



**KX-Series PBX**  
**TAPI Service Provider**  
Installation Manual

Revision: 4.2

June 2013

# ***Introduction***

## About TSP

Panasonic's TAPI Service Provider (TSP) for KX-TDA/TDE/NCP/NS Series PBX is a driver that provides you with a TAPI Interface.

**Version 3.1.0.7** or later supports KX-TDE/NCP series PBX.

**Version 3.3.0.0** or later is required to use C# SDK.

**Version 4.0.0.0** or later supports KX-NS1000 Ver.1.

**Version 4.2.0.0** or later supports KX-NS1000 Ver.2.3

## About this manual

This manual describes installation and setting of Panasonic TSP.

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## NOTES

Description related USB in this manual is applied to **KX-TDA series PBX only**.

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# 1. Before Installing

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## 1.1. System Requirement

### Required Operating System

- Microsoft® Windows Server® 2012 (64-bit)  
(Server core installation is NOT supported)
- Microsoft Windows Server 2008 (both 32-bit and 64-bit)
- Microsoft Windows Server 2003 (both 32-bit and 64-bit)
- Microsoft Windows® 8 (both 32-bit and 64-bit)  
(Metro UI is NOT supported)
- Microsoft Windows 7 (both 32-bit and 64-bit)
- Microsoft Windows Vista® (32-bit only)
- Microsoft Windows XP (32-bit only)

### Note

- **Panasonic TSP version 4.1 or later supports Windows Server 2012 and Windows 8.**
- **For the Remote TSP provided by Microsoft environments, the Panasonic TSP are not supported.**

### Minimum PC Hardware Requirements

- Windows has to work on the PC
- Hardware Requirements of the application that you use with Panasonic TSP.
- When you use USB connection, USB Interface is needed.  
**Note : USB connection is not supported on 64-bit Windows.**
- When you use LAN connection, LAN Interface is needed.
- HDD 400 Mb free disk space  
Note : Additional HDD space may be required in case logging of Panasonic TSP is enabled.

### NOTE

The total minimum free disk space you need is the Panasonic TSP minimum plus disk space which the application requires as minimum.

## 1.2. PBX Settings

### Supported PBX Types

- Supported PBX Types are **KX-TDA30/50/100/200/600, KX-TDE100/200/600, KX-NCP500/1000 and KX-NS1000.**
- Panasonic TSP uses USB or TCP/IP for connecting to the Panasonic PBX.

### USB Setting

- In order to use the USB connection with KX-TDA PBX, USB drivers (Version 2.0.0.7 or later) for KX-TDA PBX must be installed on the computer.
- And when you use two or more USB connections, you need to assign unique **USB serial number** for each KX-TDA PBX by TDA Maintenance Console. For more details about installation of the TDA PBX USB driver, please consult related installation manual.

### TCP/IP Setting

- Before installation, please make sure you know the IP address of the PBX and its CTI port. By default the CTI port is 33333.
- When you use TDA series PBX, you need following LAN interface card on the PBX.

PBX	LAN Interface card
KX-TDA100/200/600	CTI Link Card
KX-TDA30/50	IP Gateway Card

- When you use KX-NS1000, activation key (KX-NSF101) is required to use CTI interface.
- When you use CTI enhance features, you may need **SD Memory Card** or **activation key** for software upgrade depending on your application.

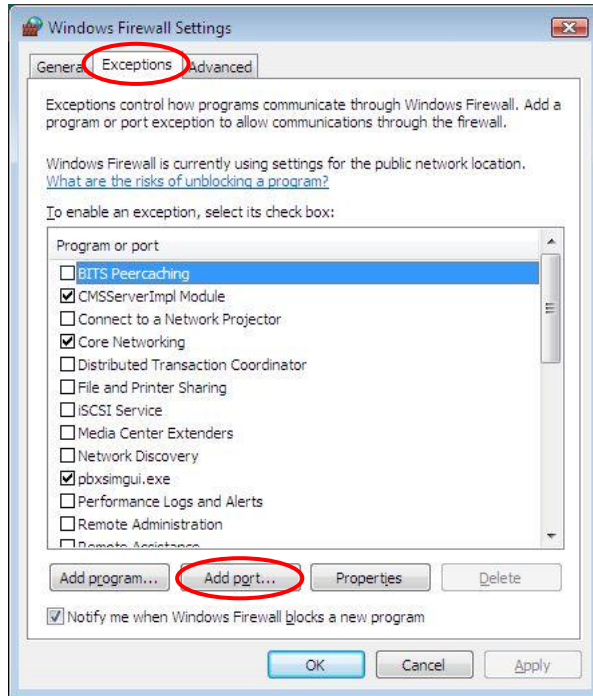
PBX	Required SD Card or Activation Key
KX-TDA30	KX-TDA3920
KX-TDA50	KX-TDA5920
KX-TDA100/200	KX-TDA0920
KX-TDA600	KX-TDA6920
KX-TDE100/200	KX-NCS4910,
KX-TDE600	KX-NCS4950
KX-NCP500/1000	KX-NCS3910
KX-NS1000	N/A

### 1.3. Windows Firewall Settings

Configure the following Firewall setting for only **Windows Vista**.

When you install Panasonic TSP into Windows Vista and use LAN to connect to the PBX, you may need to configure Windows Firewall as follows.

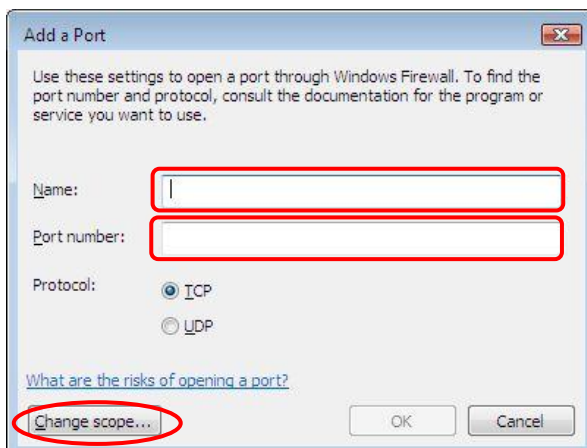
1. Open “Windows Firewall Settings” dialog from Control Panel, and select “Exceptions” tab.



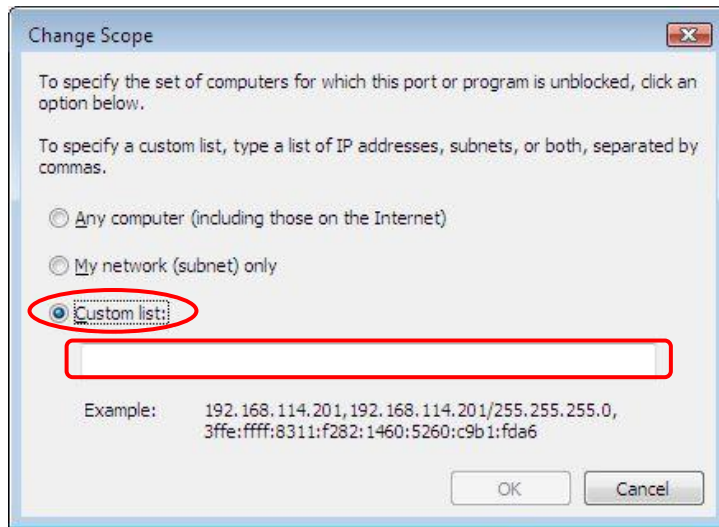
2. Click “Add port...” button. Then type as follows.

Name : Panasonic TSP

Port number: 33333 (If you change the default port number, type the number you changed)



3. Click “Change scope...” button, and click “Custom list:”. Then type IP address of the PBX.



4. Click OK to close “Change Scope” dialog.

5. Click OK to close “Add a Port” dialog.

6. Click OK to close “Windows Firewall Settings” dialog.

# 2. Installing TSP

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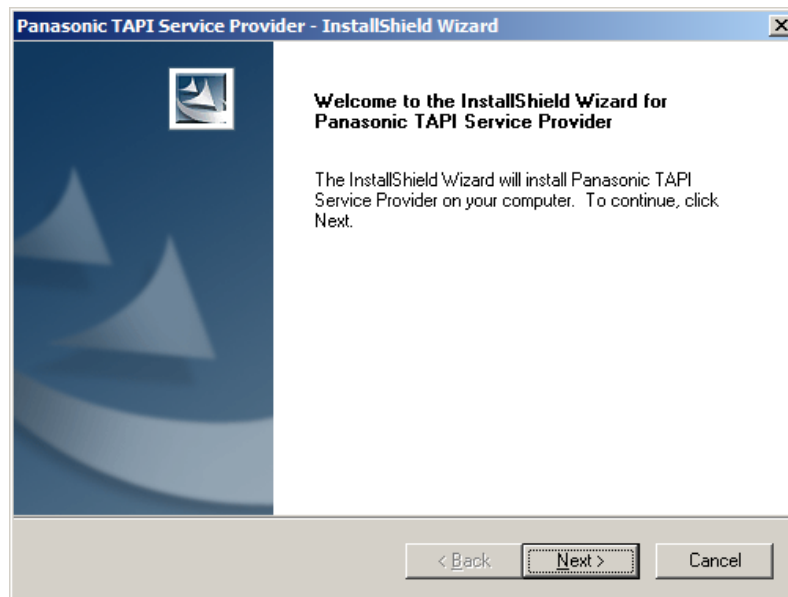
## 2.1. Installing Panasonic TSP

To install or uninstall the software, you must be logged in as a user with Administrator privilege. When other version of Panasonic TSP is already installed in your PC, please refer to section 2.3.

### How to Install TSP

1. Double-click the setup file according to your operating system. When you use a 32-bit operating system, select the file “panasonic\_tsp\_instx86\_4xxx.exe”. When you use a 64-bit operating system, select the file “panasonic\_tsp\_instx64\_4xxx.exe”. And click “**Next**” to continue installation. Click “**Cancel**” to abort.

(“xxx” will be different number depending on time when TSP is released)

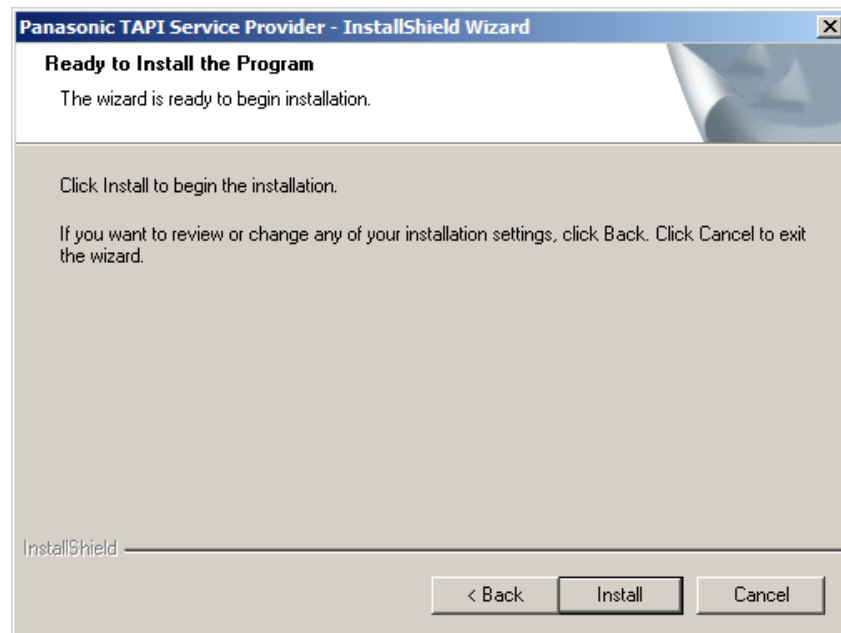




2. You will then be shown the License Agreement. After reading the agreement, click the “I accept the terms of the license agreement” option to accept its terms and click “**Next**” to continue the installation. If you do not accept its terms, click “**Cancel**”..  
If you want to print out the agreement, click “**Print**”.



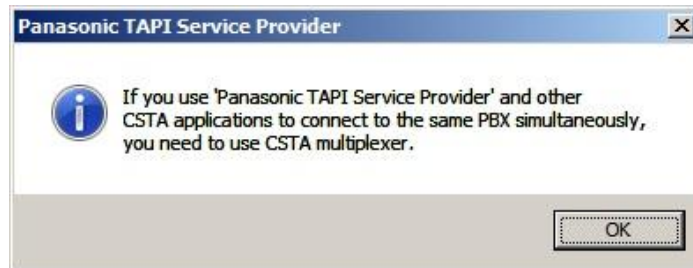
3. Click “**Install**” to start installation. Click “**Cancel**” to abort installation. Click “**Back**” to go back to previous step.



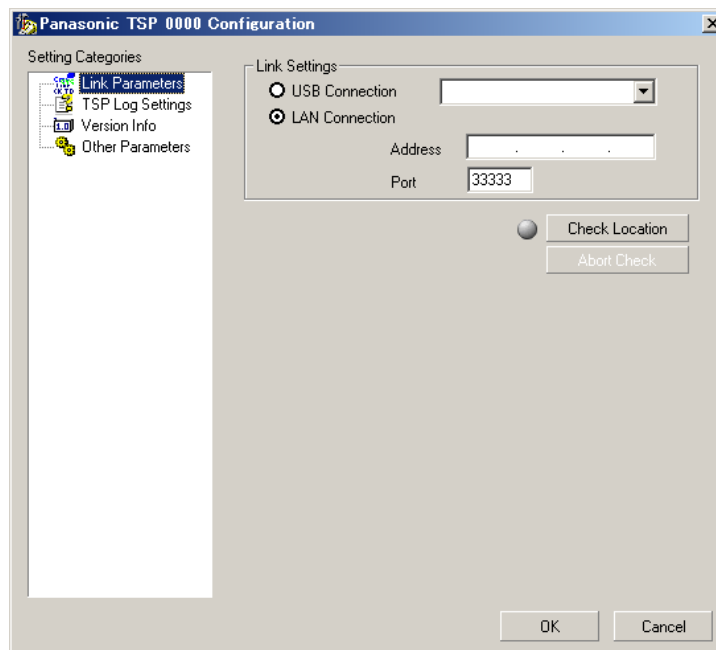
4. If KX-TDA USB driver is not installed in your computer, a dialog showing “USB Driver is not installed” may appear. Press “OK” to continue.

**Note : USB connection is not supported on 64-bit Windows.**

5. The following message will appear in order to note that Panasonic TSP and a CSTA application cannot be used in parallel without CSTA multiplexer. Press “OK” to continue.



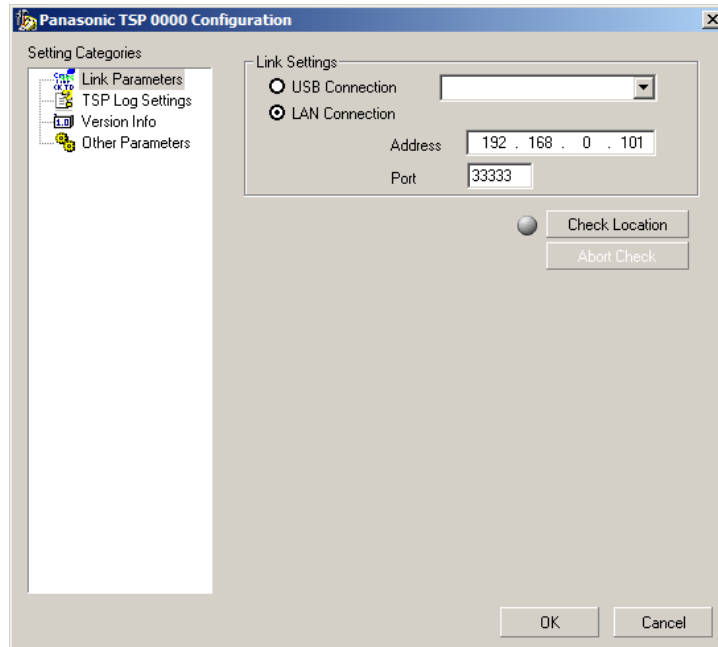
6. By default one TSP instance will be installed and registered with TAPI. After the registration is completed, following dialog will prompt you to configure parameters. Pressing “OK” will update settings you have just changed. Pressing “Cancel” will leave default configuration (Link setting is empty).



When you use LAN connection, select “LAN Connection” and set IP address and TCP port of the PBX. See 3.1.1 for more detail.

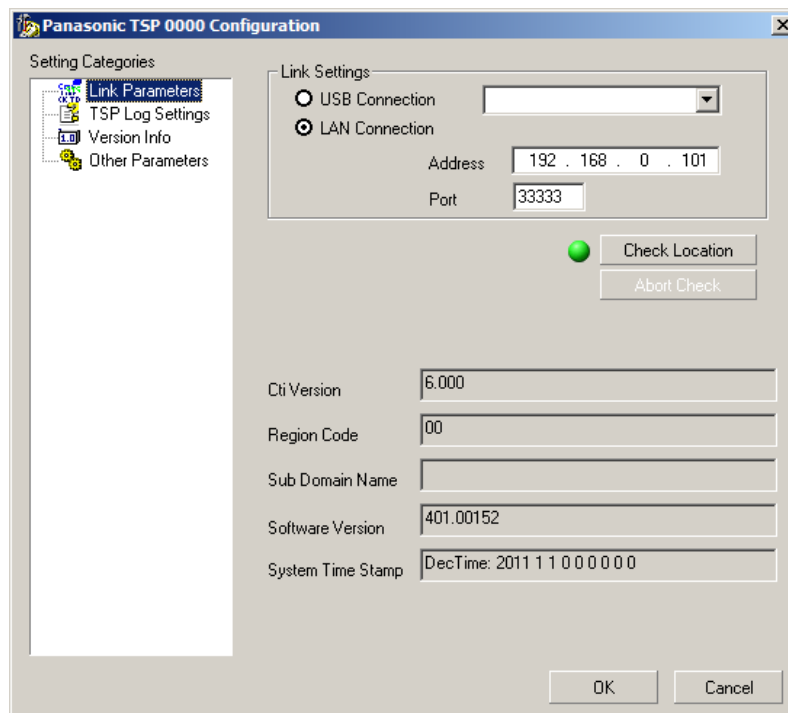
When USB connection is used, select “USB Connection”. See 3.1.2 for more detail.

7. After entering the IP address and TCP port of PBX, click **“Check Location”** to verify the connection to the PBX.

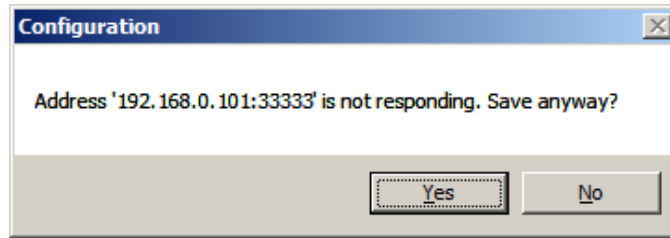


When the connection is successful, the following dialog containing system information gathered from PBX will appear. System information gathered from PBX may help you identify the PBX that you will use. When the connection is successful, the GRAY lamp to the left of **“Check Location”** button will turn to GREEN.

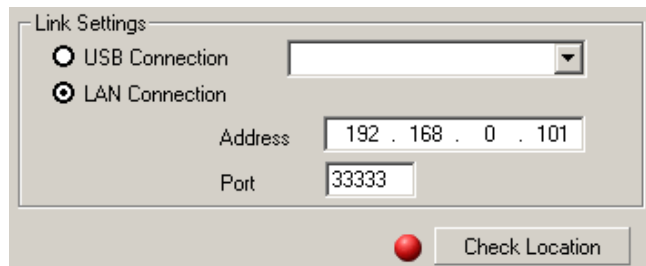
To abort **“Check Location”**, click **“Abort Check”** button.



When the connection to the PBX was not successful, a message dialog will appear.

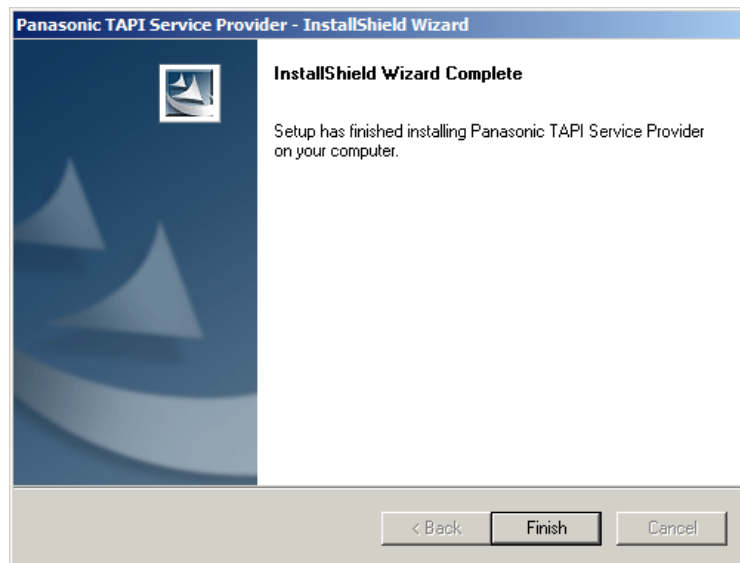


Then the GRAY lamp to the left of “**Check Location**” button will turn to RED lamp.

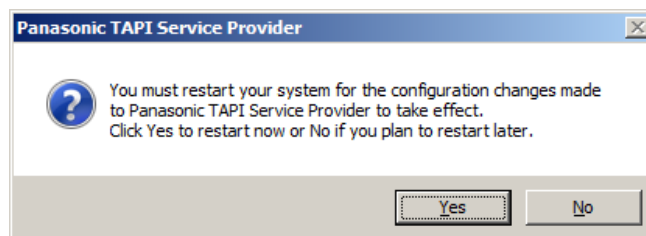


In this case, please make sure IP address and TCP port of PBX is correct and check network connection.

8. Click “**Finish**” to complete the installation.



9. Install program prompt user to reboot PC: Press “**Yes**” to reboot PC.



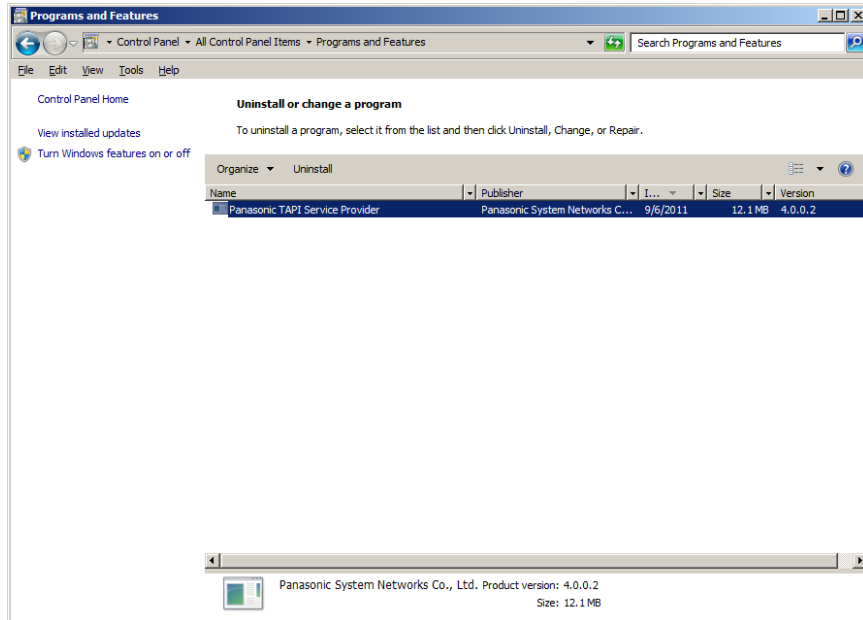
**Notes:**

During installation a default folder is created under <Program Files>\Panasonic\KX-TDA TSP.  
This folder contains a copy of End User License Agreement.

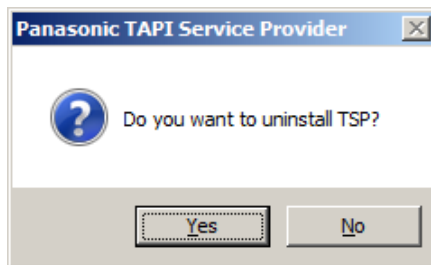
## 2.2. Uninstalling Panasonic TSP

### How to Uninstall TSP

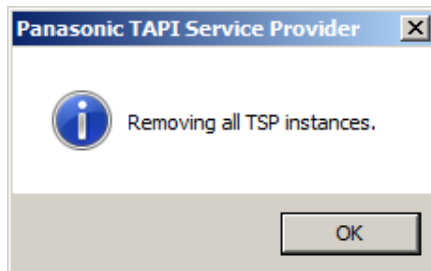
1. To do that, go to Control Panel, Programs and Features, select Panasonic TSP and click “Change/Remove” or “Uninstall/Change”.



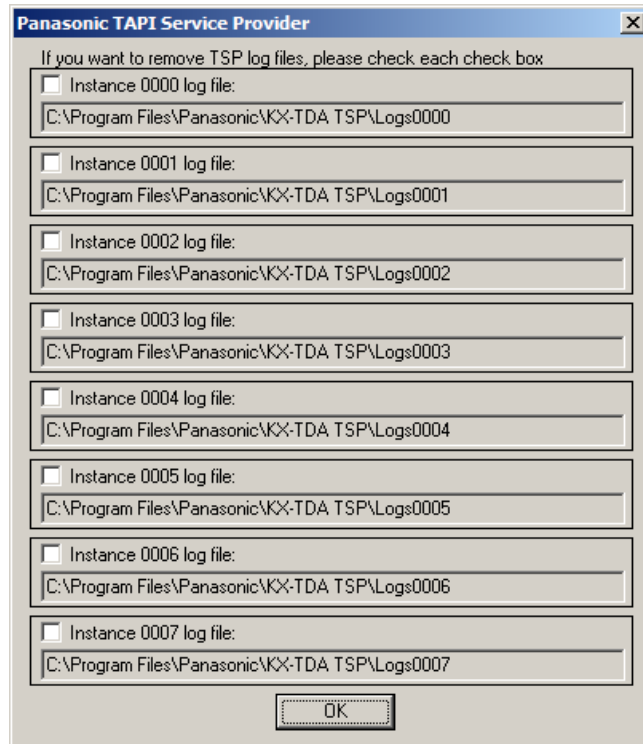
2. Click “Yes” to uninstall, or “No” to abort.



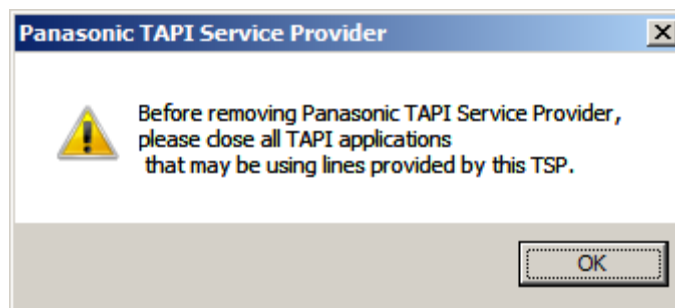
3. Click “OK” to continue.



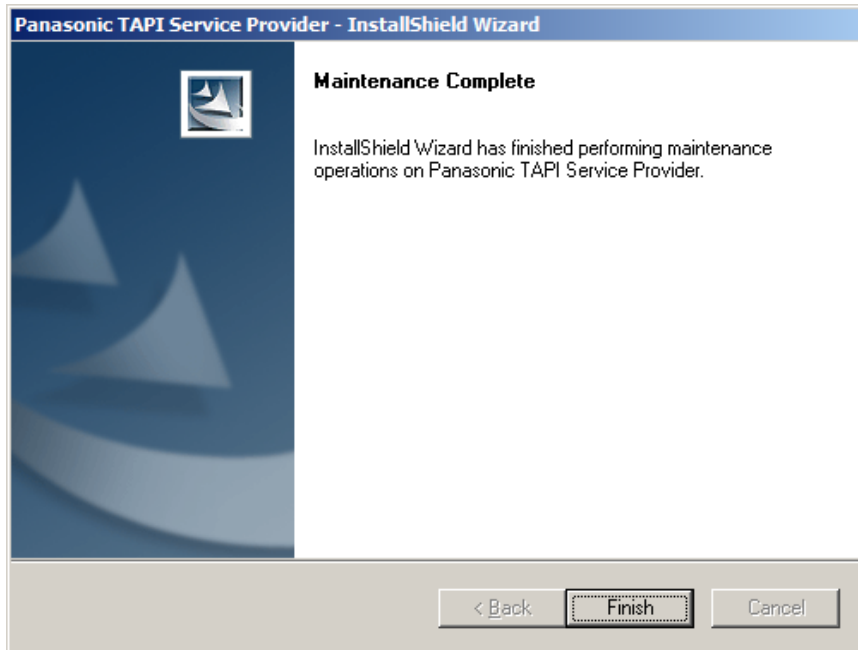
4. When you set Panasonic TSP to generate log, the following dialog is displayed. If you want to remove specified log files, check each check box and press “OK”.



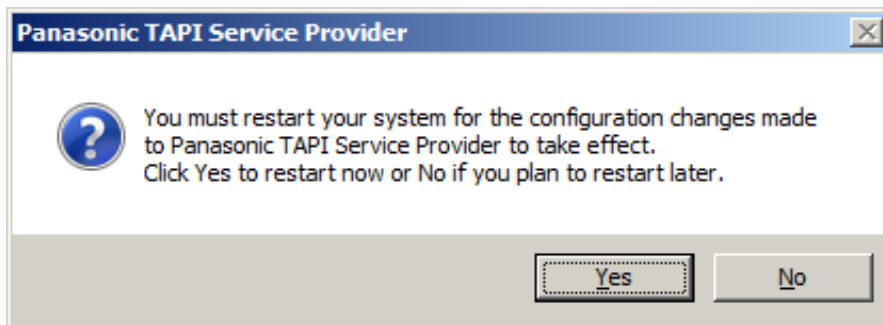
5. User is prompted to close any application that may use Panasonic TSP. Press “OK” to continue.



6. Click **“Finish”** to complete uninstalling.



7. User is prompted to restart computer. Press **“Yes”** to restart.





## 2.3. Overwrite Installing Panasonic TSP

### IMPORTANT

Overwrite installation by older version on new version is NOT possible.

If you want to use an older version, uninstall current version first.

Also overwrite installation from v3.3 or older is also NOT possible.

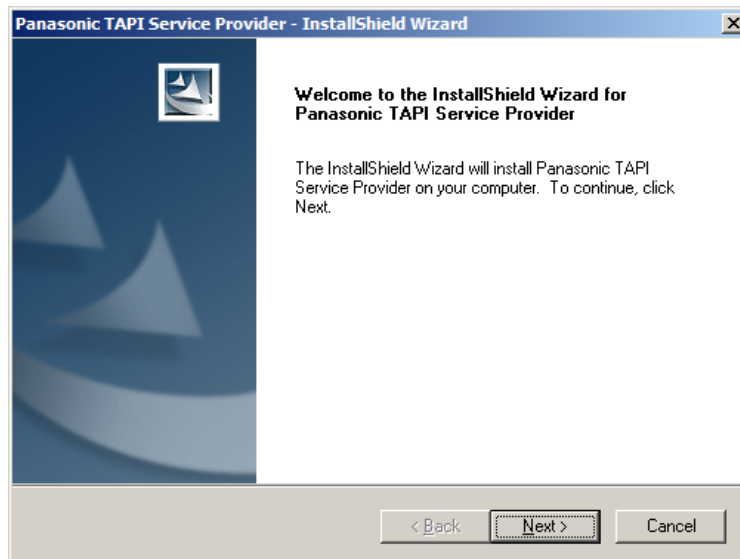
If you want to update the Panasonic TSP v3.3 or older one, uninstall the current version first.

### How to overwrite TSP

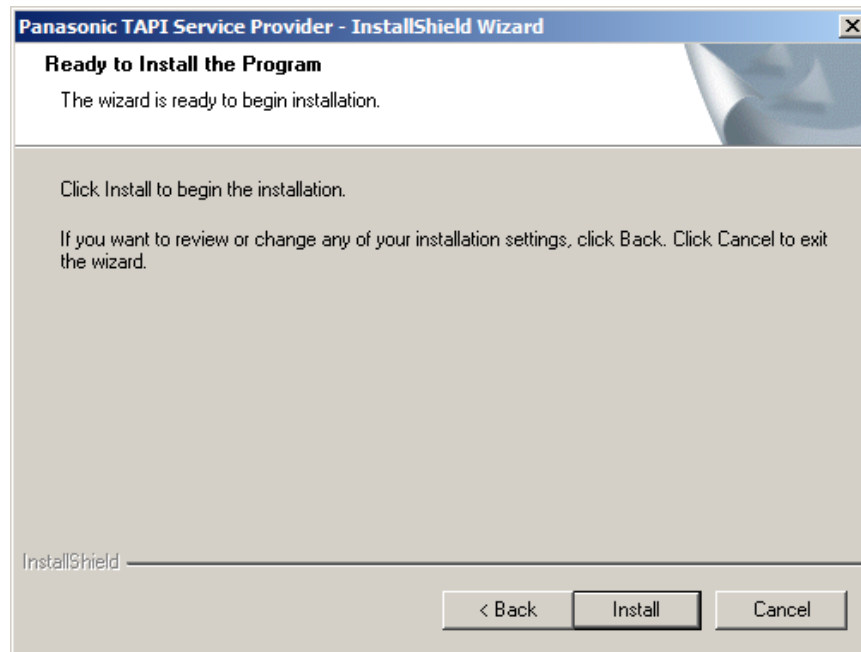
1. Double click a setup file of Panasonic TSP which you want to install newly on the PC that other version of TSP is already installed on.
2. Click “Yes” to continue the overwrite installation or “No” to abort.



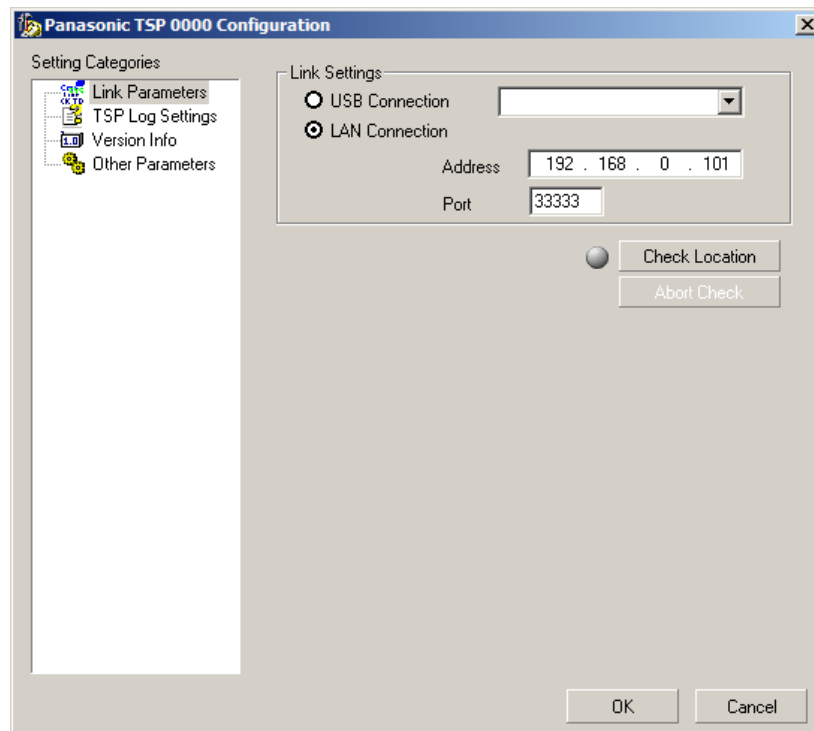
3. Click “Next” to continue the overwrite installation or “Cancel” to abort.



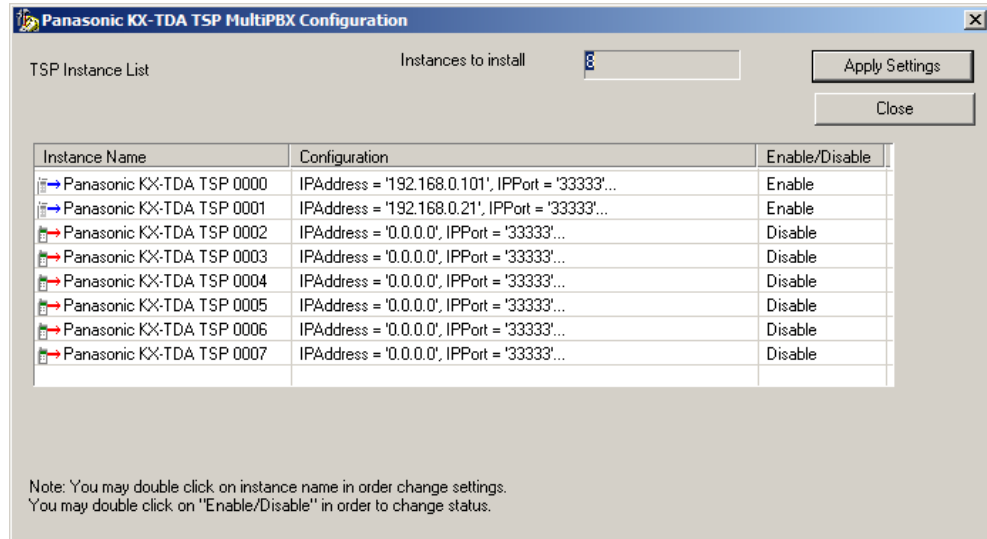
4. Click **“Install”** to start installation. Click **“Cancel”** to abort. Click **“Back”** to go back to previous step.



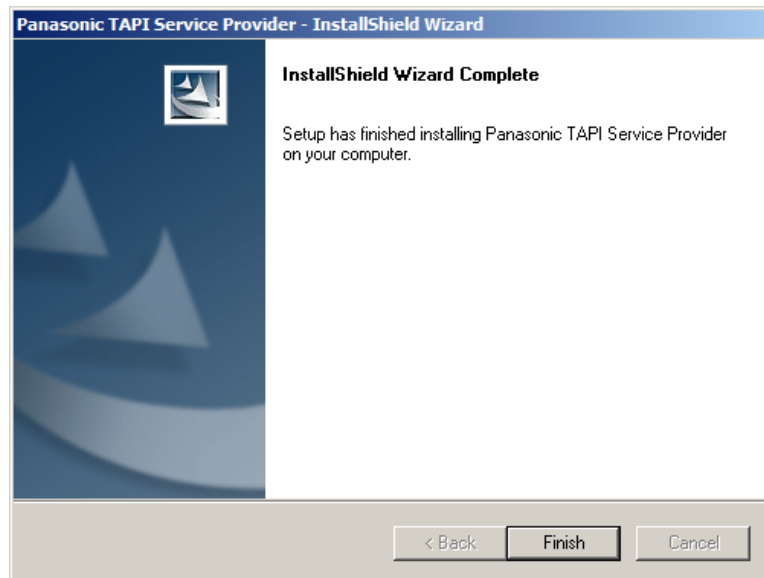
5. The following dialog is displayed. Previous configuration is taken over. Please refer to section 2 for the configuration. When you do not need to change the configuration, press **“OK”**.



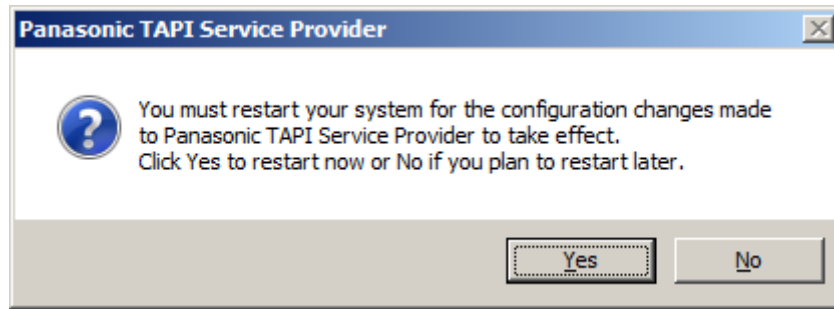
- If you had used multiple Panasonic TSP instances, the following dialog is displayed. Previous configuration is taken over. Please refer to section 3.5 for the configuration. When you do not need to change the configuration, press “**Apply Settings**”.



- Click “**Finish**” to complete the installation.



8. Install program prompts user to reboot PC. Press **“Yes”** to reboot PC.



# 3. TSP Settings

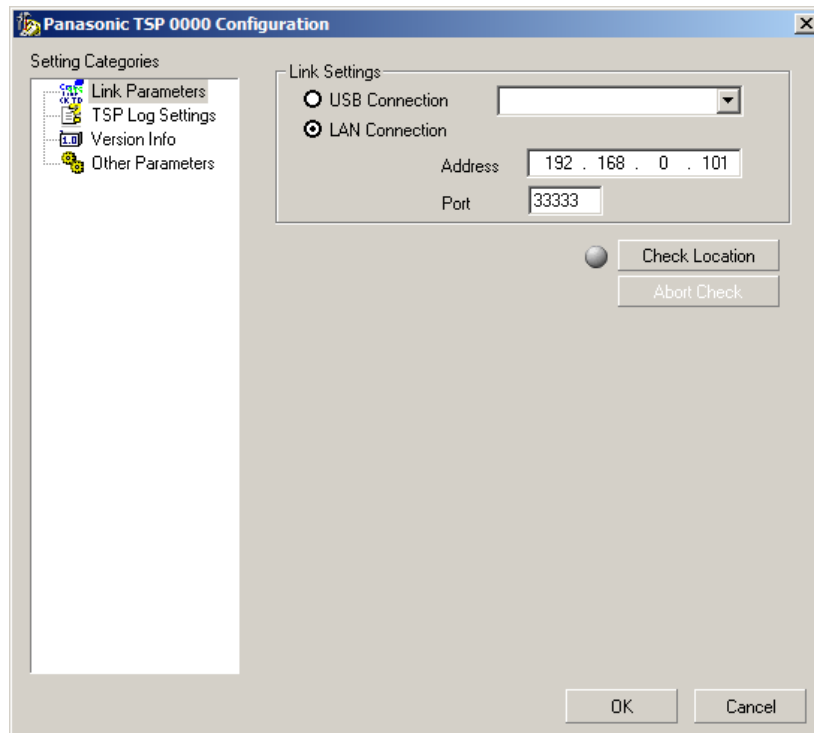
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To change TSP settings, Open "**Phone and Modem Options**" from Control Panel, and select "**Advanced**" tab.

Then select "**Panasonic TSP 0000**" and click "**Configure**" button.

## 3.1. Link Parameters

The "**Link parameters**" configures how Panasonic TSP will establish communication with the PBX.



### 3.1.1 LAN Connection

When Panasonic TSP uses LAN to communicate with the PBX, select “**LAN Connection**” and enter “**Address**” and “**Port**”.

“Address” is the IP address of the PBX in dot format, and “Port” is the TCP port which the PBX is listening to. .

<b>PBX</b>	<b>LAN Interface Card</b>
KX-NS1000	Mother board
KX-NCP500/1000	IPCMPR Card
KX-TDE100/200/600	IPCMPR Card
KX-TDA100/200/600	CTI Link Card
KX-TDA30/50	IP Gateway Card

Example of setting an IP address:

E.g.: Address=10.64.130.250    Port=33333

Link Settings

USB Connection

LAN Connection

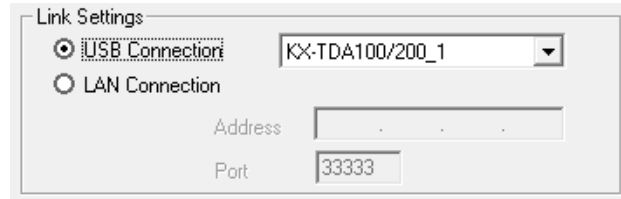
Address: 192 . 168 . 0 . 101

Port: 33333

Check Location

### 3.1.2 USB Connection

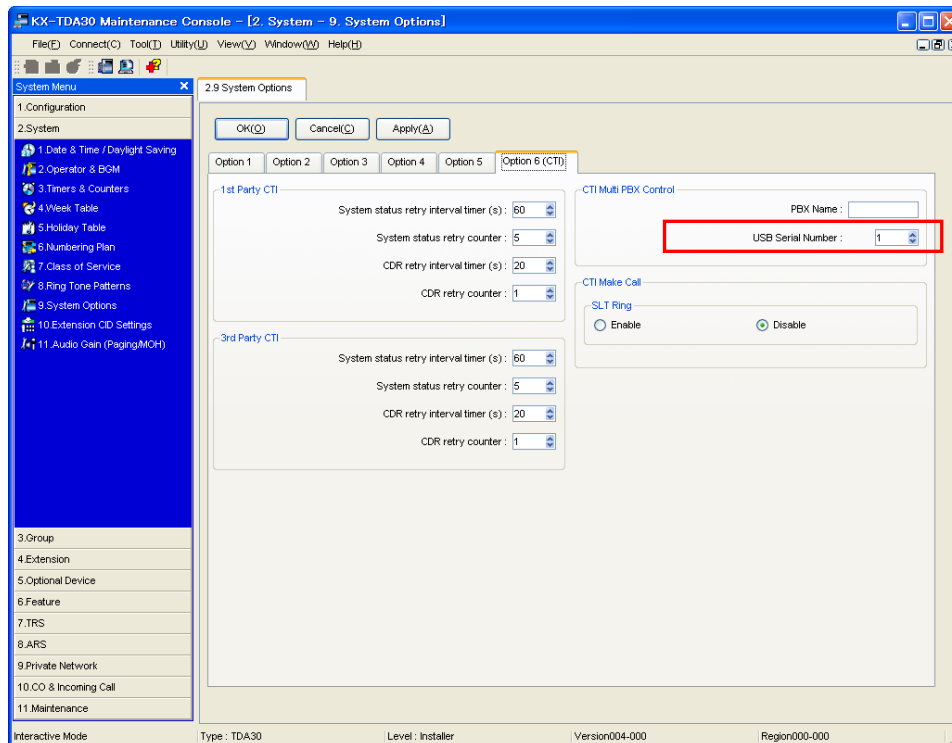
When Panasonic TSP uses USB to communicate with the PBX, select “USB Connection”.



**Remark:**

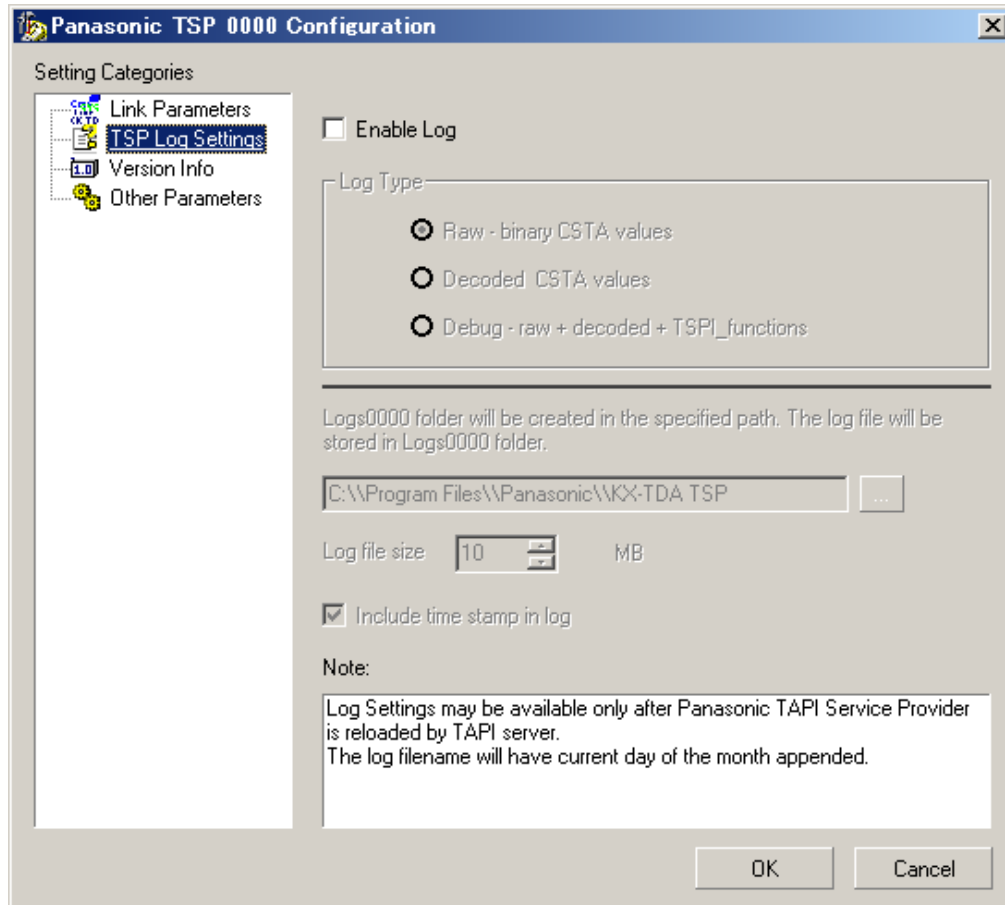
- 1) PBX software version 2.0 or later is required to use multi PBXs connection.
- 2) **USB driver Version 2.0.0.2 or later** is required to use multi PBX connection.
- 3) When you use two PBXs by USB connection, you need to assign unique USB serial number for each PBX by TDA Maintenance Console.  
( e.g. When USB Serial Number is "1", USB connection name will be "KX-TDA100/200\_1".  
When USB Serial Number is "2", USB connection name will be "KX-TDA100/200\_2".)

For KX-TDA series PBX, USB serial number setting menu on the Maintenance Console is on “2.System - 9.System Option - Option6 - CTI Multi PBX Control “(see following picture).



## 3.2. Log Settings

The “*TSP Log Settings*” configures how Panasonic TSP will output log.



### a. Log Type

Panasonic TSP has logging capabilities. TSP has 3 log levels:

- Raw : Contains only binary CSTA messages exchanged with PBX.
- Decoded CSTA values: Contains binary CSTA messages and their human readable form.
- Debug: Contains decoded CSTA messages as well as TSPI function calls and TSPI messages sent to TAPI. This is the most effective information to solve an irregularity.



**b. Log File Path**

logs<xxxx> folder is created in the path which user specified and log files are stored in the folder. Default path is <Program Files>\Panasonic\KX-TDA TSP.

The log file name will be composed of the base file name and 0 through 3.

(0->1->2->3->0->1->...)

When the 4 days passed the previous log files is overwritten.

Default of log file name is "KXTDAxxxxx (\*\*).txt. "\*\*\*" is 0 through 3.

**Note**

When overwrite installation is done, log file path setting is change back to default path.

**c. Log file size**

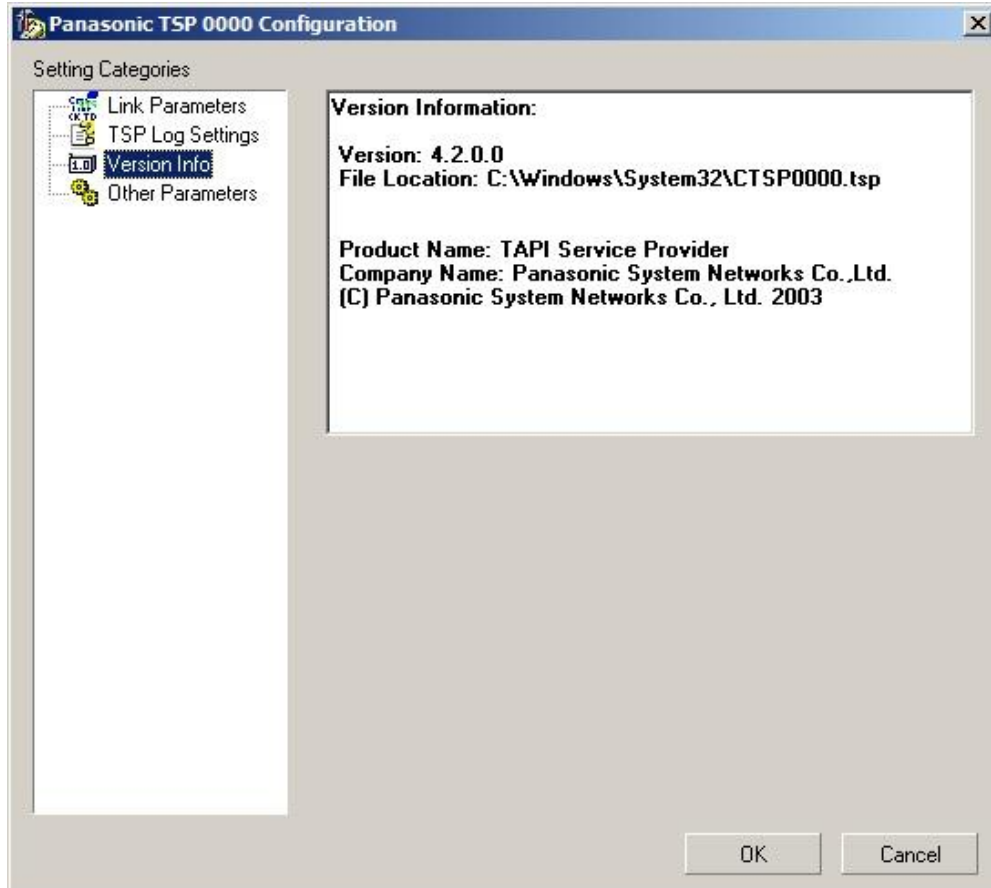
When log file size grows greater than established Log file size, then the log file is restarted from the beginning.

**d. Include time stamp in log**

By checking this box the log file will contain a time stamp for each operation logged.

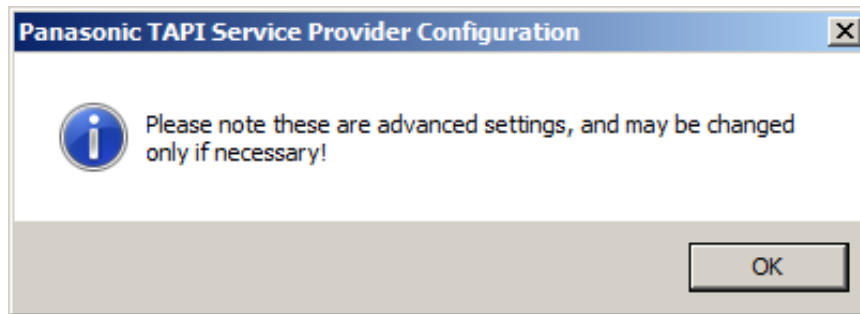
### 3.3. Version Info

The “**Version Info**” is **read only** and contains version information about the Panasonic TSP you are using.

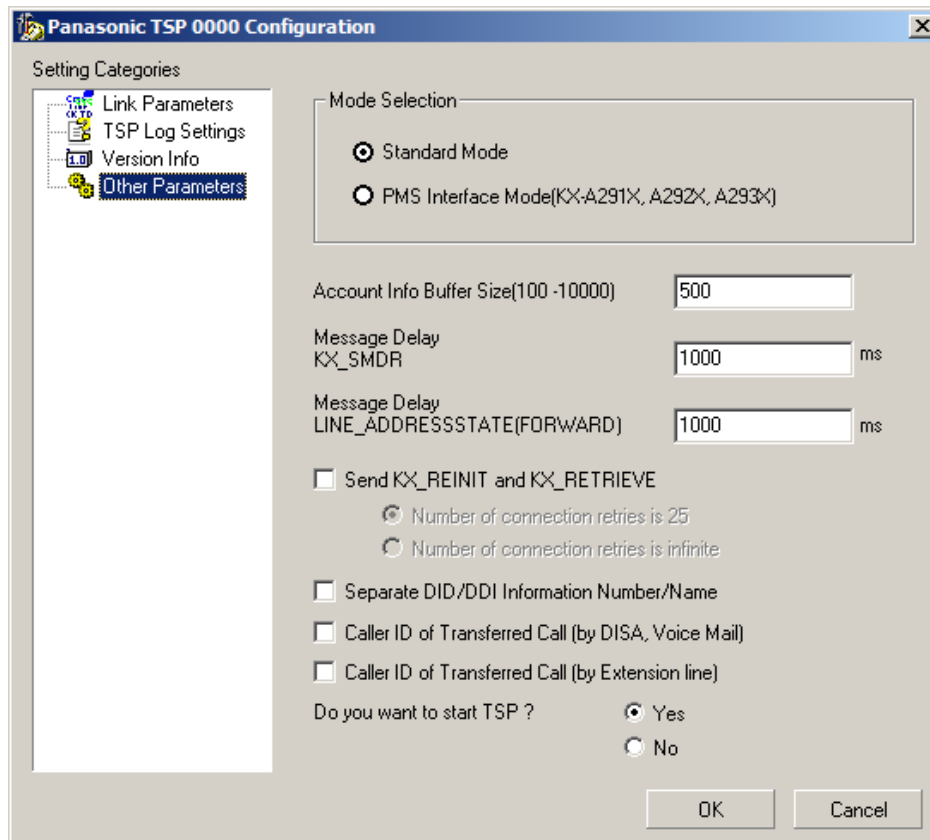


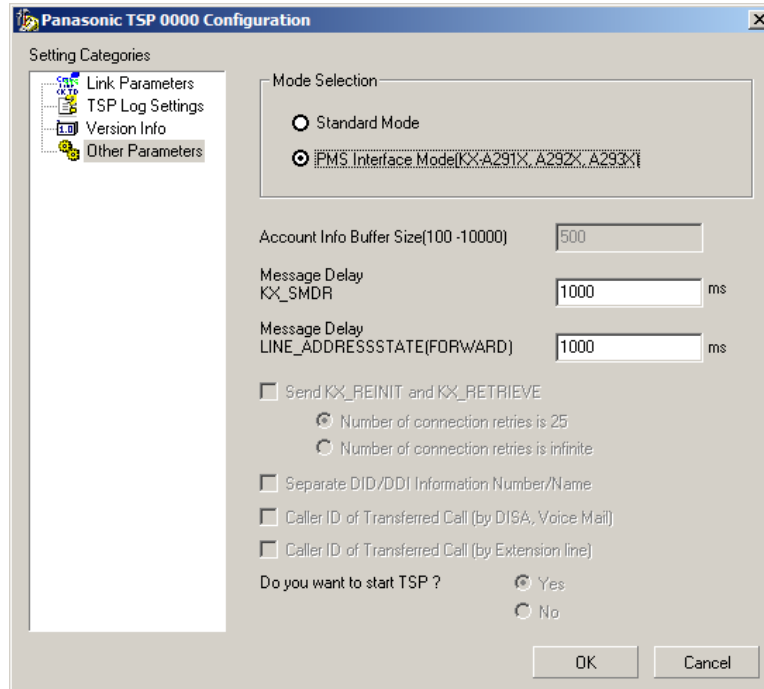
### 3.4. Other Parameters

When the “**Other Parameters**” option is selected, a message box will appear to inform the user that these settings are advanced and must be changed according to TAPI Application requirements.



The “**Other Parameters**” configures optional parameters.





Configurable parameters are as follows:

**a. Mode Selection**

- Standard Mode - TSP works in normal mode.
- PMS Interface Mode - TSP works in compatibility mode for Panasonic PMS Interface application.

Note:

- Multiple TSP instances are not available for “PMS Interface MODE”.
- When “PMSI Interface MODE” is selected, some of options are unavailable as dialog above.

**b. Account Info Buffer Size**

This parameter configures the number of account information records that the Panasonic TSP can store on the HDD. If Panasonic TSP cannot reserve its needed space to save on the HDD all account info records, then an error message will be displayed and Panasonic TSP will not start.

**c. Message Delay (KX\_SMDR)**

Panasonic TSP can be configured to queue LINE\_DEVSPECIFIC (KX\_SMDR) events sent to TAPI in order to let the application have enough time to process each event. Each line device that supports this kind of message has its own queue. It is recommended to use default value of 1000 ms.

**d. Message Delay LINE\_ADDRESSSTATE (LINEADDRESSSTATE\_FORWARD)**

Panasonic TSP can be configured to queue LINE\_ADDRESSSTATE (LINEADDRESSSTATE\_FORWARD) events sent to TAPI in order to let the application have enough time to process each event. Each line device that supports this kind of message has its own queue. It is recommended to use default value of 1000 ms.

**e. Send KX\_REINIT and KX\_RETRIEVE**

When this option is checked and TSP is in Standard MODE, in case if Panasonic TSP loses connection with PBX, it sends LINEDEVSPECIFIC (KX\_REINIT) and begins recovery procedure.

However, Panasonic TSP may fail recovery in some case. (e.g. "When PBX Setting changed between KX\_REINIT and KX\_RETRIEVE." etc.).

Call event is not notified while TSP sends KX\_REINIT event and KX\_RETRIVE event.

Otherwise Panasonic TSP sends LINE\_DEVSTATE (REINIT) and enters in an unknown condition waiting all Applications to reinitialize use of TAPI.

**f. Number of Connection Retries**

Number of Connection Retries is 25 - When Panasonic TSP loses connection with PBX, TSP tries to re-connect 25 times (same as previous version).

Number of Connection Retries is infinite - When Panasonic TSP loses connection with PBX, TSP tries to re-connect infinitely.

**g. DID/DDI Information Number/Name**

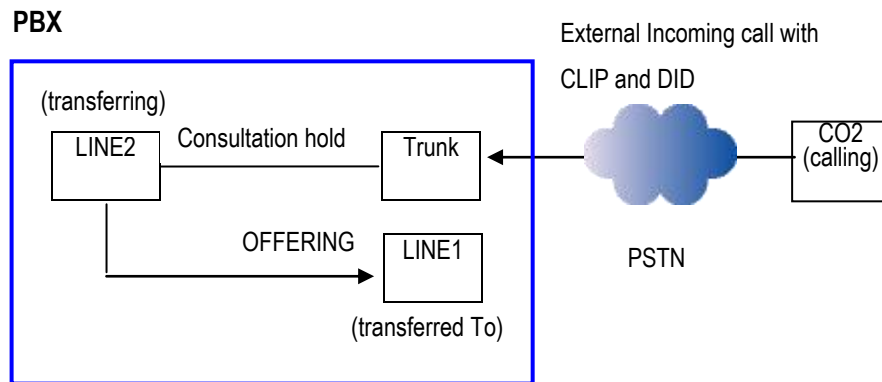
When this option is checked, Panasonic TSP fills CALLINFO.DEVSPECIFIC structure with DID/DDI number and name in separated format (the number is set into dwDIDDDISize/DIDDDIOffset area and the name is set into dwDIDDDINameSize/dwDIDDDINameOffset area).

Also CLIP information including CLIP Name in transferred call is set in separated format (the number of CLIP information is set into dwTranCLIPSize/ dwTranCLIPOffset area and name of CLIP information is set into dwTranCLIPNameSize/dwTranCLIPNameOffset area).

#### **h. Caller ID of Transferred Call (by DISA, Voice Mail)**

By checking this option, parameter value of LINECALLINFO.CallerID and CallerIDName for transferred to line (LINE1) becomes original callerID(CLIP) only when transferring line (LINE2) is DISA or voice unit for both screened and unscreened transfer.

When transferring line is other than DISA or voice unit, CallerID and CallerIDName parameter value is actual transferring line (LINE2).



#### **i. Caller ID of Transferred Call (by Extension Line)**

By checking this option, parameter value of LINECALLINFO.CallerID and CallerIDName for transferred to line (LINE1) becomes original callerID(CLIP) only when transferring line (LINE2) is an extension line for both screened and unscreened transfer.

Note : When a UT series SIP phone is used as transferring line, this option is not applied.

#### **j. Enable connection to TDA PBX “Do you want to start TSP ?”**

When Panasonic TSP and PBX Maintenance Console are set to connect to PBX by USB connection, both software cannot be used at the same time.

When Panasonic TSP is installed and computer is restarted, Windows may start Panasonic TSP automatically. Therefore, PBX Maintenance Console may not be started by installation of Panasonic TSP. For this reason, to start TSP or not, you can set the switch ("Yes" or "No") in "Do you want to start TSP?".

(1)In case of "Yes"

After computer is restarted, you can use TAPI Application. However, Panasonic TSP may be started automatically after computer restart and you may not be able to start PBX Maintenance Console.

(2)In case of "No"

After computer is restarted, you can use PBX Maintenance Console. However, you cannot start TAPI Application after computer restart.

Note:

All settings will take effect after the next restart of computer.

## 3.5. Settings for Multi-PBX Connection

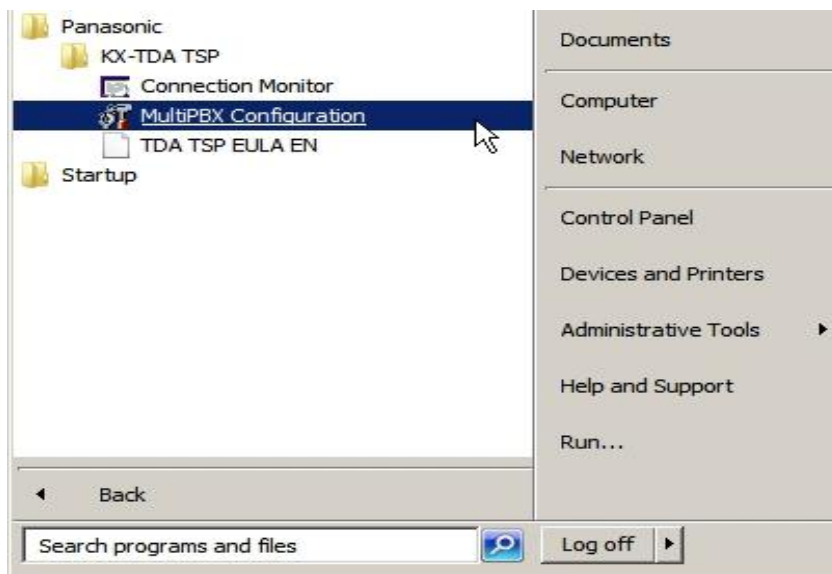
### 3.5.1. Before setting Multi-PBX Connection

This feature allows you to connect two or more PBXs.

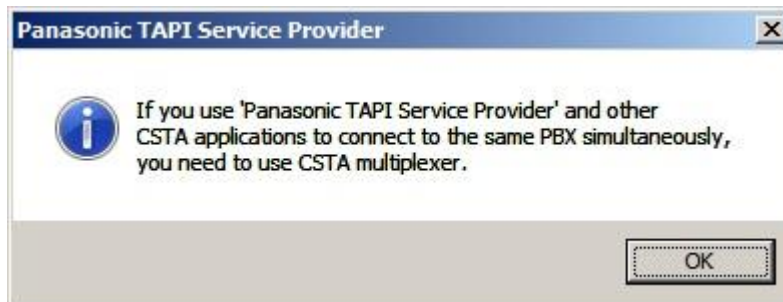
Before setting multi-PBX connection, install TSP for one PBX.

### 3.5.2. How to set Multi-PBX Connection

- 1 In order to start Panasonic TSP Multi-PBX Configuration, follow: “**Start->Program->Panasonic->KX-TDA TSP->MultiPBX Configuration**” like in the next image.

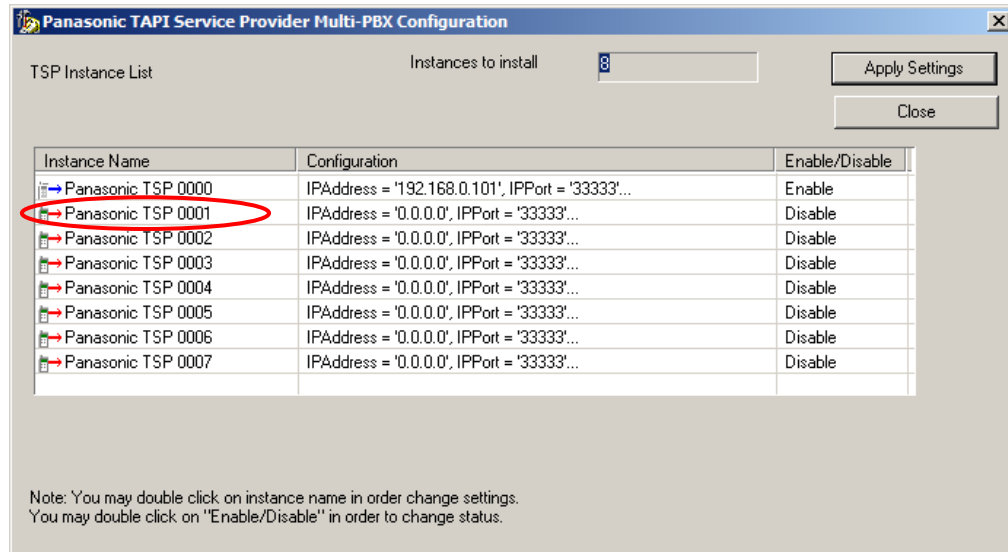


- 2 The following message will appear in order to note that TSP and CSTA Application cannot be used at the same time without CSTA Multiplexer. Press “**OK**” to continue.

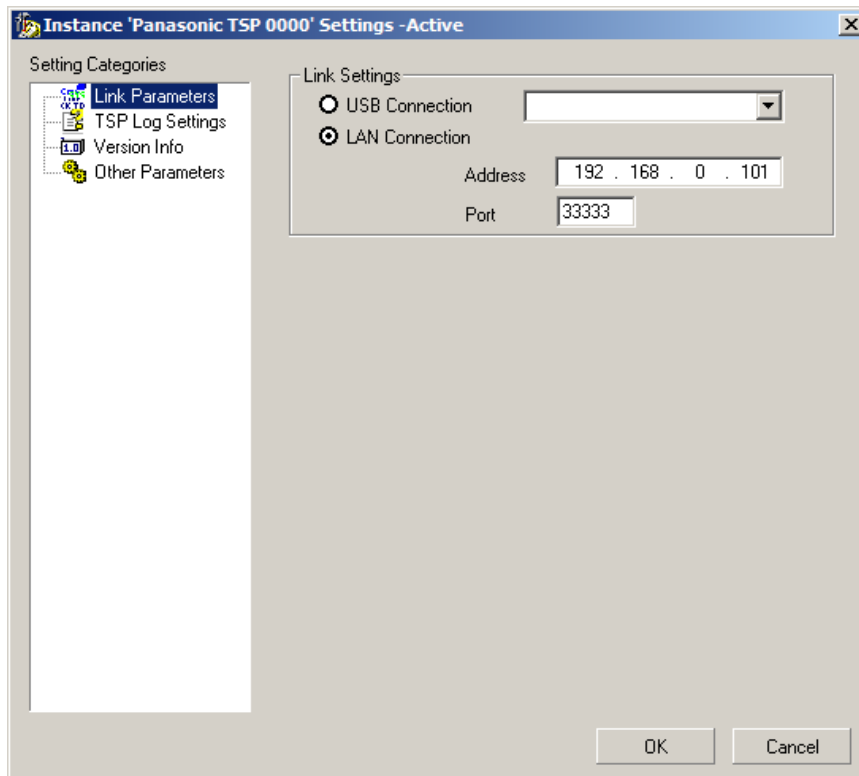




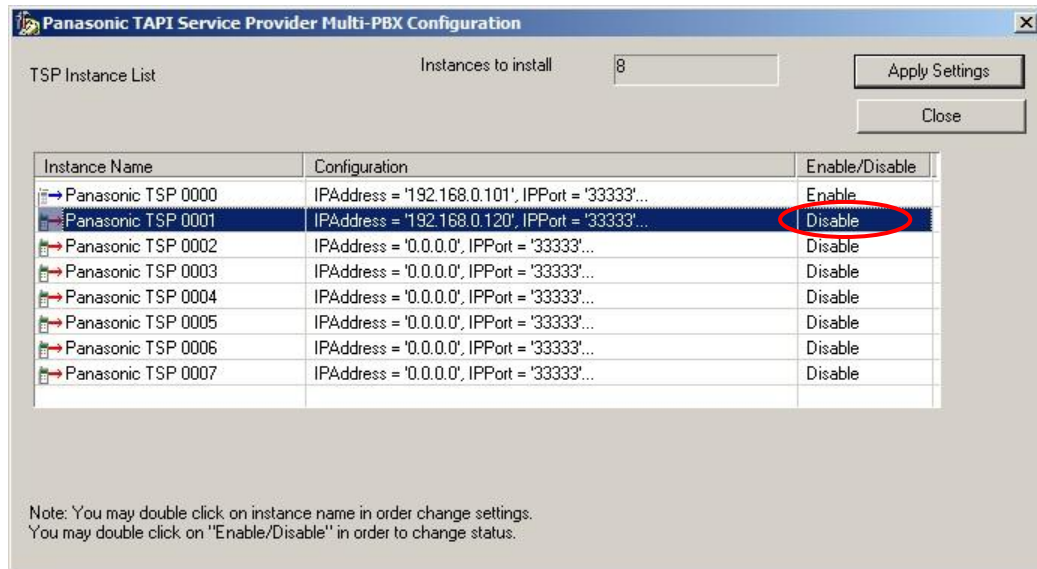
- 3 Select **“Panasonic TSP 0001”** and double click to configure a new TSP instance for second PBX. Then configuration dialog for the second PBX will appear.



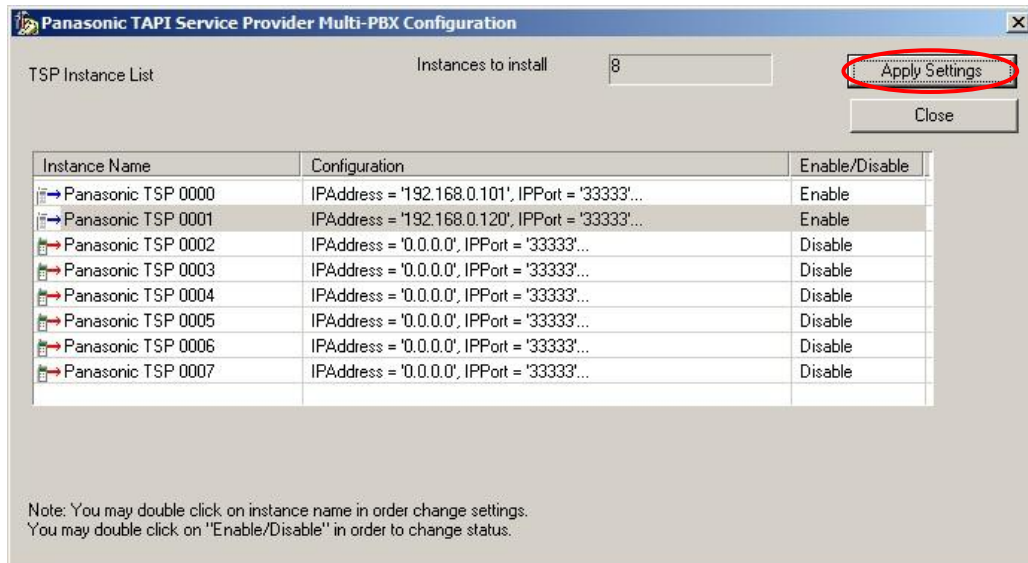
- 4 When **“Panasonic TSP 0001”** configuration dialog is opened, configure Link Settings in Link Parameters menu and press **“OK”**.



- 5 To enable the new TSP instance, double click “Disable” field of the instance.

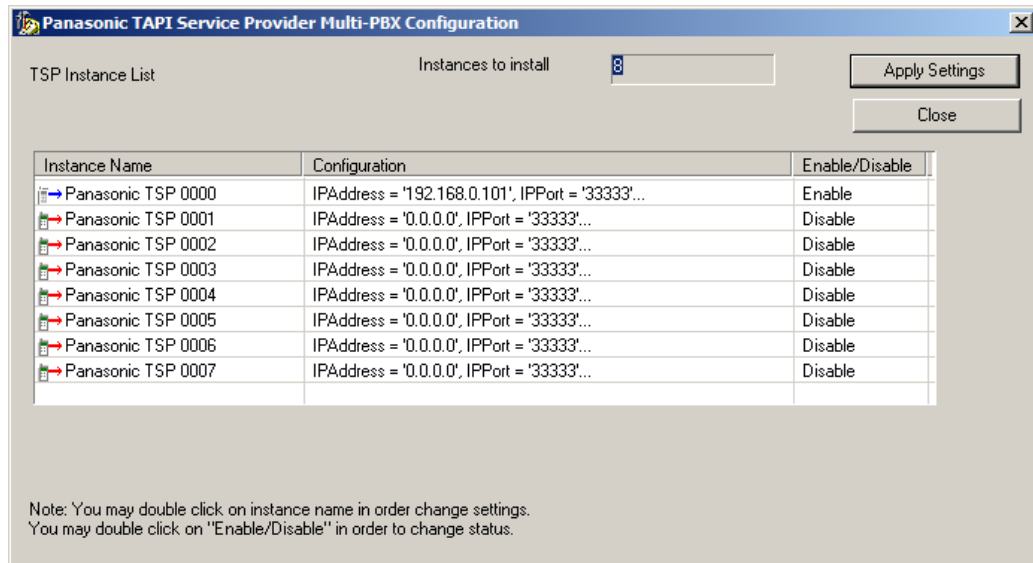


- 6 To save the settings, click “Apply Settings”.



- 7 Click “Close” to terminate Multi-PBX Configuration Tool. Then please **reboot the PC manually**.

### 3.5.3. Multi-PBX Configuration Dialog



TSP Instance list contains following information:

- "Instance Name" - This is TSP Instance Name same as Control Panel - Phone and Modems Options - Advanced displays.
- "Configuration" - Informative of configuration string.
- "Enable/Disable"
  - "Enable": TSP instance is registered with TAPI
  - "Disable": TSP instance is unregistered with TAPI.

At startup this field contains current registration status of TSP Instance. "Enable": TSP instance is registered with TAPI. "Disable": TSP instance is not registered with TAPI.

Multi-PBX Configuration Tool allows to:

- Specify parameters of each instance
- Register/Unregister each TSP instance with TAPI (Telephony System).

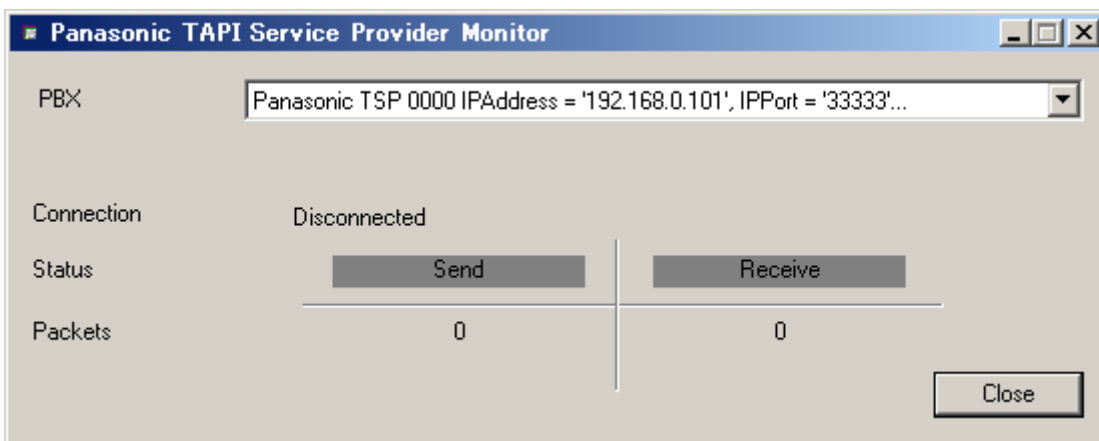
# Annex A

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## TSP Connection Monitor Tool

This tool is provided to show PBX connection status of each TSP instance.

You may use provided shortcut under “**Start Menu-> Programs-> Panasonic-> KX-TDA TSP -> Connection Monitor.**”



Use “PBX” combo box to select TSP instance which you want to see the status.

Connection may be:

Now Connecting – TSP instance is initializing connection with PBX.

Connected - TSP instance is connected with PBX. It is possible to control/monitor with TAPI application(s).

Disconnected – TSP instance is not communicating with PBX.

Not Registered with TAPI – TSP instance is not registered in TAPI (Telephony System).

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