Release Notes

Chromeleon 7
Device Driver Kit

for Chromeleon 7.2 SR5 • December 2016

thermoscientific

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1 Introduction

1.1 Chromeleon Device Driver Kit

The Chromeleon 7 Device Driver Kit (DDK) provides an interface to create drivers and plug-ins for instruments to be controlled by Chromeleon.

Chromeleon drivers and plug-ins written with the DDK are .NET assemblies. The documentation and code examples use the C# syntax and C# is the recommended programming language, however the wide range of languages available targeting the .NET runtime could all be used to write drivers.

1.2 Device Driver Kit Versions

Currently there are two DDK versions: DDK V1 and DDK V2.

DDK V1, current version is 1.21

DDK V1 targets the .NET framework version 2.0 / 3.5 and supports

- Chromeleon 7 device drivers
- Chromeleon 7 instrument configuration manager plug-ins

DDK V2, current version is 2.4

DDK V2 targets the .NET framework version 4.6 and supports

- Chromeleon 7 instrument method editor plug-ins

1.3 Documentation

The following documents have been updated with this release:

- DDKV1.chm
- DDKV2.chm
- Chromeleon DDK Cookbook and Developer Guidelines.pdf
- Chromeleon DDK Driver Certification Requirements.pdf
- Chromeleon 7 DDK ePanel Selectors.pdf (new with this release)

1.4 System Requirements and Compatibility

In order to develop and run drivers and plug-ins for instruments using this Device Driver Kit, your system must have the following installed:

- Chromeleon 7.2 SR5 (or later)
- Microsoft .NET Runtime 3.5 and 4.6.1 (will be installed with Chromeleon 7.2 SR5)
- We recommend Microsoft Visual Studio 2013 as development environment. Any other development environment targeting the .NET Framework version 2.0 / 3.5 for DDK V1 and .NET Framework 4.6 for DDK V2 may work too, but we provide item and project templates for Microsoft Visual Studio 2013 only. While it is expected that the templates will work with newer versions of Visual Studio, too, compatibility cannot be guaranteed.
  Moreover, the example code projects provided with this package are designed with Microsoft Visual Studio 2013.

- Microsoft .NET Framework 4.6.1 Developer Pack to build and debug the examples with Microsoft Visual Studio 2013. These projects target .NET Runtime 4.6.1.
- Chromeleon 7 DDK (this package)

Licensing requirements:

- Besides the license to run the installed Chromeleon a “DDK Development” license is needed to run the newly developed device drivers without a final certification. You should have received an appropriate dongle and key code with the Chromeleon 7 DDK.

1.5 Installation

Chromeleon 7 DDK cannot be installed on a system where no Chromeleon 7.2 SR5 or newer has been installed yet.

Chromeleon 7 DDK should be installed after Microsoft Visual Studio. Otherwise the item and project templates cannot be installed.

Start the installation of Chromeleon 7 DDK by executing the delivered installation package **Thermo.Chromeleon.DDK.msi** with double click.

Select the folder where the example projects should be installed. By default, the example projects are installed to
C:\Users\Public\Documents\Thermo\Chromeleon\DDK Examples.

1.6 Further Preparations

Chromeleon program folder

Write access to the Chromeleon program folder is needed. By default, Chromeleon 7 is installed into Windows' program folder, where normal users have no specific write access (typically C:\Program Files (x86)\Thermo\Chromeleon\bin). Either adapt the access permissions of your Chromeleon installation folder or install Chromeleon into an appropriate folder on your disk.

Add the Chromeleon DDK V2 components to Visual Studio Toolbox

For designing Instrument Method Wizard/Editor pages it’s beneficial to have the DDK components (user controls) available within the Visual Studio Toolbox. To add these components:

- Open Visual Studio, load a solution containing a project which uses Windows Forms components, e.g. the Chromeleon 7 DDK V2 Editor Plug-In Examples solution “CmDDKV2Examples.sln”
- Open a Windows Forms control, e.g. DetectorPage.cs [Design] within ChannelTest.EditorPlugIn
- Open the Visual Studio Toolbox if not already shown, add a new tab “Chromeleon 7 DDK V2 Editor Components” (mouse right click into Toolbox window -> “Add Tab”)
- Select the new tab and choose the items (mouse right click into tab -> “Choose Items”)
- In “Choose Toolbox Items” dialog, select “.Net Framework Components” tab and browse for “Dionex.DDK.V2.InstrumentMethodEditor.Components.dll”, typically in “C:\Program Files (x86)\Thermo\Chromeleon\bin\DDK\V2”. The new components should be loaded and shown as selected in “Choose Toolbox Items” dialog now.
- Click OK to close the “Choose Toolbox Items” dialog. Close the Visual Studio solution.

2 What's New in Chromeleon 7 DDK for 7.2 SR5

2.1 Support for Visual Studio 2013

All item and project templates as well as all example projects and solutions have been adapted to Visual Studio 2013.

DDK V2 projects target .NET 4.6.1 now.

2.2 Installer

The installation folder for the example projects can be selected by the user who installs the package.

The Visual Studio item and project templates will be installed for all users.

2.3 New in DDK V1

This release contains the new DDK V1 version 1.21.

Major features have not been added in this version. The ISymbol interface has been extended slightly, see DDK V1 reference documentation.

The Chromeleon 7 DDK package contains improved documentation and examples for DDK V1.

2.4 New in DDK V2

This release contains the new DDK V2 version 2.4.

Dionex.Chromeleon.DDK.V2.InstrumentMethodEditor.DeviceIcon:
A dedicated icon for a Refractive Index Detector (RID) is available.

Dionex.Chromeleon.DDK.V2.InstrumentMethodEditor.Components.ChannelGridControl:
Functionality has been added that allows defining custom default values for properties.
Channel rows can be set to invisible to hide specific channels from the user.

Dionex.Chromeleon.DDK.V2.InstrumentMethodEditor.Components.TimeGridControl:
Functionality has been added that allows adding Chromeleon commands (in addition to Chromeleon properties) as column to this table. While the extension has been released in version 2.2 for CM7.2 SR2 already, it is now documented and covered by an example.

Dionex.Chromeleon.DDK.V2.InstrumentMethodEditor.Components.PumpGradientComponent:
Functionality has been added to define whether the default gradient created in wizard mode will include a step in Equilibration stage or not.

The Chromeleon 7 DDK distribution package contains improved documentation and examples.

3 Limitations and Known Issues

3.1 Deprecated functions

Do not use Dionex.Chromeleon.DDK.IChannel.UpdateData with timestamped data since it may not result in correct channel timing. Either use Dionex.Chromeleon.DDK.IChannel.UpdateData with fixed-rate data or Dionex.Chromeleon.DDK.IChannel.UpdateDataEx with timestamped data.

3.2 3rd party components

There is a reported issue in UltraWinChart (Infragistics4.Win.UltraWinChart.v13.1.dll) that causes the Chromeleon 7 client to close if a page containing an Infragistics chart control is opened in the instrument method editor.

4 Resolved Issues

This section describes major issues that have been resolved with the Chromeleon 7 DDK release for Chromeleon 7.2 SR5.

The numbers in the first column of the table below are the Thermo Fisher Scientific tracking IDs.

ID	Description
CM7-20094	FlowHandler: Equate property does not support standard use pattern. The property is updated internally, irrespective of whether the driver confirms that the roundtrip to the firmware was successful. Added a new option to switch off the non-standard default behavior.
CM7-20937	Improper signal description generated if a wavelength value is updated by the driver but has not been set via Chromeleon. For example, the new value has been set at the instrument directly. The actual value instead of the last set nominal value is now written as wavelength into the raw file.

5 Backward/Forward Compatibility Issues

5.1 Updating the DDK From Previous Release

This Chromeleon 7 DDK version cannot be installed if an older version of the Chromeleon 7 DDK is installed. To remove the existing version of this product, use Programs and Features on the Control Panel.

5.2 Developing Device Drivers For Older Chromeleon Versions

Chromeleon device drivers which are developed using this DDK version and Chromeleon 7.2 SR5 will not run in older Chromeleon versions.

To develop drivers for an older version, an appropriate Chromeleon and DDK version must be used - not newer than the oldest Chromeleon version where the driver should run.

5.3 Using the DDK With a Chromeleon Newer Than 7.2 SR5

This Chromeleon 7 DDK version is fully compatible with newer Chromeleon versions as long as the DDK V1 and V2 versions will not change compared to Chromeleon 7.2 SR5. Otherwise, manual adjustments to some files installed by this package may be necessary to build Chromeleon device drivers. Please contact DDK support to get instructions or a changed file in this case.
We cannot foresee in which Chromeleon version the DDK version(s) will change next time. However, the installer will give a warning if either the DDK V1 or the DDK V2 version (or both) is not the expected one.

Chromeleon device drivers developed with this DDK version will run in newer Chromeleon versions, even if the DDK version changes.

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