
Title: SX UVL Client SDK for Win32
 SXUPTP Driver Setup

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XX	First Edition	Jan 17,2007
XA	Supported Windows 64bit.	Apr.28,2007
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1. Overview

This document describes the information on how to setup SXUPTP Driver.

2. Operating Environment

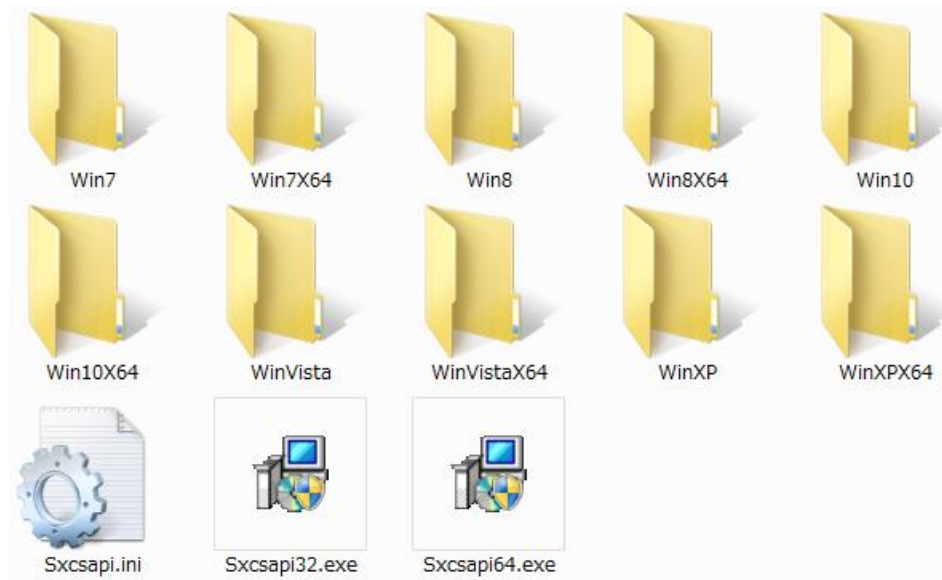
The operating environment for “SxcsapiXX.exe” (installer/uninstaller for SXUPTP Driver) and “_Setup.dll” (Windows firewall control library) are as follows:

Item	Description
Operating environment	<p>Microsoft Windows 2000</p> <p>Microsoft Windows XP (32/bit/64bit)</p> <p>Microsoft Windows Vista (32/bit/64bit)</p> <p>Microsoft Windows 7 (32/bit/64bit)</p> <p>Microsoft Windows 8 (32/bit/64bit)*</p> <p>Microsoft Windows 8.1 (32/bit/64bit)*</p> <p>Microsoft Windows 10 (32/bit/64bit)*</p> <p>* Classic desktop is supported while Modern UI is not supported.</p> <p>* Windows RT is not supported.</p>

3. SXUPTP Driver Setup Procedure

3.1. File structure

SXUPTP Driver setup file structure is as follows:



File name	Description
Sxcsapi32.exe	Executable file to install/uninstall SXUPTP Driver to the 32bit OS.
Sxcsapi64.exe	Executable file to install/uninstall SXUPTP Driver to the 64bit OS.
Sxcsapi.ini	This is the file referred by Sxcsapi32.exe or Sxcsapi64.exe. SXUPTP Driver setup information is included.
Win7	Store the driver file (Sxuftp.sys,Sxuftp.inf,Sxuftp.cat) for Windows 7 (32bit) or later.
Win7X64	Store the driver file (Sxuftp.sys,Sxuftp.inf,Sxuftp.cat) for Windows 7 (64bit) or later.
Win8	Store the driver file (Sxuftp.sys,Sxuftp.inf,Sxuftp.cat) for Windows 8 (32bit).
Win8X64	Store the driver file (Sxuftp.sys,Sxuftp.inf,Sxuftp.cat) for Windows 8 (64bit).
Win10	Store the driver file (Sxuftp.sys,Sxuftp.inf,Sxuftp.cat) for Windows 8.1 and 10 (32bit) or later.
Win10X64	Store the driver file (Sxuftp.sys,Sxuftp.inf,Sxuftp.cat) for Windows 8.1 and 10 (64bit) or later.

WinVista	Store the driver file (Sxuptp.sys,Sxuptp.inf,Sxuptp.cat) for Windows Vista (32bit).
WinVistaX64	Store the driver file (Sxuptp.sys,Sxuptp.inf,Sxuptp.cat) for Windows Vista (64bit).
WinXP	Store the driver file (Sxuptp.sys,Sxuptp.inf,Sxuptp.cat) for Windows XP (32bit).
WinXPX64	Store the driver file (Sxuptp.sys,Sxuptp.inf,Sxuptp.cat) for Windows XP (64bit).

3.2. Install SXUPTP Driver

Procedure to install SXUPTP Driver is as follows:

- * Sxcsapi32.exe is used for Windows 32bit.
- * Sxcsapi64.exe is used for Windows 64bit.
- * From the explanation below, Sxcsapi32.exe and Sxcsapi64.exe are indicated as SxcsapiXX.exe.

Item	Description
(1) Start SxcsapiXX.exe	Install the SXUPTP Driver suitable for the OS.
(2) Copy SxcsapiXX.exe and Sxcsapi.ini to a folder.	Copy the setup file to a desirable folder (such as an install destination folder). Use this file when uninstalling the SXUPTP Driver.

When executing SxcsapiXX.exe, add the command line, "-install".

The exit code after executing SxcsapiXX.exe can be acquired by using the Win32 API GetExitCodeProcess(). The exit codes are as in Table 3-1.

Also, describe the application name that uses SXUPTP Driver, to the APPNAME key in the DRIVER_SXUPTP section on the Sxcsapi.ini.

For example:

[DRIVER_SXUPTP]

APPNAME= SX Virtual Link

When installed properly, the exit code, 0 or 10 is returned or otherwise 11 is returned if SXUPTP Driver is being connected.

Table 3-1 Exit code

Exit number	Exit contents
0	Properly exited
1	Already booked
2	The file specified does not exist
3	Not supported OS
4	No Administrator privilege
5	Failed to write to the registry
6	Failed to acquire the registry
7	Already booked
8	Already booked
9	Already booked
10	Need Windows restart
11	SXUPTP Driver is being connected
12	SXUPTP Driver is not installed
13	Already booked
14	Failed to register the SXUPTP Driver
15	Failed to delete the SXUPTP Driver
16	Already booked

3.3. Uninstall SXUPTP Driver

Procedure to uninstall SXUPTP Driver is as follows:

Item	Description
(1) Start SxcsapiXX.exe	Uninstall the SXUPTP Driver.
(2) Delete SxcsapiXX.exe and Sxcsapi.ini	Delete 2 files that were copied to a folder.

When executing SxcsapiXX.exe, add the command line, "-uninstall".

The exit code after the execution can be acquired by using the Win32 API GetExitCodeProcess(). The exit codes are as in Table 3-1.

When uninstalled properly, the exit code, 0 or 10 is returned or otherwise 11 is returned if SXUPTP Driver is being connected.

If there is other application that uses SXUPTP Driver, the driver is not deleted and the exit code, 0 or 10 is returned.

4. About the Firewall

In the environment where the firewall software is installed, the TCP 19540 and UDP 19540 need to be configured to enable the communication with the device server using the SXUPTP Driver.

Also, when Windows Firewall is used, the UDP 19540, and the application that uses SXUPTP.DLL, need to be added to the exception list.

How to use the library, “_Setup.dll” to register to the Windows Firewall exception list is described below.

4.1. Development environment

Item	Description
Development language	C language
Compiler	Microsoft Visual C++ 6.0 SP6 Microsoft Visual Studio 2005 Microsoft Visual Studio 2008 Microsoft Visual Studio 2010 Microsoft Visual Studio 2012 Microsoft Visual Studio 2013

4.2. Port number registration function

```

BOOL WindowsFirewallAddPort(
    LPCSTR    lpzAddName,      Port name
    DWORD     dwProtocol,      Protocol type
    LONG      uPort            Port number
);
    
```

Function:

Register the specified port number to the Windows Firewall.

Parameter:

lpzAddName

Specify the name of the port to register. Example: SXUPTP

dwProtocol

Specify the protocol of the port to register (UDP or TCP/IP). In case of SXUPTP, specify 1 of the UDP protocol. The types of protocol are as follows:

Protocol type	Number
TCP/IP	0
UDP	1

uPort

Specify the port number. For SXUPTP, specify it as 19540.

Return Value:

When the function succeeds, the value other than 0 is returned.

When the function fails, 0 is returned.

4.3. Port number registration function

```

BOOL WindowsFirewallAddPort2(
    LPCSTR    lpzRegName,      Policy name
    DWORD     dwProtocol,      Protocol type
    LONG      uPort            Port number
);
    
```

Function:

Register the specified port number to the Windows Firewall. The registered policy will be active on all of profiles (domain, private and public).

* This API can be used on Windows Vista or later operating systems.

Parameter:

lpzRegName

Specify the name of the policy to register. Example: SXUPTP

dwProtocol

Specify the protocol of the port to register (UDP or TCP/IP). In case of SXUPTP, specify 1 of the UDP protocol. The types of protocol are as follows:

Protocol type	Number
TCP/IP	0
UDP	1

uPort

Specify the port number. For SXUPTP, specify it as 19540.

Return Value:

When the function succeeds, the value other than 0 is returned. When the function fails, 0 is returned.

If a policy having the same name has already been registered to Windows firewall, the function will fail.

4.4. Port number deletion function

```

BOOL WindowsFirewallRemovePort(
    DWORD    dwProtocol,      Protocol type
    LONG     uPort            Port number
);
    
```

Function:

Delete the port number registered to the Windows Firewall.

Parameter:

dwProtocol

Specify the protocol of the port to delete (UDP or TCP/IP). In case of SXUPTP, specify 1 of the UDP protocol. The types of protocol are as follows:

Protocol type	Number
TCP/IP	0
UDP	1

uPort

Specify the port number to delete. For SXUPTP, specify it as 19540.

Return Value:

When the function succeeds, the value other than 0 is returned.

When the function fails, 0 is returned.

4.5. Application registration function

```
BOOL WindowsFirewallAddApp(  
    LPCSTR    lpzName,           Application name  
    LPCSTR    lpzPath,          Full path to the application  
);
```

Function:

Register the specified application to the Windows Firewall.

Parameter:

lpzName

Specify the name of the application to register.

lpzPath

Specify the full path to the application to register.

Return Value:

When the function succeeds, the value other than 0 is returned.

When the function fails, 0 is returned.

4.6. Application registration function

```

BOOL WindowsFirewallAddApp2(
    LPCSTR    lpzRegName,      Policy name
    LPCSTR    lpzFilePath,     Full path to the application
    LPCSTR    lpzDescription   Policy description
);

```

Function:

Register the specified application to the Windows Firewall. The registered policy will be active on all of profiles (domain, private and public).

* This API can be used on Windows Vista or later operating systems.

Parameter:

lpzRegName

Specify the name of the policy to register.

lpzPath

Specify the full path to the application to register.

lpzDescription

Specify the description of the policy to register.

Return Value:

When the function succeeds, the value other than 0 is returned. When the function fails, 0 is returned.

If a policy having the same name has already been registered to Windows firewall, the function will fail.

4.7. Application deletion function

```
BOOL WindowsFirewallRemoveApp(  
    LPCSTR    lpzPath           Full path to the application  
);
```

Function:

Delete the application registered to the Windows Firewall.

Parameter:

lpzPath

Specify the full path to the application to delete.

Return Value:

When the function succeeds, the value other than 0 is returned.

When the function fails, 0 is returned.

4.8. Policy deletion function

```
BOOL WindowsFirewallRemovePolicy(  
    LPCSTR    lpzPolicy        Policy name  
);
```

Function:

Delete the policy registered to the Windows Firewall. The policy registered at WindowsFirewallAddPort2 and WindowsFirewallAddApp2 can be deleted.

* This API can be used on Windows Vista or later operating systems.

Parameter:

lpzPath

Specify the name of the policy to delete.

Return Value:

When the function succeeds, the value other than 0 is returned.

When the function fails, 0 is returned.