Using AIS Server with ShipPlotter Guide

Contents

Overview of AIS Server

AIS Server is a software tool for a wide range of AIS (Automatic Identification System) users.

AIS Server connects AIS network nodes (AIS base stations/transponders/receivers, AIS services/clients, databases, and/or networks) and allows AIS messages to easily and efficiently flow from one node to another. It connects at least two nodes and sends each AIS message based on the current configuration of the nodes. You configure AIS Server to pass along certain messages to certain nodes on a network. AIS Server can also store all received AIS messages in the databases or text files.

SiiTech has developed a modular and scalable AIS Server solution that meets the needs of all kinds of AIS users. For shore-based networks, AIS Server enables the flow of information from one or more isolated base stations to a Vessel Traffic Services (VTS) centre. With AIS Server all VTS centers may be joined in a regional or national AIS network. The distribution of AIS data (standard and proprietary messages) from one central location to shared locations makes AIS Server essential in many diverse environments.

AIS Server performs a number of functions when data is passed into it; unlike hardware routers found on the internet that simply pass information from one network to another. AIS Server can filter data as it is received, and does not necessarily forward all received information. Nodes are allowed to forward and/or accept messages on a case by case basis. Proprietary message handling capability allows SiiTech to offer complete customization of AIS Server to meet your specific needs.

The future of your network is dependant on the flow of information from all nodes (AIS transponders/receivers, users, databases, and/or networks). AIS Server provides a reliable flow of AIS data to your environment that is flexible and highly configurable.

AIS Server designed to perform the following functions:

- Receiving AIS messages from AIS transponders/receivers through serial ports
- Receiving AIS messages from AIS transponders/receivers using TCP/IP protocol (e.g. through the Internet)
- Sending AIS messages to AIS transponders through serial ports
- Sending AIS messages to AIS transponders using TCP/IP protocol (e.g. through the Internet)
- Sending AIS messages to other AIS servers or clients using TCP/IP protocol (e.g. through the Internet)
- Supporting multiple TCP server/client connections
- Supporting multiple serial port connections
- Filtering AIS messages by IP addresses of clients
- Filtering AIS messages by MMSI numbers
- Filtering AIS messages by geographical coordinates (latitude/longitude)
- Saving AIS messages into the database or text file without any time or size limits
- Ability to work as a service (e.g. when a computer is rebooted AIS Server starts automatically)

Starting AIS Server

To launch AIS Server, you can use a shortcut on the desktop and simply double-click onto this shortcut or choose it from the Windows Start menu.
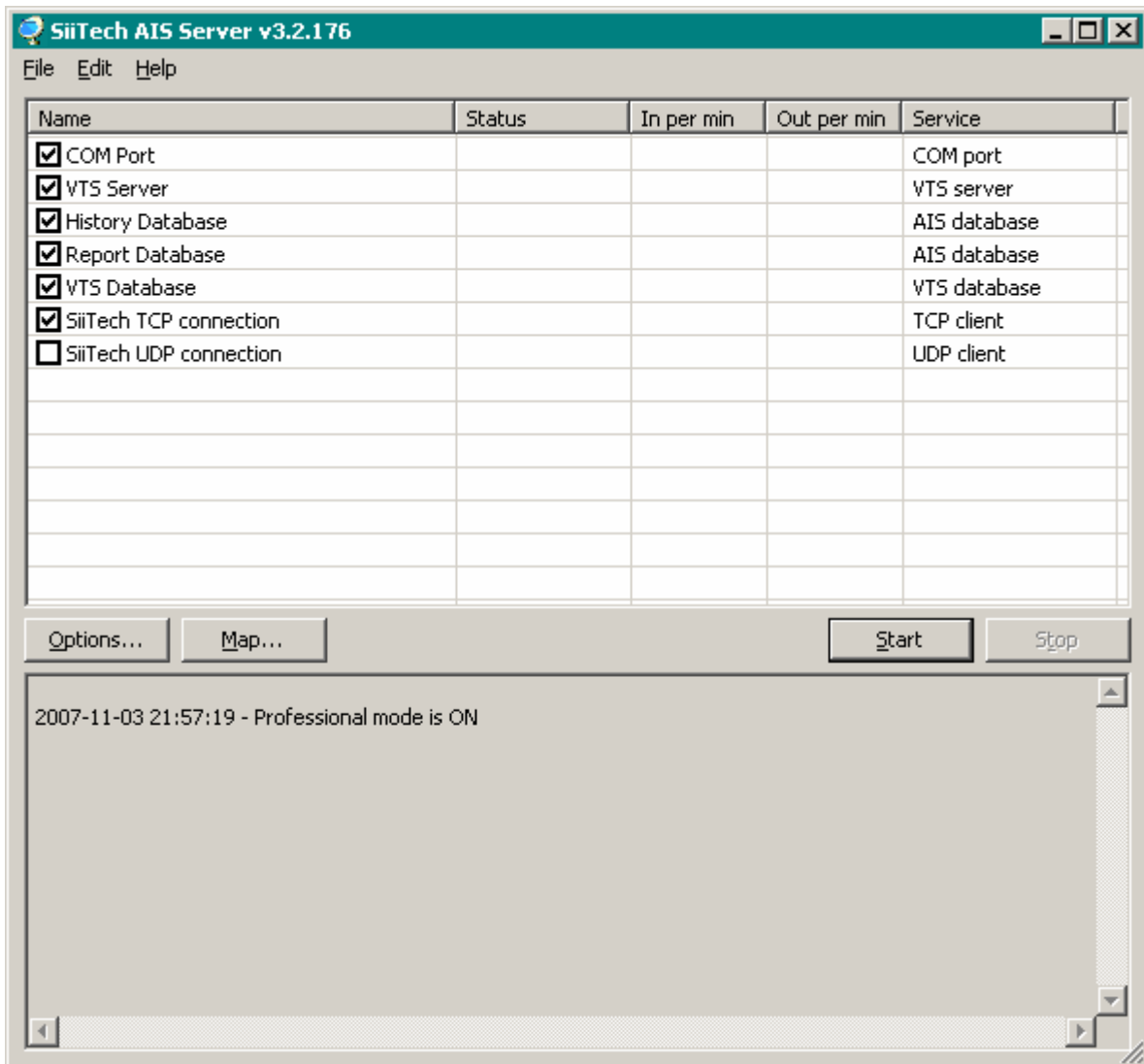
AIS Server consists of the following services (processes):

- **COM Port service**   Communicates with AIS devices through a serial port.
- **TCP/UDP Server service**   Receives AIS data from different sources and redistributes AIS data to different consumers through TCP or UDP protocol. This process waits for clients and serves them.
- **TCP/UDP Client service**   Receives AIS data from different sources and redistributes AIS data to different consumers through TCP or UDP protocol. This process establishes connection to servers and communicates with them.
- **Message Logger service**   Stores AIS messages received by COM Port service or TCP/UDP Server/Client service to the text file.
- **VTS Server service**   Provides real-time AIS data to Web VTS.
- **AIS Database service**   Stores AIS messages received by COM Port service or TCP/UDP Server/Client service to AIS Server database(s).

- **VTS Database service**   Generates and stores in the Web VTS database alarm events based on ship location or speed. Send safety messages. Sends virtual Aids to Navigation (AtoN) messages (only with AIS Base stations).

A service is a background process executed by AIS Server.

- You may enable or disable services by clicking a check box in front of their names.
- You may edit service's settings by double-click on the service name.
- You may delete services by choosing the service's name and selecting **Edit > Delete** from the main menu.

Configuring AIS Server for communicating with ShipPlotter

You must stop the AIS Server before making any changes in the configuration. To stop AIS Server, press the **Stop** button. After you complete your changes press the **Start** button to resume AIS Server's work.

Receiving AIS data from ShipPlotter using UDP protocol

Configure AIS Server:

1. Create a **TCP/UDP Server service** (select **Edit > New TCP/UDP Server…** from the main menu).
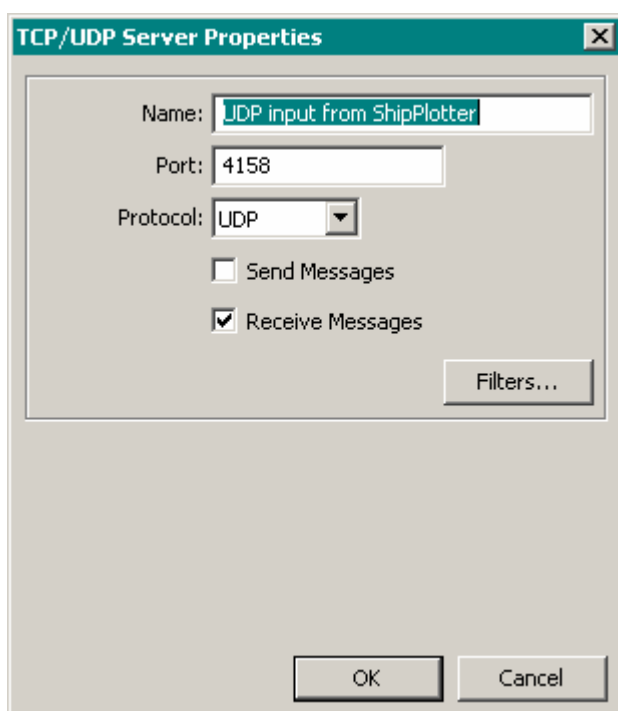
2. Click in the **Name** text box and enter **UDP input from ShipPlotter** as the name of the service.
3. Enter **4158** in the **Port** text box. This port number must also be selected in ShipPlotter (see below).
4. Select **UDP** in the **Protocol** list box.
5. Uncheck the **Send Messages** check box to disable sending AIS messages to ShipPlotter.
6. Check the **Receive Messages** check box to allow receiving AIS messages from ShipPlotter.
7. Press **OK** to save the settings.
8. Press **Start** to start AIS Server.

Configure ShipPlotter:

1. Open the **Input / output** dialog (select **Options > I/O settings** from the main menu).
2. Under the **UDP/IP peer-to-peer output** section:
   - Check the **Enable** check box.

- Enter **127.0.0.1** in the **Remote IP** text box.
- Enter **4158** in the **Remote port** text box.

3. Press **OK** to save the settings.
4. Press **Start** to start ShipPlotter.

Sending AIS data to ShipPlotter using UDP protocol

Configure AIS Server:

1. Create a **TCP/UDP Client service** (select **Edit > New TCP/UDP Client…** from the main menu).

2. Click in the **Name** text box and enter **UDP output to ShipPlotter** as the name of the service.
3. Enter **127.0.0.1** in the **Host** text box.
4. Enter **4159** in the **Port** text box. This port number must also be selected in ShipPlotter (see below).
5. Select **UDP** in the **Protocol** list box.
6. Check the **Send Messages** check box to allow sending AIS messages to ShipPlotter.
7. Uncheck the **Receive Messages** check box to disable receiving AIS messages from ShipPlotter.
8. Press **OK** to save the settings.
9. Press **Start** to start AIS Server.

Configure ShipPlotter:

1. Open the **Input / output** dialog (select **Options > I/O settings** from the main menu).
2. Under the **UDP/IP peer-to-peer input** section:
   - Check the **enable** check box.
   - Enter **4159** in the **Local port** text box.

Input/output

Input

Audio input
☐ enable audio input processing

UDP/IP peer-to-peer input
☑ enable   Local port 4159

Local GPS input
                    port   rate
☐ enable   2   4800

Serial input
        enable   port   rate
☐ NMEA 1   1   38400
☐ NMEA 2   -1   38400
☐ NMEA 3   -1   38400
☐ NMEA 4   -1   38400

TCP/IP input
☐ Server   Local port 5415

☐ Client   Remote port 5419
Remote IP 127.0.0.1

Output

Audio output

Serial output
        enable   port   rate
☐ NMEA   2   4800

Google Earth server
☐ enable Google Earth server
local HTTP port   4185

UDP/IP peer-to-peer output
Enable   Remote IP   Remote port
☐   127.0.0.1   4158
☐   127.0.0.1   4158
☐   127.0.0.1   4158
☐   127.0.0.1   4158

HTTP output server
☐ Enable   Local port 4189

Memory map output
☐ Enable output to Memory Map

MultiMap output
☐ Display designated ship in MultiMap

Log files
☑ Log text file   ☐ Log hex file

Interprocess notification
☐ Enable

Cancel   OK

3. Press **OK** to save the settings.
4. Press **Start** to start ShipPlotter.

Sending AIS data to ShipPlotter using TCP protocol (Method 1: AIS Server is a TCP client, ShipPlotter is a TCP server)

Configure AIS Server:

1. Create a **TCP/UDP Client service** (select **Edit > New TCP/UDP Client…** from the main menu).
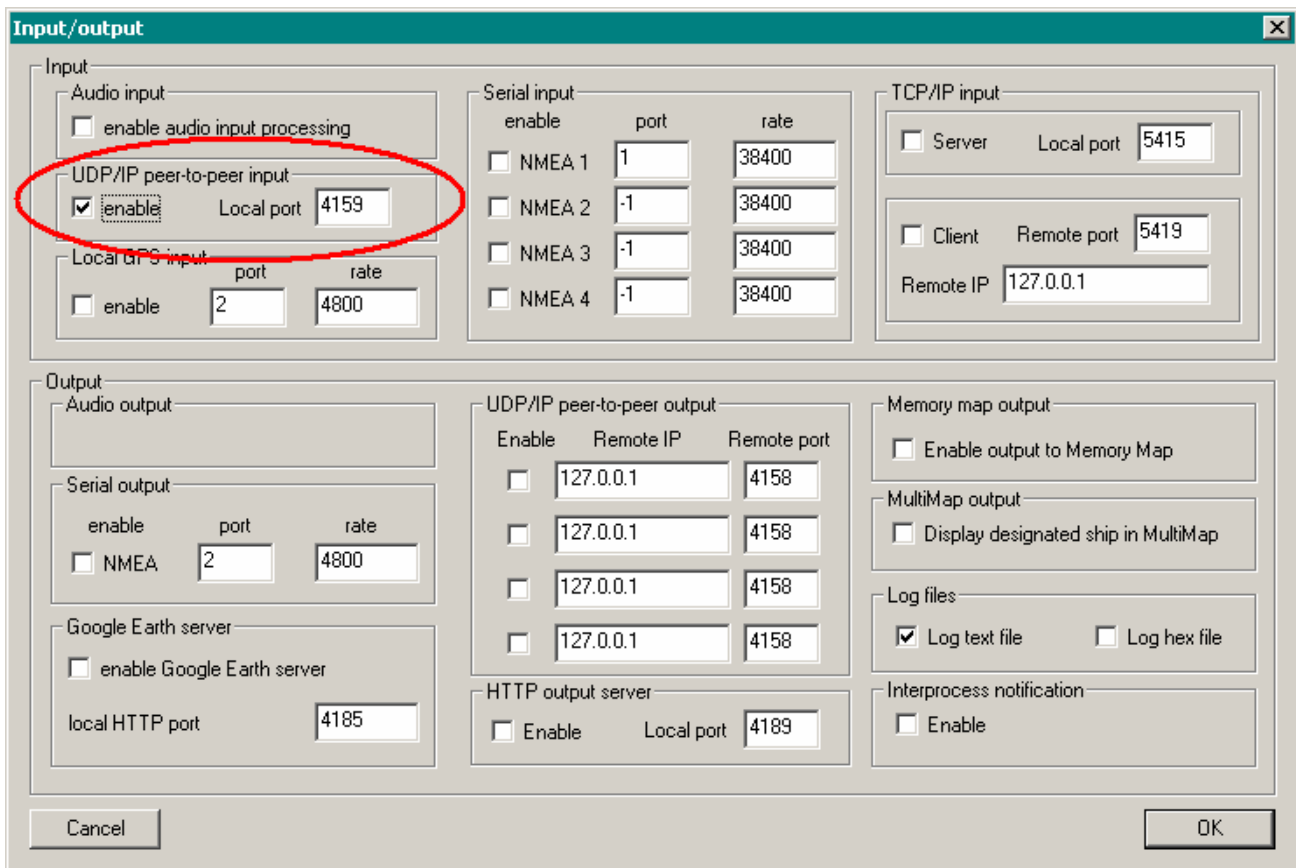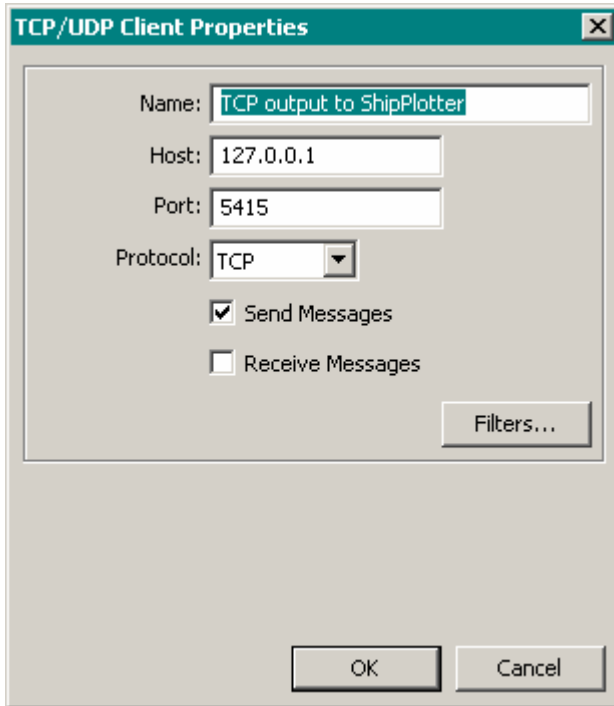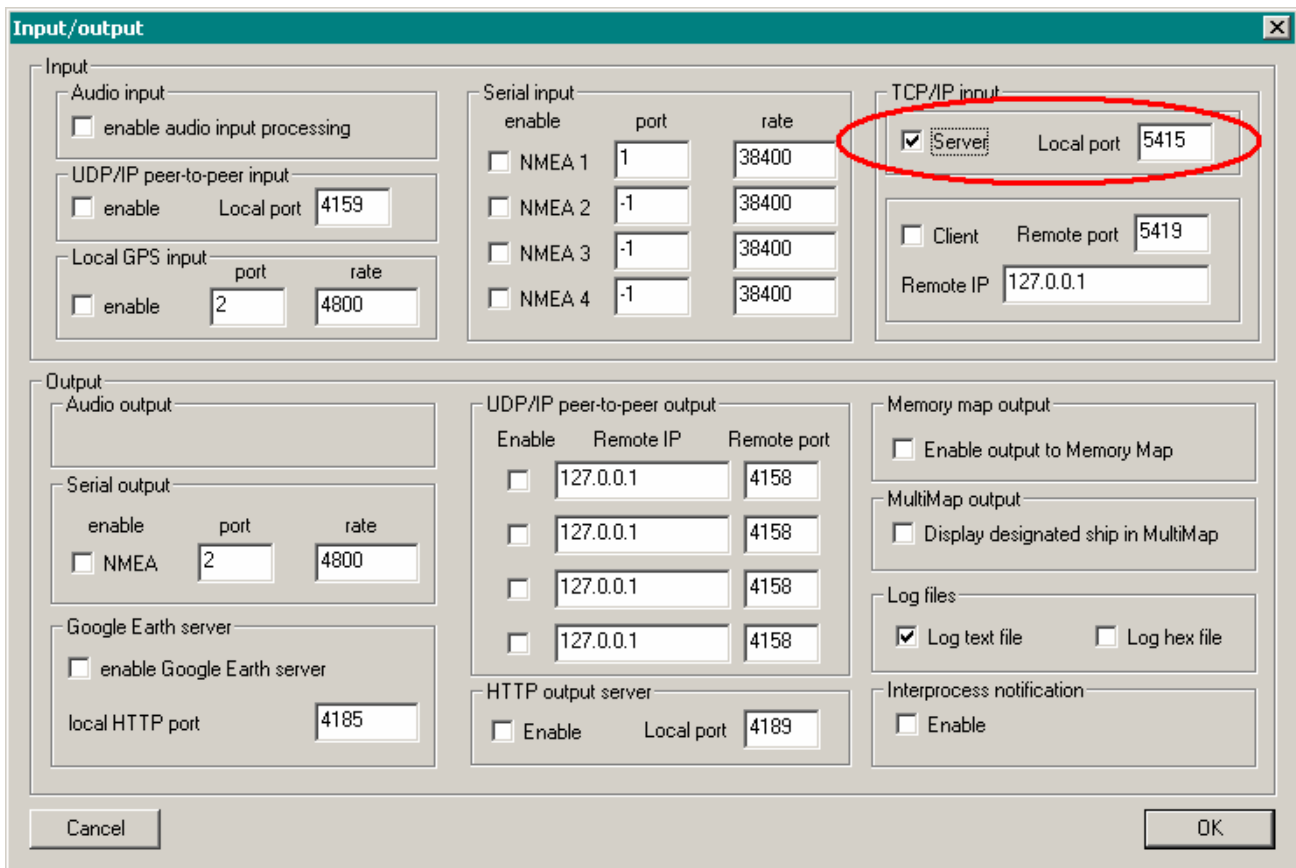

2. Click in the **Name** text box and enter **TCP output to ShipPlotter** as the name of the service.
3. Enter **127.0.0.1** in the **Host** text box.
4. Enter **5415** in the **Port** text box. This port number must also be selected in ShipPlotter (see below).
5. Select **TCP** in the **Protocol** list box.
6. Check the **Send Messages** check box to allow sending AIS messages to ShipPlotter.
7. Uncheck the **Receive Messages** check box to disable receiving AIS messages from ShipPlotter.
8. Press **OK** to save the settings.
9. Press **Start** to start AIS Server.

Configure ShipPlotter:

1. Open the **Input / output** dialog (select **Options > I/O settings** from the main menu).
2. Under the **TCP/IP input** section:
   - Check the **Server** check box.
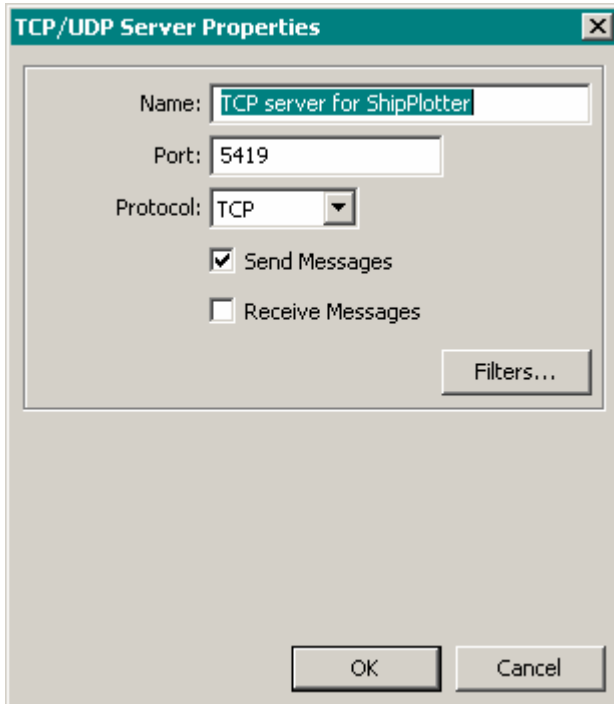   - Enter **5415** in the **Local port** text box.

3. Press **OK** to save the settings.
4. Press **Start** to start ShipPlotter.

Sending AIS data to ShipPlotter using TCP protocol (Method 2: AIS Server is a TCP server, ShipPlotter is a TCP client)
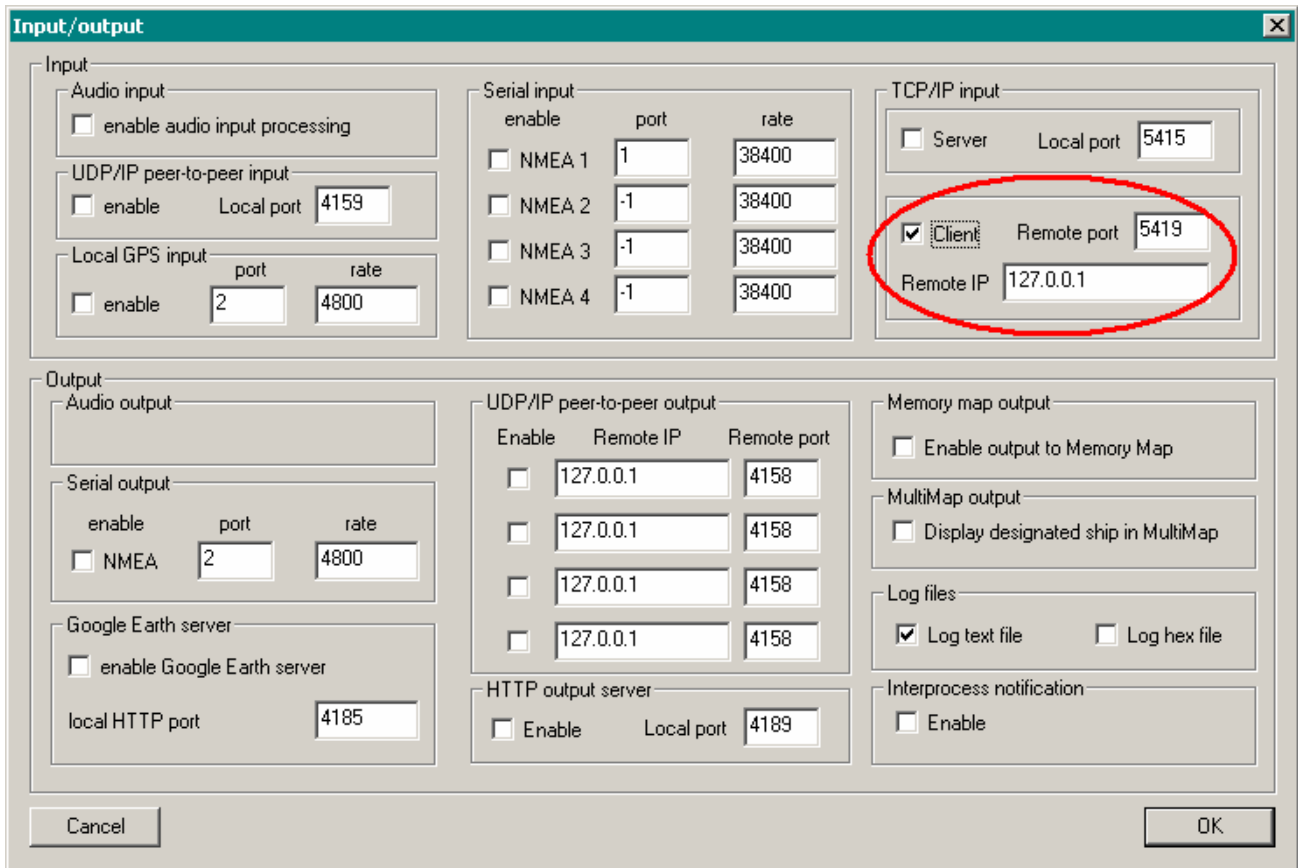
Configure AIS Server:

1. Create a **TCP/UDP Server service** (select **Edit > New TCP/UDP Server…** from the main menu).

2. Click in the **Name** text box and enter **TCP server for ShipPlotter** as the name of the service.
3. Enter **5419** in the **Port** text box. This port number must also be selected in ShipPlotter (see below).
4. Select **TCP** in the **Protocol** list box.
5. Check the **Send Messages** check box to allow sending AIS messages to ShipPlotter.
6. Uncheck the **Receive Messages** check box to disable receiving AIS messages from ShipPlotter.
7. Press **OK** to save the settings.
8. Press **Start** to start AIS Server.

Configure ShipPlotter:

1. Open the **Input / output** dialog (select **Options > I/O settings** from the main menu).
2. Under the **TCP/IP input** section:
   - Check the **Client** check box.
   - Enter **5419** in the **Remote port** text box.
   - Enter **127.0.0.1** in the **Remote IP** text box.

Input/output

Input

Audio input
☐ enable audio input processing

UDP/IP peer-to-peer input
☐ enable   Local port 4159

Local GPS input
    port   rate
☐ enable 2   4800

Serial input
    enable   port   rate
☐ NMEA 1 1   38400
☐ NMEA 2 -1   38400
☐ NMEA 3 -1   38400
☐ NMEA 4 -1   38400

TCP/IP input
☐ Server   Local port 5415

☑ Client   Remote port 5419
Remote IP 127.0.0.1

Output

Audio output

Serial output
    enable   port   rate
☐ NMEA 2   4800

Google Earth server
☐ enable Google Earth server
local HTTP port   4185

UDP/IP peer-to-peer output
Enable   Remote IP   Remote port
☐ 127.0.0.1   4158
☐ 127.0.0.1   4158
☐ 127.0.0.1   4158
☐ 127.0.0.1   4158

HTTP output server
☐ Enable   Local port 4189

Memory map output
☐ Enable output to Memory Map

MultiMap output
☐ Display designated ship in MultiMap

Log files
☑ Log text file   ☐ Log hex file

Interprocess notification
☐ Enable

Cancel   OK

3. Press **OK** to save the settings.
4. Press **Start** to start ShipPlotter.

Sending AIS data to SiiTech Web VTS service

To watch your ships on SiiTech Web VTS (www.siitech.net/vts or www.siitech.net/vtslite) you may send your AIS data to SiiTech Web VTS service.

Sending AIS data from ShipPlotter to SiiTech Web VTS (Method 1)

Step 1: Configure AIS Server and ShipPlotter for sending AIS data from ShipPlotter to AIS Server. See "Receiving AIS data from ShipPlotter using UDP protocol" chapter for more information.

Step 2: Configure AIS Server:

1. Create a **TCP/UDP Client service** (select **Edit > New TCP/UDP Client…** from the main menu).
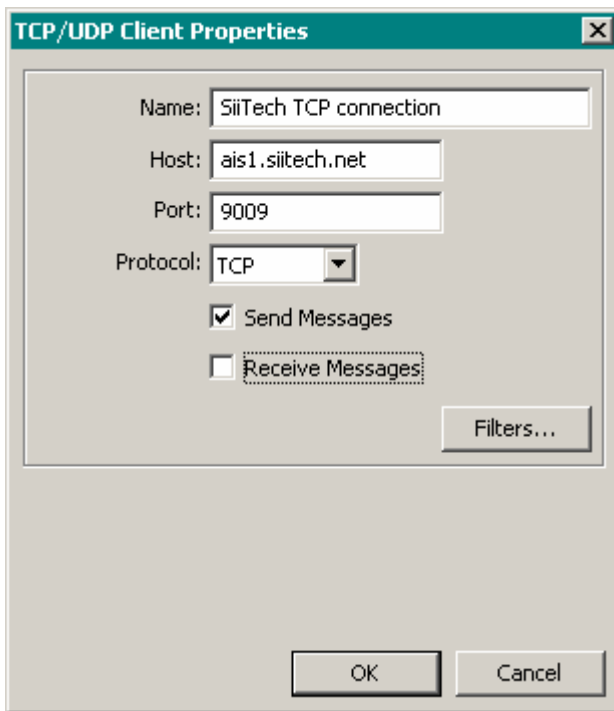
2. Click in the **Name** text box and enter **SiiTech TCP connection** as the name of the service.
3. Enter **ais1.siitech.net** in the **Host** text box.
4. Enter **9009** in the **Port** text box.
5. Select **TCP** in the **Protocol** list box.
6. Check the **Send Messages** check box to allow sending AIS messages to Web VTS service.
7. Uncheck the **Receive Messages** check box to disable receiving AIS messages from Web VTS service.
8. Press **OK** to save the settings.
9. Press **Start** to start AIS Server.

Sending AIS data from ShipPlotter to SiiTech Web VTS (Method 2)

Configure ShipPlotter:

1. Open the **Input / output** dialog (select **Options > I/O settings** from the main menu).
2. Under the **UDP/IP peer-to-peer output** section:
   - Check the **Enable** check box.
   - Enter **70.68.164.33** in the **Remote IP** text box.
   - Enter **9008** in the **Remote port** text box.

3. Press **OK** to save the settings.
4. Press **Start** to start ShipPlotter.

If you have any questions, please contact us at support@siitech.com.