2 Preparation

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2.1 Items to Check

Before installing this product, ensure that the following prerequisites are completed.

2.1.1 PC Specification

Operating Environment

Ensure that the PC to which 'Pro-Server EX' will be installed meets the requirements of the operating environment of 'Pro-Server EX'. If not, there may be a risk of installation failure or malfunction of software performance. For details about the operating environment, refer to "OPERATING ENVIRONMENT".

OS

'Pro-Server EX' operates on 'Windows 2000', 'Windows XP', 'Windows Vista', 'Windows Server 2003', 'Windows 7', 'Windows Server 2008', or 'Windows Server 2008 R2'. Ensure that an Operating System (OS) has been preinstalled and it performs correctly.

Application Software

The following software must be installed in order to maximize the features of 'Pro-Server EX'. If not, preinstall them.

- 'Microsoft Excel 2000' to 'Microsoft Excel 2010'
- 'Microsoft Access 2000' to 'Microsoft Access 2003'
- 'Microsoft Internet Explorer Version 5.0' or later

2.1.2 Necessary Equipment

■ LAN Hub (10BASE-T/100BASE-T compatible, Switching type)

Used to connect all the Ethernet cables together.



* A LAN hub is necessary even when connecting one PC and one GP (one-to-one connection).

* The minimum number of ports required is a sum of PCs and GPs to be connected. When the ports are not enough, prepare plural LAN hubs and make a cascade connection. Refer to the operation manual of the LAN hub for the connection method.

NOTE • The following products for the LAN hub are available in our company.

Model name: Industrial Ethernet Switch Model Number: SPIDER 8TX-PRO



What is 10BASE-T/100BASE-T?

One of the Ethernet standards that uses unshielded twisted pair wires.

What is a cascade connection?

To connect plural LAN hubs using cable wires. This can increase the number of devices to be connected to one network.

For a cascade connection, 1 port is required for cascade.



Ethernet Cable (10BASE-T/100BASE-T compatible UTP straight cable)

Used to connect the PC and the GP



* This cable is necessary even when connecting one PC and one GP (one-to-one connection) since a LAN hub is used even in this case. When you use a cross cable for connection, we do not guarantee the operation.

* The minimum number of cables required is a sum of PCs and GPs to be connected.

What is UTP cable?

An abbreviation for unshielded twisted-pair cable. This is an unshielded cable in which the wires are twisted together. There are two types of UTP cables: straight cables and cross cables. A straight cable is used for connecting device-to-LAN hub. A cross cable is used for connecting device-to-device or LAN hub-to-LAN hub.

Network Adapter (LAN board/LAN card)

Used by attaching to the PC.



(Illustration shows a LAN board)

* When the Ethernet port for system connection has been preinstalled on the PC, it is not necessary to attach a network adapter.

How to attach the network adapter

Follow either appropriate method below to attach the network adapter to the PC. Refer to the operation manual of the PC or the network adapter for more details about attaching method.

- * Attach a LAN board to the expansion slot (PCI bus or ISA bus) of the PC.
- * Attach a LAN card to the PC card slot of the PC.

2.2 Connecting PC with GP

The following explains how to connect the PC and GPs using Ethernet cables.

Connect Ethernet cables to the PC and the GPs separately, and then connect them together using a LAN hub as shown below.

Example: Connecting three GPs and one PC



1 Connect one end of the Ethernet cable to the Ethernet port of the PC.





- $2\,$ Connect one end of another Ethernet cable to the Ethernet I/F of the GP.
 - Example: GP3000 series



NOTE • The Ethernet I/F is provided at a different position depending on the GP. Refer to the operation manual for more details.

3 Connect the other ends of the Ethernet cables connected to the PC and the GPs to the ports of the LAN hub.



This completes the connection between the PC and the GPs.

2.3 Setting PC Network

The following explains how to connect the PC to the GPs via a network (Ethernet). Necessary settings are:

- Operation check of the network adapter (LAN board/card); and
- Setting of TCP/IP protocol

Setting methods differ depending on the OS installed on the PC. Refer to the corresponding section to each OS.

- Windows Vista: "2.3.1 In Case of Using Windows Vista"
- Windows XP: "2.3.2 In Case of Using Windows XP"
- Windows 2000: "2.3.3 In Case of Using Windows 2000"

2.3.1 In Case of Using Windows Vista

• Log on to Windows with the user name of "Credential Manager" or of the equivalent administrator authority. Refer to the operation manual of the OS for user authority.

1 Operation Check of Network Adapter

Check that the network adapter (LAN board/LAN card) attached to the PC performs correctly using the "Device manager" of Windows.

- (1) Turn on the PC power and start Windows.
- (2) On the desktop, right-click the "Computer" icon, and then select "Properties" from the menu.

Com	Open	
	Open folder location	
	Explore	
	Manage	- 1 Mar. 11
11 🝓	Map Network Drive	
Recyc	Disconnect Network Drive	
	Restore previous versions	
8	Send To	
	Cut	
	Сору	
	Create Shortcut	
	Delete	
	Rename	
	Properties	

(3) On the displayed screen, click the [Device Manager] button.



• The [User Account Control] dialog box may be displayed. When it is displayed, click the [Continue] button.

(4) On the "Device Manager" screen, double-click the "Network Adapter" in the list of the hardware devices displayed.

Confirm that the name of the network adapter being attached to the PC is displayed.



• The "x" mark or "!" mark displayed at the head of the name shows that the network adapter is not performing correctly. Take actions so that the network adapter performs correctly referring to the operation manual of the network adapter, etc.

(5) Click the [x] (close) button to close the "Device Manager" screen.

- (6) Click the [OK] button to close the "System" screen.
- 2 Setting of TCP/IP protocol

MPORTANT • Contact the network administrator before operation.

(1) Click the [Start] button in the task bar, and then select the "Network and Sharing Center" from "Control Panel".



What is TCP/IP protocol?

One of the network protocols (standards regarding communication such as communication speed, and communication method). TCP/IP protocol is a combination of "TCP" (Transmission Control Protocol) and "IP" (Internet Protocol). This protocol is used on the Internet and electronic mails, and is the most popular protocol currently used.

MPORTANT • Contact the network administrator before operation.

(2) Click [Manage Network Connections] on the displayed screen.



(3) On the "Network Connection" screen, right-click the "Local Area Connection" icon, and then select "Properties" from the menu.



IMPORTANT	•	The [User Account Control] dialog box may be displayed. When it is displayed, click the
		[Continue] button.

(4) On the "Local Area Connection Properties" dialogue, confirm that the check box of the [Internet Protocol Version4 (TCP/IPv4)] in [This connections uses the following items] is turned on. If not, click the check box to turn on.

🕌 Local Area Connection Properties 🛛 💌				
Networking Sharing				
Connect using:				
Proadcom NetXtreme 57xx Gigabit Controller				
Configure				
This connection uses the following items:				
Client for Microsoft Networks				
🗹 🌉 QoS Packet Scheduler				
File and Printer Sharing for Microsoft Networks				
 Internet Protocol Version 6 (TCP/IPv6) 				
Internet Protocol Version 4 (TCP/IPv4)				
Link-Layer Topology Discovery Mapper I/O Driver				
Link-Layer Topology Discovery Responder				
Install Uninstall Properties				
Description				
Transmission Control Protocol/Internet Protocol. The default				
wide area network protocol that provides communication				
across diverse interconnected networks.				
OK Cancel				

(5) Select [Internet Protocol Version4 (TCP/IPv4)], and then click the [Properties].

📱 Local Area Connection Properties				
Networking Sharing				
Connect using:				
Proadcom NetXtreme 57xx Gigabit Controller				
Configure				
This connection uses the following items:				
 ✓ Client for Microsoft Networks ✓ QoS Packet Scheduler 				
File and Printer Sharing for Microsoft Networks				
Internet Protocol Version 4 (TCP/IPv4)				
Link-Layer Topology Discovery Mapper I/O Driver Link-Layer Topology Discovery Responder				
Install Uninstal Properties				
Description				
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.				
OK Cancel				

(6) In the [Internet Protocol Version4 (TCP/IPv4) Properties] dialogue, select [Use the following IP address], and then enter the IP address of the PC into the [IP address] field.

Internet Protocol Version 4 (TCP/IP)	v4) Properties 🔹 😵 💌			
General				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
Obtain an IP address automati	ically			
OUS the following IP address:				
IP address:	192.168.0.1			
Subnet mask:				
Default gateway:				
📀 Obtain DNS server address au	itomatically			
Our of the following DNS server a	addresses:			
Preferred DNS server:				
Alternate DNS server:				
	Advanced			
	OK Cancel			

What is IP address?

Internet protocol numerical address assigned to each computer on the network so that its location and activities can be distinguished from other computers. The IP address takes the form of four numbers separated by dots, for example: 192.168.0.3

(7) Click the [Subnet Mask] field, and the subnet mask will be entered automatically. If necessary, change the subnet mask, and then click the [OK] button.

Internet Protocol Version 4 (TCP/IPv4)	Properties 🔹 💦			
General				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
Obtain an IP address automatical	ly			
• Use the following IP address:				
IP address:	192 168 0 1			
Subnet mask:	255 . 255 . 255 . 0			
Default gateway:				
Obtain DNS server address automatically				
 Use the following DNS server add 	resses:			
Preferred DNS server:				
Alternate DNS server:	• • •			
	Advanced			
	OK Cancel			

- If no relay device to the other network such as a router is connected, it is not necessary to input about [Default Gateway].
 - If the subnet masks for PC and GP are different, GP is not displayed in the list when finding node.

What is Subnet Mask?

The subnet mask is used to determine what subnet an IP address belongs to. An IP address has two components: the network address that represents the network being connected and the host address that is used to distinguish individual device. For example, consider the IP address "192.168.2.1" and the Subnet Mask "255.255.255.0". Each address in a binary pattern is: IP address : 11000000.10101000.00000010.00000001 Subnet Mask : 1111111.1111111111111111110.0000000

In the IP address, the part shown in a logical "1" in the Subnet Mask represents the network number, and the part shown in a logical "0" in the Subnet Mask represents the host number. Accordingly, the areas allocated for the network number and the host number in the IP address "192.168.2.1" are as follow. IP Address : <u>11000000.10101000.00000010.00000001</u>

Network number Host number

(8) If necessary, perform the setting related to DNS server.

(9) Click the [OK] button to close the "Properties of Local Area Connection" dialogue.

- (10) Click the [x] (close) button to close the "Network Connection" dialogue.
- (11) Reboot the PC to enable the setting.

This completes the network setting.

2.3.2 In Case of Using Windows XP

• Log on to Windows with the user name of "Credential Manager" or of the equivalent administrator authority. Refer to the operation manual of the OS for user authority.

1 Operation Check of Network Adapter

Check that the network adapter (LAN board/LAN card) attached to the PC performs correctly using the "Device manager" of Windows.

(1) Turn on the PC power and start Windows.

(2) On the desktop, right-click the "My Computer" icon, and then select "Properties" from the menu.



(3) On the "System Properties" dialogue, click the [Hardware] tab, and then the [Device Manager] button.

System Proper	ties			? 🔀	
System Re	store	Automa	ic Updates	Remote	
General Compu		iter Name	Hardware	Advanced	
C Device Mana	iger				
Th on pro	The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.				
			Device Ma	anager	
Drivers				100 100 100 100 100 100 100 100 100 100	
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.				ivers are you set up drivers.	
	Driver S	igning	Windows L	Jpdate	
Hardware Profiles					
Hardware profiles provide a way for you to set up and store different hardware configurations.					
			Hardware	Profiles	
OK Cancel Apply					

(4) On the "Device Manager" screen, double-click the "Network Adapter" in the list of the hardware devices displayed.

Confirm that the name of the network adapter being attached to the PC is displayed.



NOTE • The "x" mark or "!" mark displayed at the head of the name shows that the network adapter is not performing correctly. Take actions so that the network adapter performs correctly referring to the operation manual of the network adapter, etc.

(5) Click the [x] (close) button to close the "Device Manager" screen.

(6) Click the [OK] button to close the "System Properties" dialogue.

2 Setting of TCP/IP protocol

(1) Click the [Start] button in the task bar, and then select the "Network Connection" from "Settings".



What is TCP/IP protocol?

One of the network protocols (standards regarding communication such as communication speed, and communication method). TCP/IP protocol is a combination of "TCP" (Transmission Control Protocol) and "IP" (Internet Protocol). This protocol is used on the Internet and electronic mails, and is the most popular protocol currently used.

MPORTANT • Contact the network administrator before operation.

(2) On the "Network Connection" screen, right-click the "Local Area Connection" icon, and then select "Properties" from the menu.



(3) On the "Local Area Connection Properties" dialogue, confirm that the check box of the [Internet Protocol (TCP/IP)] in [Components checked are used in this connection] is turned on.

If not, click the check box to turn on.

Local Area Connection 2 Properties 🛛 🤶 🗙			
General Authentication Advanced			
Connect using:			
Broadcom NetXtreme 57xx Gigabit C Configure			
This connection uses the following items:			
Client for Microsoft Networks Reference Client for Microsoft Networks Reference Client for Microsoft Networks Reference Protocol (TCP/IP)			
Install Uninstall Properties			
Description Allows your computer to access resources on a Microsoft network.			
Allows your computer to access resources on a Microsoft network.			
Allows your computer to access resources on a Microsoft network. Show icon in notification area when connected Notify me when this connection has limited or no connectivity			

(4) Select [Internet Protocol (TCP/IP)], and then click the [Properties].



(5) In the [Internet Protocol (TCP/IP) Properties] dialogue, select [Use the following IP address], and then enter the IP address of the PC into the [IP address] field.

Internet Protocol (TCP/IP) Propertie	s ? 🗙			
General				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
Obtain an IP address automaticall	y			
e the following IP address:				
IP address:	192.168.1.100			
Subnet mask:				
Default gateway:	· · ·			
C Obtain DNS server address autom	naticallu			
Use the following DNS server add	Iresses:			
Preferred DNS server:				
Alternate DNS server:	· · ·			
	Advanced			
	OK Cancel			

What is IP address?

Internet protocol numerical address assigned to each computer on the network so that its location and activities can be distinguished from other computers. The IP address takes the form of four numbers separated by dots, for example: 192.168.0.3

(6) Click the [Subnet Mask] field, and the subnet mask will be entered automatically. If necessary, change the subnet mask, and then click the [OK] button.

Internet Protocol (TCP/IP) Properties				
General				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
O Obtain an IP address automatically				
Use the following IP address:				
IP address: 192 . 168 . 1 . 100				
Subnet mask: 255 . 255 . 0				
Default gateway:				
C Obtain DNS server address automatically				
Use the following DNS server addresses:				
Preferred DNS server:				
Alternate DNS server:				
Advanced				
OK Cancel				

• If no relay device to the other network such as a router is connected, it is not necessary to input about [Default Gateway].

• If the subnet masks for PC and GP are different, GP is not displayed in the list when finding node.

What is Subnet Mask?

The subnet mask is used to determine what subnet an IP address belongs to. An IP address has two components: the network address that represents the network being connected and the host address that is used to distinguish individual device. For example, consider the IP address "192.168.2.1" and the Subnet Mask "255.255.255.0". Each address in a binary pattern is: IP address : 11000000.10101000.00000010.00000001 Subnet Mask : 11111111111111111111100000000 In the IP address, the part shown in a logical "1" in the Subnet Mask represents the network number, and the part shown in a logical "0" in the Subnet Mask represents the host number. Accordingly, the areas allocated for the network number and the host number in the IP address "192.168.2.1" are as follow.

```
IP Address : <u>11000000</u>. <u>10101000</u>. <u>00000010</u>. <u>00000001</u>
```

Network number Host number

- (7) If necessary, perform the setting related to DNS server.
- (8) Click the [OK] button to close the "Properties of Local Area Connection" dialogue.
- (9) Click the [x] (close) button to close the "Network Connection" dialogue.
- (10) Reboot the PC to enable the setting.

This completes the network setting.

2.3.3 In Case of Using Windows 2000

· Log on to Windows with the user name of "Credential Manager" or of the equivalent administrator IMPORTANT | authority. Refer to the operation manual of the OS for user authority.

1 Operation Check of Network Adapter

Check that the network adapter (LAN board/LAN card) attached to the PC performs correctly using the "Device manager" of Windows.

- (1) Turn on the PC power and start Windows.
- (2) On the desktop, right-click the "My Computer" icon, and then select "Properties" from the menu.



(3) On the "System Properties" dialogue, click the [Hardware] tab, and then the [Device Manager] button.



(4) On the "Device Manager" screen, double-click the "Network Adapter" in the list of the hardware devices displayed.

Confirm that the name of the network adapter being attached to the PC is displayed.

🖳 Device Manager	
Action View ← → 📾 🖬 📅 😰] 🕄	
BOTH VERY CONCENTRY BOTH VERY CONCEN	
Provide Sectors Provide Sectors Sector Sector 17,100 (31011XX) Sector Se	

NOTE • The "x" mark or "!" mark displayed at the head of the name shows that the network adapter is not performing correctly. Take actions so that the network adapter performs correctly referring to the operation manual of the network adapter, etc.

(5) Click the [x] (close) button to close the "Device Manager" screen.

(6) Click the [OK] button to close the "System Properties" dialogue.

2 Setting of TCP/IP protocol

(1) Click the [Start] button in the task bar, and then select the "Network and Dial-up Connections" from "Settings".



(2) On the "Network and Dial-up Connections" screen, right-click the "Local Area Connection" icon, and then select "Properties" from the menu.

📴 Network an	d Dial-up Conne	ctions
File Edit	View Favorites	Tools Advanced
📙 🖨 Back 👻 🔹	⇒ - 🖻 Qse	earch 🖳 Folders 🧯
🛛 Address 🧰 N	letwork and Dial-up) Connections
Make New Connection	Cont Cont Cont Cont Create St Delete Rename	hortcut
	Propert	ies

What is TCP/IP protocol?

One of the network protocols (standards regarding communication such as communication speed, and communication method). TCP/IP protocol is a combination of "TCP" (Transmission Control Protocol) and "IP" (Internet Protocol). This protocol is used on the Internet and electronic mails, and is the most popular protocol currently used.

MPORTANT • Contact the network administrator before operation.

(3) On the "Local Area Connection Properties" dialogue, confirm that the check box of the [Internet Protocol (TCP/IP)] in [Components checked are used in this connection] is turned on. If not, click the check box to turn on.

Local Area Connection	Properties	? ×
General		
Connect using:		
📖 SPC EE Cad 1	0/100 (SMC 121103)	
		Configure
Components checked	are used by this conne	ction:
Internet Protoc	xol (TCP/IP)	
Install	Uninstall	Properties
Description Transmission Contr wide area network across diverse inter	ol Protocol/Internet Pro protocol that provides of connected networks, par when connected	tocol. The default communication
		JK Cancel

(4) Select [Internet Protocol (TCP/IP)], and then click the [Properties].

Local Area Connection Properties	? ×
General	
Connect using:	
🕎 - SAND EDI Card 10/100 (SMC1211100)	
Config	ure
Components checked are used by this connection:	
File and Printer Sharing for Microsoft Networks Thternet Protocol (TCP/IP) Install Uninstall Properties	s N
Description	-14
Transmission Control Protocol/Internet Protocol. The defau wide area network protocol that provides communication across diverse interconnected networks.	lt
ОК Са	ancel

(5) In the "Internet Protocol (TCP/IP) Properties" dialogue, select [Use the following IP address], and then enter the IP address of the PC into the [IP address] field.

nternet Protocol (TCP/IP) Proper	ties ? 🗙
General	
You can get IP settings assigned au this capability. Otherwise, you need the appropriate IP settings.	tomatically if your network supports to ask your network administrator for
O Obtain an IP address automati	cally
se the following IP address:	
IP address:	(192.168.0.1)
Subnet mask:	
Default gateway:	· · ·
C Obtain DNS server address au	Itomatically
☐ Use the following DNS server	addresses:
Preferred DNS server:	
Alternate DNS server:	
	Advanced
	OK Cancel

What is IP address?

Internet protocol numerical address assigned to each computer on the network so that its location and activities can be distinguished from other computers. The IP address takes the form of four numbers separated by dots, for example: 192.168.0.3

(6) Click the [Subnet Mask] field, and the subnet mask will be entered automatically. If necessary, change the subnet mask, and then click the [OK] button.

Internet Protocol (TCP/IP) Properties ? 🔀
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
• Use the following IP address:
IP address: 192.168.0.1
Subnet mask: 255 . 255 . 255 . 0
Default gateway:
C Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced
OK Cancel

- If no relay device to the other network such as a router is connected, it is not necessary to input about [Default Gateway].
 - If the subnet masks for PC and GP are different, GP is not displayed in the list when finding node.

What is Subnet Mask?

The subnet mask is used to determine what subnet an IP address belongs to. An IP address has two components: the network address that represents the network being connected and the host address that is used to distinguish individual device. For example, consider the IP address "192.168.2.1" and the Subnet Mask "255.255.255.0". Each address in a binary pattern is: IP address : 11000000.10101000.00000010.00000001 Subnet Mask : 1111111.1111111.1111111.00000000 In the IP address, the part shown in a logical "1" in the Subnet Mask represents the network number, and the

In the IP address, the part shown in a logical "1" in the Subnet Mask represents the network number, and the part shown in a logical "0" in the Subnet Mask represents the host number. Accordingly, the areas allocated for the network number and the host number in the IP address "192.168.2.1" are as follow. IP Address : <u>11000000 . 10101000 . 00000010</u> . <u>00000001</u> Network number Host number

(7) If necessary, perform the setting related to DNS server.

(8) Click the [OK] button to close the "Properties of Local Area Connection" dialogue.

(9) Click the [x] (close) button to close the "Network and Dial-up Connections" dialogue.

(10) Reboot the PC to enable the setting.

This completes the network setting of the PC.

Proceed to the network setting of the GP.

2.4 Setting GP Network

The following explains how to connect the GPs via a network (Ethernet).

1 Turn on the GP power.

After a while, the "Initial Transfer Mode" screen will appear on the monitor of the GP.

Language	ENGLISH
Thank you for yo	ur purchasing.
To initialize th	is unit, please download the
Runtime system f	rom the editor.
Note:Touch the E	thernet Setup Switch
to change the IP	address.
	Ethernet Setup

2 Touch the [Ethernet Setting] button.

The "Ethernet Setting" screen will appear. This screen displays default settings.

IP Address:	10	***	***	***
ubnet Mask:	255	0	0	0
Default Gateway:	0	0	0	0
^S ort:			8000	

3 Enter the numbers of the IP address, Subnet Mask, Default Gateway and Self Node, and then touch the [Set] button.

Contact the network administrator for the values to set.

NOTE • If no relay device to the other network such as a router is connected, it is not necessary to input about [Default Gateway].

This completes the network setting of the GP.