Unity Loader
User Manual

(Original Document)

12/2018

Schneider Electric

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

You agree not to reproduce, other than for your own personal, noncommercial use, all or part of this document on any medium whatsoever without permission of Schneider Electric, given in writing. You also agree not to establish any hypertext links to this document or its content. Schneider Electric does not grant any right or license for the personal and noncommercial use of the document or its content, except for a non-exclusive license to consult it on an "as is" basis, at your own risk. All other rights are reserved.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

Table of Contents

Safety Information

Important Information

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

BEFORE YOU BEGIN

Do not use this product on machinery lacking effective point-of-operation guarding. Lack of effective point-of-operation guarding on a machine can result in serious injury to the operator of that machine.

⚠ WARNING
UNGUARDED EQUIPMENT
● Do not use this software and related automation equipment on equipment which does not have point-of-operation protection.   ● Do not reach into machinery during operation.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

This automation equipment and related software is used to control a variety of industrial processes. The type or model of automation equipment suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications, more than one processor may be required, as when backup redundancy is needed.

Only you, the user, machine builder or system integrator can be aware of all the conditions and factors present during setup, operation, and maintenance of the machine and, therefore, can determine the automation equipment and the related safeties and interlocks which can be properly used. When selecting automation and control equipment and related software for a particular application, you should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual (nationally recognized in the United States of America) also provides much useful information.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the operator's hands and other parts of the body are free to enter the pinch points or other hazardous areas and serious injury can occur. Software products alone cannot protect an operator from injury. For this reason the software cannot be substituted for or take the place of point-of-operation protection.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

NOTE: Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the Function Block Library, System User Guide, or other implementation referenced in this documentation.

START-UP AND TEST

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check be made and that enough time is allowed to perform complete and satisfactory testing.

⚠ WARNING

EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future references.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and temporary grounds that are not installed according to local regulations (according to the National Electrical Code in the U.S.A, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage.

Before energizing equipment:
- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.
- Remove all temporary grounds from incoming power lines.
- Perform all start-up tests recommended by the manufacturer.

OPERATION AND ADJUSTMENTS

The following precautions are from the NEMA Standards Publication ICS 7.1-1995 (English version prevails):

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer's instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer's instructions and the machinery used with the electrical equipment.
- Only those operational adjustments actually required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

About the Book

At a Glance

Document Scope

This document describes the Unity Loader stand-alone tool.

Unity Loader can transfer Control Expert, Unity Pro applications bidirectionally between a PC and a Modicon M340, M580, Momentum, Premium or Quantum PLC.

NOTE: Unity Pro is the former name of Control Expert for version 13.1 or earlier.

It also transfers firmware (FW) mono-directionally from a PC to a Modicon M340, M580, or Momentum PLC or to Modicon X80 and eX80 modules containing firmware.

Complementary information on firmware update procedures and firmware compatibility rules is available in the Control Expert online help or in dedicated documents listed in the table below .

Validity Note

This documentation is valid for Unity Loader V14.0 or later.

Related Documents

Title of documentation	Reference number
Firmware Compatibility Rules, Modicon M580, Modicon Momentum, and Modicon X80 I/O Modules	EIO0000002634 (English)
Modicon M340, Update Procedure, User Guide	EIO0000002382 (English)
Modicon M580, Update Procedure, User Guide	EIO0000002383 (English)
Modicon Quantum, Update Procedure, User Guide	EIO0000002381 (English)
Modicon Controllers Platform Cyber Security, Reference Manual	EIO0000001999 (English), EIO0000002001 (French), EIO0000002000 (German), EIO0000002002 (Italian), EIO0000002003 (Spanish), EIO0000002004 (Chinese)
EcoStruxure™ Control Expert, Operating Modes	33003101 (English), 33003102 (French), 33003103 (German), 33003104 (Spanish), 33003696 (Italian), 33003697 (Chinese)

You can download these technical publications and other technical information from our website at *www.schneider-electric.com/en/download*.

Chapter 1
Unity Loader General Information

Overview

This chapter comprises general information about the Unity Loader and the dedicated hardware platforms Modicon M340, M580, Momentum, Premium, and Quantum.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
General	12
Installation	13
Preconditions	14

General

Overview

The Unity Loader is a stand-alone software tool dedicated to the M340, M580, Momentum, Premium, and Quantum hardware platforms.

A Control Expert or Unity Pro license is not required to use the loader.

The Unity Loader software provides the following transfer features:
- transfer of a Control Expert application from a PC to a Modicon M340, M580, Momentum, Premium, or Quantum PLC.
- transfer of a Control Expert application from a Modicon M340, M580, Momentum, Premium, or Quantum PLC to a PC.
- transfer of firmware (FW) from a PC to a Modicon M340, M580, or Momentum PLC or to Modicon X80 and eX80 modules containing firmware.

Refer to *Firmware Compatibility Rules, Modicon M580, Modicon Momentum, and Modicon X80 I/O Modules* for additional informations.

The Unity Loader software requires one of the following operating systems:
- Microsoft Windows 7 Professional 32-bit / 64-bit
- Microsoft Windows 10 Pro 32-bit / 64-bit
- Microsoft Windows Server 2016 Standard 64-bit

Installation

Overview

If you have:

- the packaged distribution of Unity Loader, the installation software is on the installation media in your package.
  To start the installation, click D:\setup.exe, where D: is the drive letter for your CD/DVD drive.
- the electronic distribution, the installation software is included in the file you downloaded.
  Browse to the directory where you saved the downloaded file and either decompress the file or make a CD. Start the installation.

When you start the installation, the Unity Loader Installation Wizard guides you through the rest of the installation.

Cyber Security

Please refer to the *Modicon Controllers Platform Cyber Security, Reference Manual*.

Password Management

Please refer to the *EcoStruxure™ Control Expert, Operating Modes* help for more details about Password Management.

Preconditions

Before FW Transfer

NOTE: Save the PLC program and other data before transferring firmware (FW) from a PC to a PLC or to a module with firmware.

⚠ **WARNING**
UNINTENDED EQUIPMENT OPERATION
Before transferring firmware to a PLC or to a module with firmware make sure that you have selected the correct project and firmware files and entered the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

PLC in Stop Mode

Stop the PLC before you start firmware (FW) transfer.

If you do not stop the PLC before trying to transfer firmware (FW), you are informed by the Unity Loader that the PLC has to be stopped.

After confirming this message, the Unity Loader stops the PLC automatically.

NOTE: A firmware (FW) transfer is only possible on a Modicon M340, M580, or Momentum hardware platform. Refer to *Firmware Compatibility Rules, Modicon M580, Modicon Momentum, and Modicon X80 I/O Modules*.

Chapter 2
Communication

Target Devices

Overview

The Unity Loader target devices are as follows:
- processors (CPUs) of the Modicon M340 platform
- processors (CPUs) of the Modicon M580 platform
- processors (CPUs) of the Modicon Momentum platform
- processors (CPUs) of the Modicon Premium platform
- processors (CPUs) of the Modicon Quantum platform
- Modicon X80 and eX80 modules containing firmware
- BME XBP •••• Ethernet backplanes

Run/Stop Command

The Unity Loader can send a run or stop command to the processor.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Before starting/stopping a PLC, make sure that you are connected to the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Evaluate operational state of equipment before starting or stopping a PLC.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Communication

Communication for CPUs and modules:
- M340 and M580 CPUs are accessible through their USB or Ethernet ports.
- Momentum CPUs are accessible through their USB or Ethernet ports when available.
- Premium CPUs are accessible through their Uni-Telway (UNTLW) ports.
- Quantum CPUs are accessible through their Modbus ports.
- M340 or M580 Ethernet modules are accessible through their own Ethernet port (crossover cable, point to point).
- X80 and eX80 modules containing firmware are accessible through the CPU (connection on a CPU port).
  These modules can be accessed through USB or Ethernet ports.
- BME XBP •••• Ethernet backplanes are accessible through the USB or Ethernet ports of the M580 BME P58 •040 CPU, or Ethernet ports of a BME CRA ••• •• adapter modules mounted on the backplane.

Chapter 3
Unity Loader Dialog Box

Overview

This chapter comprises information about the tabs of the Unity Loader dialog box.

What Is in This Chapter?

This chapter contains the following topics:

General Description of the Dialog Box

Overview

The user interface of the Unity Loader is a dialog box with 4 different tabs:

- **Project** tab
  transfer of a Control Expert application (program, data, user files) from a PC to a PLC or vice versa
- **Firmware** tab
  transfer of firmware (FW) from a PC to a PLC or to a module with firmware
- **Options** tab
  general settings for the Unity Loader
- **About** tab
  information about your Unity Loader (version, copyright, etc.)

Transfer FW or Transfer Project

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Before transferring data to a PLC or to a module with firmware make sure that you have selected the correct project and firmware files and entered the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Start PLC / Stop PLC

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Before starting/stopping a PLC make sure that you are connected to the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Evaluate operational state of equipment before starting or stopping a PLC.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Launching the Unity Loader

Launch the Unity Loader via **Start → All Programs → Schneider Electric → Unity Loader**.

General Structure

The following areas are included in each of the 4 tabs:
- tab selection (at the top of the dialog box)
- tab specific area
- **Connection**
- **Memory Card**
  NOTE: If Unity Loader is connected to a CRA module, an M580 CPU or a Momentum CPU the caption **Memory Card** is changed to **Internal Memory**.
- command buttons (at the bottom of the dialog box)

After launching Unity Loader, the dialog box opens with the **Project** tab.
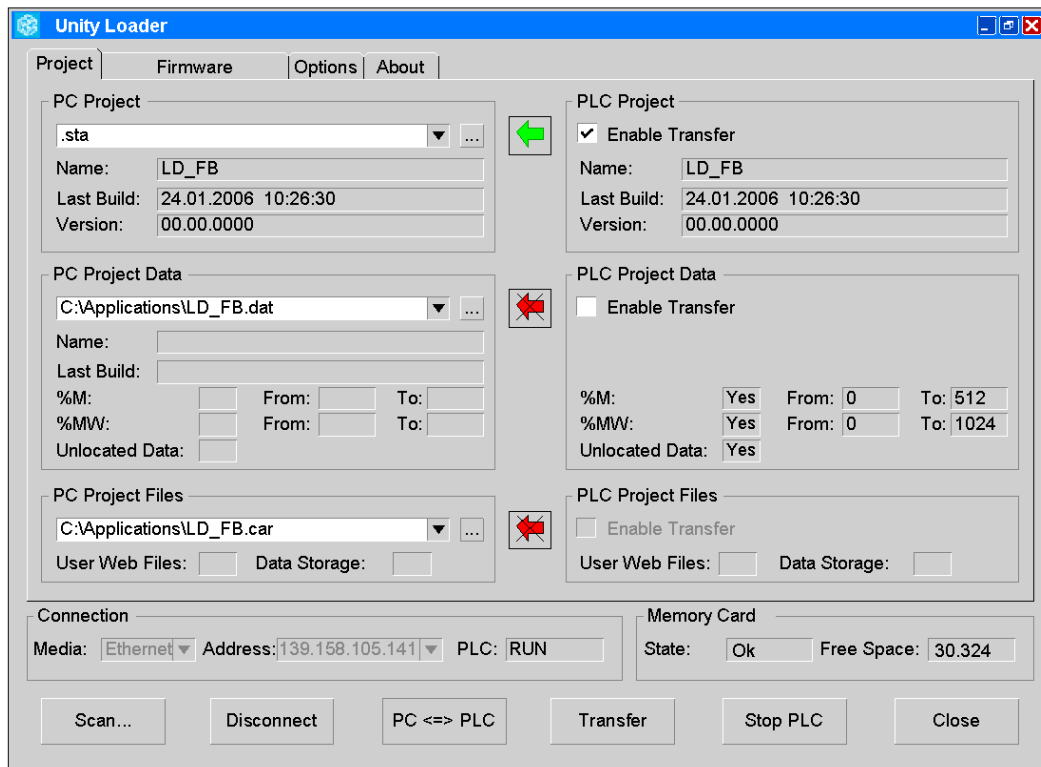
Tab Selection

To select a tab click the respective tab selector (**Project**, **Firmware**, **Options**, **About**).

Tab Specific Area

The content of the tab-specific area depends on the individual tab. For more information, see the respective tab description:

- **Project**
- **Firmware**
- **Options**
- **About**

Connection

NOTE: If Unity Loader is connected to an Ethernet Remote I/O header (BMX CRA 312 •• or 140 CRA 312 ••), few information is different compared to standard CPU. It is not possible to start or stop this module as it does not contain an application. For this reason it is also not possible to transfer applications or application-related data.

The connection area comprises the following elements:

Element	Description
Media	This list box displays one of the 4 possible connections: ● Ethernet ● USB (default) ● UNTLW ● Modbus To select a connection, click the arrow and select the respective connection in the list.
Address:	This list box displays the address of the target device e.g. SYS (USB or UNTLW), 139.158.105.141 (Ethernet or Modbus TCP) or 31 (Modbus). To select another address, click the arrow and select the respective address in the list, or type the address you want to connect to.
PLC:	This box indicates the state of the PLC: ● RUN ● STOP ● HALT ● LOADING ● NOCONF ● ERROR

NOTE: Devices are addressed by TCP/IP addresses, Modbus addresses, Uni-Telway addresses or through point-to-point connection via USB (default). The address can either specify a CPU or an Ethernet module.

Memory Card

The memory card area comprises the following elements:

Element	Description
State:	This box indicates the state of the memory card installed in the connected module: ● OK ● Absent ● Read only ● Access error
Free Space:	This box indicates the free space available on the memory card file system partition of the connected PLC.

The following data are stored in the file system partition of the memory card on the Modicon M340 or M580 hardware platform:

● **User Web Files** (CPUs with Ethernet and NOEs)
  ○ the Factory Cast default Web site
  ○ potentially custom web pages
  ○ some user files relative to the Web site

● **Data Storage**
  ○ user files managed by the application with the file management function blocks or
  ○ files transferred by the user with FTP

● **Firmware (FW)**
  files transferred by the Unity Loader for FW update (upgrade or downgrade).

NOTE: If no memory card is installed in the M340 PLC, the firmware (FW) cannot be transferred to the M340 PLC, because the FW is temporarily stored on the memory card.

NOTE: User Web Files are not supported for the M580 hardware platform.

NOTE: The **Free Space** shown for **Memory Card** is relative to the whole file system partition. Please refer to the memory card characteristics to see what is the size that can be allocated to the user files. FW update is not possible in case of insufficient free space.

Note: The memory card at the Premium hardware platform is structured in the following way:
● Program and symbols
● Constants
● Additional data storage

Command Buttons

The text of some buttons changes depending on the actual situation (e.g. Connect/Disconnect). Grayed buttons are disabled.

The command button area comprises the following buttons:

Button	Description
Scan...	Click this button to open the **Scan Network** dialog box. Network scanning is used to detect IP addresses available in the network. For more information refer to Scan Network Dialog Box *(see page 43)*.
Connect / Disconnect	Click this button to connect/disconnect the Unity Loader to/from the selected PLC.
PC<=>PLC	Click this button to select the data transfer from PC to PLC or from PLC to PC, depending on the selected transfer direction. The current transfer direction is indicated by transfer signs (arrows) in the tab-specific area of the **Project** tab and the **Firmware** tab. The transfer direction can only be selected for the 3 transfer signs (arrows) at the same time. **Note:** It is not possible to transfer the FW from PLC to PC. For the **Firmware** tab the **PC<=>PLC** button is disabled.
Transfer	Click this button to start the transfer between the PC and the PLC. The transfer direction depends on the previous executed selection. The **Transferring data** dialog box opens (refer to the Transferring Data Dialog *(see page 45)*).
Start PLC / Stop PLC	Click this button to start/stop the PLC *(see page 19)*. **NOTE:** If Unity Loader is connected to a CRA module the button **Start PLC / Stop PLC** is disabled.
Close	Click this button to close the Unity Loader dialog box. The **Close** button is disabled during transfer.

Help Button

NOTE: There is no **Help** button available in the dialog box. To launch online help press F1 or click the ![help icon] button in the title bar.

Project Tab

Overview

This tab comprises the following services:
- project transfer
  - transfer of a Control Expert application from a PC file (*.STU, *.STA, *.STM) to a PLC
  - transfer of a Control Expert application from a PLC to a PC file (*.STA, *.STM)

- project data transfer
  - save application data values from a PLC to a PC file (*.DAT)
  - restore application data values from a PC file (*.DAT) to a PLC

- project files transfer
  - save user files (data storage files and/or user files in the embedded Web site) from a PLC to a PC file (*.CAR)
  - restore user files from a PC file (*.CAR) to a PLC

Main Parts

The specific area of the project tab consists of 2 main parts:
- **PC Project** properties on the left specify the content of the files stored on the PC.
- **PLC Project** properties on the right specify the current status of the files stored on the connected PLC.

The transfer signs (arrows) between the 2 property areas indicate the transfer direction and significant comparison results between PC project and PLC project.

Representation

After launching Unity Loader, the dialog box opens with the **Project** tab.

NOTE:

If Unity Loader is connected to a CRA module it is not possible to transfer:
- **PC Project**
- **PC Project Data**
- **PC Project Files**

Therefore the check boxes are disabled and direction arrows are crossed.

PC Project Properties

The PC Project section consists of the following elements:

Element	Description
PC Project	The list box at the top displays the current project file with its path. To select a prior transferred project file click the arrow and select the respective project file. To select any other project file click the **...** button (⬚). This opens the dialog box **Select application file** where you can select the desired Control Expert project file. Further project file information: ● **Name:** name of the Control Expert project (default is STATION) ● **Last Build:** date and time of the last Control Expert project build ● **Version:** version of the Control Expert project
PC Project Data	The list box at the top displays the current project data file with its path. To select a prior transferred project data file click the arrow and select the respective project data file. To select any other project data file click the **...** button (⬚). This opens the dialog box **Select a data file** where you can select the desired Control Expert project data file. Further project data file information: ● **Name:** name of the Control Expert project data file ● **Last Build:** date and time of the last Control Expert project build ● **%M:** located variables (bits) ● **%MW:** located variables (words) ● **Unlocated Data:** data of function blocks and application
PC Project Files	The list box at the top displays the current project files archive with its path. To select a prior transferred project files archive click the arrow and select the respective project files archive. To select any other project files archive click the **...** button (⬚). This opens the dialog box **Select a storage file** where you can select the desired Control Expert project files archive. **Note:** The project files archive (*.CAR) is a backup file only and can not be edited with other tools. The following files are stored as parts of the *.CAR file, if existent on the PLC: ● **User Web Files:** user Web files stored on the memory card of the M340 PLC ● **Data Storage:** user files stored on the memory card of the M340 PLC via special function blocks

PLC Project Properties

The PLC Project section consists of the following elements:

Element	Description
PLC Project	**Enable Transfer** see below. Project file information: ● **Name:** name of the Control Expert project (default is STATION) ● **Last Build:** date and time of the last Control Expert project build ● **Version:** version of the Control Expert project
PLC Project Data	**Enable Transfer** see below. Project data file information: ● **%M:** located variables (bits) ● **%MW:** located variables (words) ● **Unlocated Data:** data of function blocks and application
PLC Project Files	**Enable Transfer** see below. The following files are stored as parts of the *.CAR file, if existent on the PLC: ● **User Web Files:** user Web files stored on the memory card of the M340 PLC ● **Data Storage:** user files stored on the memory card of the M340 PLC via special function blocks

Enable Transfer (Check Boxes)

The specific area of the project tab provides the possibility to transfer 3 different parts of a Control Expert project:
● project (*.stu, *.sta, *.stm)
● project data (*.dat)
● project files (*.car)

By default the 3 parts are selected, which allows a transfer of a project in one operation.

Each part of a project can be excluded from transfer by clearing the respective **Enable Transfer** check box. A deselected part is grayed and its transfer sign (arrow) is red and crossed out.

Even for excluded parts the available information is displayed to provide the context information.

NOTE: For the following reasons, the check boxes are disabled and the color of the arrows is switched to red:
● invalid files (e.g. files not created with Control Expert, but with valid extension)
● PLC in NOCONF state (not configured)
● file not supported by the hardware platform (*.car is not supported by the Premium CPU)

Transfer Signs (Arrows)

Transfer signs (arrows between the PC´s and PLC´s property areas) indicate:
- the transfer direction
- significant comparison results between the PC and the PLC projects

The transfer direction can be changed by clicking the **PC<=>PLC** button. The transfer direction can only be changed for the 3 signs (arrows) at the same time.

Comparison Results

Comparison is only done for transfer from PC to PLC.

The comparison results are represented by different colors of the arrows:
- Green indicates that these parts of the PC and the PLC projects are compatible.
- Yellow indicates that these parts are partially compatible but a faultless transfer cannot be assured.
- Red indicates that these parts are not compatible. In this case the transfer sign is additionally crossed out.

NOTE: If the **Unlocated Data** part is not compatible with the project embedded inside the PLC, only the located variables (%M, %MW) are transferred. A message is displayed and the arrow color switches to yellow.

Transfer from PLC to PC

NOTE: For transferring a project from PLC to PC no comparison is done and therefore color indication is not available. If you try to transfer a file that already exists, you have to confirm to overwrite it.

If you transfer a project from PLC to PC the appropriate boxes at PC side (**PC Project**, **PC Project Data**, **PC Project Files**) are filled automatically by the Unity Loader:
- If a history exists for the selected project, the boxes are filled with historic input.
- For new projects the names are generated from the **Default backup directory** (to be set on the **Options** tab) and the project name on PLC.
  If, for example, the project name on PLC is *Motor_01* and the default backup directory is *C:\Applications*, the following names are generated:
  - **PC Project**: *C:\Applications\Motor01.sta*
  - **PC Project Data**: *C:\Applications\Motor01.dat*
  - **PC Project Files**: *C:\Applications\Motor01.car*

Entering File Names

The dialog box supports you in entering file names:
- If you already specified names, the respective boxes are automatically filled with historic input.
- If you enter new names in one of the list boxes, a proposed entry is automatically entered in the next list box. Example: If you enter *C:\Applications\Motor_01.stu* in the **PC Project** box and you click the empty **PC Project Data** box afterwards, it fills it automatically with *C:\Applications\Motor_01.dat*. You can confirm this proposal or overwrite it.

File Format

File Format	Description	Comment
*.STU	Control Expert project file	project including source code and Control Expert workspace data
*.STA	Control Expert archive file	project including source code but without Control Expert workspace data This archive file is very compressed.
*.STM	Unity Loader specific project file	binary project data only, required for execution on PLC It contains no source code and can therefore not be read by Control Expert. **Note:** This file format can be used to backup the PLC project data.

To transfer a project from PC to PLC you can select a file in one of the three formats.

Unity Loader stores a project, transferred from PLC to PC in *.STA or *.STM format, depending on the project settings in Control Expert (Upload Information Include/ Without Upload Information). More details are provided in following tables.

NOTE: The Control Expert project has to be generated in **Standard Mode**. If a project generated in **Simulation Mode** is transfered from the PC to the PLC, a detected error is reported.

Upload Information Included

Control Expert		Unity Loader		PLC
Via **Tools → Project Settings → General → PLC embedded data** the check box **Upload Information** is selected. A project is saved/archived in *.STU or *.STA format	->	Such a binary project can be transferred to PLC with the Unity Loader.	->	The binary project runs on the PLC.
Such a file in *.STA format can be opened with Control Expert (but without the former workspace data.)	<-	Such a binary project can be transferred from PLC to PC with the Unity Loader and is saved in *.STA format.	<-	The binary project runs on the PLC.

Without Upload Information

Control Expert		Unity Loader		PLC
Via **Tools → Project Settings → General → PLC embedded data** the check box **Upload Information** is not selected. A project is saved/archived in *.STU or *.STA format	->	Such a binary project can be transferred to PLC with the Unity Loader.	->	The binary project runs on the PLC.
Such a file in *.STM format can **not** be opened with Control Expert.	<-	Such a binary project can be transferred from PLC to PC with the Unity Loader and is saved in *.STM format.	<-	The binary project runs on the PLC.
-	-	A file in *.STM format can be transferred from PC to PLC with the Unity Loader.	->	The binary project runs on the PLC.

NOTE: To save space on the PLC, it is recommended not to select the check box **Upload Information**.

For detailed information about *.STA format and Upload Information please refer to *EcoStruxure™ Control Expert, Operating Modes*

File Format After Online Modification

Online modifications of a project via Control Expert can result in *.STM file format:
● In Control Expert you built a project with the check box **Upload Information** selected.
● With Unity Loader you transferred such a binary project to PLC.
● With Control Expert you online modified the program in the PLC.
  (The upload information is no longer up-to-date).

NOTE: Only Control Expert or Unity Loader can be connected to a PLC at a time.

● Now you try to disconnect the PLC from Control Expert and a dialog box informs you, that the upload information is not up-to-date.
● If you confirm to update the upload information (with **Yes**) it is updated.
● If you negate to update the upload information (with **No**) it is **not** updated.
● Trying to transfer such a **not** updated project from PLC to PC with the Unity Loader, you are informed that the upload information is not up-to-date and the project is stored in *.STM format.

Firmware Tab

Overview

This tab comprises the following services:
- immediate firmware (FW) update (upgrade or downgrade) of the target device (CPU, NOE, or other modules with firmware)
- generating a memory card to be used later for firmware update of another PLC (Modicon M340 only)

NOTE: A firmware (FW) transfer is only possible on a Modicon M340, M580, or Momentum hardware platform. Refer to *Firmware Compatibility Rules, Modicon M580, Modicon Momentum, and Modicon X80 I/O Modules*.

Main Parts

The specific area of the **Firmware** tab consists of 2 main parts:
- **PC** firmware properties on the left specify the content of the files stored on the PC.
- **PLC** firmware properties on the right specify the content of the files stored on the PLC.

The transfer sign (arrow) between the 2 property areas indicates the transfer direction and significant comparison results between PC and PLC firmware (FW).

NOTE: It is not possible to transfer FW from PLC to PC.

Precondition

If no memory card is installed in the Modicon M340 PLC, the firmware (FW) cannot be transferred to the M340 PLC because the FW is temporarily stored on the memory card.

Representation

Firmware tab
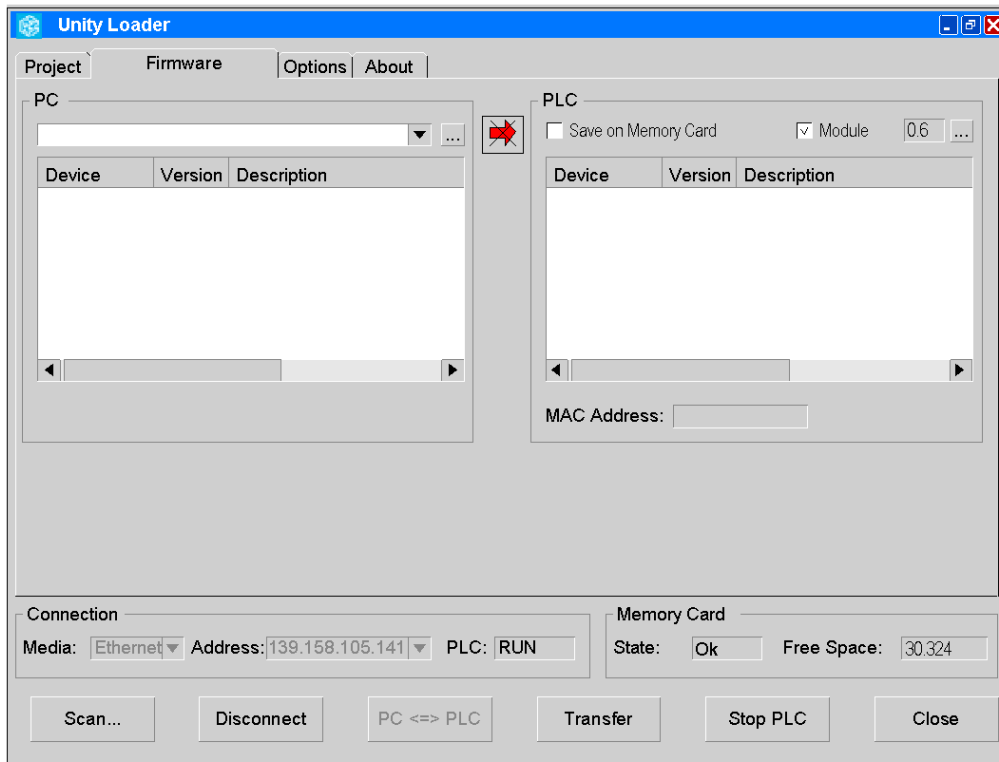
PC FW Properties

The PC firmware (FW) properties area consists of the following elements:

Element	Description
PC	The list box at the top displays the selected FW file with its path. To select a prior transferred FW file, click the arrow and select the respective FW file. To select any other FW file, click the **...** button (![]). This opens the dialog box **Select a Firmware File** where you can select the desired FW file. Further information: ● **Device:** name of the device ● **Version:** version of the FW ● **Description:** description of the FW

PLC FW Properties

The PLC firmware (FW) properties area consists of the following elements:

Element	Description
PLC	**Device:** name of the device **Version:** version of the FW **Description:** description of the FW **MAC Address:** MAC address of the PLC

Firmware (FW) Information

There may be more than 1 FW to be displayed and compared for 1 device. This information is displayed in additional rows.

By default, main information (device name and version) is displayed. Use the horizontal scroll bar to display the entire information.

Position the mouse pointer on a listed FW to display the related information (tooltip).

MAC Address

The MAC address is displayed for Ethernet devices.

This helps you to identify the device more securely.

The MAC address is not available for intelligent modules (see below).

NOTE: If Unity Loader is connected to a CRA module, the MAC address of the CRA is displayed in the MAC address field.

Hardware ID

The hardware ID must match. If not, the transfer sign is marked red and crossed out. Transfer is disabled.

FW Version

The firmware (FW) version to be transferred should be later than the current one. If not, the transfer sign is marked yellow.

Transfer Sign (Arrow)

Transfer sign (arrow between the PC and PLC property areas) indicates:
- the transfer direction
- significant comparison results between the PC and the PLC firmware

Comparison Results

Comparison is only done for transfer from PC to PLC.

The comparison results are represented by colors:
- Green indicates that the firmware of the PC and the PLC are compatible.
- Yellow indicates that the firmware of the PC is earlier than or partially compatible with the firmware of the PLC.
- Red indicates that the firmware of the PC and the PLC are not compatible. In this case, the transfer sign is additionally crossed out.

FW Partial Transfer

If not all parts inside the selected firmware file (*.ldx) are compatible, the Unity Loader offers a partial download of the compatible firmware parts.

Confirm the popup message that is displayed to make a partial download.

FW Transfer from PLC to PC

It is not possible to transfer the firmware from PLC to PC.

In the **Firmware** tab, the **PC<=>PLC** button is disabled.

Addressing Modules

The **Module** check box enables you to update other modules (with firmware) of the Modicon M340 or M580 hardware platform (for example, BMX ART 0414):

Step	Action
1	Activate the **Module** check box to display **Rack.Slot** of the device connected via Ethernet (for example, **0.6**).
2	Click the **...** button ( ) right beside the **Module** check box to open the **Module Address** dialog where you can enter **Rack Index** and **Slot Index** of the module you want to update.
3	Enter **Rack Index** and **Slot Index** and then clicking **OK**.
4	Now you can update the specified module.

Constraints for Updating Modules

Refer to *Firmware Compatibility Rules, Modicon M580, Modicon Momentum, and Modicon X80 I/O Modules*.

The following constraints apply to the updating modules feature:
- M340 or M580 Ethernet modules can be updated by direct connection only (same as for CPUs).
- Modicon X80 and eX80 modules are accessible through the CPU (by a connection on a CPU port). These modules cannot be accessed through Ethernet modules.
- Updating a CRA adapter can be done through 1 of the following:
  - connection to the service port of the corresponding Quantum CRP module using the IP address of the CRA adapter
  - connection to an Ethernet port on an M580 CPU
  - connection to the service port of the CRA adapter itself

- After updating the firmware of a module, the firmware version displayed in Unity Loader is not refreshed automatically.
  To display the firmware properties after updating either:
  - perform a hardware reset of the PLC by pressing the reset button of the power supply
  - by power cycling the PLC

NOTICE

INOPERABLE EQUIPMENT

To avoid that a module remains blocked in a non-operational state after updating the firmware using the Save on Memory Card feature either:
- perform a hardware reset of the PLC by pressing the reset button of the power supply
- power cycle the PLC

Failure to follow these instructions can result in equipment damage.

Save on Memory Card

Overview

The **Save on Memory Card** feature provides the possibility to generate a memory card that can be used later for firmware (FW) update of another M340 PLC.

As an update with the memory card does not require the presence of Unity Loader, this option could be useful to update M340 PLCs that cannot be connected to the Unity Loader directly.

NOTE: The Save on Memory Card feature is only possible for M340 hardware platforms.

NOTE: If Unity Loader is connected to another device than a M340 PLC the check box **Save on Memory Card** is disabled and the text is changed to **No Memory Card**.

Save on Memory Card Unchecked

By default **Save on Memory Card** is unchecked.

The Unity Loader sends a request to update the PLC immediately after the firmware (FW) is transferred to the memory card.

The FW files are stored only temporarily on the memory card and are removed after the update is completed.

Save on Memory Card Checked

If **Save on Memory Card** is checked, the unzipped firmware (FW) files are transferred to the memory card of the PLC.

The files are marked for automatic update.

At the end of the transfer, you are asked to perform a manual reset of the PLC.

A reset updates the FW of the PLC automatically, if the current version of the PLC is earlier than the version on the memory card and the FW on the memory card is compatible to FW on the PLC.

After the update, the files related to the FW are then removed from the memory card.

NOTE: As it is not possible to display the data on the memory card, it is recommended to label the card after saving FW on the card.

Source/Target PLC

You can use a memory card for firmware (FW) update of another PLC.
- Source PLC
  On the source PLC you generate a memory card, remove it from the PLC and send it to the target PLC (for example, to another site/country).
- Target PLC
  On the target PLC, you insert the memory card and update the FW.

NOTE: The memory card must remain on the target PLC as long as the firmware update is in progress.

Updating a PLC with Memory Card

To update the target PLC using the memory card, created at the source PLC, proceed as follows:

Step	Action
1	Check **Save on Memory Card** and start the transfer. **Result:** ● The unzipped firmware (FW) files are transferred to the memory card of the PLC. ● The files are marked for automatic update.
2	Remove the memory card from the source PLC.
3	Insert the memory card to the target PLC.
4	Perform a manual reset at the target PLC. **Result:** ● The firmware (FW) of the target PLC is updated automatically if the current version of the PLC is earlier than the version on the memory card and the FW on the memory card is compatible to FW on the PLC. **NOTE:** The files on the memory card related to FW **are removed** after the update. **NOTE:** The memory card must remain on the target PLC.

Only 1 FW on Memory Card

Only 1 firmware (FW) can be saved on a memory card.

Each transfer, whether **Save on Memory Card** is checked or not, erases the FW folder first.

Memory Card Write Protect

NOTE: If the memory card is write protected, it is not possible to perform an update using the memory card.

Addressing Modules

For addressing modules (with firmware), please refer to Addressing Modules *(see page 34)*.

Project on Memory Card

If there is a memory card present on a Modicon M340 or M580 and you transfer data using the **Project** tab of the Unity Loader, the following data are stored on the memory card for backup reasons:
● **Project** (Control Expert application)
● **Project Files**
  ❍ **Data Storage** files
  ❍ **User Web Files**

NOTE: Other user files (like Word, Excel, Adobe) and **Project Data** (%M, %MW, values of unlocated data) are not stored on the memory card.

Project and FW at Once

If you transferred data to a memory card (on the **Project** tab) as described above and you are using the **Save on Memory Card** feature on the **Firmware** tab, both data are present at the memory card.

NOTE: It is also possible to update a project only without updating the firmware (FW).

Inserting the memory card into another PLC and performing a manual reset, the project, and the FW are updated.

The memory card must remain on the target PLC.

NOTE: Take care to have the appropriate project on the memory card.

One Shot/Multi Shot

For using the memory card there are 2 modes:
- One shot
  With the one-shot mode, you need 1 memory card for 1 update.
- Multi-shot
  With the multi-shot mode, you can use a memory card, generated on a source PLC, to update several target PLCs (for Control Expert applications only).

For the possible use cases of the memory card, please refer to this table:

Area	Description	One Shot	Multi-Shot
System Area (**Firmware** tab)	1 firmware (FW) (including WEB pages if available)	Need 1 memory card per FW and per machine.	not supported (The system removes the update information after the update is completed.)
User´s Area (**Project** tab)	**Project** (Control Expert application)	No need to provoke a backup, the new memory card remains in the PLC.	You need to provoke a backup.
	Data Storage files	The new memory card remains in the PLC.	not supported
	User Web Files		
	other user files (like Word, Excel, Adobe)		
	Project Data (%M, %MW, unlocated data)	not supported	not supported

Options Tab

Overview

The **Options** tab comprises a set of general settings for the Unity Loader.

Representation

Options tab
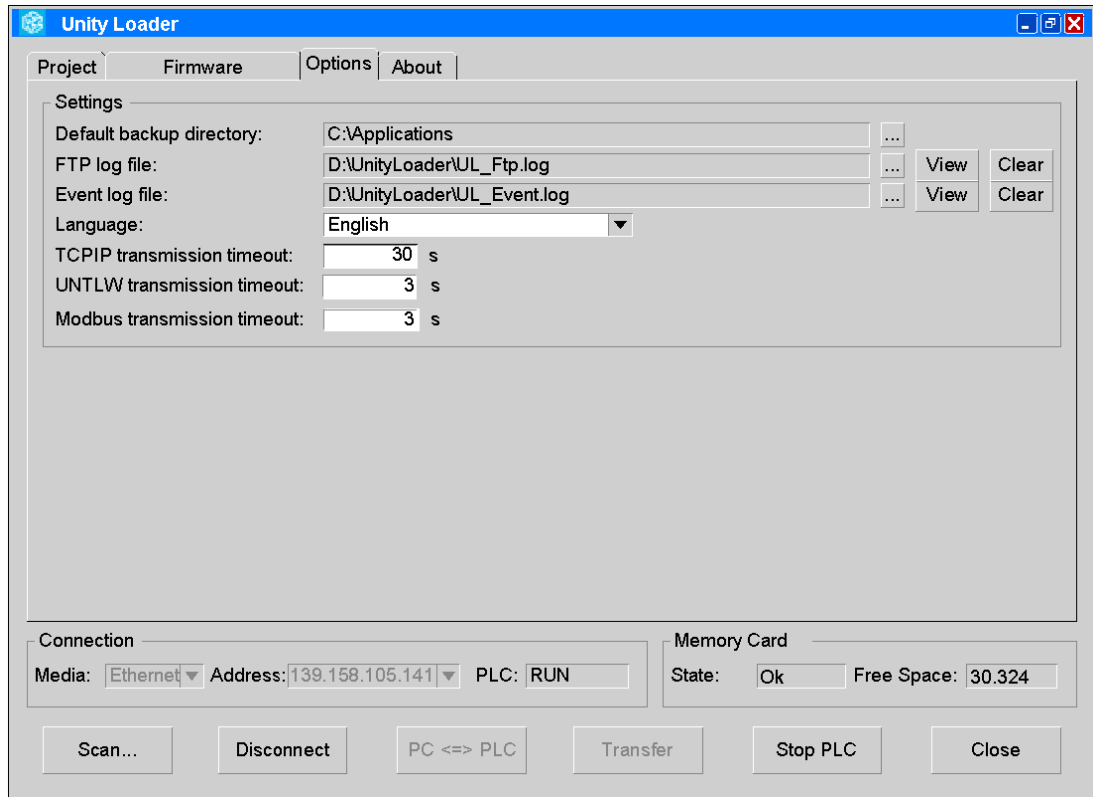
Settings

Element	Description
Default backup directory:	backup directory for Unity Loader files (e.g. *C:\Applications*) The default backup directory and the project name on the PLC are used to generate new project names (including path) automatically while transferring a project from PLC to PC *(see page 28)*.
FTP log file:	name and path of the FTP log file In this file, requests and replies exchanged between the loader´s FTP client and the PLC´s FTP server are logged. Click the **View** button to look at the log file. Click the **Clear** button to empty the log file.
Event log file:	name and path of the event log file In this file, the major events, such as FW transfer, PLC start / stop or unexpected events are logged. Click the **View** button to look at the log file. Click the **Clear** button to empty the log file.
Language:	This list box displays the languages provided for the Unity Loader user interface. ● English ● French ● German ● Italian ● Spanish ● Chinese To switch to another language click the arrow and select the respective language in the list. **Note:** After switching to another language you have to close and launch again the Unity Loader.
TCP/IP / UNTLW / Modbus transmission timeout:	delay used for self-recovery while TCP/IP / UNTLW / Modbus transmission (seconds)

Transfer Button

In the **Options** tab the **Transfer** button is disabled.

About Tab

Overview

The **About** tab comprises information about your Unity Loader:

- version
- build
- copyright information
- license agreement

Representation

Unity Loader is a free tool which runs without registration.

About tab
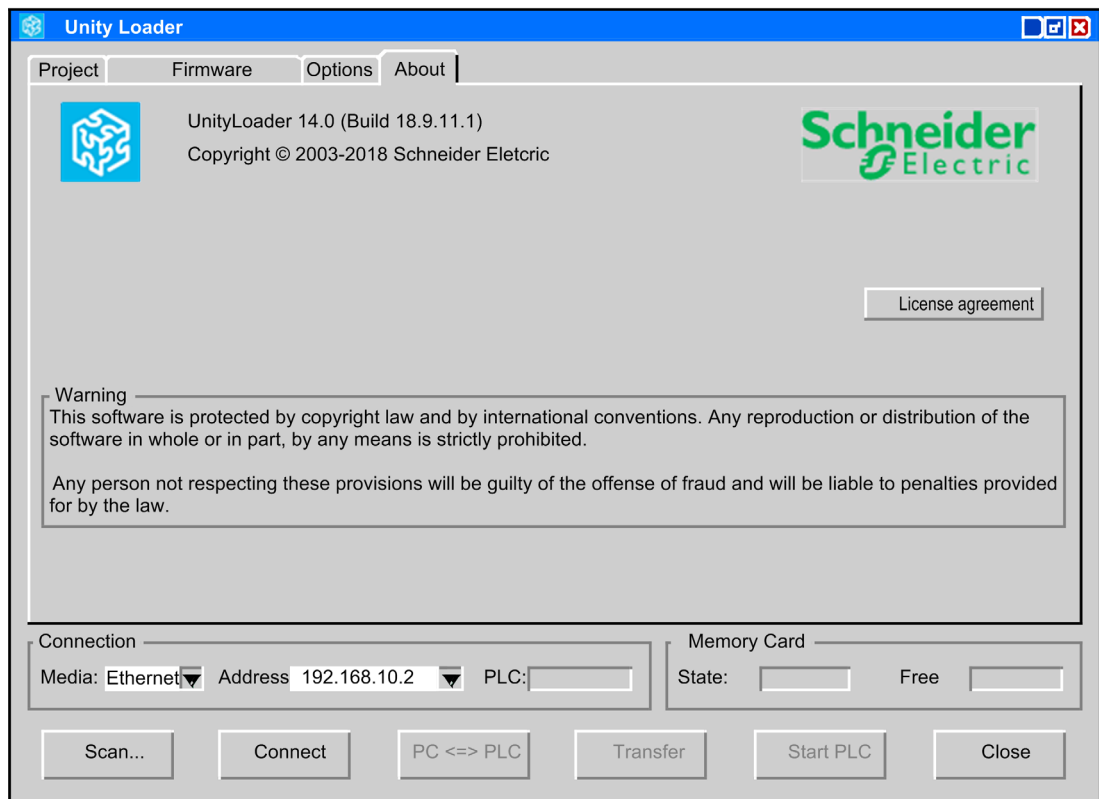
License Agreement

Click the **License agreement** button to display the license agreement for your Unity Loader software.

Transfer Button

In the **About** tab the **Transfer** button is disabled.

Scan Network Dialog Box

Overview

Clicking the **Scan...** button opens this dialog box.

Network scanning helps you to detect IP addresses of Modicon M340, M580, and Momentum PLCs in the network.

The **Scan Network** dialog box is modeless, that is, the dialog box does not keep the input focus so scanning can be done in parallel.

Representation

Scan Network dialog box
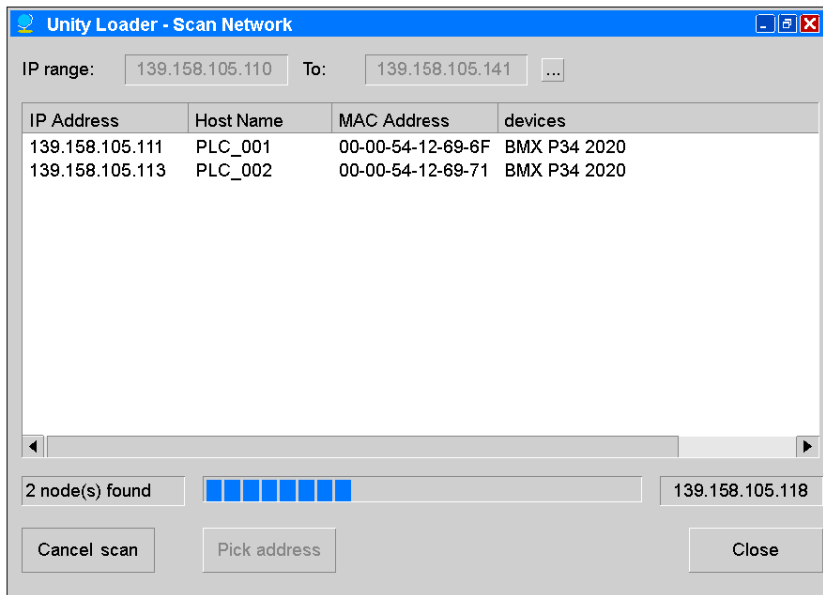
IP Range

Specify the range of IP addresses, in which the hosts are searched after clicking the **Start scan** button. You can also click the auto-detect button (...). to fill in the maximum range of the PC´s network segment.

IP Address Properties

The IP Address properties comprise the following elements:

Element	Description
IP Address	IP address found in the network
Host Name	host name of the found IP address
MAC Address	MAC address of the found IP address
devices	device assigned to the found IP address

Command Buttons

The text of some buttons changes depending on the actual situation (for example, Start Scan / Cancel Scan). Grayed buttons are disabled.

The command buttons area comprises the following buttons:

Button	Description
Start scan / Cancel scan	Click this button to start/cancel network scan. The status of the scan process is displayed above the command buttons.
Pick address	Click this button to fill the IP address of a selected host into the address box of the main dialog box. See Connection *(see page 21)* .
Close	Click this button to close the **Scan Network** dialog box.

If the Unity Loader is connected the **Pick address** button is disabled.

Transferring Data Dialog Box

Overview

Clicking the **Transfer** button opens this dialog box.

The **Transferring data** dialog box displays a status report of the data transfer.

The dialog box is modal, i.e. you cannot return to the previous dialog box until the **Transferring data** dialog box is closed.

⚠ **WARNING**
UNINTENDED EQUIPMENT OPERATION
Before transferring data to a PLC or to a module with firmware make sure that you have selected the correct project and firmware files and entered the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ **WARNING**
UNINTENDED EQUIPMENT BEHAVIOR
If the transfer of data failed (for example, a PLC power off occurs during the transfer), the PLC is in an undetermined state. In this case restart the transfer immediately.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Representation

Transferring data dialog box

```
┌──────────────────────────────────────────────────────────────┐
│ Transferring data to PC                                    ☒  │
├──────────────────────────────────────────────────────────────┤
│ Application upload started                                     │
│ Transfer completed                                             │
│ Project data upload started                                    │
│ Transfer completed                                             │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│ ◄ |_____|                                           ►    │
│                                                                │
│ ████████████████████████████████████          [   Abort   ]   │
│ 3,784 of 3,784 bytes transferred                [   Close   ]  │
│                                                                │
└──────────────────────────────────────────────────────────────┘
```
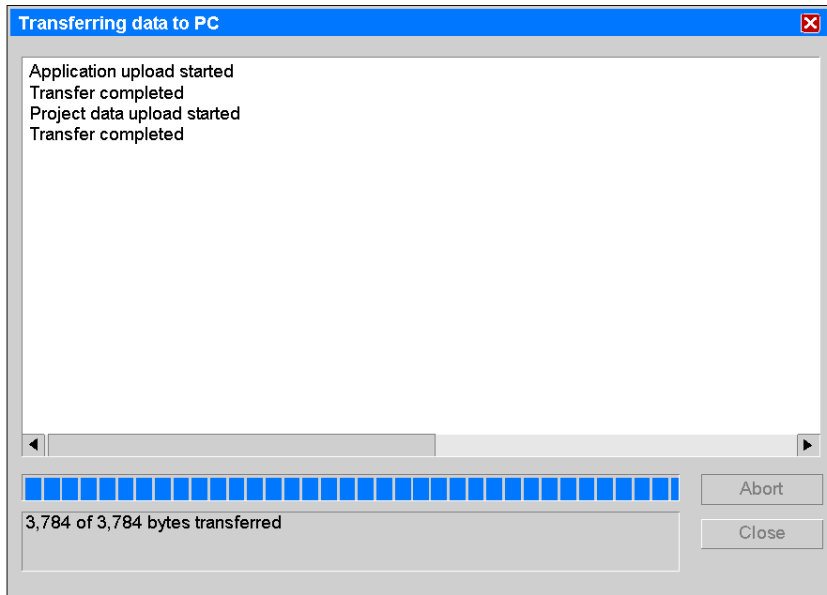
Status Information

For application transfer the **Transferring data** dialog box comprises the following status information:

- transfer started
- number of bytes transferred
- transfer completed

A status bar displays the transfer status.

For firmware (FW) transfer the **Transferring data** dialog box comprises the following status information:

- transfer started
- free space on memory card
- required space
- available space
- directory information
- transfer completed
- writing files to flash memory
- FW update successful

A status bar displays the transfer status.

NOTE: The **Transferring data** dialog comprises only the main events. For detailed information please refer to the log files in the **Options** tab .

Required Space

The amount of required space is a little bit larger than the data that should be transferred, because the firmware (FW) needs additional space for file management.

Available Space

The value of available space may be larger than the **Free Space** value displayed in the **Memory Card** status line because the calculation of available space takes into account the memory space of data that will be overwritten by new data.

Command Buttons

Grayed buttons are disabled.

Button	Description
Abort	Click this button to abort the transfer.
Close	Click this button to close the **Transferring data** dialog box.

NOTE: During firmware (FW) transfer the **Abort** and the **Close** buttons are disabled.

Chapter 4
Example: Transfer of an Application from PC to PLC

Transfer of an Application from PC to PLC

Procedure

The following table describes the procedure for transferring a Control Expert application from a PC to a Modicon M340, M580, Momentum, Premium or Quantum PLC.

Step	Action
1	Connect the PC and the PLC to the network.
2	If you do not know the required IP addresses click the **Scan...** button. (See Scan Network Dialog Box *(see page 43)*).
3	Enter the connection data: **Media** and **Address**. (See Connection *(see page 21)*).
4	Click the **Connect** button. (See Command Buttons *(see page 23)*).
5	Select the required project files (**PC Project**, **PC Project Data**, **PC Project Files**). (See PC Project Properties *(see page 26)*).
6	Set/reset the required **Enable Transfer** check boxes. (See Enable Transfer (Check Boxes) *(see page 27)*).
7	If necessary set the transfer direction to PC->PLC by clicking the **PC<=>PLC** button. (See Command Buttons *(see page 23)*) and Transfer Signs (Arrows) *(see page 28)*).

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Before stopping the PLC, make sure that you are connected to the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Step	Action
8	Click the **Stop PLC** button. (See Command Buttons *(see page 23)*).
9	Click the **Transfer** button. (See Command Buttons *(see page 23)*). **Result:** The **Transferring data** dialog box opens and displays a status report of the data transfer. (See Transferring Data Dialog Box *(see page 45)*).
10	After transfer is completed, close the **Transferring data** dialog box and click the **Start PLC** button

Appendices

Appendix A
Transfer of Applications in Batch Mode

Batch Mode with the Unity Loader Command Line Interface

Overview

The Unity Loader offers the command line interfaces *UlUmas.exe* for skilled users.

UlUmas.exe provides commands for transferring applications and data files via UMAS protocol.

The main usage is to transfer applications to one or several PLCs by calling a script without running Unity Loader dialogs but you can also start and stop PLCs.

NOTE: This command line interface can only be used if the PLC is not protected with an application password.

Commands without Additional Checks

The command line interface executes commands on the PLC without additional checks.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Before executing commands by means of the command line interface make sure that the commands will not result in unintended situations for men or equipment.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Transfer Project

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Before transferring data to a PLC make sure that you have selected the correct files and entered the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown by Unity Loader in the Firmware tab.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Start PLC / Stop PLC

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Before starting/stopping a PLC make sure that you are connected to the correct target address. Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Evaluate operational state of equipment before starting or stopping a PLC.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

UMAS

UMAS stands for Unified Messaging Application Service, a platform independent protocol for exchanging application data.

Program

You can find the *UlUmas.exe* in the installation directory of your Unity Loader software.

Invocation

```
UlUmas[.exe] [-a:Address] [-s:ScriptFile] [-l:LogFile],
```

where:
- `Address`: IP-Address or host name. For a USB connection, use the reserved IP address 90.0.0.1. Alternatively, you can specify the IP address with the Open command.
- `ScriptFile`: name of script file containing the UMAS commands
- `LogFile`: name of log file containing the status messages

An example:

```
UlUmas -s:RunMyApplication
```

List of Commands

NOTICE

UNINTENDED STOPPING OF THE PLC

Before using the `D1App` command make sure that you are connected to the correct target address.

Verify the address by comparing the MAC address printed on the device with the MAC address shown in the Firmware tab.

Failure to follow these instructions can result in equipment damage.

Command	Description
`Open <IP Address>`	connects to the UMAS server on the PLC with the specified IP Address
`Close`	terminates the current UMAS session
`D1App <Application File>`	downloads application file The application file can have one of the following extensions: ● STU file, a project file saved with Control Expert. ● STA file, an archive file generated with Control Expert or with Unity Loader. ● STM file, an archive file without upload information, generated with Unity Loader. **NOTE:** This command automatically stops the PLC.
`U1App <Application File>`	uploads application file The application file can be: ● STA file An archive file generated by Unity Loader, that can be read with Control Expert. **NOTE:** The application is generated in Control Expert with the **Upload information** selected. ● STM file A backup file generated by Unity Loader, which cannot be read with Control Expert. Use this file type, if the application was generated without upload information.
`D1Dat <DataFile>`	downloads user data file DataFile: file containing snapshot values of an application, uploaded with Unity Loader or Control Expert.
`U1Dat <DataFile>`	uploads user data file DataFile: file generated by Unity Loader containing the current application values.
`Run`	puts the PLC in the RUN mode
`Stop`	stops the PLC

Command	Description
Mirror [size]	tests the UMAS connection by sending an arbitrary stream of data, which is sent back by the UMAS server. If the response differs from the request, a detected error is reported. Size (length of data): ● minimum = 1 byte ● maximum <= 1022 bytes **NOTE:** Depending on the network configuration, the maximum maybe smaller.
PlcInf	retrieves information about current application, PLC and memory card
AppInf	retrieves information about current application
DatInf	retrieves information about current application located and unlocated data
CompDat <RefDataFile> <CompDataFile>	compares variable values of an application stored in a reference data file with either: ● PLC values ● values stored in a data file
Bye	terminates UlUmas.exe
! [WindowsCmd]	runs a Windows Command If the command is omitted, a Windows Command shell is opened, which has to be terminated with the Windows Exit command.
?	displays the command list

Script File

Each line of a script may contain either a single command or a comment.

A comment line starts with `#`.

Parameters are specified as environment variables by starting and ending with `%`.

Example script for transferring an application to several PLCs:

```
# store these lines to a file named "TransferApp.txt" and
# call UlUmas -s:TransferApp.txt
# open first PLC
Open 192.168.10.1

# make a backup first
UlApp BackupStationV1.sta

# download new application generated by Control Expert,
# the PLC has to be in stop mode
```

```
Stop
DlApp StationV2.stu
Run

Close

# open second PLC, this time the IP address is specified as
# an environment variable
# in the Windows command shell type
# Set BMX2020_2=192.168.10.2
Open %BMX2020_2%
Stop
DlApp StationV2.stu
Run

Close

# open third PLC, this time a host name is used as address
# edit the WINDOWS\system32\drivers\etc\host and enter the
# line
# 192.168.10.3 Bmx2020_3
Open Bmx2020_3
Stop
DlApp StationV2.stu
Run

# terminate UlUmas.exe
bye
```

Index

A

addressing modules, *34*

B

batch mode
    UlUmas.exe, *53*

C

command line interface
    UlUmas.exe, *53*
communication, *15*
connecting, *21*, *23*
constraints for updating modules, *35*

D

devices, *15*
disconnecting, *23*

F

firmware (FW), *31*
    version, *33*

H

hardware ID, *33*

I

installation, *13*
IP address
    properties, *44*
    range, *43*

L

launching
    Unity Loader, *19*
license agreement, *42*

M

MAC address, *33*
memory card, *22*
    save on, *36*
module addressing, *34*
module check box, *34*

O

options, *39*

P

PC projects, *24*
PLC projects, *24*

S

save on memory card, *36*
scanning
    networks, *23*, *43*
settings, *39*
starting
    PLC, *19*, *54*
stopping
    PLC, *19*, *54*

T

target devices, *15*

transferring
    application, example, *49*
    data, *45*
    FW, *23*, *31*
    project, *23*

U

UIUmas.exe, *53*