


WinCE image and files for CEView v6.0+SP1

List of CEView Files and WindowsCE Image Settings for CEView

Introduction

This document describes the components (files) of CEView runtime software for Microsoft WindowsCE (WinCE) platform, such as the image requirements in order to run CEView on the WinCE device.


The information in this document is useful to configure a third-party WinCE device (for example: iPAQ) in order to run CEView. Also, it provides the necessary information for OEM (hardware manufacturers) to configure the WinCE image of their devices in order to receive the advantage of all tools provided by CEView.

 **Note:** CEView is the runtime program, which executes the applications developed with InduSoft Web Studio, on the WinCE operating system.

Versions and Platforms

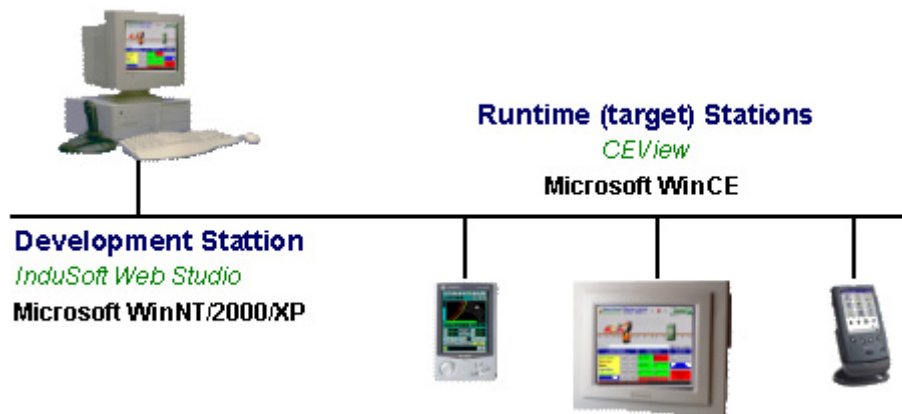
The table below shows the WinCE platforms supported by each version of CEView:

| CEView version | WinCE version | Processor Type |
|----------------|---------------|---|
| v3.0 | v2.11 / v2.12 | ARM, MIPS, PPC, SH3, SH4, X86 |
| V4.1 | v2.11 / v2.12 | ARM, MIPS, PPC, SH3, SH4, X86 |
| V4.4 | v3.00 | ARM, MIPS, MIPSFP, PPC, SH3, SH4, THUMB, X86 |
| V5.1 | v3.00 | ARM, MIPS, MIPSFP, PPC, SH3, SH4, THUMB, X86, Pocket-ARM, Pocket-MIPS, Pocket-SH3 |
| V5.1+SP2 | v3.00 | ARM, MIPS, MIPSFP, PPC, SH3, SH4, THUMB, X86, Pocket-ARM, Pocket-MIPS, Pocket-SH3 |
| | V4.00 (.NET) | ARMV4, ARM4I, ARM4T, MIPSII, MIPSII_FP, MIPSIV, MIPSIV_FP, SH3, SH4, X86 |
| V5.1+SP3 | v3.00 | ARM, MIPS, MIPSFP, PPC, SH3, SH4, THUMB, X86, Pocket-ARM, Pocket-MIPS, Pocket-SH3, Pocket2002-ARM, Pocket2002-X86 |
| | V4.00 (.NET) | ARMV4, ARM4I, ARM4T, MIPSII, MIPSII_FP, MIPSIV, MIPSIV_FP, SH3, SH4, X86 |
| | V4.10 (.NET) | ARMV4, ARMV4I, ARMV4T, MIPS16, MIPSII, MIPSII_FP, MIPSIV, MIPSIV_FP, SH3, SH4, X86 |
| V6.0 | v3.00 | ARM, MIPS, MIPSFP, PPC, SH3, SH4, THUMB, X86, Pocket-ARM, Pocket-MIPS, Pocket-SH3, Pocket2002-ARM, Pocket2002-X86 |
| | V4.00 (.NET) | ARMV4, ARMV4I, ARMV4T, MIPSII, MIPSII_FP, MIPSIV, MIPSIV_FP, SH3, SH4, X86, Pocket2003-ARMV4 |

 **Note:** The CEView program compiled for WinCE v4.0 (.NET) is supported by WinCE v4.x.

Architecture

InduSoft Web Studio is the workbench used to configure the application (Development Station), under WinNT/2000/XP. CEView is the runtime software that runs the applications (configured with InduSoft Web Studio) under the WinCE operating system.



When installing InduSoft Web Studio on the development station (WinNT/2000/XP), the CEView files are stored in the `...\InduSoft Web Studio\Redist\<OS Version>\<Platform>` folder, where:

- **<OS Version>** = WinCE version. The files for WinCE v3.0 are stored in the `ICEView` sub-folder. The files for WinCE v4.0 are stored in the `Wince 4.0` subfolder and so forth.
- **<Platform>** = Processor type.

For instance, the CEView runtime files for WinCEv3.00-x86 platform are stored in the `...\InduSoft Web Studio\Redist\CEView\x86` folder. The CEView runtime files for the WinCE.NET(v4.0)-sh4 platform are stored in the `...\InduSoft Web Studio\Redist\Wince 4.0\sh4` folder, and so forth.

InduSoft provides tools to easily download the CEView files (such as the application files) to the WinCE device (target station) using either a serial link (RS232) or a TCP/IP (for example: Ethernet) link – refer to InduSoft Web Studio Technical Reference Manual for further information. The files can also be copied manually to the WinCE device – in this case, it is necessary to adjust some settings manually (for example, edit a few INI files) before downloading the files to the WinCE device. The next topics provide further information about the configuration of these files.

Note: It is recommended that you use the InduSoft tools to download files from the development station to the target (WinCE) devices. However, if you cannot use InduSoft tools to transfer files to the WinCE device (for example: if you are using a USB interface), we suggest you use the Microsoft ActiveSync utility to transfer files to the WinCE devices.

CEView and Application files

Usually, most of the folders on the WinCE device are allocated on the volatile memory (for example, the data stored on these folders is lost when the device is powered off). In order to store data that should not be lost when the device is powered off, the WinCE devices provide at least one folder on the non-volatile memory area. Since each hardware manufacturer defines a different name for this folder, we will reference to it as *<non-volatile>* folder in this document. For practical effects, this reference must be replaced by the real name of the non-volatile folder of the WinCE device used.

In this section, we classified the files in five groups:

- **Program files:** CEView runtime files used to execute the application.
- **Driver files:** CEView communication drivers to exchange data with the plant-floor devices (PLCs, I/Os, PC Based Control, Motion Controllers, etc).
- **Utilities/Auxiliary files:** Configuration files and utilities which execute auxiliary tasks.
- **CEView image files:** Operating system files required by CEView, stored on the image of the WinCE device.
- **Application Files:** Files created by the user. These files are created using InduSoft Web Studio (workbench) on the development station.

| Program Files (Path: \<non-volatile>\BIN\) | |
|---|---|
| File Name | Description |
| CEView.exe | Main program file. It executes the InduSoft application under the WinCE device. This program file is necessary to run any CEView application. |
| CEServer.exe | Remote Agent. This program should NOT be executed from this path. It must be copied into the \<non-volatile> folder before being executed. It is stored in this folder for InduSoft Web Studio when updating the CEView files remotely because the CEServer.exe from the \<non-volatile> folder is in use and cannot be replaced during the update procedure. |
| OPCSvrReg.exe | Utility program used to set/get the CLS-ID code of OPC Servers on the WinCE device. |
| Unipad.exe | Text files viewer. |
| PServer.exe | Printer Server utility, used to print text files from CEView application. |
| IndVStd.dll | Virtual Keyboard library. When using the WinCE device as a Web Thin Client, this file must be stored in the same folder where ISSymbolCE.ocx is registered in order to use the Virtual Keyboards on the Web Thin Client. |
| CELog.dll | Library used to log the application messages and events when debugging the application. |
| IndRAS.dll | CEView library to interface with the WinCE RAS (Remote Access Service), used for Dial-Up connections. |
| UniComm.dll | CEView library for communication drivers with Serial or Infra-Red interface. |
| UniTCPIP.dll | CEView library for communication driver with TCP/IP interface. |
| Studio Toolkit.dll | CEView Toolkit library for CEView. |
| UniSoft.dll | Main library used by CEView.exe. This file is necessary to run any CEView application. |
| IndMail.dll | SMTP mail interface library. This file is necessary to execute the Email functions from CEView. |
| DrvStd.dll | Library for standard configuration of communication drivers. The communication drivers based on this library require this file to run. |
| Tagi.bin | Internal tags list (time, date, second, username, etc.). |
| Pserver.ini | Pserver settings. This file is not installed with IWS. |

| | |
|-------------|---|
| CEView.ini | CEView program settings. |
| Unipad.ini | Unipad program settings. This file is not installed with IWS. |
| Unicomm.msg | Standard error codes and messages generated by the UniComm.dll. |
| Recipe.xsl | Style sheet file for XML recipe files |


| Driver Files (Path: \<non-volatile>\DRV\) | |
|--|--|
| File Name | Description |
| <DriverName>.dll | Communication Driver file which implements a specific protocol (for example: Modbus, DF1, etc.). |
| <DriverName>.ini | Default settings for the communication driver. |
| <DriverName>.msg | Custom error codes and messages generated by the <DriverName>.dll. |

Note: The communication drivers are extremely modular in the CEView structure. CEView requires three files (mentioned in the previous table) for each driver. When CEView is launched, it links to the proper communication driver(s) dynamically, according to the application settings.

| Utilities/Auxiliary files (Path: \<non-volatile>\) | |
|---|--|
| File Name | Description |
| CEWebServer.exe | Web Server (HTTP Server). The home directory is the same folder from where this program is executed. It cannot be executed in devices that have their own embedded Web Server. |
| IndVKStd.dll | Virtual Keyboard library. When using the WinCE device as a Web Thin Client, this file must be stored in the same folder where ISSymbolCE.ocx is registered in order to use the Virtual Keyboards on the Web Thin Client. |
| ISSymbolCE.ocx | Web Thin Client ActiveX controller. |
| OPCProxy.dll | Proxy file for OPC out-proc communication (using DCOM). |
| StOleProxy.dll | Proxy file for Remote LogWin and Database Spy (OLE). |
| CE_Start.exe | When launched, it executes the programs configured in the CE_Start.ini file. This program file is not installed with IWS. Usually it is supplied to the hardware manufacturer to be included on the WinCE device image. |
| CE_Start.ini | List of programs that are executed when running the CE_Start.exe program. |
| CEApp.ini | Path of the current application. When CEView is executed, it reads from this file the path and name of the application which will be executed. When the application is downloaded to the WinCE device, the Remote Agent updates this file automatically. |


Note: The ISSymbolCE.ocx, OPCProxy.dll, StOleProxy.dll and ISSymbolCE.ocx files must be registered on the WinCE device (for example: using the “regsvrce <Path+FileName>” command). After registering any file, it is necessary to save the registry information in order to keep the new settings after rebooting the device.

| CEView image files (Path: \Windows\) | |
|---------------------------------------|--|
| File Name | Description |
| Target.INI | File with the path of the <non-volatile> folder of the WinCE device. |

 **Note:** The CEView image files are part of the image of the WinCE device. Therefore, they cannot be copied, deleted or modified by the user. Only the hardware manufacturer can modify these files when updating the image of the WinCE device.

Application Files (Path: \<non-volatile>\<Application Name>\)

| File Name | Description |
|-------------------|---|
| <Application>.app | Text file with the application main settings. |
| \Alarm | Default path for the history alarm files. |
| \Config | Tasks worksheets (Maths, Scheds, etc.). |
| \Database | Application tags database files (tags created by the user). |
| \Hst | Default path for the history trend files. |
| \Screen | Application screen files (displays). |
| \Symbol | Application symbol objects (customized by the user). |
| \Web | Web files used for the Web Thin Client station. |

 **Note:** The application files are created by the user on the development station, using InduSoft Web Studio software (workbench).

CEView Settings

- ⓘ **Note:** In the examples below it is necessary to consider that:
- The <Non-volatile Folder> text must be replaced by the non-volatile folder name, according with each CE BOX.
 - The <Application Folder> text must be replaced by the application folder name.
 - The <Application File> text must be replaced by the application file name (.APP file).

▪ \Windows\TARGET.INI

Syntax

```
[Path]
StorageDevice=\<non-volatile>
```

Example

```
[Path]
StorageDevice=\Disk
```

▪ \<non-volatile>\CE_START.INI

Syntax

```
[Startup]
Count=<Amount of programs to be started>
Program<n>=<Path and name of the program "n" to be started>
Parameters<n>=<Parameters of the program "n"> (Optional)
```

Example

```
[Startup]
Count=3
Program1=\Disk\CEServer.EXE
Program2=\Disk\RegsvrCE.EXE
Parameters2=/s \Disk\ABWinCE.DLL
Program3=\Disk\CEWebServer.exe
```

▪ \<non-volatile>\PSEVER.INI

Syntax

```
[Font]
FontName=<Name of the font used to print plain text reports from CEView>
Height=-<Size of the font used to print plain text reports from CEView>
```

Example

```
[Font]
FontName=Arial
Height=-14
```

▪ \<non-volatile>\CESERVER.INI

Syntax

[Setup]

Device=<Device connection: 0=Serial Port; 1=TCP/IP>

SerialPort=<Serial Port: 0=COM1 ; 1=COM2 ; 2=COM3 ; 3=COM4>

RunCEViewOnStartup=<Flag: 0=Do not start automatically ; 1=Start automatically>

SleepTime=<Sleep time (milliseconds) executed by CEServer to scan the COM ports after pressing the Setup button>

SerialBaudRate=<Baud-rate for serial communication>

SerialRTS=<RTS HandShake signal: 0=Disabled ; 1=Enabled>

SerialCTS=<CTS HandShake signal: 0=Disabled ; 1=Enabled>

[Communication]

Delay=<Delay time (in milliseconds) between the TCP/IP packages during the downloading and uploading.>

PackSize=<Maximum size (Bytes) of the TCP/IP packages during the downloading and uploading>

[Remote]

Port=<TCP/IP Port number for TCP/IP connections>

[OEM]

RegFileName=<Register file name (*.REG) where the registry settings are saved. This parameter is used to save the license settings to the registry>

ProductName=<Label displayed in the title bar of the CEServer.exe program>

[Target]

Count=<Number of License Types supported>

[Target<N>]

ProductID=<Product ID code>

Name=<Product Type Name>

Example

[Setup]

Device=1

SerialPort=0

RunCEViewOnStartup=1

SleepTime=500

SerialBaudRate=19200

SerialRTS=0

SerialCTS=0

[Communication]

Delay=250

PackSize=1024

[Remote]

Port=4322

```
[OEM]
RegFileName=\HardDisk\WinCE\WinCE.REG
ProductName=Remote Agent
```

```
[Target]
Count=3
```

```
[Target1]
ProductID=4
Name=CEView Lite
```

```
[Target2]
ProductID=10
Name=CEView Standard
```

```
[Target3]
ProductID=13
Name=CEView PRO
```

- **\<non-volatile>\CEAPP.INI**

Syntax

```
[Application]
Directory=\<Non-volatile Folder>\<Application Folder>
Configuration=\<Non-volatile Folder>\<Application Folder>\<Application File>
```

Example

```
[Application]
Directory=\Disk\Demo\
Configuration=\Disk\Demo\Demo.app
```

- **\<non-volatile>\BIN\CEVIEW.INI**

Syntax

```
[Install]
UnisoftPath=<CEView program path>
Version=<CEView version>
Language=<CEView language: EN=English>
```

```
[Period]
Math=<Minimum time (in milliseconds) between math worksheets executions>
Alarm=<Minimum time (in milliseconds) between alarm worksheets executions>
Trend=<Minimum time (in milliseconds) between trend worksheets executions>
Sched=<Minimum time (in milliseconds) between scheduler worksheets executions>
Recipe=<Minimum time (in milliseconds) between recipe worksheets executions>
Report=<Minimum time (in milliseconds) between report worksheets executions>
AppBuilder=<Minimum time (in milliseconds) between screen editor module executions>
Viewer=<Minimum time (in milliseconds) between Viewer module executions>
BlinkFast=<period (in Milliseconds) of the BlinkFast parameter from the color dynamics>
BlinkSlow=<period (in Milliseconds) of the BlinkFast parameter from the color dynamics>
```

Driver=<Minimum time (in milliseconds) between Driver module executions>
OPCCClient=<Minimum time (in milliseconds) between Driver module executions>

[TimeSlice]

Math=<Maximum time of interrupt execution of the Math worksheets>
Driver=<Maximum time of interrupt execution of the driver module>
OPCCClient=<Maximum time of interrupt execution of the OPC Client module>

[KeyPad]

ButtonWidth=<Keypad button width, in pixels>
ButtonHeight=<Keypad button height, in pixels>
ButtonSpace=<Keypad space between buttons, in pixels>
FontHeight=<Keypad fonts height, in pixels>

[International]

Order=<Date order format: MDY=Month/Day/Year ; DMY=Day/Month/Year>
Separator=<Date Separator>

Example

[Install]

UnisoftPath=\CEView
Version=5.1.00
Language=EN

[Period]

Math=100
Alarm=200
Trend=1000
Sched=1000
Recipe=2000
Report=2000
AppBuilder=50
Viewer=50
BlinkFast=250
BlinkSlow=600
Driver=50
OPCCClient=20

[TimeSlice]

Math=50
Driver=10
OPCCClient=10

[KeyPad]

ButtonWidth=30
ButtonHeight=30
ButtonSpace=2

FontHeight=15

[International]
Order=MDY
Separator=/

▪ \<non-volatile>\BIN\UNIPAD.INI

Syntax

[Tab]

NumSpaces=<Number of spaces to each TAB>

[Font]

nSize=

FaceName=

NWeight=

[ScreenPosition]

x=<left coordinate (number of pixels) of the UniPad window>

y=<top coordinate (number of pixels) of the UniPad window>

Width=<Width (number of pixels) of the UniPad window>

Height=<Height (number of pixels) of the UniPad window>

[Alloc]

MaxNumLines=<Max number of lines showed in the Unipad window>

Example

[Tab]

NumSpaces=4

[Font]

nSize=12

nWeight=500

FaceName=Courier New

[ScreenPosition]

x=100

y=100

Width=400

Height=250


[Alloc]

MaxNumLines=256000


WinCE device image – Requirements and Comments

The modularity of WindowsCE allows each hardware manufacturer to build an image of the operating system with the specific files and services supported by the WinCE device. This section describes the minimum requirements to run CEView on the WinCE device, such as recommended actions to take advantage of all functionalities of CEView.

- Store the following windows files in the \Windows folder: ATLCEXXX.DLL, MFCECEXXX.DLL and OLECEXXX.DLL. Otherwise, CEView will not run at all.

 **Note:** XXX is the operating system version number – for example: 300 for WinCE v3.00, 400 for WinCE.NET v4.00 and so forth.

- Store the **regsvrce.exe** windows program in the \Windows folder, allowing the user to register files when necessary.
- Store the **regsave.exe** windows program in the \Windows folder, allowing the user to save the registry settings on the non-volatile registry file.
- Enable DCOM by adding the following functions in the windows OLE32.DLL file, which must be stored in the \Windows folder:
 - **CoGetMalloc()**
 - **CoFileTimeNow()**
 - **CoRegisterClassObject()**
 - **CoRevokeClassObject()**

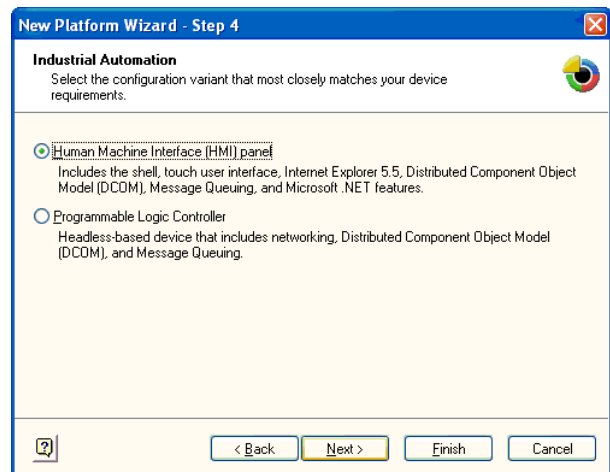
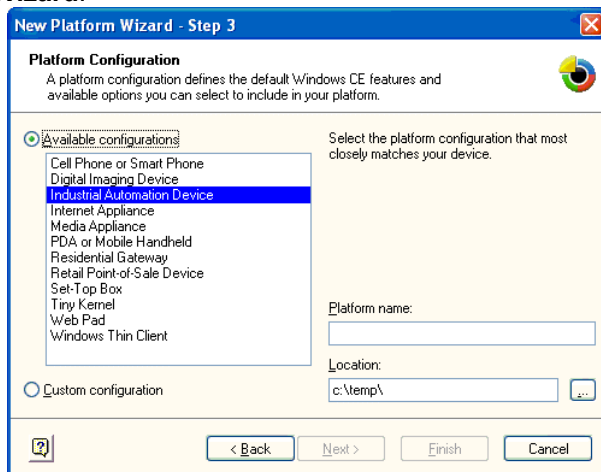
 **Note:** The OPC protocol requires DCOM to connect the OPC Client and the OPC Server (unless for in-proc connections, which requires COM only).

- It is recommended that you add the embedded Web Server (HTTP Server from Microsoft) on the WinCE image. However, in cases where the embedded Web Server is not added to the WinCE device image, the CEWebServer.exe file should be stored in the \<non-volatile> folder.
- It is recommended that you add a text editor (for example: WordPad for WinCE) on the WinCE image to edit configuration files on the WinCE device, when necessary.
- When adding the embedded Web Server (HTTP Server from Microsoft) on the WinCE device, make sure that the Home Directory folder (web root) is the \<non-volatile> folder. Then all files stored on the WinCE device can be reached by HTTP Client (for example: Web browser).
- In order to use the WinCE device as an InduSoft Web Thin Client, its Web browser needs to support ActiveX controls. The **Pocket Internet Explorer** does not support Microsoft ActiveX controls. The **Internet Explorer 5.5 for Windows CE** supports Microsoft ActiveX controls. See the following URL for further information on this topic: <http://msdn.microsoft.com/library/default.asp?url=/library/en-us/wcedsn40/hm/cgconsummaryofbrowserfeatures.asp>
- Store the TARGET.INI file in the \Windows folder. This file needs to be configured manually.
- Store and register the following files in the \<non-volatile> folder: OPCProxy.dll and StOleProxy.dll. These files are available in the ...\\InduSoft Web Studio\Redist\CEView\<Processor> folder after installing InduSoft Web Studio on the development station.

- Store CE_START.exe in the \<non-volatile> folder and configure the WinCE device to run this program automatically on the start-up (before running CESERVER.exe from the \<non-volatile> folder). This program copies the CESERVER.EXE from the \<non-volatile>\BIN folder into the \<non-volatile> folder.
- Store CEServer.exe in the \<non-volatile> folder and configure the WinCE device to run this program automatically on start-up. CEServer.exe launches the Remote Agent, which is used by InduSoft Web Studio to connect to the WinCE device remotely. In addition to CEServer.exe, it is recommended that you configure the CESERVER.INI and store it in the \<non-volatile> folder in case the default settings do not fit with the WinCE device or application.
- Store the CEView Program Files in the \<non-volatile>\BIN folder. Make sure that the CEVIEW.INI file on the \<non-volatile>\BIN\ folder is properly configured.
- Store the CEView Driver Files in the \<non-volatile>\DRV folder.
- Store a CEView demo application on the \<non-volatile>\<App Name> folder. Make sure that the CEAPP.INI file on the \<non-volatile>\ folder is properly configured.

Note: The CEView Program Files, CEView Driver Files and CEView demo application can be downloaded to the WinCE device using InduSoft Web Studio. However, they can be pre-loaded on the WinCE device for demonstration purposes.

- When using Platform Builder v4.x to create the image for the WinCE device, it is recommended to select the **Industrial Automation Device** and **Human Machine Interface (HMI) panel** options from the **New Platform Wizard**.



Map of Revision

| Revision | Author | Date | Comments |
|----------|------------------|---------------|------------------|
| A | Fabio Terezhinho | March 3, 2004 | Initial revision |