the PLC in the Devices & networks area and select "Properties…". In the General tab, select Protection and scroll down to the "Permit access with PUT/GET communication with remote partner (PLC, HMI, OPC, …)" property. Ensure that this property is enabled.
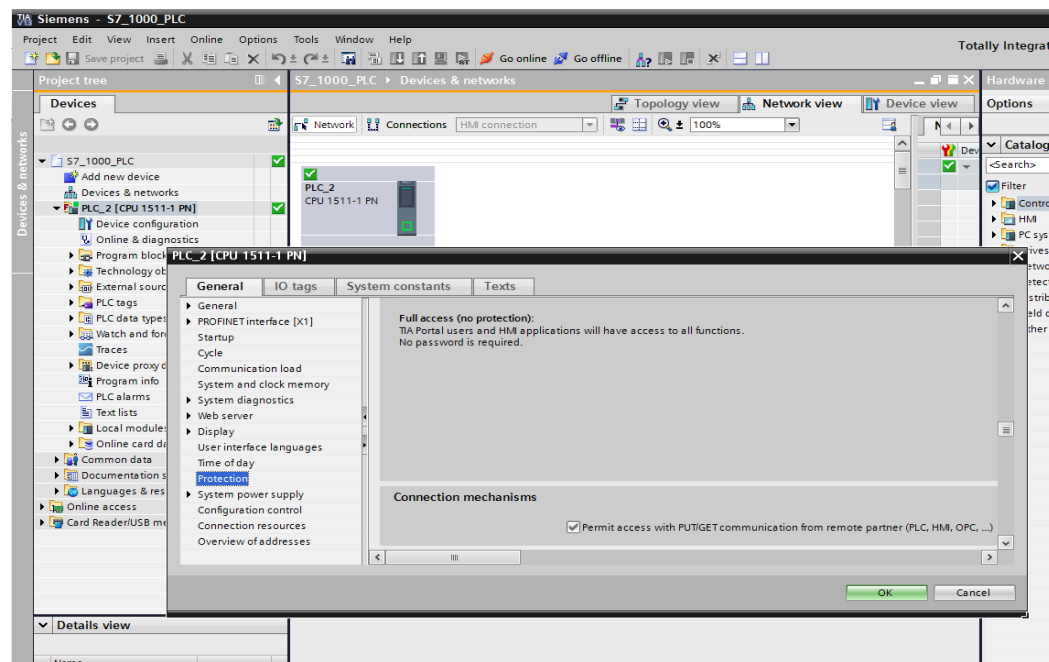
Accessing Data

The Siemens S7 TCP/IP Master with TIA S7 Tag Import includes the ability to create tags based upon file exports from the PLC configuration in Siemens TIA Portal software.

Please note the following:

Supported S7 item and array data types are as follows: Bool, Byte, Char, Dint, Dword, Int, Real, Uint, Word.

Characters used in S7 PLC tag names that are not supported by Crimson 3.0+ tag names will be replaced by an underscore. If this replacement results in duplicate tag names an error will be reported. An error will also be reported if the S7 tag name exceeds the length of 32 characters.

In the case of large export files it is recommended to remove rows of items not needed before the import process in an effort to reduce unnecessary resources.

In the event that an export file has been modified and is being re-imported in the Crimson 3.0 database, existing tags will be reported as such and mappings will remain unchanged. This scenario may be handled by either deleting associated tags before re-importing or manually modifying mappings after the re-import operation.

Manual tag creation is also supported.

It is recommended to disable Spanning Reads in the Crimson 3.0 database to achieve successful communications when address identifiers have data items of multiple data types.

Creating PLC Tags

In TIA Portal, click "Show all tags" in the PLC programming area, then click on the Export icon. This will result in the Export to Excel window prompt shown below.
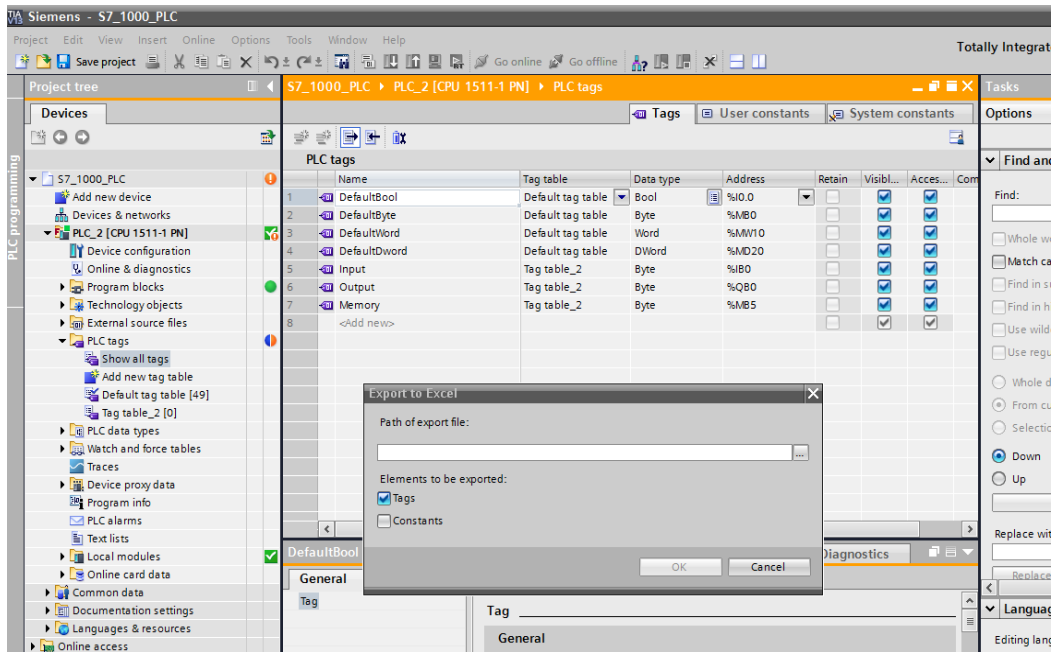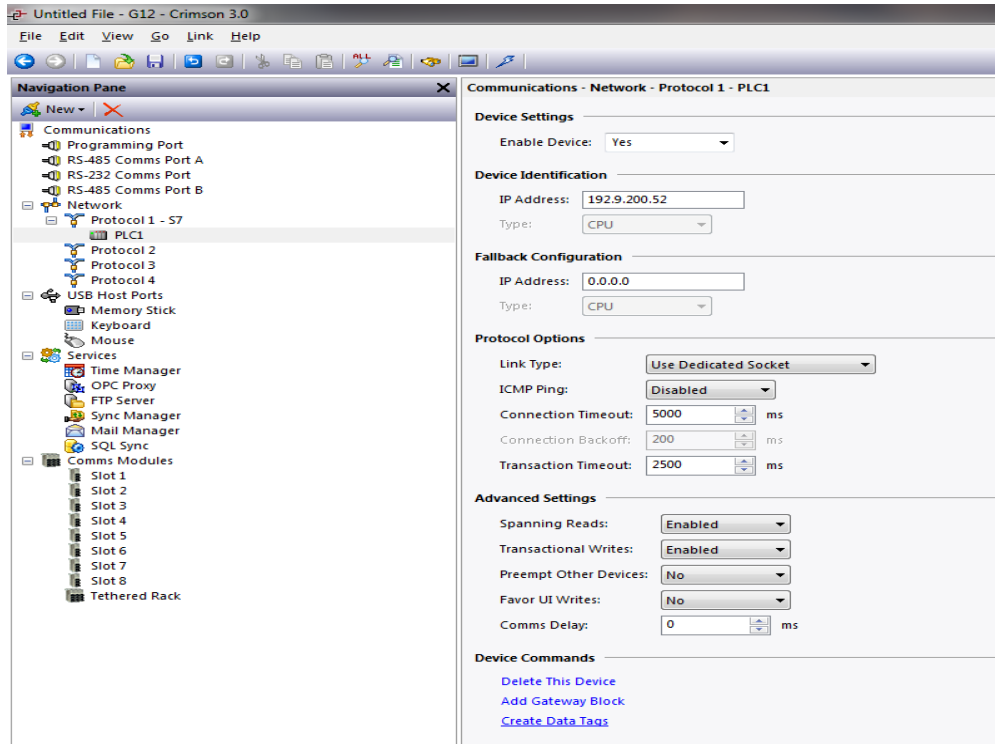

Select the path of the export file and click OK to save.
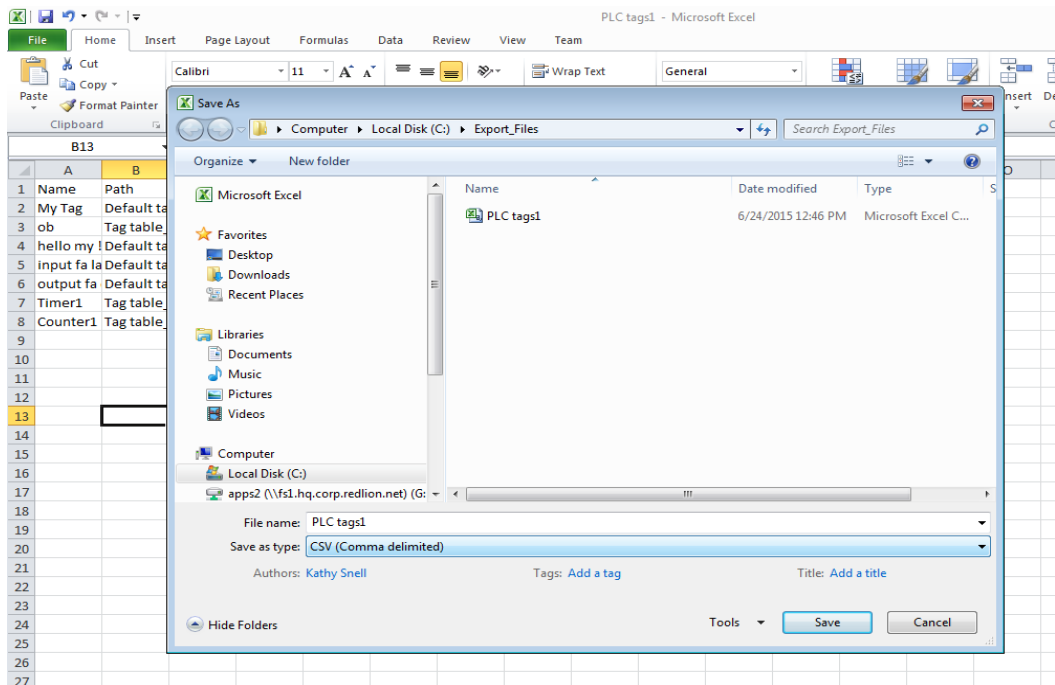
Open the saved file in Excel, click on File then Save As. In the "Save as type" field of the Save As dialog box, select CSV (Comma delimited) and Save.

In Crimson 3.0+ with the Siemens S7 TCP/IP Master with TIA S7 Tag Import driver selected in the Communications tree, click on the PLC device.

In the Device Commands group click on the Create Data Tags link which will open Crimson's S7 Import dialog.
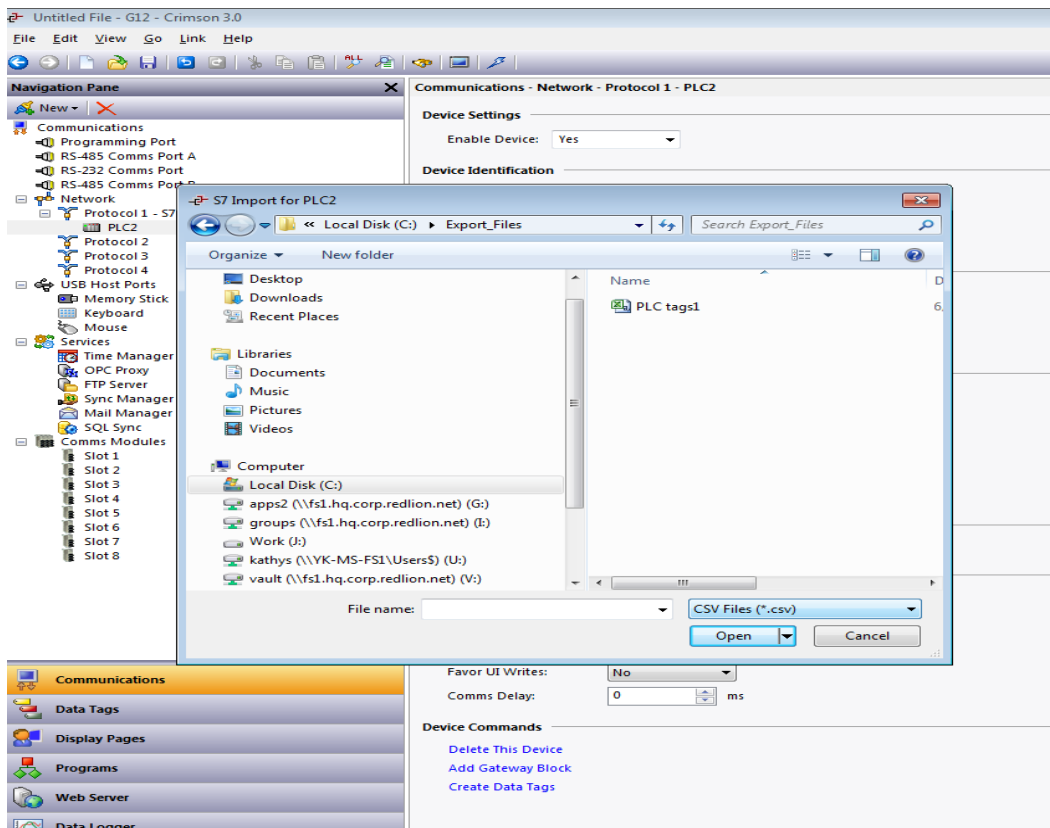
In the S7 Import dialog change the file type filter to CSV Files (*.csv) and select he exported CSV file. Upon opening, Crimson will create the appropriate data tags.
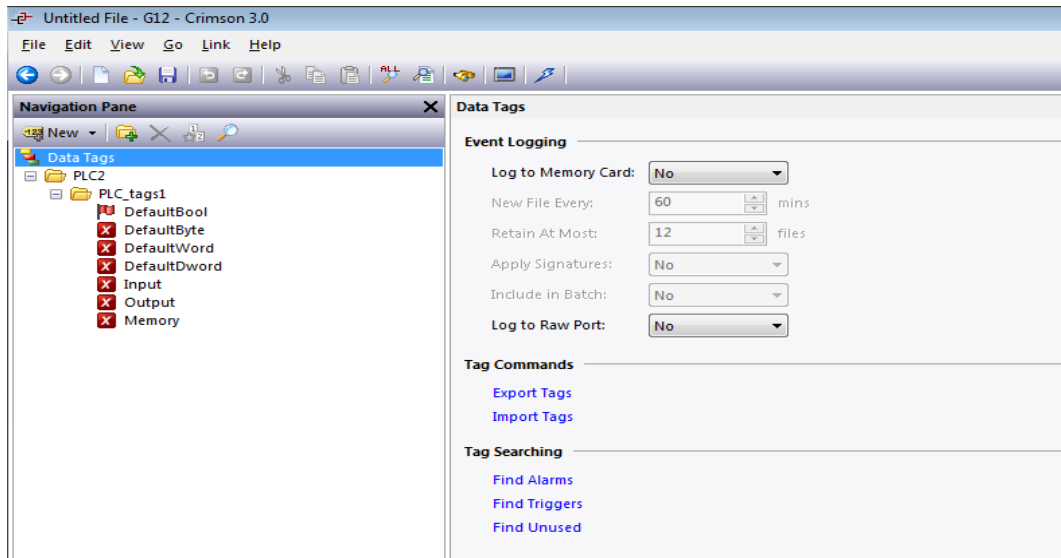

Creating PLC Data Blocks

In TIA Portal, right click on a data block in the PLC programming area and select "Properties…". In the General tab, select Attributes and disable the "Optimized block access" field, then click OK.
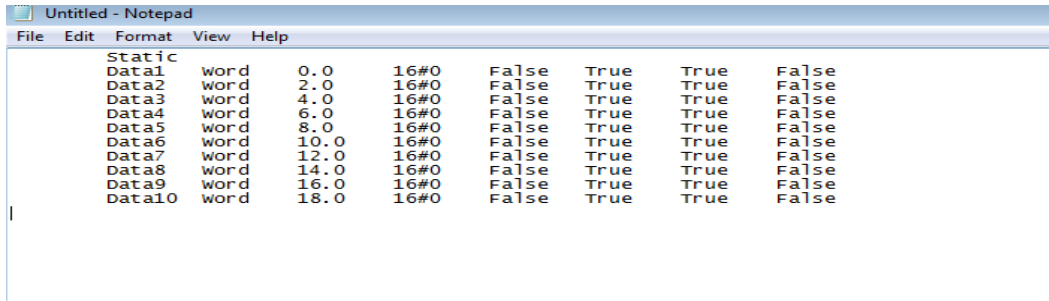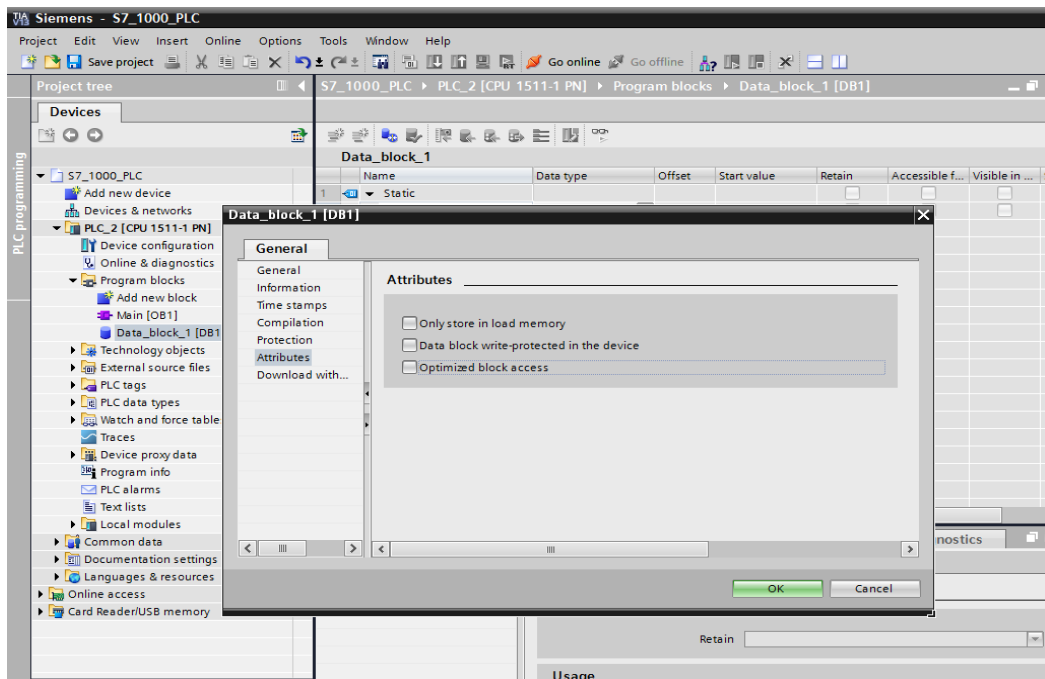
Once all entries are created in the data block, right click on the PLC device and select Compile. Once compilation is complete, the Offset column will be populated. NOTE: Ensure that array items are NOT expanded.
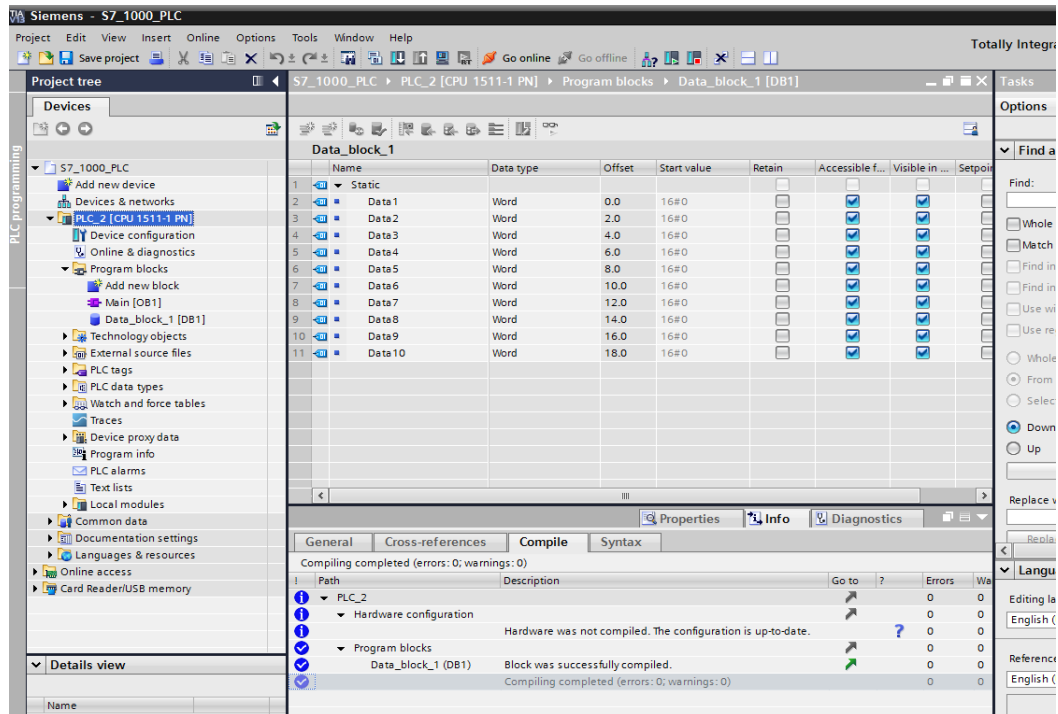
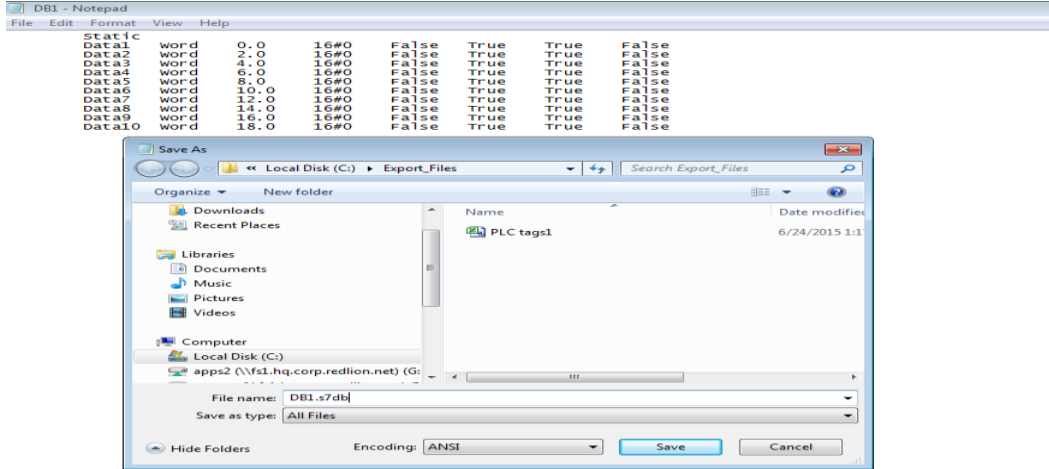Highlight the entire data block area, right click and select Copy.
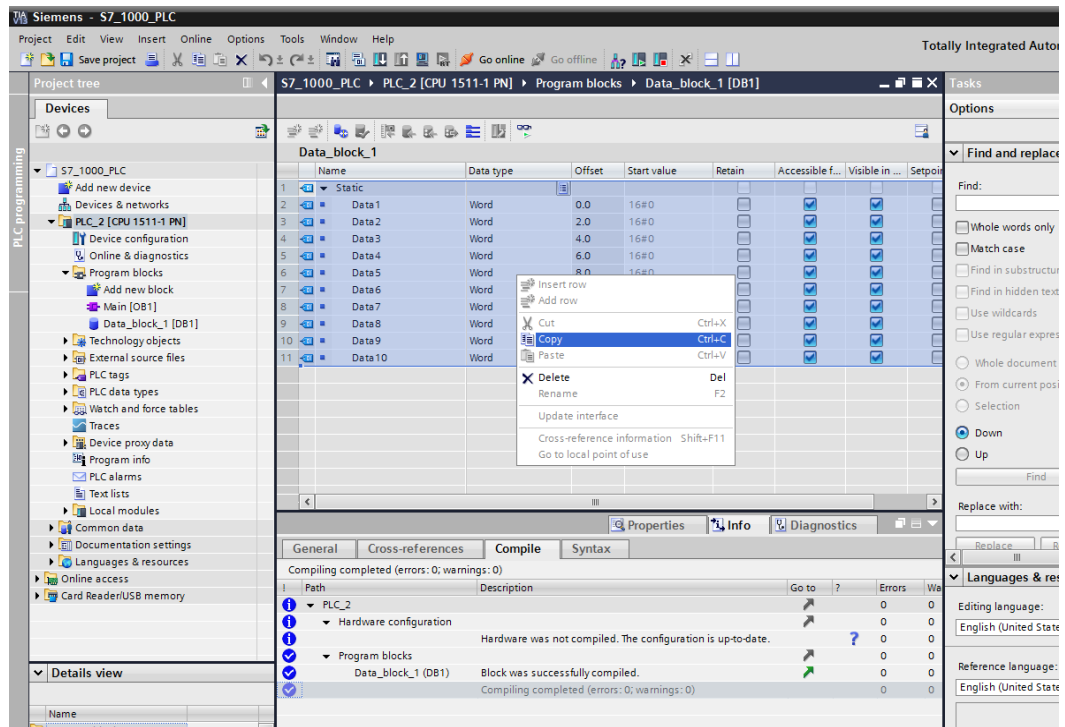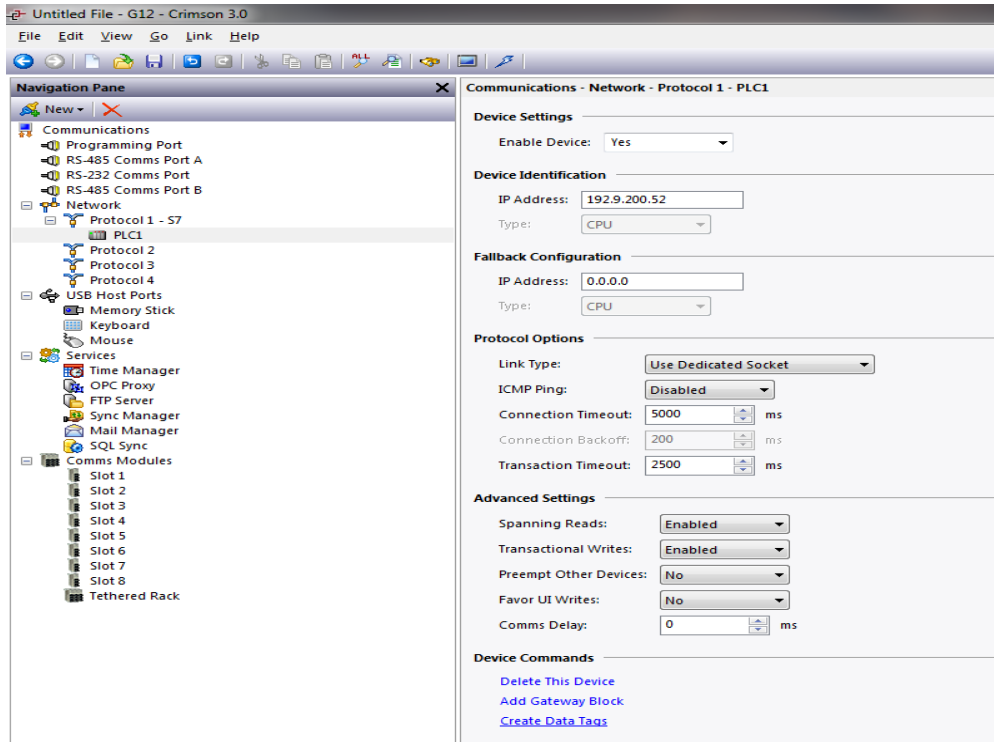
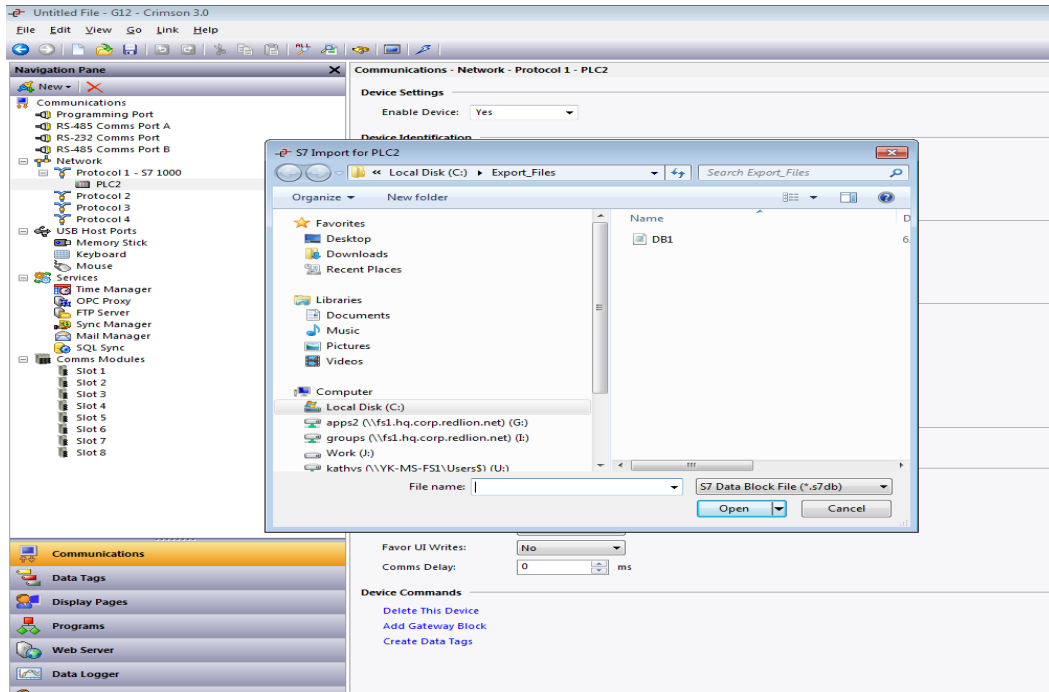Open a text editor and paste.

Save this file as DBx.s7db, where x represents the data block number.

In Crimson 3.0+ with the Siemens S7 TCP/IP Master with TIA S7 Tag Import driver selected in the Communications tree, click on the PLC device.

In the Device Commands group click on the Create Data Tags link which will open Crimson's S7 Import dialog.

Select the desired data block file. Upon opening, Crimson will create tags based on the data block import information.
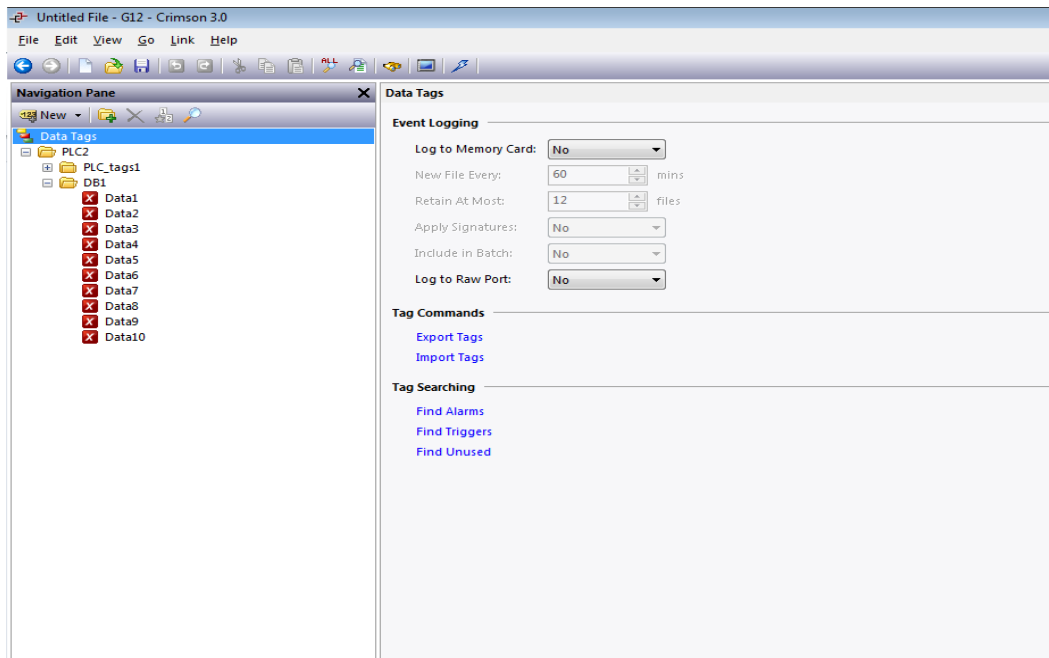
Repeat steps for each data block that the Red Lion device must access.

Managing Data Blocks

During the evolution of a database as data blocks are added and/or deleted, the internal data block list may need to be purged and sorted to provide the best optimization. This operation will be performed during the Rebuild Comms Block command which may be found in the Utilities submenu on the File menu in Crimson 3.0+.

TSAP Support

Version 1.02+ of the Siemens S7 TCP/IP Master with TIA S7 Tag Import supports communication based on a Siemen's TSAP connection.

In Crimson, select the device in the Communications tree representing the target S7 PLC. In the Device Identification group, choose "Yes" in the Use TSAP Configuration dropdown box then set the appropriate Server (Local) and Client (Partner) TSAP setting consistent with the setup/configuration of the target S7 PLC.
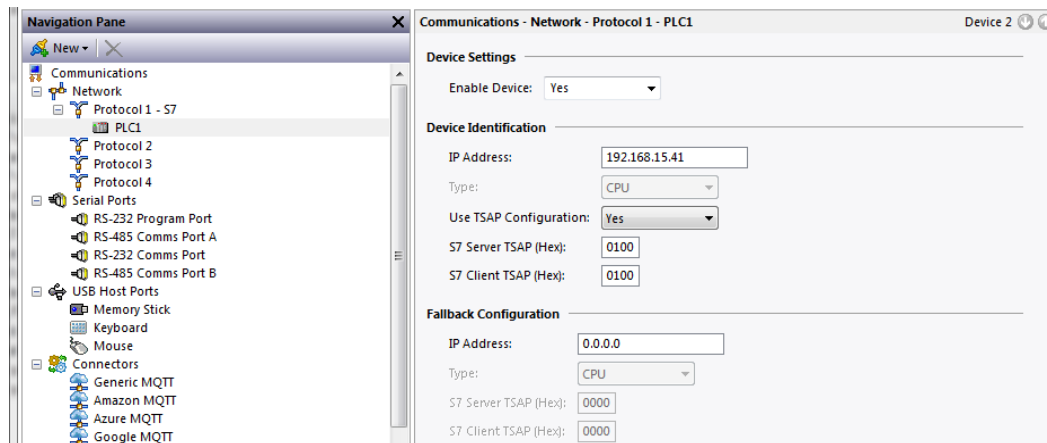
S7 TSAP Details

XXYZ is a hexadecimal value representing the TSAP where XX is the Device Connection, Y is the Rack number and Z is the Slot number.

In some configuration's it is possible to override the TSAP definition in the Siemen's software. In this case, the configured value in Crimson should match the configured value in Siemen's software.

Cable Information

Standard 10-Base-T Ethernet Cable

Revision History

08/13/2015 – Created
12/23/2016 – Updated Managing Data Blocks section.
10/31/2018 – Added TSAP support.