

# How to use KepSeverEX for Siemens PLC

브릿지웨어

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# 프로그램 설치

# Siemens Driver 설치 – 관리자 권한

varite	Date modified Type	SIZE
KEPServerEX-6.7.1046.0.exe	0	521,623 K
	Open	2,386 K
	Run as administrator	
	Troubleshoot compatibility	
	Pin to Start	
	Share with >	
	Pin to taskbar	
	Restore previous versions	
	Send to >	
	Cut	
	Сору	
	Paste	
	Create shortcut	
	Delete	
	Rename	
	Properties	

- '관리자 권한 (Administrator right)'
   으로 설치
  - ① 설치 파일을 선택한 상태에서
  - ② 오른쪽 마우스버튼 클릭
  - ③ "관리자 권한으로 설치" 선택
- 이후 과정은 기본 (Default)설정으로 계속 설치 진행
  - Vertical suite 단계까지 : Typical 선택

# Driver 설치 – Siemens Suite

Select which features are to be installed.	ex
SNMP Suite     SattBus Suite     Scanivalve Ethemet     Siemens Suite	Feature Description Siemens Suite: Please view sub-component for a list of included communication drivers.
Entire feature will be unavailable	cal hard drive
Siemens TCP/IP Slave Ett Siemens Plus Suite Simatic/TI 505 Suite	This feature requires 0KB on your hard drive. It has 6 of 6 subfeatures selected. The subfeatures require 59MB on your hard drive.
Simulation Suite	·

• Siemense Suite 설치

- Select Features에서 Communication
   Driver항목 중 Siemense Suite 선택
- ② 오른쪽 마우스버튼 클릭
- ③ "Will be installed on local hard drive" 선택
- ④ 'Next' 버튼 선택 후 계속 진행
- 이후 과정은 기본 (Default)설정으로
   계속 설치

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# Driver 설치 – User Manager Credentials





# 

# S7-1500 PLC 설정

• Permit Access with PUT/GET Communication

PLC_1 [CPU 1513-1 PN]			. Properties	🗓 Info 追 🗓	Diagnosti <u>CC L</u>	<mark>∃ Network view &gt;&gt; S7-</mark>
General 10 tags St	stem constants	Texts			150	00 CPU 선택
General     PROFINET interface [X1]	Connect	ion mechanisms	-			
Startup					<u> </u>	- <b>1500 CPU</b> 가 표시되면
Cycle			Permit a	ccess with PUT/GET co	ommunicati	
Communication load			remote	partner		tection & Security >>
System and clock memory			M	a	Co	nnection mechanisms
SIMATIC Memory Card				T		
System diagnostics					>>	General 탭에서
PLC elerms						
Web server						
DNS configuration					"Pe	ermit access with
▶ Display						
Multilingual support					PU	I/GEI communication
Time of day	4				fro	m romoto portpor"
<ul> <li>Protection &amp; Security</li> </ul>						n remote partier
Arcesslevel					<mark>· 확</mark> 성	성한 >> PLC reboot
Connection mechanisms						
Certilicate manager						
Security event						

### **BridgeWare**

"Devices & networks"

편집기에서 Device view

# S7-1200 PLC 설정

• Permit Access with PUT/GET Communication

PLC_2 [CPU	1214C DC/D	C/DC]			Properties	1 Info	1 Diagnostics	<mark>또는 N</mark>	또는 Netwo	
General	10 tags	System con	stants	Texts	24			1200 C	PU	
General     PROFINET int	terface [X1]		Connec	tion mechanisn	ns					
DI 14/DQ 10								S7-120	)0 CI	
A 2					Permit a	ccess with PU	IT/GET communication	Protoc	tion	
High speed	counters (HSC)				Temoter	pareter		FIDIEC		
<ul> <li>Pulse gener</li> </ul>	ators (PTO/PWM	0				0-0		Conne	ction	
Circle									orol	
Communica	tion load							Gei	ierai	
System and	clock memory									
• Web server								"Dormi	taaa	
Multilingual	support							Penni		
Time of day								PUT/G	ET c	
<ul> <li>Protection &amp;</li> </ul>	Security	1						£		
Occore la	ives I							Trom re	mote	
Connecti	on mechanism	5						<u> </u>	>> F	
Ceruicat	e manager							201	1	
Security	event									
Externel	load memory									

"Devices & networks" 편집기에서 Device view 또는 Network view >> S7-1200 CPU 선택

S7-1200 CPU 가 표시되면 Protection & Security >> Connection mechanisms >> General 탭에서

"Permit access with PUT/GET communication from remote partner" 활성화 >> PLC reboot

# Siemens Driver 설정 – KepServerEX Configuration



- Driver 설치가 완료되면 KepServerEX Administration이 Service로 등록되며, System Tray의 아이콘을 통해 억세스 할 수 있다.
- Driver의 설정은 KepServerEX의 'Configuration'어플리케이션을 통해 구 성한다
  - 1 시스템 트레이의 ex
     아이콘을 선
     택한 후 오른쪽 마우스 버튼 클릭
  - ② 'Configuration' 메뉴 실행

# Driver 설정 – 새 프로젝트 파일 생성

Eile	KEPServerEX 6 Configuration [	Connected to Runtime]	• 새 프로젝트 파일 생성	
	New Ctrl+N			① File 메뉴의 New 명령 실행
	Open     Ctrl+O       Save     Ctrl+S       Save As     F12       Import CSV     Export CSV       Empty File List		Channel Name /	– Driver는 Channel, Device, Tag단위의 계층 구조로 구성한다.
_	Exit			



# Driver 설정 – Channel 추가

Image: ServerEX 6 Configuration [Connected to Runtime]         File       Edit       View       Tools       Runtime       Help         Image: Image	<ol> <li>'click to add a channel' 텍스트를 클릭하면</li> <li>서버 리스트 화면이 표시.</li> </ol>
Project Click to add a channel. Click to add a channel. Add Channel Wizard Select the type of channel to be created:	Channel Name Click to add a channel. X ② 연결하고자 하는 서버 항목을 선택한 후 Next 버튼을 클릭
Sattbus Ethemet         OPC XML-DA Client         Optination OptiLogic         Opto 22 Ethemet         Parlow ASCII         Philips P8/PC20         Ping         SattBus Ethemet         SattBus Serial         Scanivalve Ethemet         Siemens S5 (3964R)         Siemens S5 (3511)         Siemens S5 (A5511)         Siemens S7 MPI         Siemens TCP/IP Ethemet         Siemens TCP/IP Slave Ethemet         Simatic/TI 505 Ethemet         Simatic/TI 505 Serial         Simulator         SIXNET PtherTRAK	<ul> <li>▲ Add Channel Wizard</li> <li>Specify the identity of this object.</li> <li>Name:</li> <li>Sp</li> </ul>

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# Driver 설정 – Device 추가 및 설정 : Type 및 IP Address



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# Driver 설정 – Device 추가 및 설정 : Auto Demote 설정

← Add Device Wizard	×	• Demote 설정	
Automatically remove the Demote on Failure: Disable V	device from the scan due to communication failures.	- 통신 실패 시, 지정된 횟수만큼 시도 후 지정된 시간 동안 통선 춘 뒤 통신을 재시도하는 기능	류 연결 신을 멈 ;.
Disable Enable	← Add Device Wizard	- Network 부하를 줄이는 설정의 용을 권장.	으로, 사
	Automatically remove the device from the scan due to communication failures. Demote on Failure: Enable <> @	▲ ▲ ● 의 설정 예 : 3회 실패 시 10초 동안 통신을 멈춰	통신 춘 뒤
	A Specify how many successive cycles of request timeouts and retries occur before the devis placed off-scan. Timeouts to Demote:	evice ("demoted"), 다시 통신을 재 ① Demote 설정을 Enable로 변경	시도함. 경.
	B Indicate how long, in milliseconds, before scanning is attempted again on a demoted device Demotion Period (ms):	(2) 원아는 Demote 윗두 및 시간( vice. : 설정	(ms) <del>宣</del>
	Next C	Cancel	

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# Driver 설정 – Device 추가 및 설정 : Port# 설정

← Add Device Wizard	• Port# 설정 - PLC와 Ping은 되는데, 통신이 되지
Set the TCP/IP port number configured for this device. Port Number:	않는 경우, 대부분 잘못 된 Port# 설 정이 요인.
	– Siemens S7 PLC
Enter the device port number where the NetLink adapter is connected. MPI ID:	• Default로 "102" 번 Port를 사용
0	※ 다른 Port는 Siemens PLC에서 막혀 있
	는 경우가 대부분이므로, 102 번 Port 사
	용을 권장.
Next Cancel	

# Driver 설정 – Device 추가 및 설정 : Tag Import

		Х
←	Add Device Wizard	
	Select the source for tag import.	
	Tag Import Type:	
	Step 7 Project File 🗸 🕡	
	Step 7 Project File	
	TIA Portal Exporter file	
	Locate and select the Siemens Step 7 project file from which to import tags.	
	Step 7 Project (*.S7P):	
	Select the PLC program within the Step 7 project for which tags should be generated.	
	Program Path:	
	Next Canc	1

• Tag Import 기능

- Step 7 Project File, 혹은 TIA Portal
   Exporter로 Export된 파일로 부터
   Tag 데이터베이스를 Import할 수 있
   음.
- 지원되는 Siemens STEP7 모델 (2019.08현재)
  - S7-300 / S7-400
- 지원되는 Siemens STEP7 모델 (2019.08현재)
  - S7-300 / S7-400 / S7-1200 /S7-1500

# Driver 설정 – Device 추가 및 설정 : Tag Import – Step7 Project

<ul> <li>Add Device Wizard</li> <li>Select the source for tag import. Tag Import Type:         <ul> <li>Step 7 Project File</li> <li>Locate and select the Siemens Step 7 project file from which to import tags.</li> </ul> </li> </ul>	<ul> <li>* Step7 Project File로 부터 Import</li> <li>① Tag Import Type에서 Step 7 Project File 선택</li> <li>② Step 7 Project (.S7P) 파일 지정.</li> </ul>
Step 7 Project (*.S7P):	
Select the PLC program within the Step 7 project for which tags should be generated. Program Path:	
Next Cance	

# Driver 설정 – Device 추가 및 설정 : Tag Import - TIA Portal Exporter 파일

File       Home       Share         ←       →       ↑       ≪       Util         Kepware       KEPServerEX 6       Drivers	Exporter Install View lities > TIA Portal Exporter Install Name ITIAPortalExporter6.exe	• TIA Portal Exporter 설치 및 Export ① TIA Portal Exporter 프로그램을 복사 :KepserverEX 설치 폴더/Utilities/TIA Portal Exporter/폴더 내에 위치
Examples Help i18n iotg Plugins Projects	<ul> <li>Add Device Wizard</li> <li>Select the source for tag import.</li> <li>Tag Import Type:</li> <li>TIA Portal Exporter file</li> </ul>	× ② Siemens TIA Portal 이 설치 된 PC에 서 설치 실행 ③ Export 실행 : .TPE파일로 생성
Properties schemas Utilities Firmware TIA Portal Ex	Locate and select the TIA Portal Exporter file from which to impor TIA Portal Exporter file (*.TPE):	** tags. • TIA Portal Exporter 파일 Import ① Tag Import Type에서 'TIA Portal Exporter' 선택 ② Export된 파일 선택 (.TPE)
		Next Cancel

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# Driver 설정 – Device 추가 및 설정 : S7 통신 파라미터 설정

Maximum PDU S	ize		960		^
S7-200					
Local TSAP			4D57		
Remote TSAP			4D57		
S7-300/400/1	200	)/1500			
Link Type			PC	$\sim$	
CPU Rack			PG		
CPU Slot			OP		
Addressing Op	tion	าร	<u>r</u> u		
Byte Order		Marrian an DDU Care		000	
Tag Import	-	Maximum PDU Size		960	
Tag Import Type		57-200		1057	
Step 7 Project (*	<u> </u>	Local ISAP		4D57	
	_	Remote TSAP	(1500	4057	
k Type		\$7-300/400/1200/	1500		
ect the type of c		Link Type		PC	
		CPU Rack		0	
		CPU Slot		2	
		Addressing Options	5		
		Byte Order		Big Endian	
		Tag Import			
		Tag Import Type		Step 7 Project File	
Step 7 Project (*.S7P)					
				1	
	En	ter the rack number wh	ara this CPU rasidas		
	En	ter the rack number who	ere trils CF U resides.		
	Maximum PDU S S7-200 Local TSAP Remote TSAP S7-300/400/1 Link Type CPU Rack CPU Slot Addressing Op Byte Order Tag Import Tag Import Type Step 7 Project ( Tag Import Type Step 7 Project (	Maximum PDU Size S7-200 Local TSAP Remote TSAP S7-300/400/1200 Link Type CPU Rack CPU Slot Addressing Option Byte Order Tag Import Tag Import Type Step 7 Project (  K Type ect the type of c  CF En	Maximum PDU Size S7-200 Local TSAP Remote TSAP S7-300/400/1200/1500 Link Type CPU Rack CPU Slot Addressing Options Byte Order Tag Import Tag Import Tag Import Step 7 Project (	Maximum PDU Size 960 S7-200 Local TSAP 4D57 Remote TSAP 4D57 S7-300/400/1200/1500 Link Type PC CPU Rack PG CPU Slot PC Addressing Options Byte Order Tag Import Tag Import Tag Import Type Step 7 Project ( CPU Rack CPU Slot S7-300/400/1200/1500 Link Type CPU Rack CPU Slot Addressing Options Byte Order S7-300/400/1200/1500 Link Type CPU Rack CPU Slot Addressing Options Byte Order Tag Import Tag Import Tag Import Tag Import CPU Rack CPU Slot CPU Rack Enter the rack number where this CPU resides.	Maximum PDU Size     960       S7-200     4D57       Local TSAP     4D57       Remote TSAP     4D57       S7-300/400/1200/1500     PG       Link Type     PC       CPU Rack     PG       CPU Slot     OP       Addressing Options     PC       Byte Order     Maximum PDU Size     960       Tag Import     Maximum PDU Size     960       S7-200     Local TSAP     4D57       Step 7 Project (     Remote TSAP     4D57       K Type     PC     CPU Rack     0       CPU Slot     2     Addressing Options       Byte Order     Byte Order     0       CPU Rack     0     CPU Rack     0       CPU Slot     2     Addressing Options     Big Endian       Byte Order     Big Endian     Tag Import     Tag Import       Tag Import     Tag Import     Tag Import     Tag Import       Tag Import Type     Step 7 Project File     Step 7 Project File       Step 7 Project (`.S7P)     O     CPU Rack     Enter the rack number where this CPU resides.

# S7 통신 파라미터 설정 ① S7-300/400/1200/1500

- Link Type : PC (Default)
- ② CPU는 Rack# 0의 2번째 Slot (S7-

300) 또는 3번째 Slot (S7-400) 에 대 부분 위치

- ③ 예외적으로 Power Module이 2-3개의

   Slot을 차지 하는 경우, CPU는 3-4 번

   째 Slot에 위치 할 수도 있음
- ④ Step7 프로그램에서도 CPU위치 확인 가능
- ⑤ 예시된 설정은 S7-300

# Driver 설정 – Tag 추가 및 설정

<ul> <li>KEPServerEX 6 Co</li> <li>File Edit View To</li> <li>Project</li> <li>Project</li> <li>Connectivities</li> <li>S7</li> <li>S7_2</li> </ul>	tion [Connected to Runtime] -	우스 버튼 명령의 널의 Click to add ¦
	Identification         Name       Tag1       ②       Tag 설정 화면에서         Description       ③       Address 설정       ③         Address       Default       ③       Address 실정       ·         Clife       Hints       ✓       Address 입력을 위	Tag 명 입력  을 클릭하면  한 파라미터 참조
	Sc       DB1,STRING00.n - DB65535,STRING65533.n String       OK         DB1,T00 - DB65535,T65532 String       OK       Cancel         DB1,TOD00 - DB65535,TOD65532 String       Cancel       Help         DB1,W00 - DB65535,W65534 BCD       Help       Help         DB1,W00 - DB65535,W65534 Word       DB1,W00 - DB65535,W65534 Word       Help         DB1,W00 [r][c] - DB65535,W65534 [r][c] Short       DB1,W00 [r][c] - DB65535,W65534 [r][c] Short       V         DB1,W00 [r][c] - DB65535,W65534 [r][c] Short       V       V         DB1,W00 [r][c] - DB65535,W65534 [r][c] Short       V       V         DB1,W00 [r][c] - DB65535,W65534 [r][c] Short       V       V         DB1,W00 [r][c] - DB65535,W07534 [r][c] Short       V       V         DB1,W00 [r][c] - DB65535,W07534 [r][c] Short       V       V         DB1,W00 [r][c] - DB65535,W07534 [r][c] Short       V       V         DB1,W00 [r][c] - DB65535,W07D65534 BCD       V       V         DB1,W07D00 - DB65535,W07D65534 Short       V       V	

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# Driver 설정 – Tag 추가 및 설정

KEPServerEX 6 Configuration [		– 🗆 X					
File Edit View Tools Runtin							
🗅 📂 🗟 🛃 🏶 🛅 🖄 😉 🥪 🧺 😁 🕨 👗 🐁 隆 🗙 📉							
Project	Tag Name	Address	Data Type				
⊟(前) Connectivity	😡 Boolean1	DB1.DBX10.0	Boolean				
□- <b>□</b> 5/	Boolean2	DB1.DBX10.01	Boolean				
	🐼 Boolean3	DB1.DBX10.15	Boolean				
S/_2	Oword1	DB1.DWORD11	DWord				
	🐼 Float1	DB1.DWORD10	Float				
	🐼 Short1	DB1,W10	Short				
	😡 Short2	DB1,W11	Short				
	😡 Short3	DB1,W12	Short				
	String1	DB1,STRING00.10	String				
	🐼 Word1	DB1.W12	Word				

• Tag 설정 예

DB1,DBWxxx = DB1,Wxxx 로, Data
 Type (W, X)앞의 DB부분은 생략 가
 능.

```
즉, DBW(=W), DBX(=X)
```

# Driver 설정 – Tag 추가 및 설정

Name       Boolean 1         Description       Image: Comparison of the second se	Property Groups	Identification					
Description         Image: Descripting         Image: D	Ganarol	Name	Boolean1	Boolean1			
Image: Column g       Image: Data Properties         Address       DB1.DBX10.0         Data Type       Boolean         Client Access       Read/Write         Scan Rate (ms)       100         Image: Name       Specify the identity of this object.	General	Description					
Address     DB1.DBX10.0       Data Type     Boolean       Client Access     Read/Write       Scan Rate (ms)     100         Name       Specify the identity of this object.	caiing	Data Propert	ties				
Data Type     Boolean       Client Access     Read/Write       Scan Rate (ms)     100         Name       Specify the identity of this object.		Address		DB1.DBX	10.0		
Client Access       Read/Write         Scan Rate (ms)       100         Image: Name Specify the identity of this object.       Image: Name Specify the identity of this object.		Data Type	Data Type				
Scan Rate (ms)       100         Image: Specify the identity of this object.		Client Access		Read/Writ	Read/Write		
Name Specify the identity of this object.		Scan Rate (ms	)	100			

## • Tag 설정 : Option 항목

- OPC Client에서 인식하는 Full Name 형식
  - : "Channel\_Name.Device\_Name.Tag\_Name"
- Dynamic Addressing
  - : Tag\_Name 대신 실제 Address를 사용할 수 있음.
    - 본 예시에서
      - "S7.PLC1.Boolean1"는 " S7.PLC1. DB1.DBX10.0"로 대체 가능.

# S7-1200, S7-1500 PLC 설정: PUT/GET 설정

• "Devices & networks" 에서 S7-1500 (S7-1200) CPU 선택하여

General > Protection & Security > Connection mechanisms 탭에서

"Permit access with PUT/GET communication from remote partner" 체크 선택

PLC_1 [CPU 1513-1 PN]					<b>Properties</b>	🗓 Info 🧯	Diagnostics
General	IO tags	System con	stants	Texts			
<ul> <li>General</li> <li>PROFINET in</li> </ul>	terface [X1]		Connecti	on mechanisms	ŝ.		
Startup					_		
Cycle					Permit a	ccess with PUT	GET communication from
Communica	tion load				remote	partner	
System and	clock memory	§			M	2	
SIMATIC Mer	nory Card					7	
System diag	nostics						
PLC alarms							
Web server							
DNS configu	ration						
Display							
Multilingual	support						
Time of day		-					
<ul> <li>Protection 8</li> </ul>	Security						
Access la	vel	F					
Connecti	on mechanism	s					
Certincat	e manager						
Security	event						

## Tag Import from S7-1200, S7-1500 PLC

- Manufacturing Suite 과 Siemens Plus Suite 에 포함되어 있는 Siemens S7 Plus Ethernet driver를 사용하면 (Siemens Suite 에는 Siemens TCP/IP Ethernet driver 만 포함) 사용하면 PLC 에서 직집 Tag Import 가 가능하다 (OPC UA Client 사용 없이)
- Siemens Plus Suite은 Siemens Suite + Siemens S7 Plus Ethernet driver + OPC UA Client driver를 번들로 제공.

🗪 Property Editor - C	Channel1.Device1			
Property Groups	Tag Generation			
General	On Device Startup	Do Not Generate on Startup Delete on Create		
Scan Mode	On Duplicate Tag			
Timing	Parent Group			
Auto-Demotion	Allow Automatically Generated Subgroups	Enable		
Tag Generation	Create	Create tags		
Communications				
Redundancy				



# 프로그램 설치



# Driver 실행 – OPC Client



Property Editor - S7.PLC1			$\times$	
Property Groups				
General Scan Mode	Name PLC1			
	Description			
Timing	Driver	Siemens TCP/IP Ethemet		
Auto-Demotion	Model	S7-300		
Tag Generation	Channel Assignment	S7		
Communication Parameters	ID	192.168.10.11		
S7 Communication Parameters	Operating Mode			
Addressing Options	Data Collection	Enable		
Tag Import	Simulated	Yes		• Device ○ Simulation 모드
Bedundancy		No Yes		
				- PLC가 연결되지 않은 상태에서, HMI 등에
	Simulated       Use generic valid OPC data without communicating with the physical device.       Defaults     OK       Cancel     Apply			서 삭업을 원할 경우, Simulation Mode로
				전환하면 수동으로 Read/Write 가능

# **Thank You!**

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