

ANDi SDK Manual

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Manual Version : 2.1



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Introduction

This document represents a manual on how to install and use ANDi SDK.

ANDI SDK is the portable lightweight ANDI software development kit. This kit comes shipped with python library that allows the use of ANDI scripting API directly from python 3.

Requirements

ANDi SDK is portable, it can be used on both Windows and Linux machines. Before running

ANDi SDK, the following requirements need to be met:

- o .NET 6 runtime: responsible for running ANDi library files (DLLs)
- o CodeMeter: responsible for the handling of the licensing for ANDi SDK
- Npcap or WinPcap (Windows specific): responsible for hardware and packet handling

ANDi SDK also uses Python.NET library which enables running .NET code from python runtime. This library is installed automatically when installing ANDi SDK, so an internet connection is needed during packager installation.

Note: ANDi SDK is not functional on virtual machines.



Redistributables for Windows system

Installing .NET

- 1- Download .NET runtime for windows from https://builds.dotnet.microsoft.com/dotnet/Runtime/6.0.36/dotnet-runtime-6.0.36-win-x64.exe
- 2- Run the downloaded executable
- 3- Follow the instructions in the installer, click on install

🔀 Microsoft .NET Runtime - 6.0.36 (x64) Installer

Mic	rosoft .NET Runtime - 6.0.36 (x64)
	.NET Runtime
	The .NET Runtime is used to run .NET applications, on your Windows computerNET is open source, cross platform, and supported by Microsoft. We hope you enjoy it!
	By clicking Install, you agree to the following terms.
.NET	Privacy Statement Licensing Information for .NET

😔 Install 🛛 🛛 Close



4- Wait for the installation to be concluded and close the installer

B Microsoft .NET Runtime - 6.0.36 (x64) Installer

Microsoft .NET Runtime - 6.0.36 (x64)					
Installation was successful					
The following was installed at - Microsoft .NET Runtime - 6.0.36 (x64)					
Resources Documentation Release Notes Tutorials .NET Telemetry					

Close

Installing CodeMeter

- 1. Download CodeMeter User Runtime for Windows from https://files.technicaengineering.de/ANDi/Redistributables/CodeMeterRuntime_8_30.msi
- 2. Run the downloaded executable
- 3. Follow the instructions in the installer



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5. Choose a username and install for all users (Recommended)

🔁 CodeMeter Runtime	Kit v8.30 Setup		-		\times
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Organization:					
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CodeMeter Runt available for all local Administra	ime Kit v8.30 will be inst users. You can change th tor privileges.	alled in a per-ma ne default <mark>installa</mark>	achine folder by de ation folder. You n	efault and b nust have	e
		Back	Next	Cance	el

6. We could choose to install remote access to web admin and network server for remote licensing, but it is not recommended, so it's better to keep the default values

Ustom Setup			
Select the way you want features to be	stalled.		
Click the icons in the tree below to chan	e the way features will be installed.		
CodeMeter Runtime Kit X - Network Server X - WibuShellExtension User Help	This features installs the CodeMeter Runtime Kit on your computer.		
Automatic server se	This feature requires 9486KB on your hard drive. It has 2 of 5 subfeatures selected. The subfeatures require 32MB on your hard drive.		
	Browse		



7. Click install and wait for the installation to finish





Installing Npcap/WinPcap

Officially, ANDi SDK needs Npcap at least version 1.79 to run properly, installing WinPcap works as well.

- 1- Download the Npcap installer from the website https://npcap.com/#download
- 2- Run the downloaded executable
- 3- Follow the instructions in the installer
- 4- Agree to the license agreement

🗑 Npcap 1.81 Setup		_		\times	
NMAP, ORG	License Agreement Please review the license terms be	fore installing Np	ocap 1.81.		
Press Page Down to see th	e rest of the agreement.				
NPCAP COPYRIGHT / END Npcap (<u>https://npcap.com</u> library and is copyright (c) Project"). All rights reserv Even though Npcap source not open source software software without special p standard (free) version is	USER LICENSE AGREEMENT) is a Windows packet sniffing driver 2013-2025 by Nmap Software LLC (" red. e code is publicly available for review, and may not be redistributed or used ermission from the Nmap Project. Th usually limited to installation on five	and The Nmap , it is d in other e		I	
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Npcap 1.81.					
		I Agree	Cano	el	



5- Keep the option "Install Npcap in WinPcap API-compatible mode" selected and click install



6- Wait for the installation to finish and click next





7- Click Finish to close the installer



⇒ Wireshark comes bundled with the latest version of Npcap, so If Wireshark is installed on the machine, this step can be skipped.



Redistributables for Linux system

Installing.NET

1- Download the .NET 6 Runtime

• wget https://dotnetcli.azureedge.net/dotnet/Runtime/6.0.23/dotnet-runtime-6.0.23-linux-x64.tar.gz

2- Extract the Files



3- Delete the old Symlink

sudo rm /usr/bin/dotnet

. . .

4- Create a Symlink for Easy Access



5- Verify Installation



Note:

If this doesn't work on your machine, you can check this page for your machine installation: https://docs.micrososudo ft.com/enus/dotnet/core/install/linux?WT.mc_id=dotnet-35129-website



Installing CodeMeter

- 1- Go to the official Wibu-Systems page.
- 2- Navigate to Support & Downloads \rightarrow User Software.
- 3- Choose the appropriate package (.deb for Debian/Ubuntu, .rpm for RHEL/CentOS).
- 4- Open a terminal in the folder where the runtime file is

	codemeter - Thunar 🔷 🗕		
File Edit View Go	Bookmarks Help		
← → ↑ 👬 🚞 /hd	ome/andi-gui-rack/Downloads/codemeter/	Q,	
Places Computer A andi-gui-rack Desktop Pesktop Recent Trash Documents Music Pictures Videos Devices File System 1.0 TB Encrypted 500 MB Volume T7 MB Volume thinclient_drives ▲ Network Browse Network	codemeter .8.30.68 79.500_amd64.deb		
	Example for a custom action		

5- Run the following command

sudo dpkg -i runtime file name.deb

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-i	codemeter_8.30.6879.500_amd64.deb		r\$:	sudo	dpk	g 🛛

6- Wait for the installation to be over, the result should look like this



After installing CodeMeter, an ANDi-tool-license and a USB-dongle are needed. Both are provided by Technica Engineering. The license is fixed to the dongle. The dongle needs to be plugged into the machine before working with ANDi SDK.

For license related inquiries, this email: support@technica-engineering.de is available from Technica Engineering.



Installing Libpcap

Officially, ANDi SDK needs Libpcap on Linux to run properly.

The Libpcap can be installed using the following command line:

sudo apt-get install libpcap-dev

ANDi SDK installation

ANDi SDK can be installed using the following command line:

pip install andisdk

ANDi SDK update

From PyPi Server If ANDi SDK is already installed, an upgrade is possible using the following command

pip install --upgrade andisdk



User Manual

ANDi SDK or the needed packages from it can be imported directly in python scripts.

from andisdk import load_project

or

import andisdk

or, starting from version 0.0.11 message_builder and andi objects are usable without the need to load a project

from andisdk import message_builder, andi

ANDi SDK API is available after the appropriate imports.

- ⇒ When using IDEs that are compatible with python autocomplete, ANDi SDK provides autocomplete and type hinting capabilities.
- ⇒ In Linux, several ANDi SDK features (for example, adapters) require admin privileges.
- ⇒ Script execution will stop if a valid ANDi license is not detected.

ANDi SDK uses python logging module to log the messages happening in ANDi functionalities. Logging configured to log to a file using the function basicConfig

```
import logging
logging.basicConfig(filename="log_output_file.txt", filemode="w")
```

For a better and richer logging experience, rich logging handler can be used as a logging handler

This is done by installing rich python module using the command **pip install rich**

And then logging is configured to use the rich handler

```
import logging
from rich.logging import RichHandler

FORMAT = "%(message)s"
logging.basicConfig(
    level="NOTSET", format=FORMAT, datefmt="[%X]", handlers=[RichHandler()]
)
```

This will give logging a look similar to this:





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Scripts samples Creating and sending a UDP message

```
from andisdk import load_project
import sys
api = load_project("empty_project.atp")
adapters = api.andi.get_adapters()
if (len(adapters) <= 0):
    print("No adapters found, stopping script")
    sys.exit()
adapter = adapters[0]
print("using adapter " + adapter.id + " to send udp message")
channel = api.andi.create_channel("Ethernet")
message = api.message_builder.create_udp_message(channel, channel)
message.payload = tuple([0x01, 0x02, 0x03, 0x04])
message.udp_header.port_source = 1234
print("sending udp message with payload " + str([x for x in message.payload]))
message.send()
```

Script version without a project (starting from version 0.0.11)

```
from andisdk import message_builder, andi
import sys
adapters = andi.get_adapters()
if (len(adapters) <= 0):
    print("No adapters found, stopping script")
    sys.exit()
adapter = adapters[0]
print("using adapter " + adapter.id + " to send udp message")
channel = andi.create_channel("Ethernet")
message = message_builder.create_udp_message(channel, channel)
message.payload = tuple([0x01, 0x02, 0x03, 0x04])
message.udp_header.port_source = 1234
print("sending udp message with payload " + str([x for x in message.payload]))
message.send()</pre>
```



Creating and sending a SOME/IP message with a database

```
from andisdk import load project
import sys
api = load_project("empty_project.atp")
adapters = api.andi.get adapters()
database = api.andi.load database("someip database.xml")
if (len(adapters) <= 0):</pre>
    print("No adapters found, stopping script")
    sys.exit()
adapter = adapters[0]
print("using adapter " + adapter.id + " to send someip message")
channel = api.andi.create channel("Ethernet")
message = api.message builder.create someip message(channel, channel)
message.data_base = database
message.someip header.service identifier = 0xb011
message.someip header.method identifier = 0x000e
message.set_input_param("statusReceiptRequestInstrument", 2)
message.send()
```

Script version without a project (starting from version 0.0.11)



