POS LAN Solution Guide

This document will explain the features of our POS LAN solutions.

We offer 3 different solutions of POS LAN Solutions:

- ✧ Static LAN Client mode (DVR= Client Side; POS Machine =Server Side)
- ✧ Dynamic LAN Client mode (DVR = Client Side; POS Machine =Server Side)
- ✧ Static LAN Server mode (DVR= Server Side; POS Machine =Client Side)

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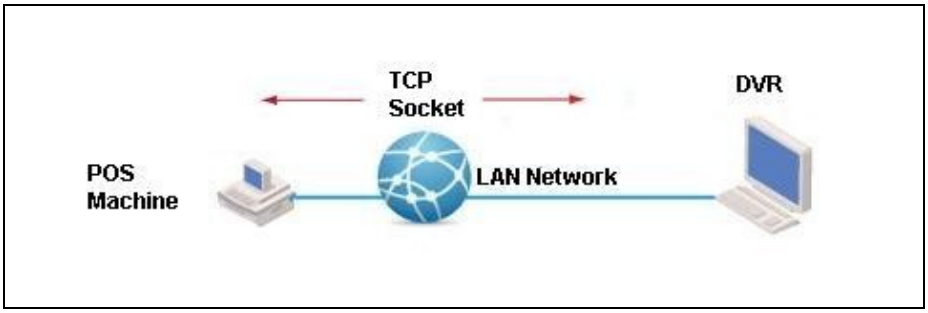
Revisions

Release date: 2008-09-11

Revision: none

Introduction

A connection will be established between the DVR and the POS machine using TCP Socket Protocol (connection-oriented). After the successful connection, the POS will send ASCII characters to the DVR. The DVR will pick them up and display it in the screen. Each DVR is able to connect to 16 POS Machines simultaneously.



General Requirements

- ✓ The POS Machine must be able to connect to LAN Ethernet. (IP and Port)
- ✓ The POS must send the text in ASCII Format.
- ✓ The POS must be use TCP Socket Protocol.
- ✓ The Client must know the IP and port of the Server.
- ✓ DVR always has a static IP.

What is the difference between POS Lan and Normal POS (RS-232)?

There are many advantages of using POS LAN:

- ✧ DVR doesn't need to be near the POS machine.
- ✧ You don't need to lay new cables, just connect the POS to your LAN.

What is TCP Socket Protocol?

It is a **peer-to-peer connection-oriented protocol**, that means that a connection needs to be established first between the client and the server before the transmission of the POS data. An Internet socket is identified by the operating system as a unique combination of the following:

- Protocol (In our case it is **TCP**)
- Local IP Address
- Local port number

- Remote IP address
- Remote port number

It is a server-client connection. It means that one end acts as the client while the other end acts as the server. The server opens a port, listens and waits for the client to connect to it. The client has the IP and port of the server and connects to it. The client will request a connection from the server, after a exchanging of handshakes, the connection will be established, and the data will start to flow. To make a connection request, the client tries to rendezvous with the server on the server's machine and port. The client also needs to identify itself to the server so it binds to a local port number that it will use during this connection.

For example, in the *Static LAN Client* mode(DVR: Client Side; POS Machine =Server Side), the **server** side is the POS machine. The **client** side is the DVR. So the POS machine opens a port and listens. After a succesful establishment of the connection (after all the handshakes), then the POS will start to transmit the POS data and the DVR to receive them.

Descriptions of the 3 POS LAN Modes

Static LAN Client mode (DVR= Client Side; POS Machine =Server Side)

In this mode, the DVR is the client and the POS Machine is the Server. The DVR and the POS Machine have both static IP.

One DVR is able to connect to 16 POS.

Requirements:

- ✓ The POS Machines have static IPs.
- ✓ The POS Machines must act like a Server (it means that they should open a port and listen to connection requests)

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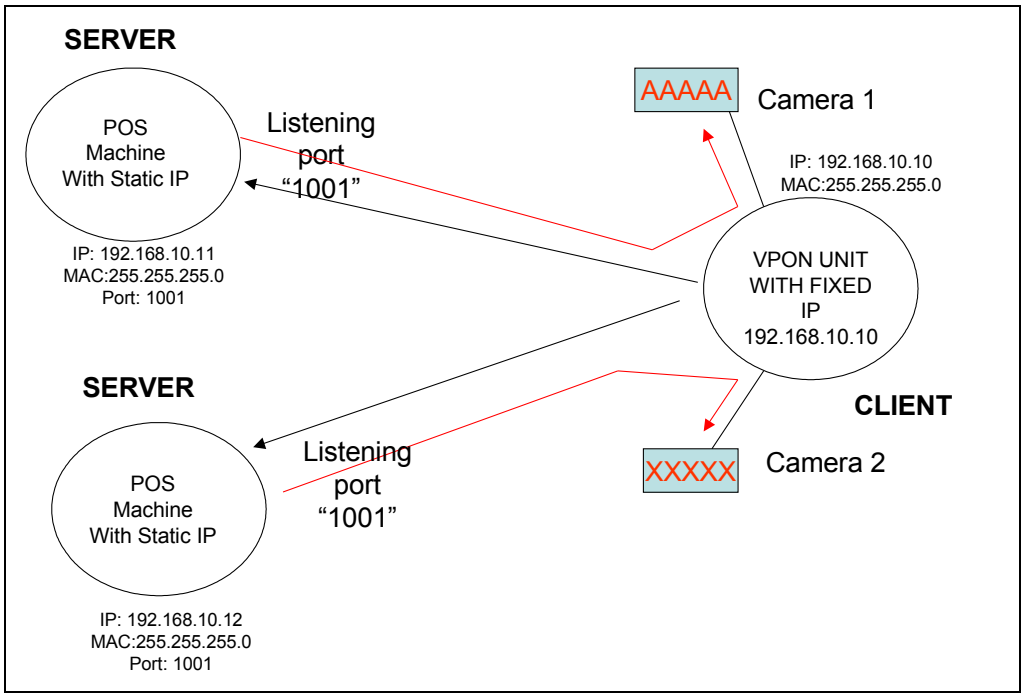
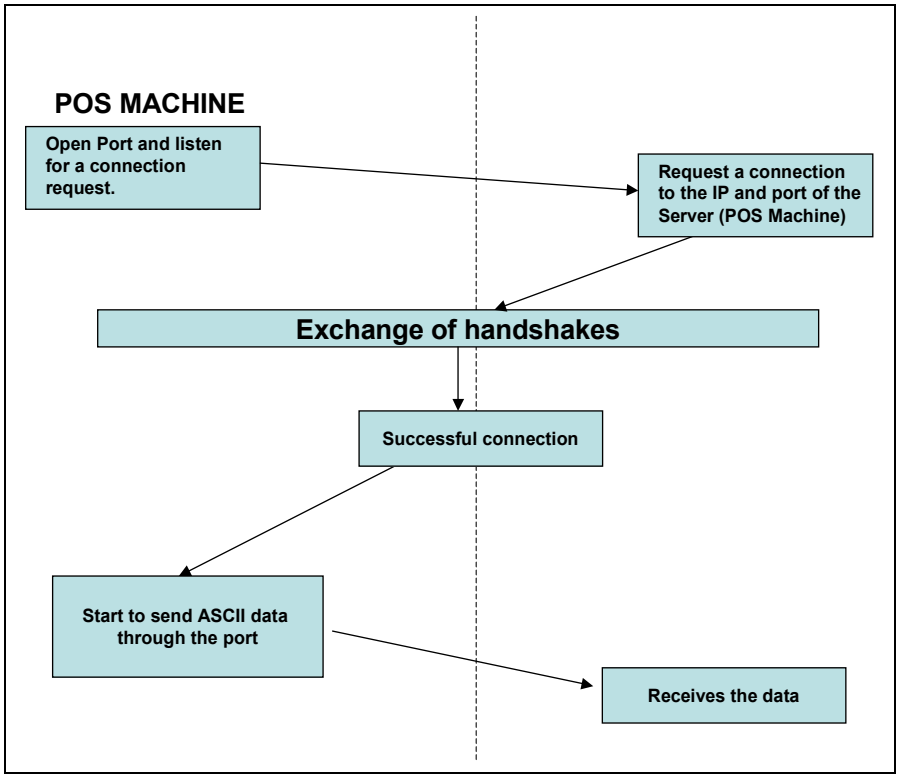
Diagram:



In the example above, the POS Machine opens the port 1001, waits for the DVR to connect. The user that configures the DVR must know beforehand the IP and port of each POS machine. After the connection, the POS Machine sends the ASCII chars directly to the DVR's Port. The user configures which camera will display the characters.

Flow:



Dynamic LAN Client mode (DVR = Client Side; POS Machine =Server Side)

In this mode, the DVR is the client and the POS Machine is the Server. Only the DVR has to have a static IP. The POS Machine could have dynamic IPs (f.e. assigned by a DHCP Server). This will reduce the work of the user, since he does not need to know beforehand what IP or port the POS Machines have.

One DVR is able to connect to 16 POS.

The POS Machine will register to the DVR, delivering information about his IP, Mac Address, Port and Name.

Requirements:

- ✓ The POS Machines have static IPs.
- ✓ The POS Machines must act like a Server (it means that they should open a port and listen to connection requests)

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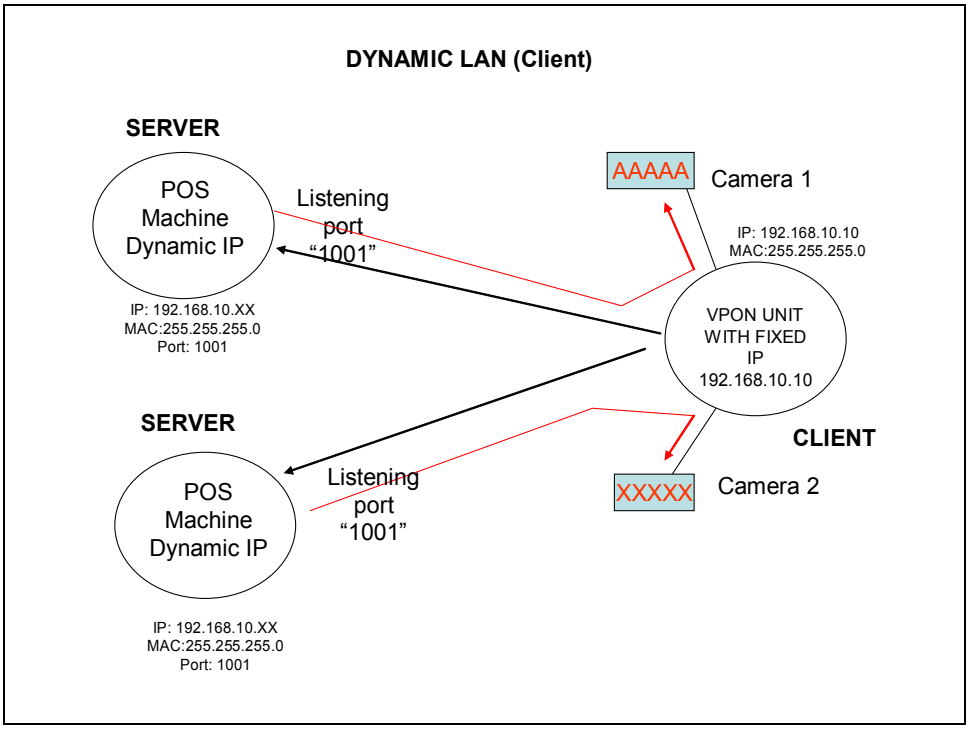
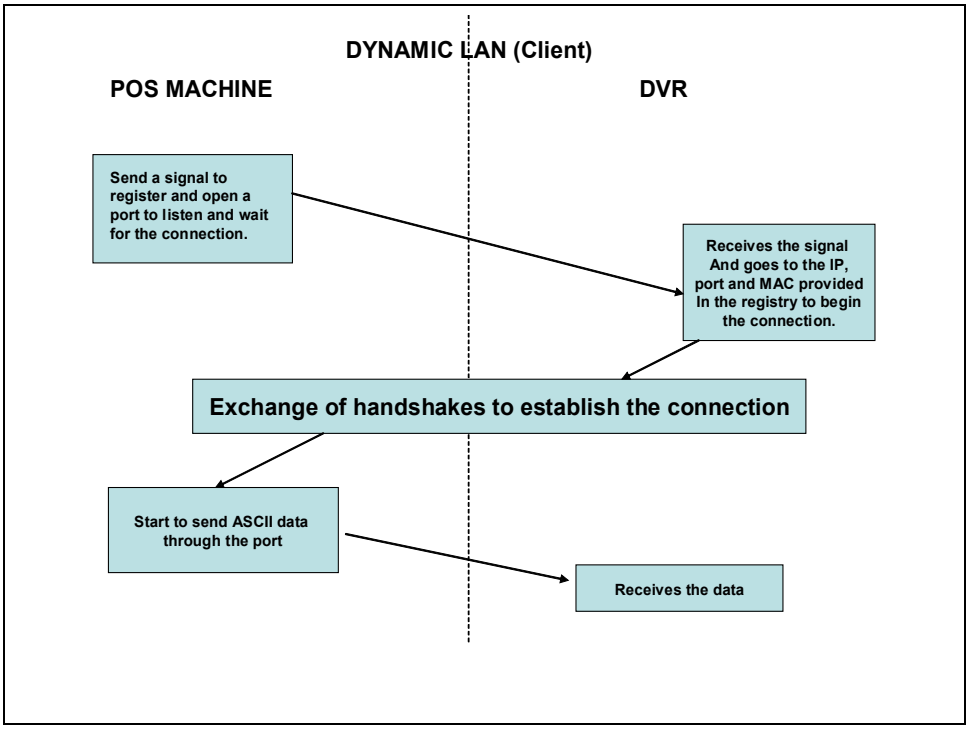
Diagram:



Flow:



Static LAN Server mode (DVR = Server Side; POS Machine =Client Side)

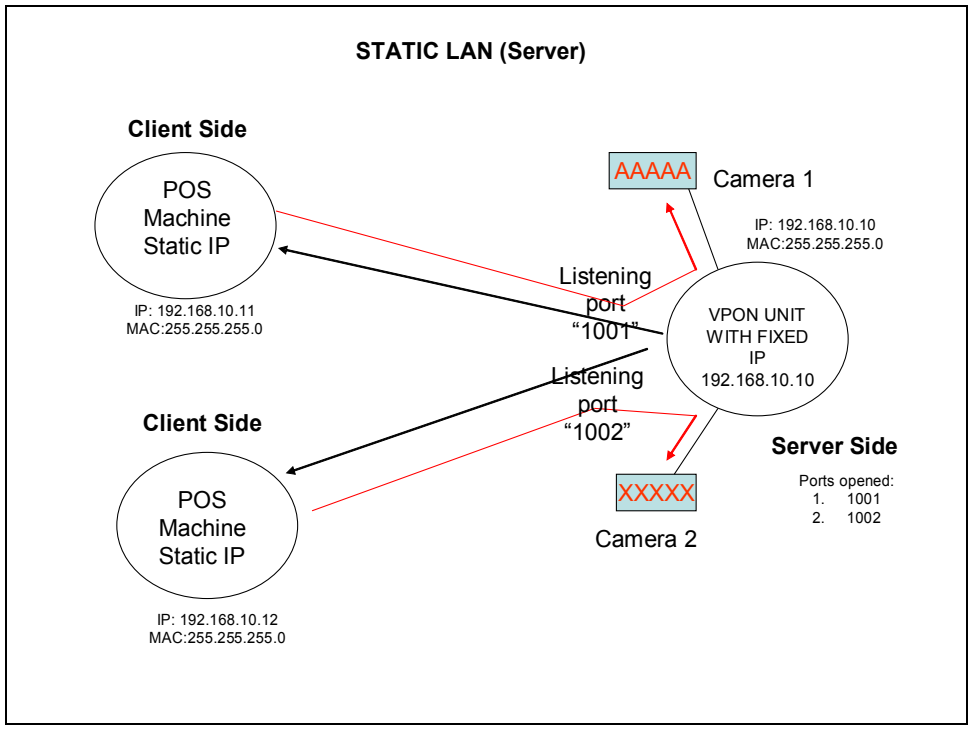
In this mode, the DVR is the server and the POS Machine is the client. The DVR and the POS Machines needs to have both static IPs. The DVR (as Server) will open ports and wait for the clients to connect to it. The DVR will verify if the IP from which the connection request comes from, is correct or not.

One DVR is able to connect to 16 POS.

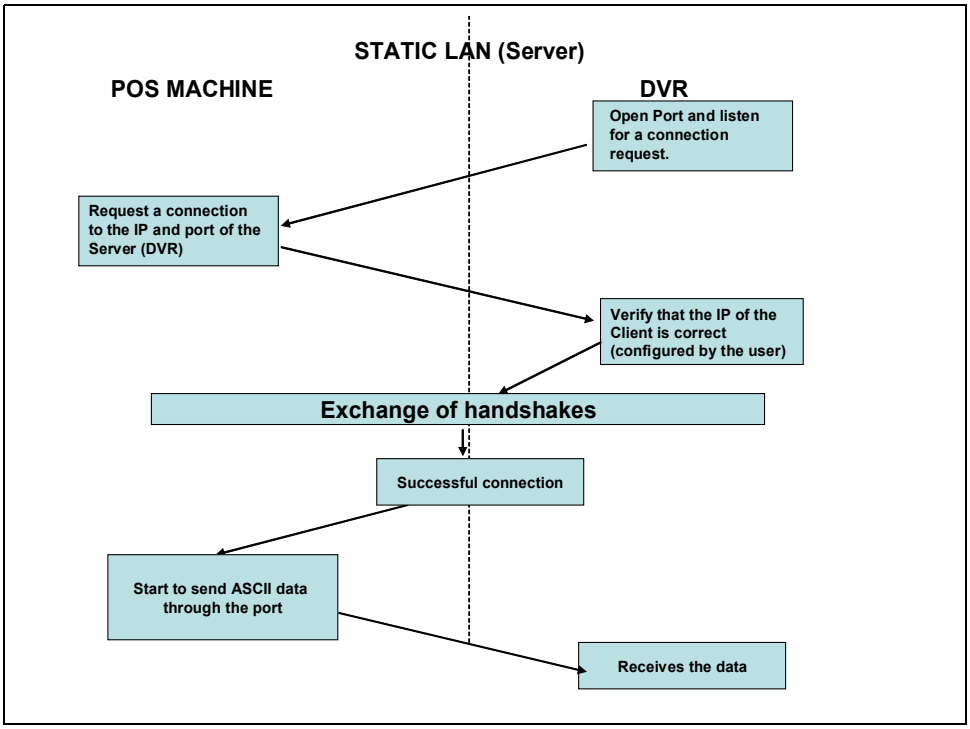
Requirements:

- ✓ The POS Machines have static IPs.
- ✓ The DVR must have static IP.

Diagram:



Flow:



How to configurate the DVR?

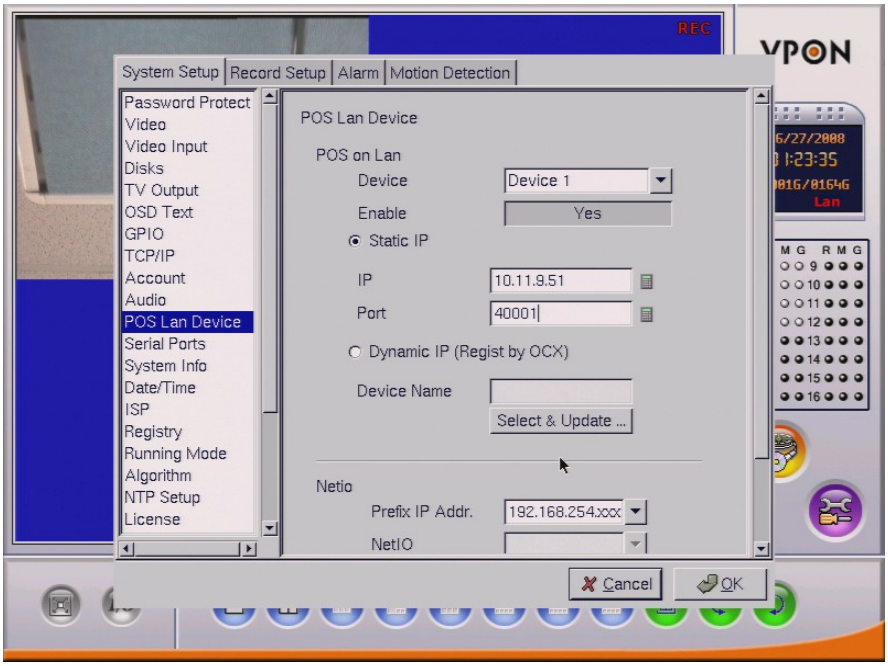
Static LAN Client mode (DVR= Client Side; POS Machine =Server Side)

Go to "**System Setup**" -> "**POS LAN Device**" and enable a Device.

Select "Static IP".

Enter the POS Machine's IP (PC) and enter the port you want to open (DVR's).

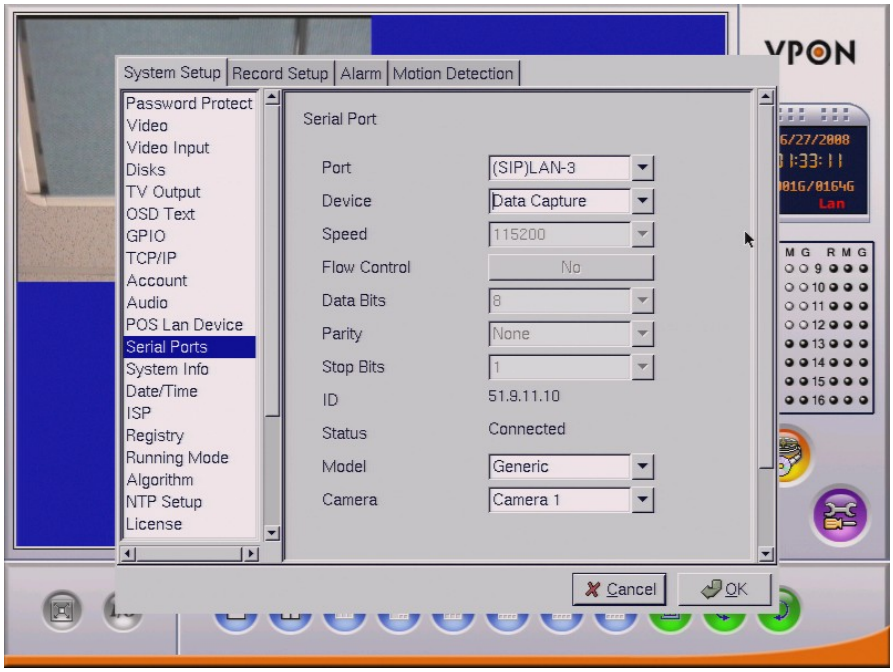
Click "**OK**". The DVR will reboot.



IP: IP of the Pos Machine.

Port: Port opened of the Pos Machine.

After the reboot, go to "System Setup" -> "Serial Ports" and you will see that a new option will appear, in this case, “(SIP) LAN-3” (SIP = Static IP). The DVR will go to connect to the specified IP and port.

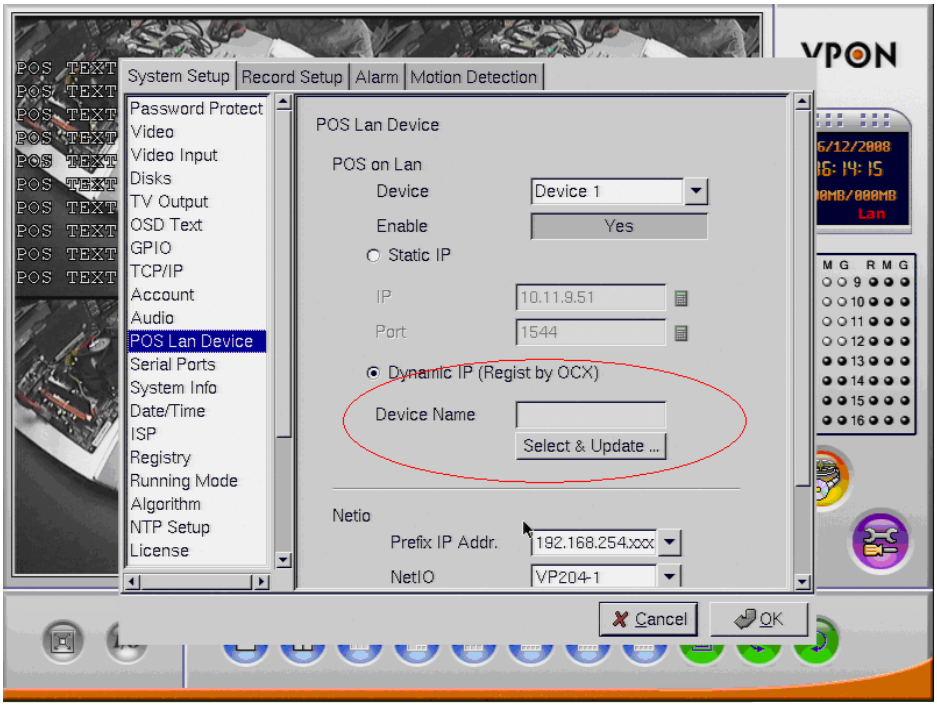


Dynamic LAN Client mode (DVR = Client Side; POS Machine =Server Side)

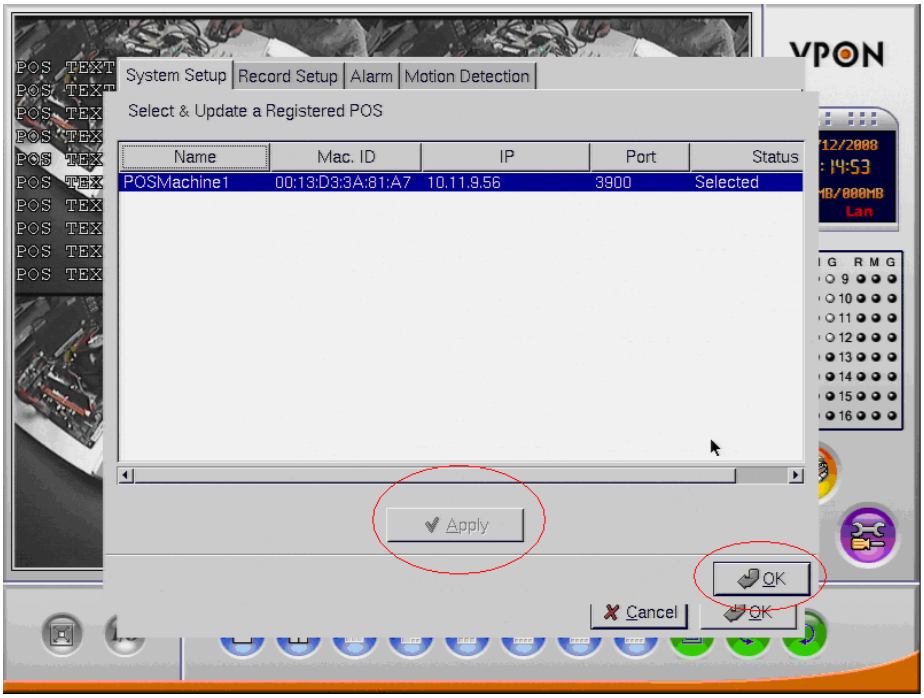
Go to “**System Setup**” -> “**POS LAN Device**” and enable a Device.

Select "Dynamic IP".

Click on "Select & Update…"



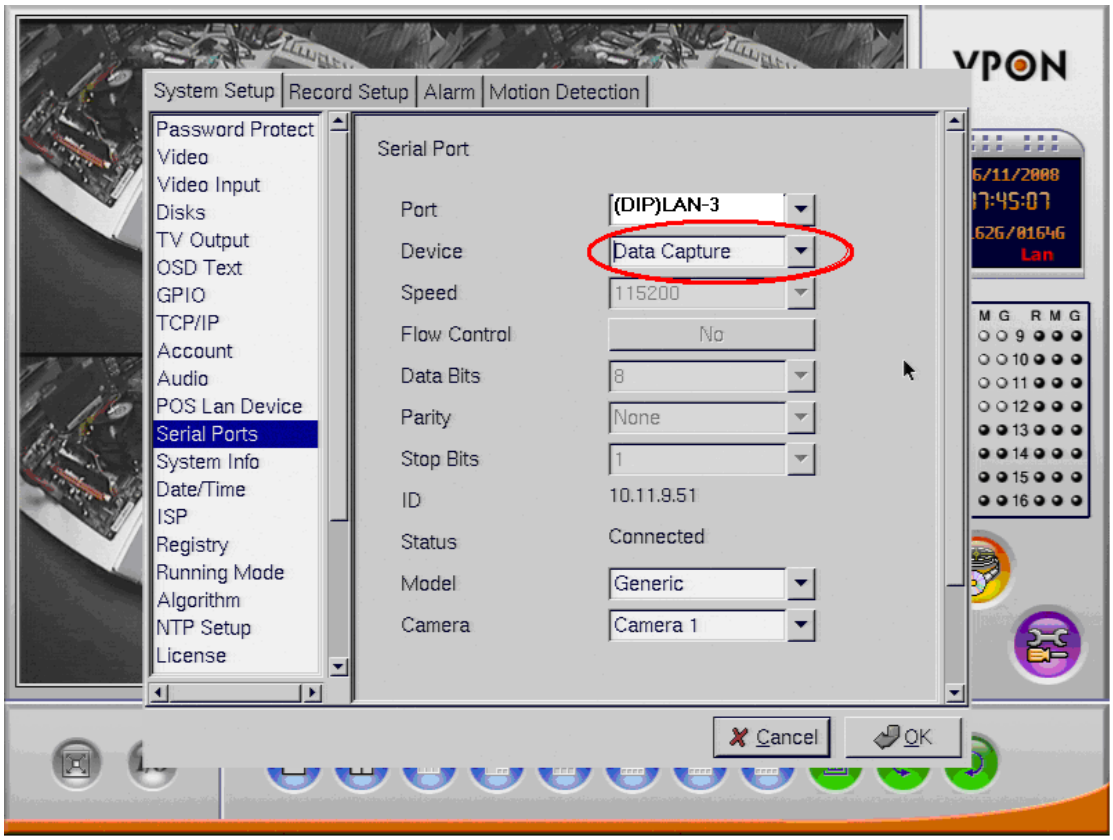
After the clicking the following figure will pop up:



Choose the desired one from the list, and click on "Apply" and then "OK".

The DVR will reboot.

Go to "System Setup" -> "Serial Ports" and you will see that a new option will appear, in this case, “(DIP) LAN-3” (DIP = Dynamic IP). The DVR will go to connect to the specified IP and port.



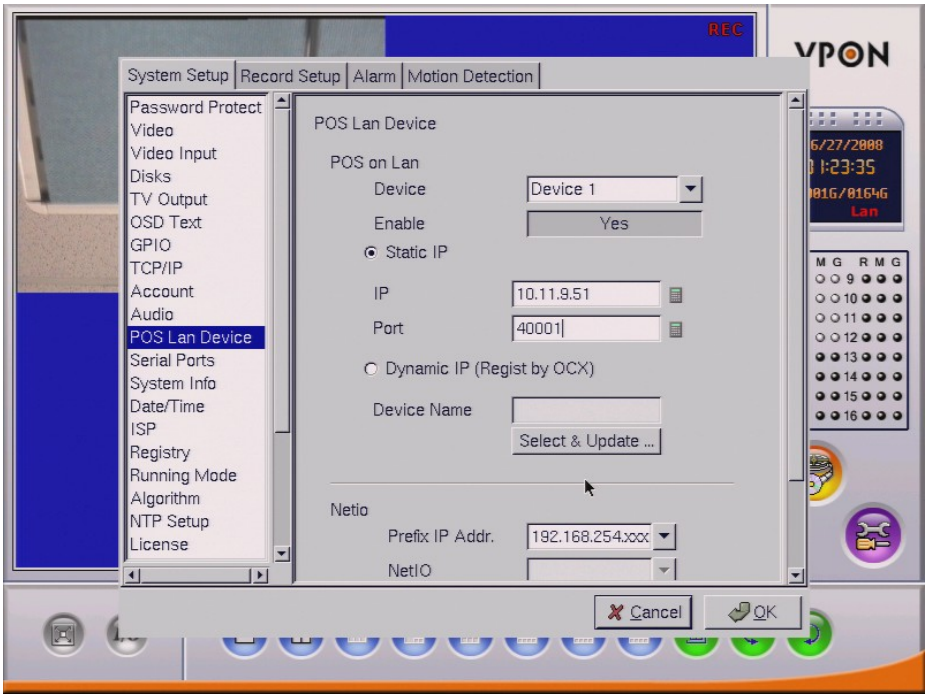
Static LAN Server mode (DVR = Server Side; POS Machine =Client Side)

Go to “**System Setup**” -> “**POS LAN Device**” and enable a Device.

Select "Static IP".

Enter the POS Machine’s IP (PC) and enter the port you want to open (DVR’s).

Click “**OK**”. The DVR will reboot.



IP: IP of the Pos Machine.

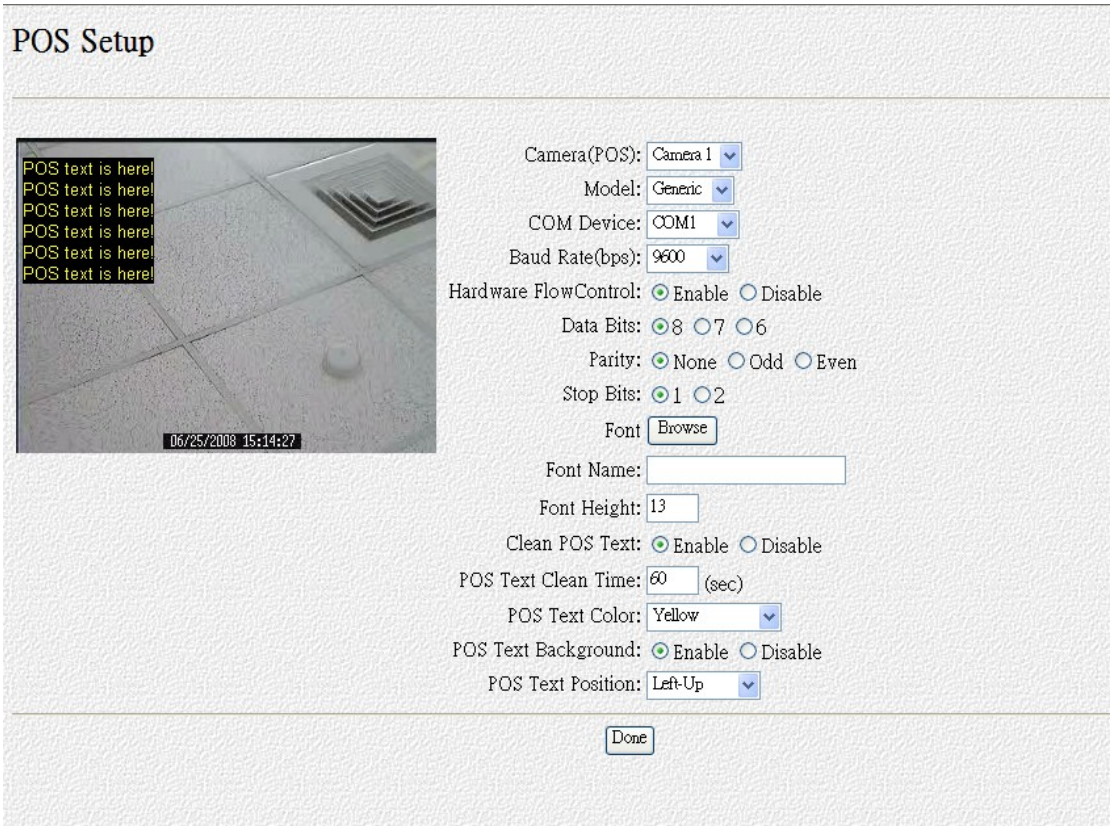
Port: Port opened of the DVR.

After the reboot, go to "System Setup" -> "Serial Ports" and you will see that a new option will appear, in this case, “(SIP) LAN-3” (SIP = Static IP). The DVR open the specified port and wait for the correct IP to connect. Only the correct IP will be able to establish a connection.

POS Text Display Format

This new function will allow us to change the display format of the POS Text, whether varying the location of the POS text on screen or changing the color or assigning a background color. Its major advantage is to let us visualize better the POS Text and don’t let it to mix with the image of the camera.

Remote Side:

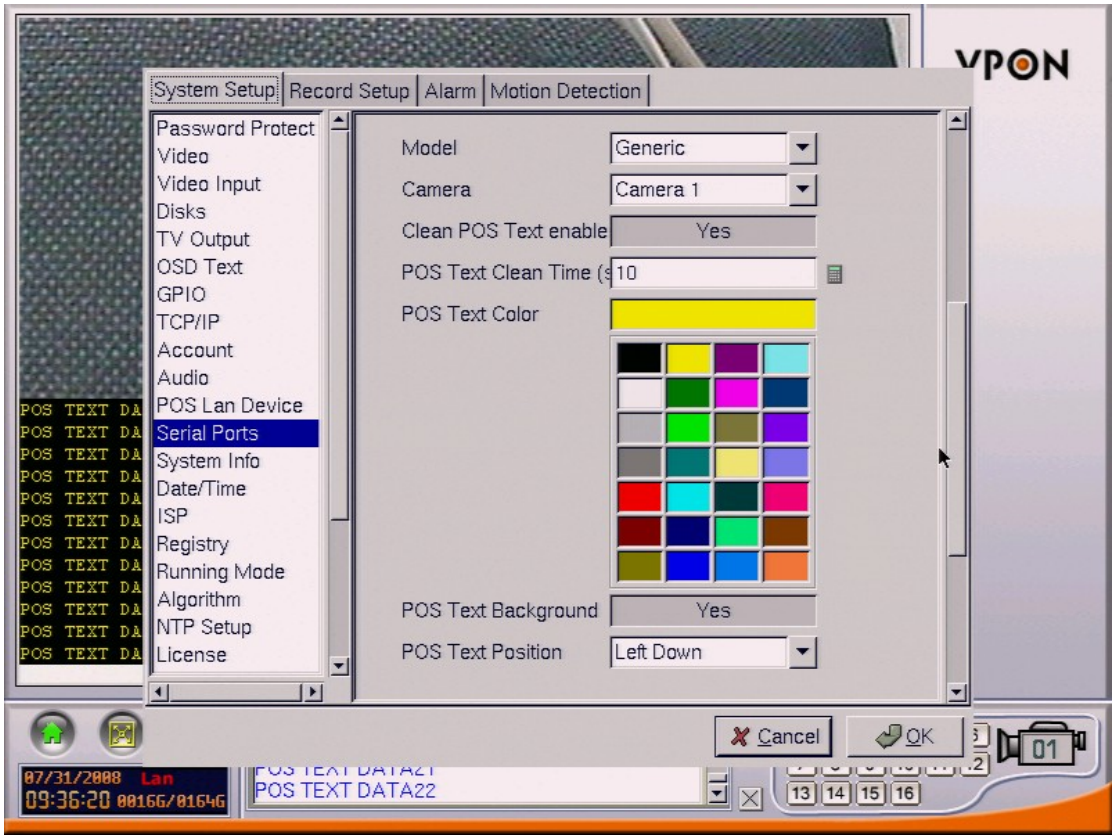


Changes of the Font Name and Font Height in one channel will be automatically applied to all the other channels.

- **Font Browse**: You can browse for the font name.
- **Font Name**: The font you browsed will be displayed here. (You can also add the name manually here without the need to browse for it).
- **Font Height:**: specifies the height of the Font.
- **Clean POS Text:**: It enables the cleaning of the POS text off the screen.
- **POS Text Clean Time:** (Only works if 'Clean POS Text' is enabled) It defines the amount of time (in seconds) that the text will stay on screen before being erased.
- **POS Text Color:** Select the color of the POS text.
- **POS Text Background:** Select the background color behind the POS Text.
- **POS Text Position:** There are 4 defined positions:
  - **Left Up**
  - **Left Down**
  - **Right Up**
  - **Right Down**

The text positioning will only work in 1-split mode.

Local Side:



- **Clean POS Text: Enable**: It enables the cleaning of the POS text off the screen.
- **POS Text Color:** Select the color of the POS text.
- **POS Text Background:** Select the background color behind the POS Text.
- **POS Text Position:** There are 4 defined positions:

POS scrolling time does not work .

POS Text with Color

How do I test the POS LAN functions?

We recommend you to use the POS Simulator that we provide.

Known Bugs:

- When the DVR can't connect to a POS Machine, this will produce random small freezes for a few seconds. As the number of disconnected POS Machine increases, so will the maximum freezing time. (All things related to the POS will be affected, f.e., POS text, POS configuration menu).
- When there are a lot of POS machines connected to the DVR, occasional disconnections will happen.