COPADATA
do it your way

zenon Handbuch

Installation und Updates

v.8.00
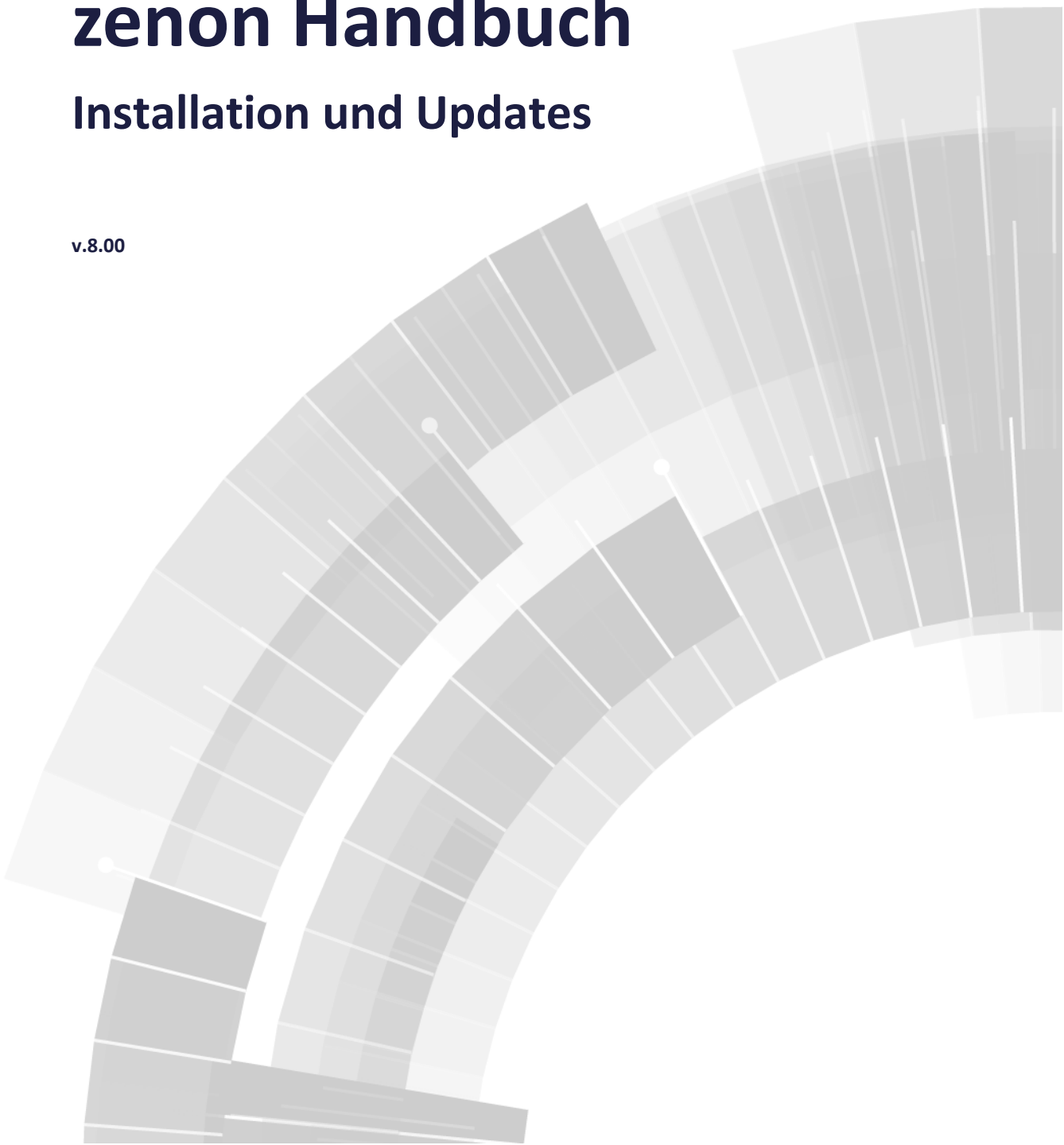
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1. Willkommen bei der COPA-DATA Hilfe

ALLGEMEINE HILFE

Falls Sie in diesem Hilfekapitel Informationen vermissen oder Wünsche für Ergänzungen haben, wenden Sie sich per E-Mail an documentation@copadata.com.

PROJEKTUNTERSTÜTZUNG

Unterstützung bei Fragen zu konkreten eigenen Projekten erhalten Sie vom Support-Team, das Sie per E-Mail an support@copadata.com erreichen.

LIZENZEN UND MODULE

Sollten Sie feststellen, dass Sie weitere Module oder Lizenzen benötigen, sind unsere Mitarbeiter unter sales@copadata.com gerne für Sie da.

2. Installation und Updates

Bei der ersten Installation von zenon startet die Installationsroutine automatisch und führt Sie durch den gesamten Installationsvorgang. Falls Sie den Autostart von Medien deaktiviert haben, starten Sie die Installation durch Ausführen der Datei **START.exe** im Wurzelverzeichnis Ihres zenon Installationsmediums.

Hinweise für die Installation:

- ▶ Vor der Installation von zenon:
    - sollten alle aktuellen Betriebssystem-Updates installiert werden
      Hinweis: Wenn Sie immer die aktuellste Version (Service Pack) des entsprechenden Betriebssystems verwenden, vermeiden Sie Kompatibilitätsprobleme und Sicherheitslücken.
    - darf kein offener Neustart anstehen

▶ Bei Windows 7 Embedded Standard wird zenon über die normale Installationsroutine installiert. Voraussetzungen für die Hardware finden Sie im Kapitel Runtime unter Windows Embedded Standard (auf Seite 40).

▶ Die Installation von zenon für Windows CE erfolgt über die normale Installationsroutine. Installiert werden die Dateien für Windows CE in der Version 7.20. Details finden Sie im Kapitel Runtime für Windows CE (auf Seite 46).

▶ Während der Installation von zenon wird der **COPA-DATA Multiple Network Protocol Driver (cdprotdrv.sys)** installiert. Um den Treiber zu starten, muss das Betriebssystem nach der Installation neu gestartet werden.

⚠ **Achtung**

*Ab Version 7.10 kann zenon nicht auf Systemen installiert werden, auf denen bereits die **Microsoft SQL Server Data Engine** (**MSDE**) installiert ist. Das betrifft alle Systeme auf denen zenon 6.01 oder 6.20 Version installiert ist.*

💡 **Info**

Erhalten Sie bei einer Installation die Fehlermeldung, dass ein Dienst nicht gestartet werden konnte, dann:

▸ starten Sie erst den Rechner neu

▸ starten Sie dann das zenon Setup neu

3. zenon Standardinstallation

zenon startet beim Verbinden des zenon Installationsmediums automatisch seine Installationsroutine und führt Sie durch den gesamten Installationsvorgang. Alternativ starten Sie die Installation durch Ausführen der Datei **START.exe** im Wurzelverzeichnis Ihres zenon Installationsmediums.

Für den Installationsvorgang sind auf dem Rechner Administratorenrechte erforderlich!

⚠ **Achtung**

Während der Installation wird der Rechner, wenn nötig, automatisch neu gestartet. Schließen Sie vor der Installation alle anderen Programme.

3.1 Startbildschirm

Am Startbildschirm sehen Sie die zu installierende Version inklusive Build-Nummer.
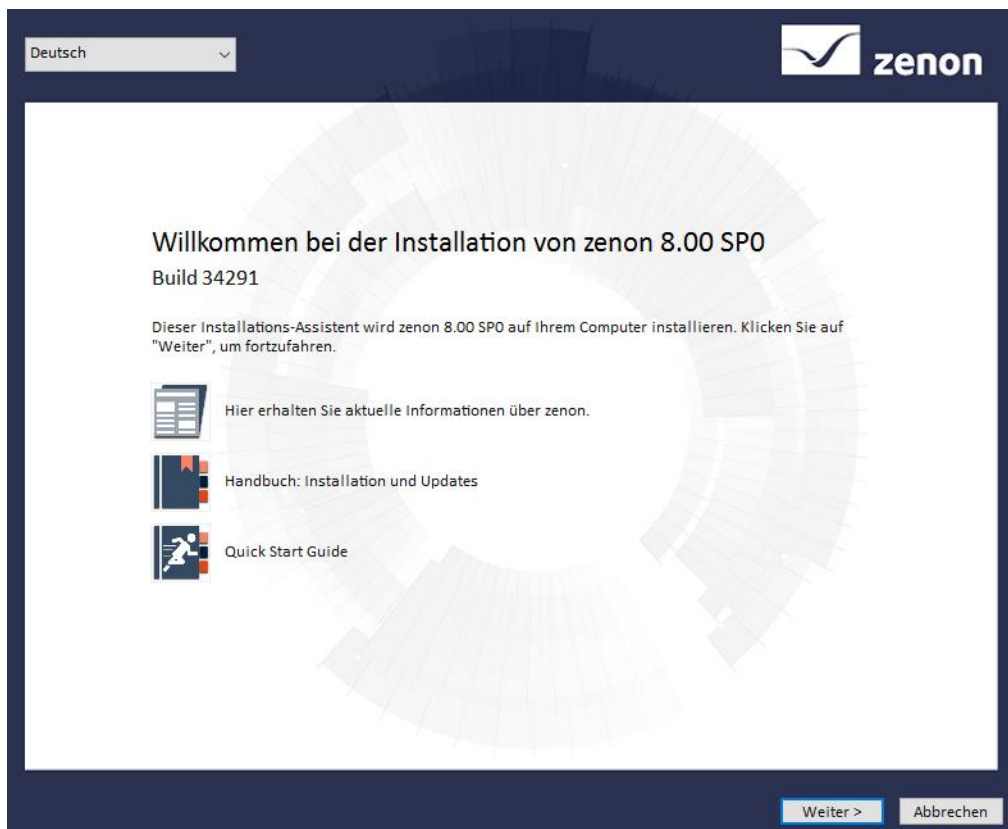
1. Wählen Sie aus der Dropdownliste links oben die gewünschte Sprache für die Installation. Für die Installation stehen folgende Sprachen zur Verfügung:

   - Deutsch

   - Englisch

   - Französisch

   - Italienisch

   - Spanisch

2. Informationen zu zenon erhalten Sie mit Klick auf die gewünschte Schaltfläche:

    Öffnet eine Animatiom mit aktuellen Informationen zur zenon Version.

   Öffnet die zenon Hilfe zur Installation als PDF.

Öffnet den Quick-Start Guide im PDF-Format mit Tipps für die ersten Projektierungsschritte in zenon.

Achtung: Diese Seite kann später nicht erneut eingeblendet werden. Wenn Sie Informationen zur aktuellen Version oder das Handbuch für die Installation benötigen, öffnen Sie diese jetzt.

3. Mit Klick auf die Schaltfläche **Weiter** öffnen Sie das Fenster mit den Lizenzbedingungen. Lizenzbedingungen

4. Bestätigen Sie die Lizenzbedingungen durch Aktivierung der entsprechenden Checkbox.

   Mit Klick auf die Schaltfläche **Drucken** können Sie die Lizenzbedingungen auch ausdrucken.

5. Mit Klick auf die Schaltfläche **Weiter** öffnen Sie das Fenster zur Auswahl des gewünschten Produkts.
   Hinweis: Die Schaltfläche Weiter ist nur dann verfügbar, wenn Sie den Bedingungen der Lizenzvereinbarung mit Klick auf das Optionsfeld zugestimmt haben.

3.2 zenon Standardinstallation

Wählen Sie das gewünschte Produkt. Es können nur Produkte ausgewählt werden, die noch nicht installiert sind. Wünschen Sie eine Neuinstallation, müssen Sie das bereits installierte Produkt über die Systemsteuerung zuerst deinstallieren.
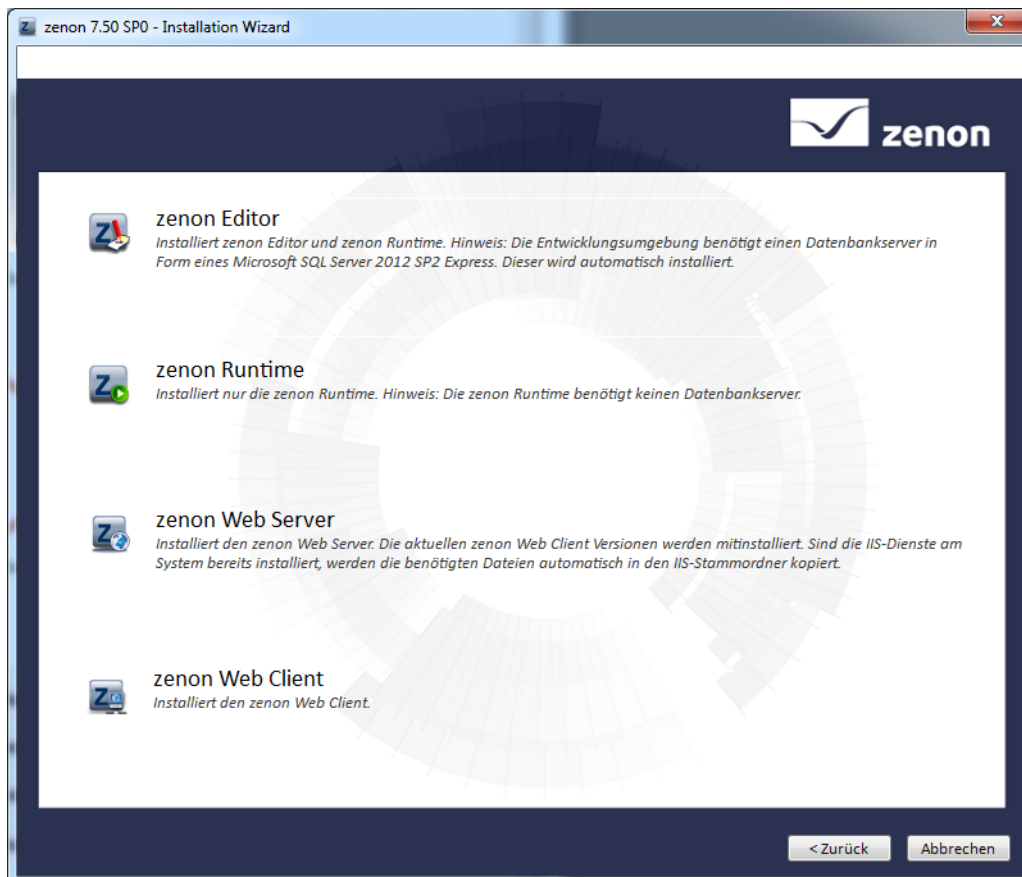
- **zenon Editor**:
  Installiert zenon Editor und zenon Runtime. Zusätzlich benötigte Komponenten für den Editor werden automatisch mitinstalliert.

- **zenon Runtime**:
  Installiert nur die zenon Runtime.

- **zenon Web Server**:
  Installiert den zenon Web Server und die jeweils aktuellen zenon Web Clients.

- **zenon Web Client**:
  Installiert nur den zenon Web Client.

> 💡 **Info**
>
> *Bei Auswahl von **zenon Web Server** oder **zenon Web Client** startet umgehend die Installation.*
>
> *Bei Auswahl von **zenon Editor** oder **zenon Runtime** öffnet sich der Dialog zur Editions-Auswahl.*
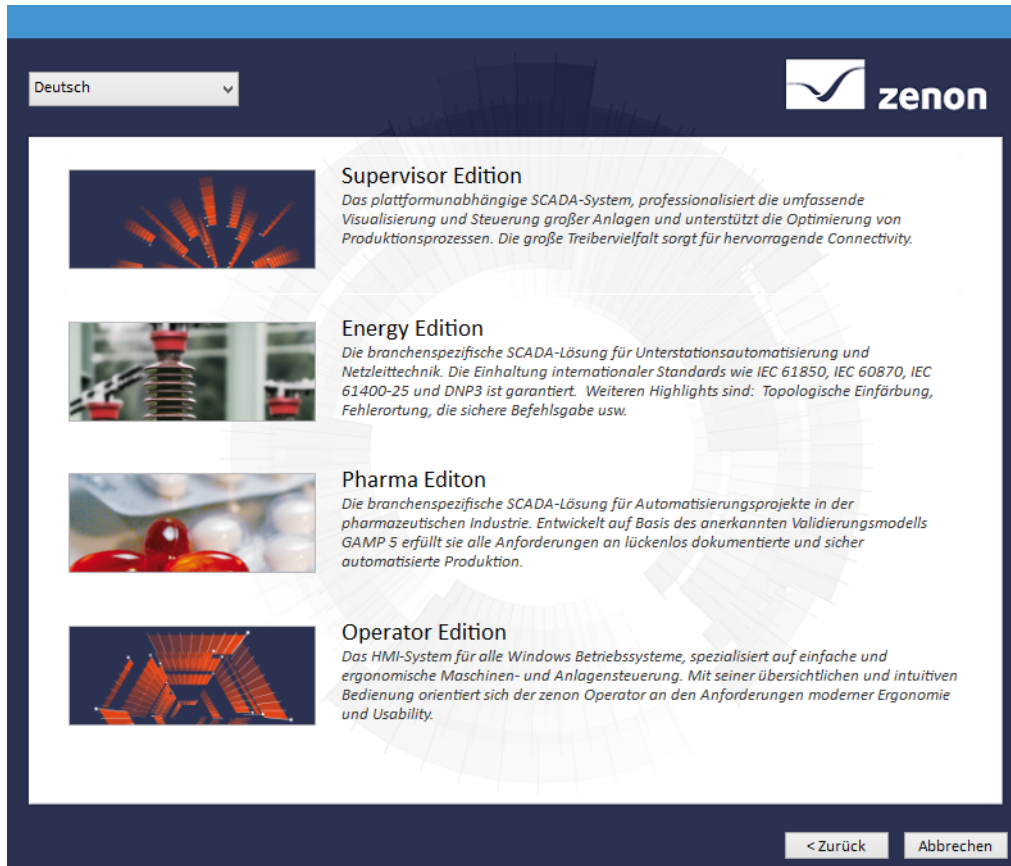
3.3 Auswahl der Edition - Installationsart (Benutzerdefinierte Installation)

Mit Klick auf das gewünschte Produkt öffnen Sie das Fenster zu Auswahl der Edition.

1. Wählen Sie die lizenzierte Version:

   - **zenon Supervisor Edition**
   - **zenon Energy Edition**
   - **zenon Pharma Edition**

- **zenon Operator Edition**

2. Mit Klick auf die gewünschte Edition öffnen Sie das Fenster zur Auswahl der Installationsart:
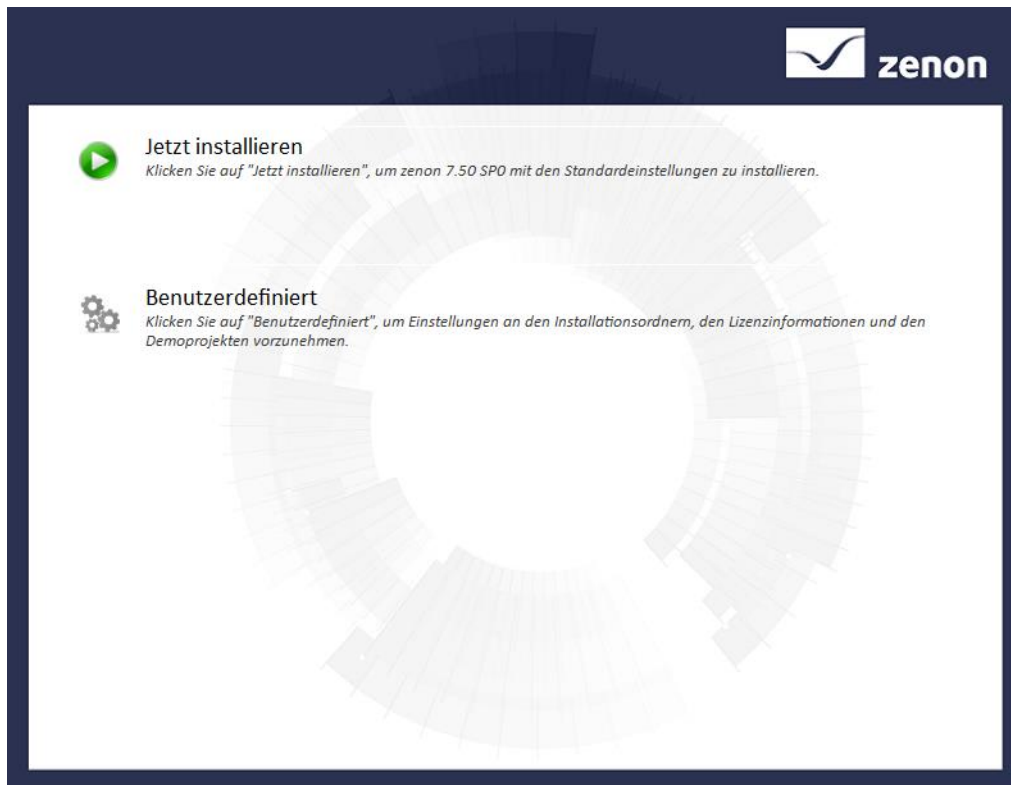
- **Jetzt installieren**:
  Startet die Installation der gewählten Edition.
  Eventuell wird der Rechner während er Installation automatisch neu gestartet. Folgen Sie den weiteren Anweisungen des Wizards.

- **Benutzerdefiniert**:
  Öffnet weitere Fenster zur individuellen Installation.
  Hier können Sie den Installationspfad ändern und entscheiden, ob Sie Demoprojekte installieren möchten.

3. Mit Klick auf die Schaltfläche **Weiter** öffnen Sie das Fenster für die Anpassung der Installationsordner:

- Definieren Sie bei Bedarf Ihre individuellen Ordner für die 32-Bit Version und die 64-Bit Version des Programms.
  Klicken Sie dazu die Schaltfläche **Ändern...**

- Legen Sie den Zielordner für Projekt-Datenbanken fest.
  Achtung: Der hier gewählte Speicherort muss über ausreichend Speicherplatz verfügen. Alle Benutzer benötigen Schreibrechte.

- Falls Sie das Demo-Projekt mitinstallieren möchten, aktivieren Sie die entsprechende Checkbox.
  Das Demo-Projekt demonstriert beispielhaft mögliche Einsatzszenarien in verschiedenen Branchen.

4. Klicken Sie auf die Schaltfläche **Installieren**:
   Die Installation der gewählten Edition wird gestartet.
   Eventuell wird der Rechner während er Installation automatisch neu gestartet. Folgen Sie den weiteren Anweisungen des Wizards.

3.4 Installation und Abschluss

Während der Installation werden Sie in der Fortschrittsanzeige über den jeweiligen Installationsfortschritt und den aktuellen Installationsschritt informiert.
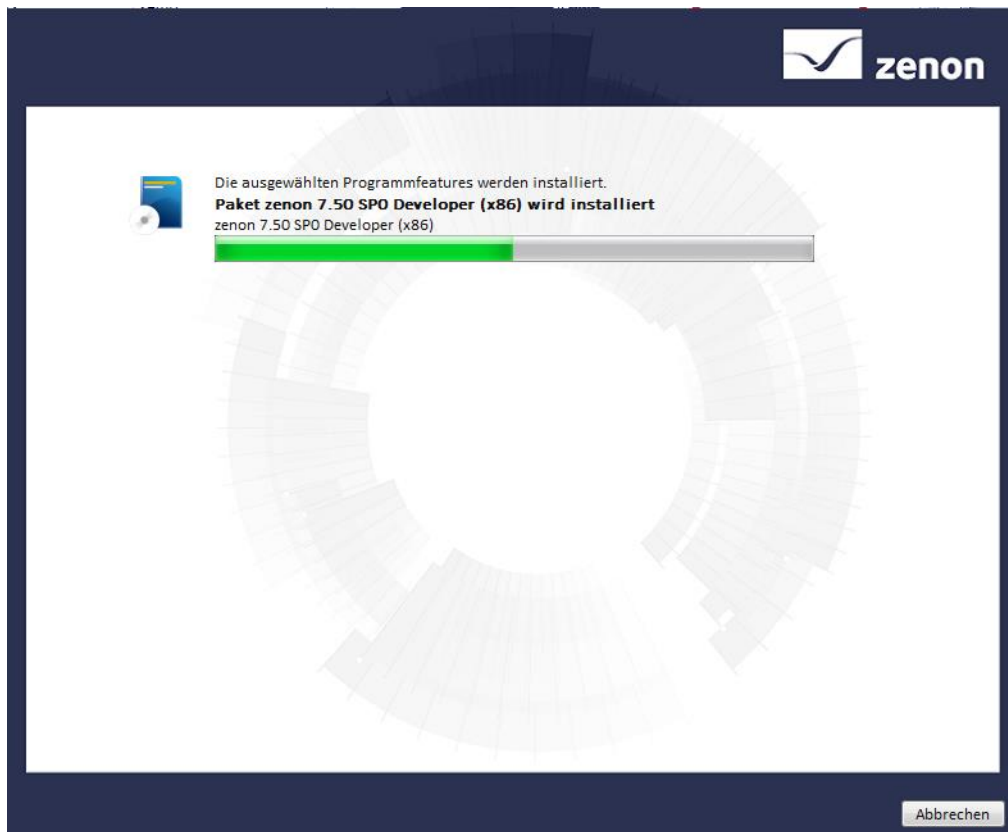
▶ Mit Klick auf die Schaltfläche **Abbrechen** können Sie die Installation unterbrechen. Vor Abbruch der Installation erfolgt eine Sicherheitsabfrage.
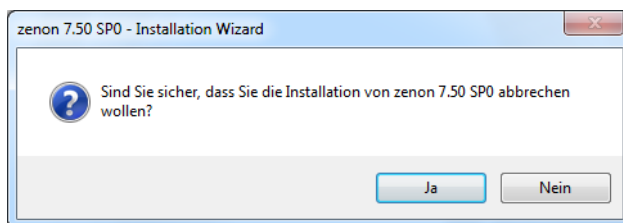
Option	Beschreibung
Ja	Die Installation wird abgebrochen. Es wird der Dialog für eine fehlerhafte Installation angezeigt.
Nein	Die Installation wird fortgesetzt.

Der Installationsvorgang kann einige Zeit in Anspruch nehmen. Schalten Sie während dieser Zeit Ihren Rechner nicht aus. Stellen Sie auch sicher, dass Ihr Rechner nicht automatisch in den Ruhezustand versetzt wird.

ABSCHLUSS

Nach erfolgreicher Installation werden Sie mit einem Dialog informiert.

▶ Klicken Sie die Schaltfläche **Fertig stellen** um die Installation abzuschließen.

▶ Starten Sie das Setup neu, um weitere Produkte wie z.B. den **zenon Web Server** zu installieren.

Abgebrochene oder fehlerhafte Installation
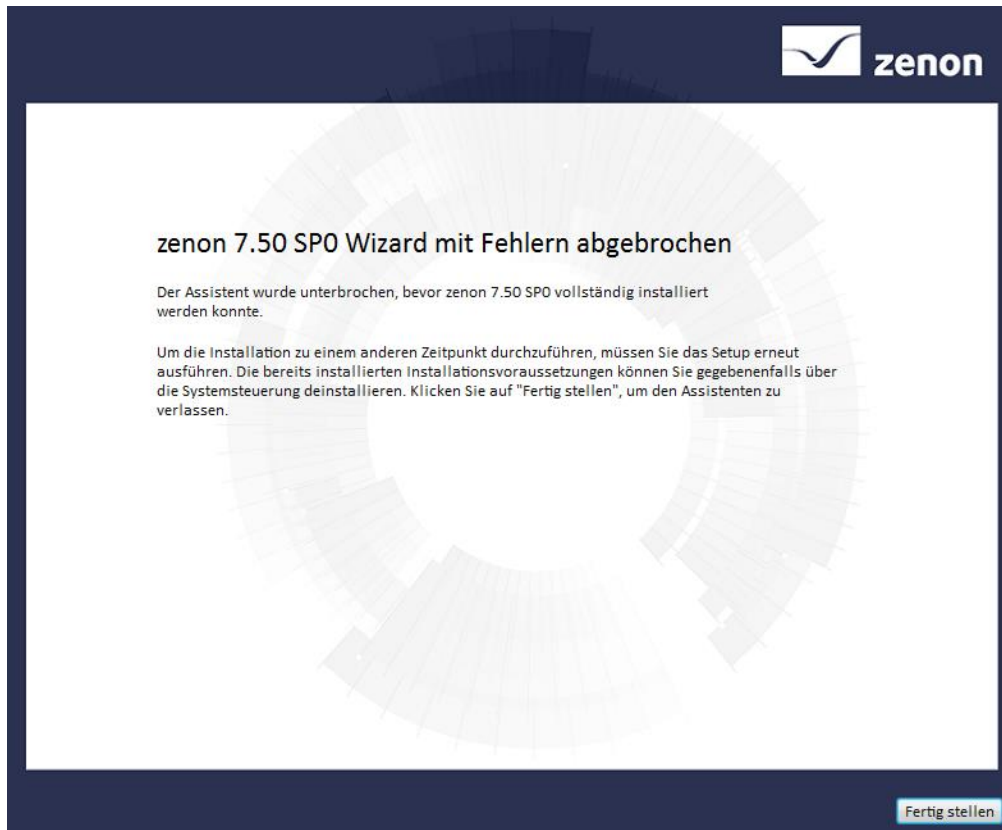
Tritt bei der Installation ein Fehler auf oder wurde die Installation abgebrochen wird dies in einem Dialog angezeigt.

Klicken Sie die Schaltfläche **Fertig stellen** um das Setup zu beenden.

4. Unbeaufsichtigte Installation und Deinstallation

zenon kann auch unbeaufsichtigt installiert (Silent Installation) und deinstalliert (Silent Remove) werden.

> 💡 **Info**
>
> *Die unbeaufsichtigte Installation und Deinstallation ist möglich für alle zenon Versionen ab 7.10.*

UNBEAUFSICHTIGTE INSTALLATION AB ZENON 7.20

Syntax: **scada.exe /silent /language:[Nummer] CDPROP_EDITION=[Edition] CDPROP_TYPE=[Typ] ISFeatureInstall=[Features]**

Parameter	Argumente	Beschreibung
scada.exe		Aufruf der Installation.
/silent		Unbeaufsichtigte Installation.
/language:	▸ **1031**: Deutsch ▸ **1033**: Englisch ▸ **1034**: Spanisch ▸ **1036**: Französisch ▸ **1040**: Italienisch	Auswahl der Sprache. Beispiel Englisch: **language:1033**
CDPROP_EDITION=	▸ **ENERGY** ▸ **SUPERVISOR** ▸ **OPERATOR** ▸ **PHARMA** ▸ **SCIENCE**	Auswahl der Edition. Beispiel Energy Edition: **CDPROP_EDITION=ENERGY** Wird für zenon Web Server und zenon Web Client nicht benötigt.
CDPROP_TYPE=	▸ **ED**: Editor und Runtime ▸ **RT**: Runtime	Auswahl Editor oder Runtime. Beispiel Runtime: **CDPROP_TYPE=RT** Wird für zenon Web Server und zenon Web Client nicht benötigt.
ISFeatureInstall=	▸ **PREREQUISITES_EDITOR,SCADA**: Editor ▸ **PREREQUISITES_RUNTIME,SCADA**: Runtime ▸ **PREREQUISITES_WEBSERVER,WEBSERVER**: Web Server ▸ **PREREQUISITES_WEBCLIENT,WEBCLIENT**: Web Client	Auswahl der zu installierenden Features. Beispiel zenon Editor: **ISFeatureInstall=PREREQUISITES_EDITOR,SCADA**

Beispiele:

▸ Installation Editor, Deutsch, Energy Edition:
scada.exe /silent /language:1031 CDPROP_EDITION=ENERGY CDPROP_TYPE=ED ISFeatureInstall=PREREQUISITES_EDITOR,SCADA

▶ Installation Runtime, Englisch, Supervisor Edition:
scada.exe /silent /language:1033 CDPROP_EDITION=SUPERVISOR CDPROP_TYPE=RT ISFeatureInstall=PREREQUISITES_RUNTIME,SCADA

▶ Installation zenon Web Server, Deutsch:
scada.exe /silent /language:1031 ISFeatureInstall=PREREQUISITES_WEBSERVER,WEBSERVER

▶ Installation zenon Web Client, Deutsch:
scada.exe /silent /language:1031 ISFeatureInstall=PREREQUISITES_WEBCLIENT,WEBCLIENT

UNBEAUFSICHTIGTE DEINSTALLATION AB ZENON 7.20

OHNE LOG-DATEI

Pfad: **C:\Program Files (x86)\InstallShield Installation Information\{9BE6EDFE-3465-486F-87EE-1C439DE5EA9A}**

Syntax: **SCADA.exe /remove /silent**

MIT LOG-DATEI

Pfad: **C:\Program Files (x86)\InstallShield Installation Information\{9BE6EDFE-3465-486F-87EE-1C439DE5EA9A}**

Syntax: **SCADA.exe /remove /silent /log"%TEMP%"**

UNBEAUFSICHTIGTE INSTALLATION ZENON 7.10 UND 7.11

Syntax: **scada.exe /silent /language:[Nummer] CDPROP_EDITION=[Edition] CDPROP_TYPE=[Typ] ISFeatureInstall=[Features]**

Parameter	Argumente	Beschreibung
scada.exe		Aufruf der Installation.
/silent		Unbeaufsichtigte Installation.
/language:	▶ **1031**: Deutsch ▶ **1033**: Englisch ▶ **1034**: Spanisch ▶ **1036**: Französisch ▶ **1040**: Italienisch	Auswahl der Sprache. Beispiel Englisch: **language:1033**
CDPROP_EDITION=	▶ **ENERGY**	Auswahl der Edition. Beispiel Energy Edition:

	‣ **SUPERVISOR**	**CDPROP_EDITION=ENERGY**
	‣ **OPERATOR**	Wird für zenon Web Server nicht benötigt.
	‣ **PHARMA**	
CDPROP_TYPE=	‣ **ED**: Editor und Runtime	Auswahl Editor oder Runtime.
	‣ **RT**: Runtime	Beispiel Runtime: **CDPROP_TYPE=RT**
		Wird für zenon Web Server nicht benötigt.
ISFeatureInstall=	‣ **WIBU,SCADA,MS,MSALL,SQL,COMMON**: Editor	Auswahl der zu installierenden Features.
	‣ **WIBU,SCADA,MS,MSALL,COMMON**: Runtime	Beispiel zenon Editor: **ISFeatureInstall=WIBU,SCADA ,MS,MSALL,SQL,COMMON**
	‣ **WIBU,WS,MSALL,COMMON**: Web Server	

Beispiele:

‣ Installation Editor, Deutsch, Energy Edition:
scada.exe /silent /language:1031 CDPROP_EDITION=ENERGY CDPROP_TYPE=ED ISFeatureInstall=WIBU,SCADA,MS,MSALL,SQL,COMMON

‣ Installation Runtime, Englisch, Supervisor Editon:
scada.exe /silent /language:1033 CDPROP_EDITION=SUPERVISOR CDPROP_TYPE=RT ISFeatureInstall=WIBU,SCADA,MS,MSALL,COMMON

‣ Installation zenon Web Server, Deutsch:
scada.exe /silent /language:1031 ISFeatureInstall=WIBU,WS,MSALL,COMMON

UNBEAUFSICHTIGTE DEINSTALLATION VERSION 7.10 UND ZENON 7.11

ZENON 7.10

Pfad: **C:\Program Files (x86)\InstallShield Installation Information\{860C41F0-6034-4822-BCF1-88D4849AE897}**

Syntax: **SCADA.exe /remove /silent**

ZENON 7.11

Pfad: **C:\Program Files (x86)\InstallShield Installation Information\{ED00D319-77B8-4C58-8D67-2DA2D48E90DB}**

Syntax: **SCADA.exe /remove /silent**

5. Fehlerbehandlung

PRÜFUNG VOR DER INSTALLATION

Vor der Installation werden die Voraussetzungen am System überprüft. Falls Voraussetzungen nicht erfüllt werden, werden Ihnen diese auf einer eigenen Seite mit Hinweisen zur Behebung angezeigt.

FEHLER WÄHREND DER INSTALLATION

Treten während der Installation Fehler auf, erhalten Sie eine Fehlermeldung.

Falls Sie zur Lösung Hilfe vom Technische Consulting der COPA-DATA benötigen:

1. Erstellen Sie nach Möglichkeit einen Screenshot der Fehlermeldung.

2. Navigieren Sie zum Ordner %Temp%/SCADALOG.

3. Hier finden Sie Sie die Log-Dateien der Installation.

4. Erzeugen Sie mit dem Inhalt des Ordners eine ZIP-Datei.

5. Schicken Sie Datei und Screenshot an support@copadata.com.

Falls Sie das Meldungsfenster schon geschlossen haben, finden Sie die Log-Dateien mit den Installationsinformationen für SQL-Server im Ordner:

```
C:\Program Files\Microsoft SQL Server\110\Setup Bootstrap\LOG
```

Tipp: Die Datei **Summary.txt** gibt einen Anhaltspunkt, wo das Problem liegen könnte.

> 💡 **Info**
>
> *Firewalls:* Bei der Installation konfiguriert zenon automatisch die mit Windows installierte Firewall. Firewalls anderer Hersteller müssen vom Anwender korrekt konfiguriert werden.

HÄUFIGE FEHLERQUELLEN BEI DER INSTALLATION:

▶ Virenscanner ist aktiv und blockiert die Installation durch fehlerhaftes Erkennen von Viren. Lösung: Rechner vom Netzwerk abhängen, Virenscanner deaktivieren, Installation durchführen

▶ Firewall wurde nicht korrekt konfiguriert. Lösung: Rechner vom Netzwerk abhängen, Firewall deaktivieren, Installation durchführen

▶ Fehlerhafte SQL-Installation ist im System bereits vorhanden. Lösung: Projektbackups erstellen sofern noch möglich, SQL Server deinstallieren, SQL Ordner umbenennen, Installation erneut starten.

6. Windows Updates

Achtung: Automatische Windows-Updates beeinflussen die Installation!

Wird während des zenon Setups ein Update des Windows Betriebssystems ausgeführt, kann das zu Problemen bei der Installation von zenon führen.

Um das zu vermeiden:

▶ Deaktivieren Sie das automatische Windows-Update für den Zeitraum der Installation.

▶ Führen Sie Windows-Updates vor der Installation von zenon aus.

7. Virenscanner

Antiviren-Software kann die Installation von zenon verlangsamen oder diese sogar verhindern.

Hinweis: Führt die von Ihnen eingesetzte Antiviren-Software zu Problemen bei der Installation, deaktivieren Sie die Antiviren-Software für die Zeitdauer der Installation. Die betroffenen Rechner können in diesem Zeitraum höheren Risiken ausgesetzt sein. Aktivieren Sie die Antiviren-Software sofort nach der Installation von zenon wieder.

8. Dateistruktur

Die Dateistruktur wird während der Installation angelegt oder erweitert.

Dabei werden die zenon Programmdateien in einem Ordner abgelegt, der während der Installation angegeben wird.

Zusätzlich wird während der Installation nach einem Ordner für die SQL-Datenbanken der Projekte gefragt. Auf dem Speichermedium für die Projektablage (SQL, Bilder usw.) muss genügend freier Platz reserviert sein, da hier alle aktuellen und zukünftigen Projektdaten abgelegt werden.

Ordner	Pfad

Programmordner	`32-Bit System:`
	`%Program Files%\COPA-DATA\zenon7xxx`
	
	`64-Bit System:`
	
	`%Program Files%\COPA-DATA\zenon7xxx`
	
	`%Program Files (x86)%\COPA-DATA\zenon7xxx`

Programmdatenordner, z. B. Globale Symbole, Druckvorlagen, Log-Dateien, usw.	`%ProgramData%\COPA-DATA\zenon7xxx`
Datenbankordner (SQL)	`%ProgramData%\COPA-DATA\SQL`
Systemordner	`%ProgramData%\COPA-DATA\System`
Einstellungen Editor und Profile	`%Users%\UserName\AppData\Local\COPA-DATA\zenon\Editor`
Einstellungen Diagnosis Viewer	`%Users%\UserName\AppData\Local\COPA-DATA\zenon\DiagView`

DEFINITION RUNTIME-ORDNER UND DATEN-ORDNER

RUNTIME-ORDNER

Der Editor erzeugt die Runtime-Dateien im Runtime-Ordner oder diese werden per Remote-Transport in diesen Ordner übertragen. Der Runtime-Ordner wird beim Kompilieren eines Projektes im Editor erstellt oder aktualisiert. Dieser Ordner kann im zenon Editor mit der Projekteigenschaft **Runtime-Ordner** parametriert werden. Bei Remote-Übertragung wird der Runtime-Ordner in den Einstellungen für den Remote-Transport festgelegt.

DATEN-ORDNER

Die Runtime speichert alle zur Runtime erzeugten Datendateien, wie etwa Alarmdateien, Archivdateien usw. im Daten-Ordner. Standardmäßig wird der Daten-Ordner als Unter-Ordner zum Runtime-Ordner angelegt. Er erhält automatisch den Namen des Rechners, auf dem die Runtime läuft. Dieser Speicherort kann in den Projekteigenschaften (**Allgemein/Datenordner**) geändert werden.

Tipp: Setzen Sie den Daten-Ordner nie auf ein entfernbares Laufwerk wie einen USB Stick oder ein Netzlaufwerk. Es wird empfohlen, die Daten lokal aufzuzeichnen und extern zu sichern.

> ⚠ **Achtung**
>
> Falls der angegebene Pfad nicht existiert oder nicht verfügbar ist, werden von der Runtime keine Daten mehr geschrieben. Das bedeutet 100% Datenverlust. Die Runtime bleibt bedienbar, muss aber neu gestartet werden, sobald der Pfad wieder verfügbar ist. Die Verfügbarkeit des Ordners kann mit der Systemtreibervariablen **Runtime-Ordner nicht verfügbar (SYSDRV.chm::/25965.htm)** überprüft werden.

9. Freie Ports

zenon und zenon Logic benötigen für die Kommunikation im Netzwerk bestimmte Kommunikationsports. Wenn andere Programme, wie z. B. ein bereits installierter SQL-Server, diese Ports belegen, kann dies die Kommunikation von zenon stören. Viele Ports sind in zenon über das **Startup Tool** oder Eigenschaften im Editor veränderbar.

So überprüfen Sie die Belegung der Ports:

1. Geben Sie auf der Komandozeile `netstat -a -n -o` ein.

   Die Kommandozeile erhalten Sie unter Windows mit:

   - Windowstaste+R
   - geben Sie `cmd` ein und bestätigen Sie mit **OK**
   - ein DOS-Eingabefenster öffnet sich
   - geben Sie hier den `netstat` Befehl ein

2. Sie erhalten eine Liste mit allen aktiven TCP/IP und UDP Ports.

3. Überprüfen Sie bei den abhörenden Ports (Status: `ABHÖREN`) ob für die von zenon und zenon Logic benötigten Ports die Prozess-ID (PID) den Prozessen von zenon und zenon Logic entspricht.

   Diese PIDs können im **Windows Task Manager** ausgelesen werden. Öffnen Sie dazu den **Windows Task Manager** und wechseln Sie in die Registerkarte **Dienste**.

4. Verwendet andere Software diese Ports, konfigurieren Sie diese Software um.
   Welche Ports zenon und zenon Logic nutzen, sehen Sie in der Tabelle **Portbelegung durch zenon und zenon Logic**. Hier sehen Sie auch, ob Ports in diesen Programmen anpassbar sind.

PORTBELEGUNG DURCH ZENON UND ZENON LOGIC

Anwendung	Beschreibung	Ports	Transport-Protokoll
stratonrt[k].exe	zenon Logic Runtime pollende Kommunikation und zenon Logic Workbench.	▸ 1200–1210	**TCP**
stratonrt[k].exe		▸ 4500–4510	**TCP**
stratonrt[k].exe	zenon Logic Redundanz.	▸ 7000–7010	**TCP**
stratonrt[k].exe	zenon Logic Runtime spontane Kommunikation.	▸ 9000–9010	**TCP**
zennetsrv.exe	zenon Netzwerkdienst.	▸ 1100–1100	**TCP**
zensyssrv.exe	zenon Transportservice.	▸ 1101	**TCP**
zendbsrv.exe	zenon Datenbankdienst.	▸ 1103	**TCP**
zenAdminsrv.exe	zenonVerwaltungsdienst.	▸ 50777	**TCP**
zenLogSrv.exe	zenonLogging-Dienst.	▸ 50780	**TCP**
zenvnc.exe	zenon Remote Desktop Dienst.	▸ 5600 (fix) ▸ 5610 (fix)	**TCP**
CodeMeter.exe	Code Meter Dongle Dienst.	▸ 22350 (veränderbar, muss aber unverändert bleiben)	**TCP**
WkSvW32.exe	WibuKey Netzwerkdienst.	▸ 22347 (fix)	**TCP**
Zenrt32.exe	**Message Control** mit Voice over IP.	▸ 5060: SIP ▸ 4000: RTP ▸ 4001: RTCP (fix) SIP und RTP sind konfigurierbar über den Editor. RTCP wird vom System automatisch gesetzt.	**UDP**

10. Installation einer älterer Version nach der Installation von zenon 8.00 (64-Bit Betriebssystem)

Wird auf einem 64-Bit Betriebssystem nach der Installation von zenon 8.00 eine zenon Version mit niedrigerer Versionsnummer als 7.10 installiert, müssen nach deren Installation die 64-Bit Dienste über die Kommandozeile neu registriert werden. Die Registrierung kann über eine Batch-Datei oder manuell erfolgen.

Mit Batch Datei registrieren:

1. kopieren Sie vom zenon Installationsmedium die Datei **Register.bat**.

2. Sie finden diese im Ordner: `...\AdditionalSoftware\Register Admin Service and Log Service (x64)\`

3. Führen Sie die Datei auf dem betreffenden Rechner als Administrator aus.

Manuelle Registrierung:

1. starten Sie die Kommandozeile mit Administratorrechten

2. navigieren Sie zum Ordner `%Program Files%\Common Files\COPA-DATA\zenAdminSrv`

3. starten Sie den Dienst **zenAdminSrv.exe** mit dem Parameter **-service**

4. navigieren Sie zum Ordner `%Program Files%\Common Files\COPA-DATA\zenLogSrv`

5. starten Sie den Dienst **zenLogSrv.exe** mit dem Parameter **-service**

    📑 **Beispiel**

zenAdminSrv:

▸ Ordner: `C:\Program Files\Common Files\COPA-DATA\zenAdminSrv`

▸ Befehl: **zenAdminSrv.exe -service**

zenLogSrv:

▸ Ordner: `C:\Program Files\Common Files\COPA-DATA\zenLogSrv`

▸ Befehl: **zenLogSrv.exe -service**

---

11. Parallele Installation von Version 7.x mit Version 6.51

Wird eine Version 7.x auf einem System installiert, auf dem bereits zenon 6.51 installiert ist, muss nach der Installation der **Multiple Network Protocol Driver** nach einem Reboot neu installiert werden.

FÜR X64-SYSTEME

Zur Neuinstallation:

1. Starten Sie das System neu.

2. Öffnen Sie am Installationsmedium den Pfad `AdditionalSoftware\COPA-DATA Multiple Network Protocol Driver`.

3. Führen Sie die Datei **MNDPx64Setup.bat** aus.

Damit wird der Treiber neu installiert und korrekt mit den Netzwerkadaptern verknüpft.

FÜR X86-SYSTEME

Zur Neuinstallation:

1. Starten Sie das System neu.

2. öffnen Sie am Installationsmedium den Pfad `AdditionalSoftware\COPA-DATA Multiple Network Protocol Driver`

3. führen Sie die Datei **MNDPx86Setup.bat** aus

Damit wird der Treiber neu installiert und korrekt mit den Netzwerkadaptern verknüpft.

12. Systemvoraussetzungen

zenon 8.00 kann auf allen aktuellen Microsoft Betriebssystemen eingesetzt werden. zenon wird immer auf den neuesten Versionen der Betriebssysteme mit den neuesten verfügbaren Service Packs und Hotfixes getestet.

Änderungen durch Service Packs, Hotfixes oder Patches von Microsoft können Inkompatibilitäten bewirken und die Funktionsfähigkeit der Software beeinflussen. In diesem Fall   wird COPA-DATA so früh wie möglich eine aktualisierte Version von zenon zur Verfügung stellen. Nähere Informationen erhalten Sie in diesem Fall vom COPA-DATA Support: support@copadata.com.

> ⚠ **Achtung**
>
> *Beachten Sie bei der Projektierung:*
>
> ▶ Für die optimale Darstellung von zenon zur Runtime wird für die Windows **Anzeige** die Standardeinstellung (entspricht `100%`) empfohlen. Höhere Werte können dazu führen, dass grafische Elemente, Symbole, Texte usw. nicht korrekt angezeigt werden.
>
> ▶ Windows Themen können Elemente in der Runtime überlagern. Achten sie bei der Projektierung auf einen passenden Abstand von Elementen zum Bildschirmrand.

▶

12.1   Desktop Betriebssysteme

Unterstützte Desktop Betriebssysteme und erforderliche Service Packs:

Betriebssystem	zenon Editor	zenon Runtime	zenon Web Server	zenon Web Client	zenon HTML Web Engine	zenon Logic Runtime	zenon Analyzer Server
Windows 7 (Professional, Enterprise und Ultimate Version, jeweils x86 und x64 Versionen)	SP 1	SP 1	SP 1	SP 1	SP 1	SP 1	Nicht lauffähig
Windows Embedded Standard 7 (vorausgesetzt, alle notwendigen Betriebssystemkomponenten sind vorhanden)	Nicht lauffähig	SP 1	SP 1	SP 1	SP 1	SP 1	Nicht lauffähig
Windows 8 und 8.1 (Standard, Professional, Enterprise, jeweils x86 und x64 Versionen)	SP 0	SP 0	SP 0	SP 0	SP 0	SP 0	Nur x64 mit SP 0
Windows Embedded 8 Standard (vorausgesetzt, alle notwendigen Betriebssystemkomponenten sind vorhanden)	Nicht lauffähig	SP 0	SP 0	SP 0	SP 0	SP 0	Nicht lauffähig
Windows 10 (Home, Pro, Enterprise, Education, Pro Education, Enterprise LTSB, IoT Enterprise, Pro for Workstations)	SP 0	SP 0	SP 0	SP 0	SP 0	SP 0	Nur Home, Pro und Enterprise (jeweils x64) mit SP 0

12.2   Server Betriebssysteme

Unterstützte Server Betriebssysteme und erforderliche Service Packs:

Server Betriebssystem	zenon Editor	zenon Runtime	zenon Web Server	zenon Web Client	zenon HTML Web Engine	zenon Logic Runtime	zenon Analyzer Server
Windows Server 2008 R2 (Alle Editionen, ausgenommen Core)	SP 1	SP 1	SP 1	SP 1	SP 1	SP 1	Nicht lauffähig
Windows Server 2012 und 2012 R2 (Alle Editionen, ausgenommen Core)	SP 0	SP 0	SP 0	SP 0	SP 0	SP 0	Nur x64 mit SP 0
Windows Server 2016 (Alle Editionen, ausgenommen Core)	SP 0	SP 0	SP 0	SP 0	SP 0	SP 0	Nur x64 mit SP 0

12.3   Server und Desktop Betriebssysteme bis Windows 8.1

Überblick der unterstützten Server- und Desktop Betriebssysteme bis Windows 8.1

	Windows Embedded 7/8 Standard	Windows Embedded 8.1 Pro/Industry	Windows 7 SP1/Windows 8 und 8.1/ Server 2008 (R2) SP1, 2012 und 2012 R2	Windows CE
Editor	--	**x**	**x**	--
Runtime	**x**	**x**	**x**	--
Runtime für Windows CE	--	--	--	**x**
Web Server	**x**	**x**	**x**	**x** (nur Web Server Pro Light)
Web Client	**x**	**x**	**x**	--
HTML Web Engine	**x**	**x**	**x**	--

Legende:

▶   **x**: unterstützt

▶   **--**: nicht unterstützt

Achtung: Ab Version 7.50 wird Windows CE nicht mehr unterstützt.

Es wird die zenon CE Version 7.20 installiert. Um diese zu nutzen, müssen die Runtime-Dateien für die Version 7.20 erzeugt werden.

12.4   Windows CE und Windows Embedded

Unterstützte Betriebssysteme:

Betriebssystem	zenon Editor	zenon Runtime	zenon Web Server	zenon Web Client	zenon HTML Web Engine	zenon Logic Runtime	zenon Analyzer Server
Windows CE 6.0 (ARM und x86) Achtung: Wird nur bis Version 7.20 unterstützt. Ab Version 7.50 müssen Runtime-Dateien für 7.20 erzeugt werden.	Nicht lauffähig	Nur zenon Operator	Nur Pro Light	Nicht lauffähig	Nicht lauffähig	lauffähig	Nicht lauffähig
Windows Embedded Compact 7 (ARM und x86) Achtung: Wird nur bis Version 7.20 unterstützt. Ab Version 7.50 müssen Runtime-Dateien für 7.20 erzeugt werden.	Nicht lauffähig	Nur zenon Operator	Nur Pro Light	Nicht lauffähig	Nicht lauffähig	lauffähig	Nicht lauffähig

12.5   Windows 10

Überblick der unterstützten Desktop Betriebssysteme für Windows 10

Windows Version	zenon Supervisor / Operator	Everywhere by zenon	zenon Logic Runtime
Windows 10 Home	X	X (PC)	X
Windows 10 Mobile	--	X (Mobile)	--
Windows 10 Pro	X	X (PC)	X
Windows 10 Enterprise	X	X (PC)	X
Windows 10 Education	X	X (PC)	X
Windows 10 Mobile Enterprise	--	X (Mobile)	--
Windows 10 IoT Core	--	--	X
Windows 10 IoT Enterprise (Windows 10 Enterprise LTSB)	X	X (PC)	X

Legende:

▶   **X**: verfügbar

▶   **--**: nicht lauffähig

12.6   Systemvoraussetzungen bei Verwendung von DirectX

Bei der Verwendung von `DirectX Hardware` oder `DirectX Software` müssen folgende Mindestvoraussetzungen erfüllt werden:

Hinweis: Für umfangreiche Projekte oder mehrere gleichzeitig geladene Projekte muss die Hardware entsprechend leistungsstärker sein. Dadurch können die Mindestvoraussetzungen steigen.

Parameter	Mindestvoraussetzung	Empfohlen
CPU:	Single Core mit SSE2 Unterstützung.	Quad Core oder mehr Cores
Grafikkarte: (Nur DirectX Hardware)	DirectX 11 Mainstream Grafikkarte. Hinweis: Insbesondere bei Verwendung eines integrierten Grafikchips kann es, abhängig vom eingesetzten Treiber, zu Beeinträchtigungen der Darstellungsqualität kommen.	Dedizierte DirectX 11 AMD oder nVidia High-End Grafikkarte.
Grafikspeicher: (Nur DirectX Hardware)	1 GB VRAM Hinweis: Die tatsächlich benötigte Größe ist abhängig von der Anzahl der aufgeschalteten Bilder und der dargestellten Elemente.	2 GB VRAM
Treiber Grafikkarte: (Nur DirectX Hardware)	Aktuellster Treiber des Grafikkartenherstellers.	
Betriebssystem:	`DirectX Hardware` und `DirectX Software` funktionieren nur auf Betriebssystemen mit `DirectX 11.1` - Unterstützung. Wenn das System `DirectX 11.1` nicht unterstützt, wird automatisch auf `Windows Basis` umgeschaltet. Die aktuelle `DirectX`−Runtime muss installiert sein. Diese wird für zenon mit dem Setup mit installiert. Für den zenon Web Client muss sie manuell installiert werden.	

Die DirectX Hardwarefähigkeit der Grafikkarte und des Treibers können Sie mit dem Windows Betriebssystem-Tool **dxdiag.exe** überprüfen.

Bis Windows 7: Prüfen Sie unter **Anzeige** den Wert **DDI-Version**. Der Wert `11` zum Beispiel steht für DirectX 11.

Ab Windows 8: In der Registerkarte **Display** werden unter **Feature Levels** alle unterstützten DirectX-Versionen angezeigt. DirectX 11 wird zum Beispiel als `11.0` angezeigt.

12.7   Zusätzliche Software

SQL SERVER

Der zenon Editor arbeitet mit einer SQL Datenbank. Diese wird bei der Installation des zenon Editors mitinstalliert:

▸ Bis inklusive Version 6.20 SP4: SQL-Server 2000 (MSDE)

▸ Ab Version 6.21 SP0: SQL Server 2005 Express

▶ Ab Version 7.00 SP0: SQL Server 2008R2 SP1 Express

▶ Ab Version 7.10 SP0: SQL Server 2012 SP1 Express

▶ Ab Version 7.20 SP0: SQL Server 2012 SP2 Express

▶ Ab Version 7.50 SP0: SQL Server 2012 SP3 Express

> ⚠ **Achtung**
>
> *Beachten Sie bei einem Wechsel der Version oder bei einem Service Pack Update des SQL Servers: Projekte müssen in der ursprünglichen Version gesichert und exportiert und dann in der neuen Version wieder importiert werden.*
>
> Hinweis: Ist eine zenon Version mit der gleichen SQL Server Version, aber mit einem anderen Service Pack, bereits vorhanden, wird dieses Service Pack durch die neue zenon Installation nicht upgedated. Das Service Pack Update kann entweder manuell oder über das Windows Update erfolgen.

DONGLE

▶ Die für den Dongleschutz erforderliche Software CodeMeter wird immer automatisch mitinstalliert.

▶ Wird WibuKey benötigt, kann dieser vom Installationsmedium installiert werden. Pfad: `\AdditionalSoftware\WIBU-SYSTEMS WibuKey`

12.8 Benutzerrechte

Für die Installation sind Windows Administratorrechte erforderlich.

Für den laufenden Betrieb sind Standard Windows Benutzerrechte erforderlich. Die Benutzerkontensteuerung (UAC) kann auf höchster Sicherheitsstufe aktiviert sein.

12.9 Hardwarevoraussetzungen

PC Version und CE Version von zenon stellen unterschiedliche Ansprüche an die benötigte Hardware. In diesem Kapitel finden Sie die Hardwarevoraussetzungen für die einzelnen Versionen von Editor und Runtime sowie zenon Web Server und zenon Web Client.

Der Editor nutzt als SQL-Server einen Microsoft SQL Server und stellt höhere Ansprüche an die Hardware als die Runtime. Sollen Editor und Runtime gleichzeitig auf einem System laufen, addieren sich die Voraussetzungen.

> ⚠ **Achtung**
>
> *Es werden Grafikkarten mit eigenem Grafikspeicher und DirectX-Unterstützung empfohlen. Shared Memory-Grafikkarten beanspruchen eventuell zu viel Arbeitsspeicher und führen damit zu Leistungseinbußen. Beachten Sie das Kapitel Systemvoraussetzungen bei Verwendung von DirectX (auf Seite 34). Für den Einsatz von Multi-Touch ist die empfohlene Konfiguration aus diesem Kapitel zu beachten.*

PERFORMANCE-OPTIMIERUNG

Beachten Sie, dass alle Angaben nur die minimalen Anforderungen an Ihr System darstellen. Eine höherwertige Ausstattung Ihrer Hardware verbessert die Leistung von zenon erheblich.

▶ Statten Sie Ihre Hardware - sowohl Clients und vor allem Server - mit genügend Arbeitsspeicher (RAM) aus.

▶ Optimieren Sie die Hardware für die Datensicherung, z.B. mit einem schnellen SSD-Datenspeicher.

▶ Stimmen Sie die Hardware der Clients und des Netzwerks aufeinander ab. Ein System ist immer so leistungsfähig wie seine schwächste Komponente.

▶ Optimieren Sie Ihre Netzwerkarchitektur, z.B. durch Einsatz einer Verkabelung mit einer hohen Datenübertragunsrate und entsprechenden Geräten (Switches und Router).

▶ Für den Einsatz in einer virtuellen Umgebung achten Sie auf eine entsprechende performance-optimierte Konfiguration des virtuellen Systems.

12.9.1 Editor

Die Mindestvoraussetzungen beziehen sich auf eine Komplettinstallation des Editors. Für umfangreiche Projekte oder mehrere gleichzeitig geladene Projekte muss die Hardware entsprechend leistungsstärker sein. Dadurch können die Mindestvoraussetzungen steigen.

Hardware	Mindestvoraussetzung	Empfohlen
CPU	Single Core mit SSE2 Unterstützung.	Quad Core
Arbeitsspeicher	Ab 4 GB Hinweis: Je mehr Projekte Sie gleichzeitig im Speicher halten, desto höher ist der Speicherbedarf.	8 GB
Festplatte	Mindestens 4 GB freier Speicherplatz für die Komplettinstallation plus Speicherplatz für die Projekte.	
Bildschirmauflösung	Extended VGA mit 1024 x 768.	Doppel-Bildschirmsystem: 2 Mal `1920 x 1080`
Grafikkarte	64 MB dedizierter Speicher. Karten mit Shared Memory können zu Leistungseinbußen führen. Beachten Sie das Kapitel Systemvoraussetzungen bei Verwendung von DirectX (auf Seite 34).	
Eingabegeräte	Standardtastatur und Standardmaus.	
USB Schnittstelle oder DVD-Laufwerk	Für die Installation, abhängig vom Installationsmedium. Die Installation ist auch über das Netzwerk möglich. Installationsdateien können auch aus dem Kundenbereich der COPA-DATA Website heruntergeladen werden.	
Parallele oder USB Schnittstelle	Bei Dongle-Lizenzierung für Dongle erforderlich. Bei Netzwerkdongle nur für Dongleserver nötig.	
Netzwerkanschluss (optional)	10 MBit/s mit TCP/IP Protokoll für Remote-Transport, Netzwerkdongle, Projektsicherungen auf zentralem Dateiserver, mehrplatzfähiger Editor usw.	1000 MBit/s

Hinweis: Bei Verwendung umfangreicher mehrplatzfähigen Projekten beachten Sie die Informationen im Kapitel Hardwarevoraussetzungen.

12.9.2   Runtime

Die Mindestvoraussetzungen beziehen sich auf eine Komplettinstallation der Runtime. Für umfangreiche Projekte oder mehrere gleichzeitig geladene Projekte muss die Hardware entsprechend leistungsstärker sein. Dadurch können die Mindestvoraussetzungen steigen.

Hardware	Mindestvoraussetzung	Empfohlen
CPU	Single Core mit SSE2 Unterstützung.	Quad Core
Arbeitsspeicher	Ab 512 MB. Hinweis: Projekte mit großen Datenmengen, Netzwerkprojekte, mehrere parallele Projekte und Projekte im Redundanzbetrieb benötigen mehr Speicher.	4096 MB
Festplatte	2 GB freier Speicherplatz für Runtime-Installation plus Speicherplatz für die Projekte. Achtung: Wenn Sie historische Daten aufzeichnen (z. B. Archivdaten oder Alarm-/CEL-Daten), muss ausreichend Festplattenplatz zur Verfügung stehen oder bei der Projektierung dafür gesorgt werden, dass die historischen Daten ausgelagert oder gelöscht werden.	
Bildschirmauflösung	VGA mit 640 x 480.	
Grafikkarte	64 MB dedizierter Speicher. Karten mit Shared Memory können zu Leistungseinbußen führen. Beachten Sie hierbei das Kapitel Systemvoraussetzungen bei Verwendung von DirectX (auf Seite 34).	
Eingabegeräte	Tastatur und/oder Maus. Auch die Bedienung über einen Touchscreen ist möglich. Für den Touchscreen stehen Ihnen viele individuelle, gestaltbare Softkeyboards zur Verfügung. Zusätzlich besteht die Möglichkeit der Multi-Touch-Bedienung.	

USB Schnittstelle
(optional)
	▸ Für Installation.
	    Installation auch über Netzwerk oder andere
	    Datenträger möglich.
	
	▸ Für Dongle. Auch Netzwerkdongle möglich.	

Netzwerkanschluss **(optional)**	64 kBits/s für Standard Client/Server Projekte. 100 Mbit/s Fullduplex für Redundanzbetrieb.	1000 Mbit/s Fullduplex für Standard Client/Server Projekte.
Remoteverbindung **(optional)**	Minimalvoraussetzung: Wählmodem mit 9600 Bits/s.	1 MBit/s Fullduplex.
WAN Einsatz **(optional)**	Beliebige Verbindung über Router, z. B. per ISDN oder DSL. Die Datenübertragung ist im WAN technisch bedingt langsamer als im lokalen Netzwerk. Beachten Sie die möglichen Datenübertragungsraten der von Ihnen eingesetzten	

	WAN-Technik bereits bei der Projekterstellung.	
Message Control (optional)	Die Voraussetzungen dafür finden Sie im Kapitel Message Control.	
Schnittstellen (optional)	Die nötigen Schnittstellen hängen von den Anforderungen der SPS und/oder Busanbindung ab, z. B.: serielle RS232 oder RS422/485 Schnittstellen, ISA/PCI Steckplätze, usw.	

12.9.3   Runtime unter Windows Embedded Standard

Die Mindestanforderungen beziehen sich auf eine an das Betriebssystem Windows Embedded Standard 7 SP1 mit Plattformupdate angepasste Installation der Runtime. Für umfangreiche Projekte muss die Hardware entsprechend leistungsstärker sein.

Diese Tabelle gibt nur die von der Standard-Installation abweichenden Werte wieder. Die restlichen Parameter entsprechen den im Kapitel   Hardwarevoraussetzungen für die Runtime (auf Seite 38) beschriebenen Werten.

Hardware	Mindestanforderung	Empfohlen
Arbeitsspeicher	▸ 512 MB. Hinweis: Projekte mit großen Datenmengen, Netzwerkprojekte, mehrere parallele Projekte und Projekte im Redundanzbetrieb benötigen mehr Speicher.	▸ 2048 MB
Speichermedium	▸ 2 GB freier Speicherplatz am Laufwerk C:\ vor der Installation von .NET Framework 3.5 und 4.5 800 MB freier Speicherplatz nach der Installation von .NET Framework ▸ plus Speicherplatz für die Projekte, Archive, etc.	▸ 80 GB

Achtung: Wenn Sie historische Daten aufzeichnen (z. B. Archivdaten oder Alarm-/CEL-Daten), muss ausreichend Festplattenplatz zur Verfügung stehen oder bei der Projektierung dafür gesorgt werden, dass die historischen Daten ausgelagert oder gelöscht werden.

12.9.4   Runtime für Windows CE

Die Mindestanforderungen beziehen sich auf eine Komplettinstallation der Runtime für Windows CE. Für umfangreiche Projekte muss die Hardware entsprechend leistungsstärker sein.

Hardware	Mindestanforderung	Empfohlen
CPU	Mindestens 400 MHz	1 GHz
Arbeitsspeicher	64 MB	1024 MB für Windows CE 6.0.
Speichermedium	64 MB freier Speicherplatz. Permanent beschreibbarer remanenter Speicher für Projektdaten	256 MB freier Speicherplatz oder mehr.
Netzwerkanschluss	Für Standard Client/Server Projekte: 10 Mbit/s Fullduplex.	

⚠ **Achtung**

Ab Version 7.50 wird Windows CE nicht mehr unterstützt. Es wird die zenon CE Version 7.20 installiert. Um diese zu nutzen, müssen die Runtime-Dateien für die Version 7.20 erzeugt werden.

12.9.5 Web Server

Die Mindestvoraussetzungen beziehen sich auf eine Komplettinstallation des Web Servers. Für umfangreiche Projekte oder mehrere gleichzeitig geladene Projekte muss die Hardware entsprechend leistungsstärker sein. Dadurch können die Mindestvoraussetzungen steigen.

Hardware	Mindestvoraussetzungen	Empfohlen
CPU	Single Core mit SSE2 Unterstützung.	
Arbeitsspeicher	Ab 1024 MB	
Festplatte	256 MB freier Speicherplatz.	1 GB freier Speicherplatz.
Netzwerkanschluss	10 Mbit/s Fullduplex.	1000 Mbit/s Fullduplex.
Remoteverbindung (optional)	Mindestvoraussetzung: Wählmodem mit 9600 Bits/s.	1 MBit/s Fullduplex.

12.9.6   Web Client

Die Mindestvoraussetzungen beziehen sich auf eine Komplettinstallation des zenon Web Clients. Für umfangreiche Projekte oder mehrere gleichzeitig geladene Projekte muss die Hardware entsprechend leistungsstärker sein. Dadurch können die Mindestvoraussetzungen steigen.

Hardware	Mindestvoraussetzung	Empfohlen
CPU	Single Core mit SSE2 Unterstützung.	Quad Core
Arbeitsspeicher	Ab 1024 MB	
Festplatte	64 MB freier Speicherplatz für zenon Web Client plus Speicherplatz für die Projekte.	80 GB freier Speicherplatz.
Netzwerkanschluss	10 Mbit/s Fullduplex.	1000 Mbit/s Fullduplex.
Remoteverbindung (optional)	Mindestvoraussetzung: Wählmodem mit 9600 Bits/s.	1 MBit/s Fullduplex.
Grafikkarte	64 MB dedizierter Speicher. Karten mit Shared Memory können zu Leistungseinbußen führen. Beachten Sie hierbei das Kapitel Systemvoraussetzungen bei Verwendung von DirectX (auf Seite 34).	

13. Pfade für Installation und im Betrieb

Pfade für zenon:

- ▶ Installation
- ▶ Editor
- ▶ Runtime

> ### 💡 Info
>
> Viele Standardpfade können Sie sich mit dem **set** Kommando anzeigen lassen:
>
> ▸ starten Sie die Kommandozeile (Eingabe **cmd** im Windows Startbereich)
>
> ▸ geben Sie den Befehl **set** ein
>
> ▸ mit Klick auf die Taste `Eingabe` werden Standardordner für Windows und zenon angezeigt

Hinweis: Da absolute Pfade sich in verschiedenen Betriebssystemen unterscheiden können, werden in diesem Kapitel Pfade immer als Windows Umgebungsvariablen angezeigt. Zum Beispiel `%ProgramData%` statt `C:\ProgramData`.

INSTALLATION

Bei der Installation werden Pfade gesetzt für:

▸ zenon Editor

▸ zenon SQL-Ordner

Nur die Pfade für zenon Editor und zenon SQL-Ordner sind anpassbar.
Das Setup benötigt Administratorrechte, das gilt auch für die Änderung der Installationspfade.

VORAUSSETZUNGEN

Die Installationspfade von vorausgesetzter Drittanbieter-Software entsprechen den Standardpfaden der jeweiligen Hersteller und sind beim Setup nicht änderbar.

Welche zusätzlichen Softwarepakete installiert werden, hängt ab von der Installationsart:

▸ zenon Editor

▸ zenon Runtime

▸ zenon Web Client

▸ zenon Logic Runtime

Voraussetzung	Editor	Runtime	Web Client	zenon Logic Runtime
Microsoft .NET Framework 3.5 SP1	+	+	-	-
Microsoft .NET Framework 4.0	+	+	-	-
Microsoft Visual C++ 2005 Redistributables	+	+	-	+
Microsoft Visual C++ 2010 Redistributables	+	+	+	+
Microsoft Visual C++ 2012 Redistributables	+	+	+	+
Microsoft Visual C++ 2015 Redistributables	+	+	+	-
Microsoft SQL-Server 2012 SP1 Express (ab 7.10)	+	-	-	-
VSTA	+	+	-	-
COPA-DATA Multiple Network Protocol Driver x86/x64	+	+	-	+
CodeMeter Dongle Software x86/x64	+	+	-	-
Report Viewer 10.0 (ab 7.00)	+	+	+	-
VBA 7.1	+	+	+	-

ZENON

Die Installation von zenon Editor setzt zwei Pfade:

▶ zenon Editor:

- 32-Bit Systeme: %ProgramFiles(x86)%\COPA-DATA\zenon [Version]

- 64-Bit Systeme: %ProgramFiles%\COPA-DATA\zenon [Version]

Diese Pfade können bei der Installation angepasst werden.

▶ zenon SQL-Ordner:

- ab Version 7.10: %ProgramData%\COPA-DATA\SQL2012\

Diese Pfade können manuell über die zenDB.ini geändert werden.

ZENON EDITOR

Im zenon Editor werden standardmäßig folgende Pfade benutzt:

Objekt	Pfad
Arbeitsplatz	`%CD_USERDATA%` Zum Beispiel: `C:\Users\Public\Documents\zenon_Projects`
Projekte	`%CD_USERDATA%` Zum Beispiel: `C:\Users\Public\Documents\zenon_Projects` Tipp für Tastenkombination: Projekt markieren -> `Strg+Alt+D`
SQL-Ordner des Projekts	`%ProgramData%\COPA-DATA\[SQL-Ordner]\[UID]\FILES` Tipp für Tastenkombination: Projekt markieren -> `Strg+Alt+E`
project.ini	`%ProgramData%\COPA-DATA\[SQL-Ordner]\[UID]\FILES\zenon\system`
zenon6.ini	`%ProgramData%\COPA-DATA\System` Zum Beispiel: `C:\ProgramData\COPA-DATA\System`

Sicherung	`%ProgramData%\COPA-DATA\[SQL-Ordner]\UID]\BACKUP`
	
	 `%ProgramData%\COPA-DATA\[SQL-Ordner\UID]\FILES\[Projekte]`

Kompilierte Dateien	`%CD_USERDATA%\[Arbeitsbereich]\[Projekt]\RT`
Externe Dateien	`%CD_USERDATA%\[Arbeitsbereich]\[Projekt]\RT\FILES\...` Hinweis: Im Projekt einstellbar über Eigenschaft Dateiablage.
Systemdateien	Windows Systemordner.

ZENON RUNTIME

In der zenon Runtime werden standardmäßig folgende Pfade benutzt:

Objekt	Pfad
Projekte	`%CD_USERDATA%\[Arbeitsbereich]\[Projekt]\RT`
Externe Dateien	`%CD_USERDATA%\[Arbeitsbereich]\[Projekt]\RT\FILES\...`
Exportierte Archive, Chronologische Ereignislisten und Alarmmeldeliste	`%CD_USERDATA%\[Arbeitsbereich]\[Projekt]\Export` Hinweis: Wird bei erstem Export angelegt.
Systemdateien	Windows Systemordner.

ZENON LOGIC

Pfade für zenon Logic werden analog zu den zenon Pfaden angelegt.

14. zenon für Windows CE

BESTANDTEILE

Die CE Version von zenon setzt sich aus folgenden Komponenten zusammen:

- ▶ zenon CE Runtime
- ▶ Sprach DLLs
- ▶ Netzwerk DLL
- ▶ Treiber DLLs
- ▶ zenon6.ini
- ▶ Transportservice

⚠️ **Achtung**

Ab Version 7.50 wird Windows CE nicht mehr unterstützt.   Es wird die zenon CE Version 7.20 installiert. Um diese zu nutzen, müssen die Runtime-Dateien für die Version 7.20 erzeugt werden.

VORAUSSETZUNGEN FÜR INSTALLATION DER RUNTIME AUF REMOTE-SYSTEMEN

▶ Auf dem CE Terminal muss der Transportservice (**SysSrvCE.exe**) von zenon installiert und gestartet sein oder eine ActiveSync-Verbindung bestehen. Hinweise zur manuellen Installation über Datenträger finden Sie im Kapitel Manuelle Installation und Runtime-Update (auf Seite 57).

▶ Das CE Terminal, auf das die neuen Daten übertragen werden sollen, muss für den ordnungsgemäßen Transport über mindestens 8 Megabyte freien Speicher "Program Memory" verfügen. Dieser Parameter kann über das Control Panel **Systemeigenschaften** angepasst werden.

VORGANGSWEISE

Details zu Kompatibilität, Installation und Update finden Sie in den Kapiteln:

▶ CE Versionen / Prozessorunterstützung   (auf Seite 48)

▶ Update Windows CE Runtime (auf Seite 49)

💡 **Info**

*Wird beim Start von **zenonrce.exe** auch die Datei **syssrvce.exe** ausgeführt, dann kann sichergestellt werden, dass immer eine TCP-Verbindung aufgebaut werden kann. Damit ist nur eine Datei für die Autostart-Funktionalität nötig. Allerdings muss zwischen beide Starts eine Zeitverzögerung projektiert werden.*

*Ursache: Beim Start von **zenonRCE** startet automatisch auch **zenLogSrvCE**. Aber auch beim Start von **syssrvce** wird **zenLogSrvCE** mitgestartet.*

*Werden **zenonRCE** und **syssrvce** innerhalb eines sehr kurzen Zeitraums gestartet, versuchen beide, **zenLogSrvCE** zu starten. Das führt das zu einer Fehlermeldung.*

*Lösung: Um dies zu vermeiden, projektieren Sie eine Verzögerung zwischen den Start von **zenonRCE** und **zenLogSrvCE**. Dazu können Sie in der **zenon6.ini** den Eintrag STARTDELAY= setzen. Damit wird die Runtime (**zenLogSrvCE**) später gestartet. Es wird dann überprüft, ob **zenLogSrvCE** bereits läuft und dieser nicht mehr neu gestartet.*

14.1 CE - Versionen und Prozessorunterstützung

In der zenon Version 7.20 werden folgende Windows CE Versionen und Prozessoren unterstützt:

Prozessoren:

▶ x86

▶ ARM V4/V5

CE-Versionen:

▶ CE 6.00

▶ Windows Embedded Compact 7

Informationen zu unterstützten CE Versionen und Prozessoren für frühere zenon Versionen finden Sie in der jeweiligen Dokumentation oder erhalten Sie beim COPA-DATA Support.

> ⚠ **Achtung**
>
> *Ab Version 7.50 wird Windows CE nicht mehr unterstützt. Es wird die zenon CE Version 7.20 installiert. Um diese zu nutzen, müssen die Runtime-Dateien für die Version 7.20 erzeugt werden.*

14.2 Systemdateien

Die Runtime für Windows CE setzt das Vorhandensein unterschiedlichster Systemdateien voraus. Fehlt eine dieser Dateien, so erzeugt das Betriebssystem eine Fehlermeldung beim Starten der Runtime, dass eine oder mehrere Komponenten nicht gefunden wurden. Folgende Systemdateien sind unbedingt erforderlich:

Datei	Beschreibung
mfc90u.dll	Erforderlich für die Runtime. Es kommt eine Fehlermeldung beim Starten, wenn diese Datei nicht vorhanden ist.
msvcr90.dll	Erforderlich für die Runtime. Es kommt eine Fehlermeldung beim Starten, wenn diese Datei nicht vorhanden ist.
atl90.dll	Nicht erforderlich für das Starten der Runtime, aber für den Einsatz eines Treibers mit Netzwerkanbindung oder den Einsatz von zenon im Netzwerk. Wenn diese Datei nicht vorhanden ist, kann das Gerät nicht als Client fungieren oder funktionieren TCP/IP Treiberanbindungen nicht.
IMGDECMP.dll	Nicht erforderlich für das Starten der Runtime, aber erforderlich für die Darstellung von Transparenz, wenn Alpha Blending im Betriebssystem nicht integriert ist. Eine Animation ist bei GIF Dateien unter Windows CE nicht möglich.
VBSCRIPT.dll + JSCRIPT.dll	Nicht erforderlich für das Starten der Runtime. Diese Datei wird benötigt für die PCE (Process Control Engine).

Einige dieser Systemdateien werden mit der Installation von zenon für CE mit installiert und können z. B. mit dem **UpdateCE** Tool auf das CE Gerät übertragen werden. Alle diese Systemdateien sollten bereits vom Gerätehersteller in das Betriebssystem-Image des CE Geräts integriert werden.

⚠ **Achtung**

Für Hersteller von Windows CE Betriebssystemimages:
*CE Versionen vor 6.0 benötigen die Datei **toolhelp.dll**. Damit die Datei   am CE Gerät vorhanden und die Toolhelp im SDK auch verfügbar ist, aktivieren Sie im **Platform Manager** folgenden Eintrag:*
Core OS -> Display Based Device ->Core OS Services -> Debugging Tools -> `Toolhelp API`. Hiermit ist die `Toolhelp.dll` im Image mit dabei.
*Tipp: Verwenden Sie immer das aktuellste Service Pack des **Platform Builder**.*

*Hinweis: Die **toolhelp.dll** wird für Windows CE 6 nicht benötigt und soll mit CE 6 nicht verwendet werden.*

14.3   Update Windows CE Runtime

Um ein Update der Windows CE Runtime durchzuführen:

▶ Stellen Sie sicher, dass der zenon Transport Service (**SysSrvCE.exe**) auf dem CE Gerät läuft.

▶ Vergewissern Sie sich, dass sie keine Remote Verbindung mittels zenon Editor zum Gerät aufgebaut haben.

▶ Wählen Sie im zenon Menü **Extras** den Befehl **Update Windows CE Runtime**.

Der Dialog zur Übertragung von Runtime-Dateien öffnet sich.

- ▶ Konfigurieren Sie die Verbindung.

- ▶ Definieren Sie die zu übertragenden Dateien.

- ▶ Wählen Sie die Version aus.

- ▶ Starten Sie das Update.

Hinweis: Sollten Sie die Runtime zum ersten Mal übertragen/installieren, beachten Sie die Hinweise im Kapitel **Manuelle Installation und Runtime-Update**.

VERBINDUNG KONFIGURIEREN

Die Verbindung zum Windows CE Gerät konfigurieren Sie in der Registerkarte **Connection**.
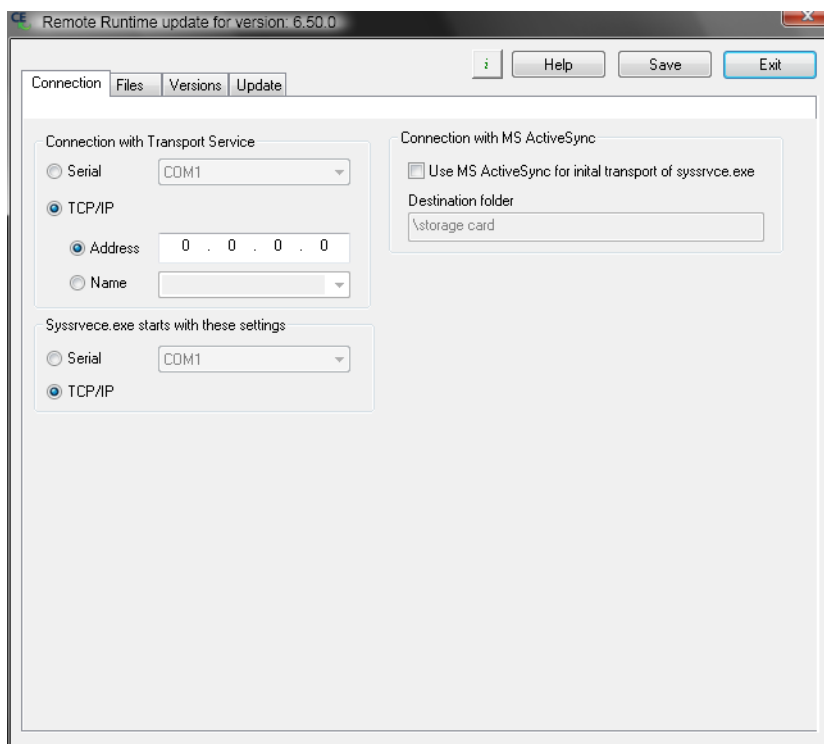
| Parameter	Beschreibung
Serial	Einstellung für serielle Verbindung zum Windows CE Gerät, Port muss ausgewählt werden.
TCP/IP	Einstellungen für TCP/IP Verbindung zum Windows CE Gerät.
Adress	IP-Adresse.
Name	Computername.
Syssrvce.exe starts with these settings	Einstellung für Start der **syssrvce.exe**.
Serial	`Aktiv`: serielle Verbindung wird gewählt, Port muss ausgewählt werden.
TCP/IP	`Aktiv`: TCP/IP Verbindung wird gewählt.
Connection with MS ActiveSync	Einstellungen zur Verbindung über MS ActiveSync
Use MS ActiveSync for initial transport of syssrvce.exe	Aktiv: syssrvce.exe wird beim ersten Transport über MS ActiveSync übertragen.
Destination folder	Zielordner.
Help	Öffnet die Online-Hilfe
Save	Speichert alle Änderungen.
Exit	Schließt das Update CE Tool und bietet zuvor das Speichern noch nicht gesicherter Änderungen an.

ZU ÜBERTRAGENDE DATEIEN DEFINIEREN
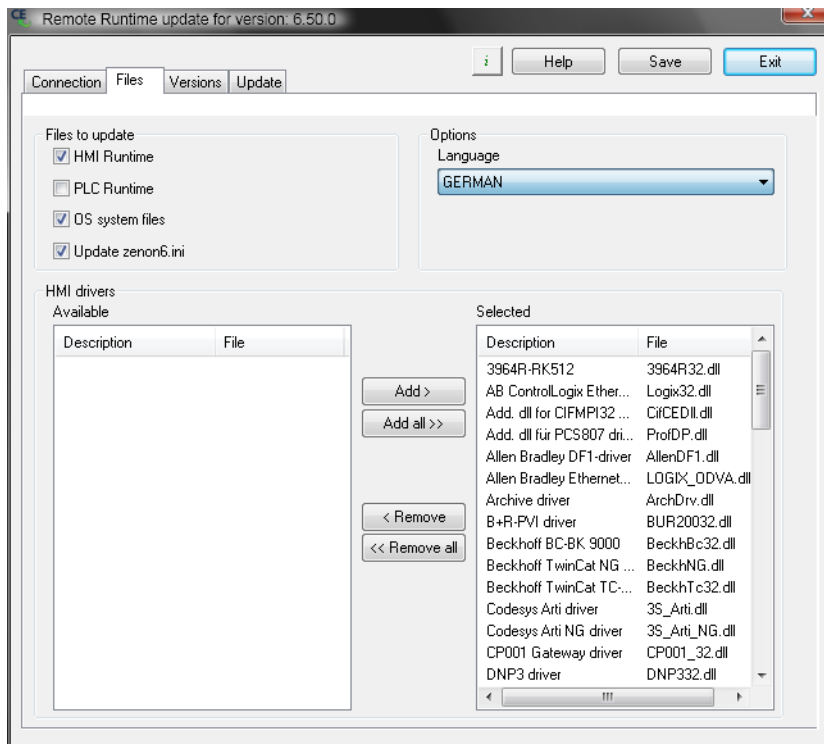
Parameter	Beschreibung
Files to update	Dateien, die übertragen werden sollen.
HMI Runtime	`Aktiv`: Überträgt zenon Dateien zum Zielgerät. Default: `aktiv`
PLC Runtime	`Aktiv`: Überträgt zenon Logic Dateien zum Zielgerät. Default: `inaktiv`
OS system files	`Aktiv`: Überträgt nötige Dateien des Betriebssystems. Default: `aktiv`
Update zenon6.ini	Überträgt die zenon6.ini zum Zielgerät. Damit werden auch die Lizenzinformationen am Zielgerät geändert.
Options	
Language	Gewünschte Sprache am Zielsystem. Default: `English`
HMI drivers	Auswahl der zu übertragenden HMI Treiber.
Available	Liste der zur Verfügung stehenden Treiber.
Selected	Liste der ausgewählten Treiber.
Add	Fügt markierte Treiber zur Liste der ausgewählten Treiber hinzu.
Add all	Fügt alle Treiber zur Liste der ausgewählten Treiber hinzu.
Remove	Löscht markierte Treiber aus der Liste der ausgewählten Treiber.
Remove all	Löscht alle Treiber aus der Liste der ausgewählten Treiber.
Help	Öffnet die Online-Hilfe
Save	Speichert alle Änderungen.
Exit	Schließt das Update CE Tool und bietet zuvor das Speichern noch nicht gesicherter Änderungen an.

VERSION AUSWÄHLEN

Wählen Sie in der Registerkarte **Versions** die passende Version aus, falls sie nicht automatisch erkannt wurde.
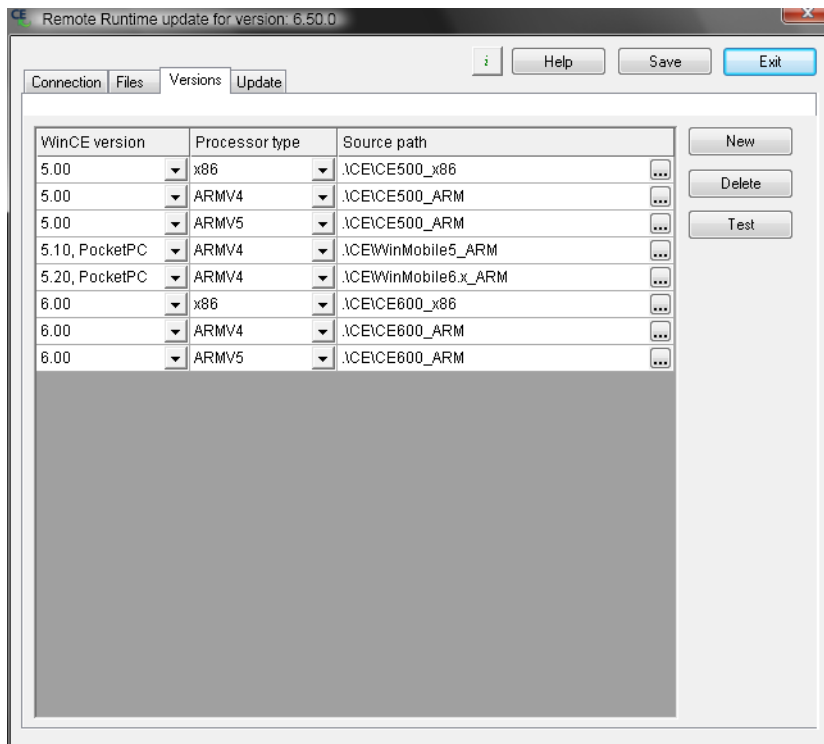
| Parameter	Beschreibung
WinCE version	Version des Windows CE Betriebssystems am Zielgerät. Klick auf Schaltfläche öffnet Dropdownliste zur Auswahl.
Processor type	Prozessor des Geräts.
Source path	Pfad zum Ordner, der die Dateien enthält. Klick auf Schaltfläche ... öffnet Dialog zur Auswahl des Ordners.
New	Fügt neuen, leeren Eintrag in Liste ein.
Delete	Löscht den ausgewählten Eintrag aus der Liste,
Test	Überprüft Einstellungen.
Help	Öffnet die Online-Hilfe
Save	Speichert alle Änderungen.
Exit	Schließt das Update CE Tool und bietet zuvor das Speichern noch nicht gesicherter Änderungen an.

UPDATE STARTEN

Um die Verbindung herzustellen:

1. Klicken Sie in der Registerkarte **Update** auf die Schaltfläche **Start**.
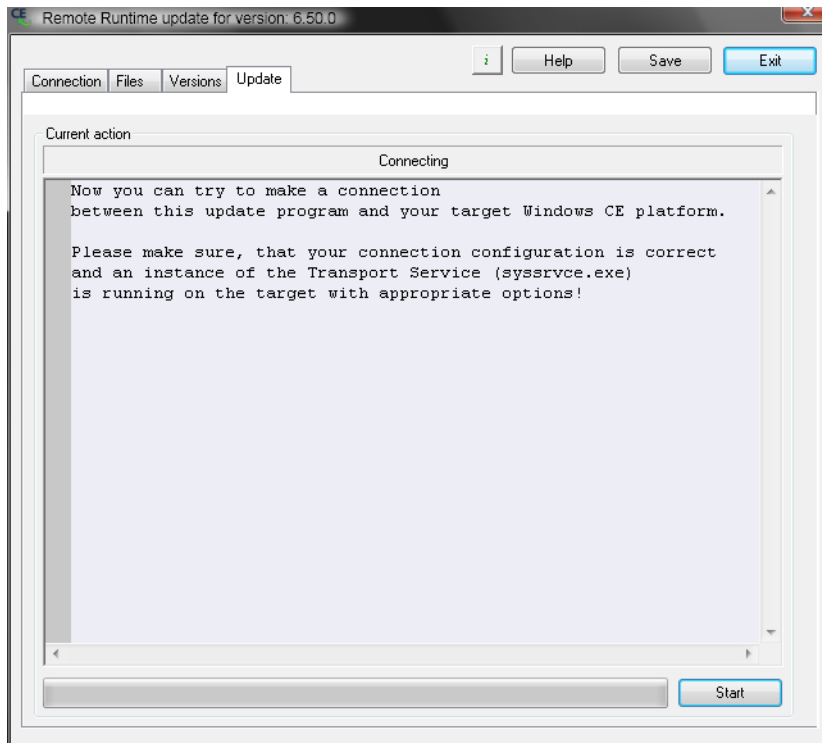
Die Daten für die Übertragung werden überprüft und in einem Fenster angezeigt.

2. Starten Sie mit einem Klick auf die Schaltfläche **Next** die Übertragung zum Zielgerät.
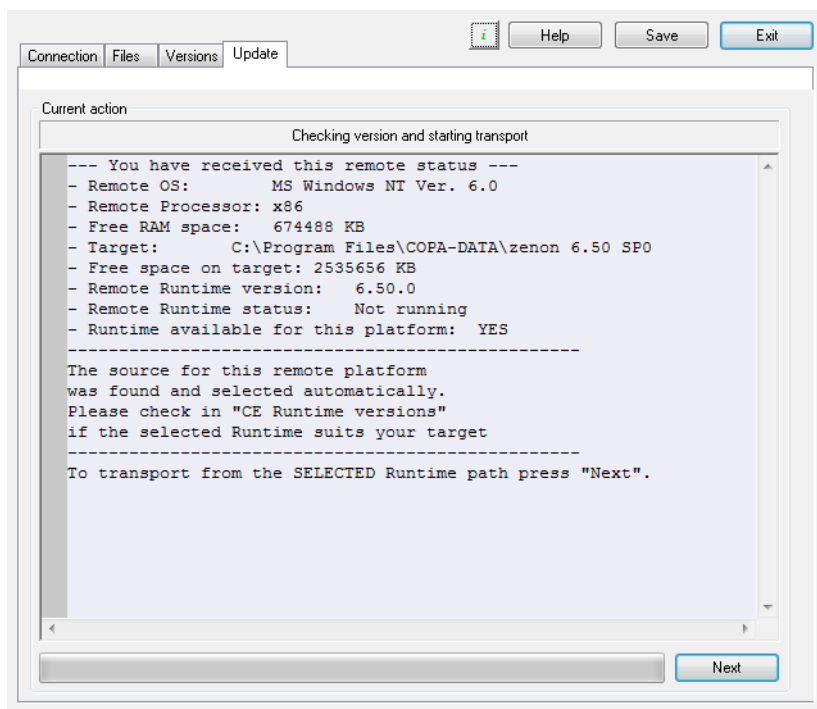
Falls die Übertragung aufgrund fehlender Dateien nicht gestartet werden kann, erhalten Sie eine Fehlermeldung mit der Liste der fehlenden Dateien:
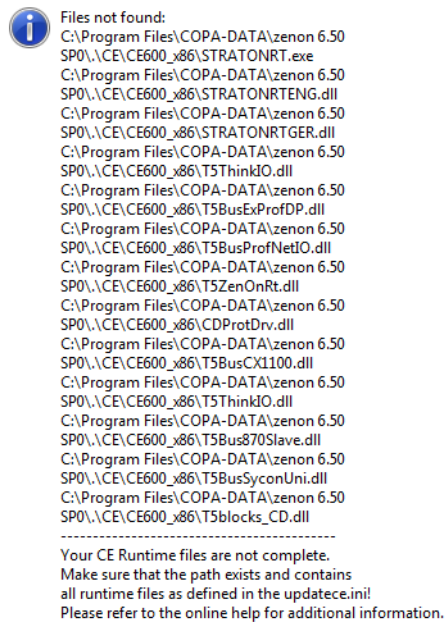
Falls Sie die Fehlermeldung **The current update was not completed** erhalten, wurde die Installation unterbrochen oder nicht korrekt beendet.

> 💡 **Info**
>
> *Soll zenVNCServer.exe per Update ersetzt werden, wird dieser beendet und nach dem Update wieder gestartet. Dazu muss die Datei **zenVNCSrvCE.exe** in der UpdateCE.ini im Abschnitt [SOURCES_FILES_GENERAL] mit den folgenden Einträge konfiguriert sein (per default vorhanden):*
>
> ▸ zenVNCSrvCE.exe
>
> ▸ zenVNCCfgCE.exe

14.4   Manuelle Installation und Runtime-Update

Installation und Update sind auch ohne Remote-Transport und ActiveSync möglich. Dazu werden die erforderlichen Dateien manuell auf eine Speicherkarte für das CE Gerät kopiert. Dafür müssen Sie CE Version und Prozessortyp das CE Geräts kennen.

Folgende Dateien müssen zwingend aus dem jeweiligen Ordner für die richtige Plattform auf die für das CE Gerät bestimmte Speicherkarte kopiert werden:

- ▶ **zenonRCE.exe** (Runtime)

- ▶ **LogCliLibCE.dll** (Diagnose-DLL)

- ▶ **zenon6.ini** (Konfigurationsdatei)

- ▶ **Cd_tooCE.dll** (Hilfs-DLL)

- ▶ **ZenNetSrvCE.dll** (Netzwerk)

- ▶ **CDHelper.dll** (Hilfs-DLL)

- ▶ Eine der folgenden Sprach-DLLs: **RChineCE.dll, RCzechCE.dll, REngliCE.dll, RFrancCE.dll, RGermaCE.dll, RItaliCE.dll, RRussiCE.dll, RSpaniCE.dll** (Die ausgewählte Sprache wird in der Datei **zenon6.ini** festgelegt.)

- ▶ **syssrvce.exe** (Transportservice und Diagnosis Server)

- ▶ **atl90.dll** (Systemdatei, ev. im Betriebssystem enthalten)

- ▶ **mfc90u.dll** (Systemdatei, ev. im Betriebssystem enthalten)

- ▶ **msvcr90.dll** (Systemdatei, ev. im Betriebssystem enthalten)

Weitere Dateien, wie zum Beispiel die Treiber oder die Remotedesktop-Software (**zenVNCCfgCE.exe** und **zenVNCSrvCE.exe**), sind optional.

14.5   Pocket PCs (PDA - Handheld PC)

Pocket PCs werden ab Version 7 nicht mehr unterstützt.

14.6   Fehlerbehandlung

Mögliche Fehler:

Fehler	Mögliche Lösung
Verbindungsfehler bei Update über COM.	Geöffneter Windows Explorer verzögert die Zugriffszeit. Explorer schließen behebt das Problem.
Transportservice funktioniert nicht.	Version des Transportservice überprüfen. Mindestens: Version 5.21 SP3 oder höher oder der Version 5.50 SP1 oder höher.
Runtime Update Programm kann keine Verbindung aufbauen.	Beenden Sie offene Verbindungen des Editors zum CE Transportservice.

15. zenon Logic Runtime für Windows CE

Die Installation der zenon Logic Runtime (PLC Runtime) auf einem Windows CE System läuft ähnlich ab wie die Installation der Runtime für Windows CE (auf Seite 46).

Voraussetzung: Lauffähiger Transportservice unter CE.

Die zenon Logic Runtime für Windows CE setzt sich aus folgenden Komponenten zusammen:

- ▶ zenon Logic Runtime
- ▶ Sprach DLL
- ▶ zenon Logic IO Treiber
- ▶ zenon6.ini

INSTALLATION

- ▶ Wählen Sie im zenon Menü **Extras/Update Windows CE Runtime**.

  Der Dialog zur Übertragung von Runtime-Dateien öffnet sich.

- ▶ Aktivieren Sie im Fenster Files die Checkbox PLC Runtime, um die für zenon Logic nötigen Dateien in das CE Ausführungsverzeichnis zu kopieren.

- ▶ Wechseln Sie zur Registerkarte Connection.
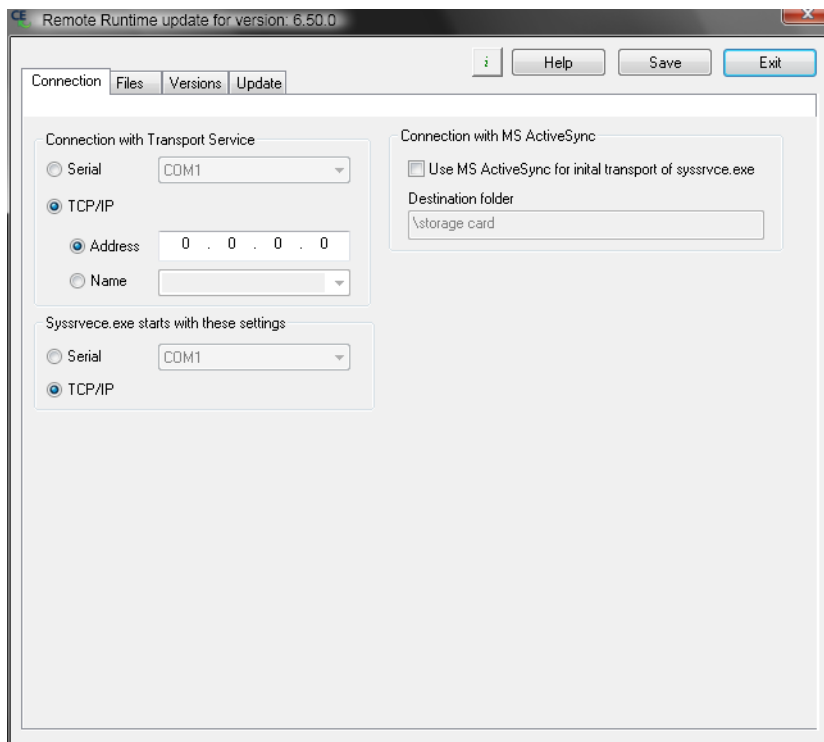
▶ Definieren Sie die Verbindung zum Windows CE Gerät. Geben Sie die IP-Adresse oder den seriellen Port an.

▶ Falls auch die zenon6.ini übertragen werden soll, wählen Sie Update zenon6.ini aus. Damit werden auch die Lizenzinformationen am Zielgerät geändert.

▶ Wählen Sie im Fenster CE Runtime Versions die passende Version aus, falls sie nicht automatisch erkannt wurde.

UPDATE

Funktioniert wie im Kapitel Update Windows CE Runtime (auf Seite 49)beschrieben.

Achtung: In der Registerkarte Files muss die Option PLC Runtime aktiviert werden!

> 💡 **Info**
>
> *Unter Windows CE 6.0 werden die MFC-Dateien immer übertragen*

16. zenon Web Server

Um den **zenon Web Server** oder **zenon Web Server Pro** zu installieren:

1. Aktivieren Sie die WWW-Dienste auf dem Rechner.

   Der Ordner `C:\inetpub\wwwroot` muss existieren.

2. Starten Sie das zenon Installationsmedium. Der Startbildschirm wird angezeigt.

   Falls Sie Autostart von Medien deaktiviert haben, führen Sie die Datei **start.exe** auf dem Installationsmedium aus.

3. Wählen Sie zenon Web Server aus.
   Entsprechend der Version des Betriebssystems wird automatisch die 32-Bit oder 64-Bit Version des zenon Web Servers installiert.

4. Folgen Sie der Installationsroutine.

5. Starten Sie den Computer neu.

Die Setup-Dateien für den Web Client finden Sie nach der Installation in Unterverzeichnissen des zenon Web Server-Installationspfades (xxx steht für die jeweilige Version von zenon), z. B.: `C:/Programme (x86)/COPA-DATA/zenonWebserver/zenon/controlversions/Versionxxx/zenon_ Webclient_Setup_GERMAN.EXE`
oder

```
C:/Inetpub/wwwroot/zenon/controlversions/Versionxxx/zenon_Webclient_Se
tup_GERMAN.EXE
```

Es werden auch die Beispiel-Webseiten (index*.html und init*.html) mitinstalliert. Diese sind im Unterverzeichnis zenon des zenon Web Server-Installationspfades zu finden, z. B.:
```
C:/Programme/zenonWebserver/zenon/index.htm
```
oder
```
C:/Inetpub/wwwroot/zenon/index.html
```

> 💡 **Info**
>
> *Der Dienst für den **zenon Web Server** wird nur in der lizenzierten Version automatisch gestartet. Im Demo-Modus muss der zenon Web Server manuell über die zenon Web Server-Konsole in den Systemeigenschaften gestartet werden.*

WEITERFÜHRENDE INFORMATIONEN

Details zum zenon Web Server lesen Sie im Handbuch zenon Web Server und Web Server Pro, zur Lizenzierung im Handbuch Lizenzierung.

17. zenon Web Client

Der zenon Web Client besteht vor allem aus einem ActiveX Control, das Informationen in einem Browser darstellt. Die Darstellung erfolgt dabei 1:1 wie in einem **zenon Runtime Client**. Die Verbindung zum **Runtime Server** erfolgt über den **zenon Web Server** mittels TCP/IP Kommunikation.

Die Setup-Dateien für den zenon Web Client finden Sie nach der Installation in Unterverzeichnissen des zenon Web Server-Installationspfades (xxx steht für die jeweilige Version von zenon), z. b.:
```
%Programfiles%/COPA-DATA/zenon Web
Server/zenon/controlversions/Versionxxx/zenon_Webclient_Setup_GERMAN.E
XE
```
oder

```
C:/Inetpub/wwwroot/zenon/controlversions/Versionxxx/zenon_Webclient_Se
tup_GERMAN.EXE
```

Alle zenon Logic Web Client-Setups sind digital signiert und können problemlos auch im Internet zum Download bereit gestellt werden.

Mit dem COPA-DATA Web Client wird auch der **zenon Web Client Starter** installiert. Dieser ermöglicht das Öffnen des zenon Web Client aus einem beliebigen Browser.

> **Info**
>
> *Der zenon Web Client sendet Error- und LOG-Dateien. Der für die Auswertung dieser Dateien notwendige Diagnosis Server wird bei einer Installation des zenon Web Client mitinstalliert.*

18. Updates (Build Setups)

UPDATE (BUILD SETUP)

Ein Update wird über die bestehende Installation installiert und ersetzt nur geänderte Dateien durch neue Versionen. Alle Projekte und individuellen Einstellungen bleiben erhalten. Build Setups sind nie zu 100% qualitätsgesichert. Es werden nur die enthaltenen Fehlerbehebungen getestet. Sollten durch eine Fehlerbehebung unerwünschte Nebeneffekte auftreten, können diese unter Umständen bei den Tests nicht auffallen. COPA-DATA empfiehlt daher immer den Einsatz von Service Packs. Diese durchlaufen immer den kompletten Qualitätssicherungsprozess.

Hinweise:

▶   Build Setups können nur lokal installiert werden. Eine Installation auf Netzwerkpfaden (UNC) ist nicht möglich.

▶   zenon Web Client: Um ein Update für den zenon Web Client zu installieren, muss der zenon Web Client zuvor deinstalliert werden.

WECHSEL ZU NEUER VERSION

Wenn Sie eine neue Version von zenon installieren möchten, starten Sie die Installationsroutine.   Bei der Installation wird die neue Version parallel zur bisherigen Version installiert. Alle Ihre Projekte und individuellen Einstellungen bleiben erhalten. Projekte werden bei der Installation nicht in die neue Version konvertiert. Erst beim ersten Öffnen im Editor erfolgt die Konvertierung des jeweiligen Projektes in die neue Version. Eine Dialogbox weist auf den Vorgang hin. Die bisherige Version wird automatisch gesichert. Möchten Sie nur die jeweils aktuellste Version verwenden, deinstallieren Sie die Vorgängerversion über die entsprechende Routine der Windows Systemsteuerung.

> ⚠ **Achtung**
>
> *Wenn eine Installation den Wechsel des SQL Servers mit sich bringt (z. B. von zenon 7.00 auf zenon 7.10 oder höher, muss vor der Installation eine Sicherung aller Projekte oder des Arbeitsplatzes erfolgen. Diese Sicherung wird nach der Installation wieder eingespielt. Details zur Vorgehensweise siehe auch Abschnitt* **Mehrbenutzer-Projekte/Update mit Wechsel des SQL Server***s.*

Möchten Sie mehrere Versionen von zenon parallel betreiben, so managen Sie diese über das **Startup Tool**. Es kann immer nur jeweils eine Version gestartet werden. Welche Version gestartet wird, legen Sie im **Startup Tool** fest, das beim Start alle nötigen Einstellungen automatisch vornimmt. Details dazu lesen Sie im Kapitel **Startup Tool**.

> 💡 **Info**
>
> *Neue Versionen bringen immer strukturelle Änderungen mit sich. Bei der Installation bleiben die Projekte und Einstellungen erhalten. Beim ersten Öffnen im Editor werden Projekte in die neue Version konvertiert, gleichzeitig wird eine automatische Sicherungskopie der alten Version erstellt.*
>
> *Konvertierte Projekte können in Vorgängerversionen nicht mehr bearbeitet werden. Ab Version 6.2 kann der Editor Projekte für unterschiedliche Runtime-Versionen erzeugen.*
>
> *Wichtige Hinweise zur Konvertierung von Projekten finden Sie im Revisionstext. Dieser wird auf dem Installationsmedium ausgeliefert und steht Ihnen auch online zur Verfügung.*

MEHRBENUTZER-PROJEKTE

Um den Wechsel zu einer neuen zenon Version in Mehrbenutzer-Projekten ohne Datenverlust zu gewährleisten:

1. Auf allen Clients alle ausgecheckten Elemente einchecken -> `Änderungen übernehmen`. Es darf nichts mehr ausgecheckt sein. Dies gilt für alle Projekte.
2. Am Server-Rechner die neue zenon Version installieren.
3. Alle Server-Projekte in die neue Version konvertieren: Dazu alle Projekte auf dem Server-Rechner im Editor einmal laden.
4. Die neuen zenon Version auf den Client-Rechnern installieren.
5. Projekte auf Clients laden und neu auschecken.

UPDATE MIT WECHSEL DES SQL SERVERS

Wenn eine Installation den Wechsel des SQL Servers mit sich bringt (z. B. von zenon 7.00 auf zenon 9.2), sind weitere Schritte nötig. Diese Schritte werden durchgeführt:

▶ nachdem alle Projekte eingecheckt wurden

▶ bevor die neue Version installiert wird

Ablauf beim Wechsel des SQL Servers:

1. checken Sie auf allen Clients alle ausgecheckten Elemente ein -> `Änderungen übernehmen.`

2. öffnen Sie am Mehrbenutzer-Server den Editor in der Ausgangsversion

3. erstellen Sie Sicherungen aller Projekte, die Sie mit der neuen Version bearbeiten oder öffnen möchten

   • entweder als einzelne Projektsicherungen

   • oder als Sicherung des kompletten Arbeitsplatzes

4. installieren Sie die neue Version auf dem Server

5. konvertieren Sie alle Server-Projekte in die neue Version indem Sie die zuvor erstellten Projektsicherungen im Editor einmal laden

6. installieren Sie das Update auf jedem Client

7. übertragen Sie die Projekte vom Mehrbenutzer-Server aus auf die Clients (beachten Sie den neuen Namen der SQL Instanz)

8. die Projekte sind konvertiert, synchronisiert und einsatzbereit

Achtung: Stellen Sie sicher, dass die Einstellungen der Firewall den Datenverkehr vom Mehrbenutzer-Server zu den Clients und umgekehrt zulässt.

19. FAQ

Fehler bei der Installation treten vor allem auf, wenn das Ersetzen oder Erstellen von Dateien durch Virenscanner oder bereits vorhandene Installationen verhindert wird. Hier finden Sie die häufigsten Ursachen für Installationsfehler und deren Lösung.

ZENON

Problem	Lösung
Installation wird abgebrochen. Typische Fehlermeldung: **Error 1304. Error writing to file...**	Virenscanner deaktivieren, nicht benötigte Programme schließen.
Demo-Projekte wurden installiert, werden aber nicht angezeigt. Neue Projekte können nicht angelegt werden.	Überprüfen Sie den Rechnernamen. Dieser: ▶ darf maximal 15 Zeichen lang sein ▶ muss den Konventionen der NetBIOS Computernamens entsprechen
Fehlermeldung, dass ein Dienst nicht gestartet werden konnte.	▶ starten Sie erst den Rechner neu ▶ starten Sie dann das zenon Setup neu

SQL SERVER

ALLGEMEIN

Problem	Lösung
Die Installation schlägt fehl, da das Passwort nicht den Anforderungen entspricht.	Wird über die lokale Windows Sicherheitsrichtlinie die minimale Kennwortlänge von Default `8` auf einen Wert `größer als 10` eingestellt, dann schlägt die Installation des SQL Servers fehl, da das zenon SQL Passwort aus 10 Zeichen besteht.

20. Technische Unterstützung

BASIC SUPPORT

Falls Sie Unterstützung bei der Installation benötigen, helfen Ihnen unsere Mitarbeiter im Technischen Consulting gerne.

Anwender mit Basic-Support erreichen die Hotline unter der E-Mail-Adresse support@copadata.com.

ADVANCED UND PREMIUM SUPPORT

Wenn Sie einen Wartungsvertrag Advanced oder Premium besitzen, nutzen Sie die dort angegebene Telefonnummer oder E-Mailadresse. Falls Sie Ihren kostenlosen   Wartungsvertrag Basic auf Advanced oder Premium erweitern möchten, beraten Sie unsere Vertriebsmitarbeiter (sales@copadata.com) gerne.

21. Lizenzinformationen zu Open Source Software

COPA-DATA Produkte verwenden folgende Open Source Software.

Hinweis: Diese Informationen stehen nur in englischer Sprache zur Verfügung.

21.1   zenon Open Source licences for several features

- ▸ The SNMP driver (SNMPNG32.exe) uses OpenSSL and NetSNMP

- ▸ The LicenseManager uses the JSON and the Zlib

- ▸ The OPC UA Process Gateway (AccessOPCUA.dll) and the OPC UA driver (OPCUA32.exe) use OpenSSL

- ▸ The Message Control uses MIMEMail and OpenSSL (zenon32.dll)

- ▸ The HTML Web Engine –Web Application uses ANTLRv3, Bootstrap, jQuery UI, jQuery, Json.NET, NLog, Owin, jQuery.SVG, WebGrease

- ▸ The HTML Web Engine – Deployment Tool uses Extended WPF Toolkit, Newtonsoft.Json, NLog, WPF Application Framework (WAF)

- ▸ The HTML Web Engine – Compiler uses Newtonsoft.Json, Nlog.Windows.Forms, NLog

- ▸ The Everywhere Essentials QR Code Generator Wizard uses QrCode.Net

- ▸ The Message Control VoiceOverIP Extension (MsgCtrlVoip.dll) uses libSRTP, Speex, PortAudio, Alaw/Ulaw Converter, GSM Codec 06.10 and iLBC Codec

- ▸ The 3D Configuration Tool uses DWF Toolkit License, the MIT License (MIT), the SharpDX - Alexandre Mutel License

- ▸ The GIS-Control uses the Gmap-Control with the MIT License (MIT)

- ▸ The System.Data.SQLite and the System Window Interactivity WPF are using the Microsoft Public License (MS-PL)

- ▸ The NLog 4.4.0 uses the NLog / License

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21.1.3   Bootstrap, jQuery UI, jQuery, Newtonsoft.Json

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21.1.13 ini Parser

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21.1.19 Mono.AddIns 1.3

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Based on the Open Source API proposed by Ross Bencina

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21.1.32 Toggle Switch Control Library

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21.1.33 WebGrease, Owin

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21.1.34 WPF Application Framework (WAF) 3.2.0

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21.1.35   zenon Logic driver for Ethernet POWERLINK based on stackfrom openPOWERLINK

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zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.11, January 15th, 2017

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Mark Adler: madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for   Comments) 1950 to 1952 in the files http://tools.ietf.org/html/rfc1950   (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).

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21.3 zenon Logic Workbench Open Source Licenses

▶ The zenon Logic Workbench uses the following libraries:

- Cxlmage Library (auf Seite 142)

- Gong-wpf-dragdrop Library (auf Seite 143)

- Jasper Library (auf Seite 143)

- JPEG Library (auf Seite 144)

- Libpng Library (auf Seite 151)

- Math.NET Numerics Library (auf Seite 153)

- MNG Library (auf Seite 154)

- PCap Library (auf Seite 155)

- SQLite Library (auf Seite 155)

- Tiff Library (auf Seite 156)

- Tinyxml Library (auf Seite 156)

- Zlib Library (auf Seite 157)

21.3.1 CxImage Library

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CxImage version 6.0.0 02/Feb/2008

CxImage: Copyright (C) 2001 - 2008, Davide Pizzolato

Original CImage and CImageIterator implementation are:

Copyright (C) 1995, Alejandro Aguilar Sierra (asierra(at)servidor(dot)unam(dot)mx)

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Other information: about CxImage, and the latest version, can be found at the CxImage home page: http://www.xdp.it

21.3.2   Gong-wpf-dragdrop Library

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21.3.3   Jasper Library

JasPer License Version 2.0

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21.3.4   JPEG Library

README for release 6b of 27-Mar-1998

This distribution contains the sixth public release of the Independent JPEG Group's free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

Serious users of this software (particularly those incorporating it into larger programs) should contact IJG at jpeg-info@uunet.uu.net to be added to our electronic mailing list. Mailing list members are notified of updates and have a chance to participate in technical discussions, etc.

This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION ROADMAP

This file contains the following sections:

Section	Description
OVERVIEW	General description of JPEG and the IJG software.
LEGAL ISSUES	Copyright, lack of warranty, terms of distribution.
REFERENCES	Where to learn more about JPEG.
ARCHIVE LOCATIONS	Where to find newer versions of this software.
RELATED SOFTWARE	Other stuff you should get.
FILE FORMAT WARS	Software *not* to get.
TO DO	Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

Documentation	Description
install.doc	How to configure and install the IJG software.
usage.doc	Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1	Unix-style man pages for programs (same info as usage.doc).
wizard.doc	Advanced usage instructions for JPEG wizards only.
change.log	Version to version change highlights.

Programmer and internal documentation:

Documentation	Description
libjpeg.doc	How to use the JPEG library in your own programs.
example.c	Sample code for calling the JPEG library.
structure.doc	Overview of the JPEG library's internal structure.
filelist.doc	Road map of IJG files.

coderules.doc	Coding style rules - please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

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ansi2knr.c is NOT covered by the above copyright and conditions, but instead by the usual distribution terms of the Free Software Foundation; principally, that you must include source code if you redistribute it. (See the file ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part of any program generated from the IJG code, this does not limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting

scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

We are required to state that "The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

REFERENCES

We highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is:

Wallace, Gregory K. "The JPEG Still Picture Compression Standard",

Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.

(Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging $95 for Part 1 and $47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department

C-Cube Microsystems, Inc.

1778 McCarthy Blvd.

Milpitas, CA 95035

phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz. There is also a plain text version at ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz, but it is missing the figures. The TIFF 6.0 file format specification can be obtained by FTP from ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 Straton3dPartySoftware-(Compression tag 7). Copies of this Note can be obtained from ftp.sgi.com or from ftp://ftp.uu.net/graphics/jpeg/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from ftp://ftp.sgi.com/graphics/tiff/.

ARCHIVE LOCATIONS

The "official" archive site for this software is ftp.uu.net (Internet address 192.48.96.9). The most recent released version can always be found there in directory graphics/jpeg. This particular version will be archived as ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz. If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact help@uunet.uu.net for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups comp.graphics.misc, news.answers, and other groups. It is available on the World Wide Web at http://www.faqs.org/faqs/jpeg-faq/ and other news.answers archive sites, including the official news.answersarchive at rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/. If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body

send usenet/news.answers/jpeg-faq/part1

send usenet/news.answers/jpeg-faq/part2

RELATED SOFTWARE

Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making cjpeg/djpeg considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/.

Unfortunately PBMPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from ftp://havefun.stanford.edu/pub/jpeg/. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

FILE FORMAT WARS

Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of

additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO

The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions --- principally, variable quantization and the SPIFF file format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

21.3.5 Libpng Library

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A "png_get_copyright" function is available, for convenient use in "about" boxes and the like: printf("%s",png_get_copyright(NULL));

Also, the PNG logo (in PNG format, of course) is supplied in the files "pngbar.png" and "pngbar.jpg (88x31) and "pngnow.png" (98x31).

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Glenn Randers-Pehrson

glennrp at users.sourceforge.net

December 14, 2007

21.3.6   Math.NET Numerics Library

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21.3.7   MNG Library

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Parts of this software have been adapted from the libpng package. Although this library supports all features from the PNG specification (as MNG descends from it) it does not require the libpng package. It does require the zlib library and optionally the IJG jpeg library, and/or the "little-cms" library by Marti Maria (depending on the inclusion of support for JNG and Full-Color-Management respectively.

This library's function is primarily to read and display MNG animations. It is not meant as a full-featured image-editing component! It does however offer creation and editing functionality at the chunk level (future modifications may include some more support for creation and or editing).

21.3.8   PCap Library

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21.3.9   SQLite Library

2001 September 15

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This header file defines the interface that the SQLite library presents to client programs. If a C-function, structure, datatype, or constant definition does not appear in this file, then it is not a published API of SQLite, is subject to change without notice, and should not be referenced by programs that use SQLite.

Some of the definitions that are in this file are marked as "experimental". Experimental interfaces are normally new features recently added to SQLite. We do not anticipate changes to experimental

interfaces but reserve the right to make minor changes if experience from use "in the wild" suggest such changes are prudent.

The official C-language API documentation for SQLite is derived from comments in this file. This file is the authoritative source on how SQLite interfaces are supposed to operate.

The name of this file under configuration management is "sqlite.h.in".

The makefile makes some minor changes to this file (such as inserting the version number) and changes its name to "sqlite3.h" as part of the build process.

21.3.10 Tiff Library

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21.3.11 Tinyxml Library

www.sourceforge.net/projects/tinyxml

Original code (2.0 and earlier)copyright (c) 2000-2006 Lee Thomason (www.grinninglizard.com)

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21.3.12 Zlib Library

Copyright (C) 1995-2017 Jean-loup Gailly and Mark Adler

zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.11, January 15th, 2017

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