TSI® FMS 5 SOFTWARE
USING CLIENTS TO CONNECT TO A MONITOR ACROSS SUBNETS

Contents

Summary

Facility monitoring systems are increasing in complexity. Historically, the monitoring system was located on a discreet network, with no interface to other networks or corporate LANs. As customers work with FMS and realize its potential for process improvement monitoring, other departments or personnel desire to tap into the information provided through reports and real time monitoring of the facility. Many times, these departments exist on a different network on the corporate LAN than the production subnet. FMS provides for a means to cross networks and allow a Client to view a monitor that resides on a different network. This document describes the method used.

Setup

The screen shots and instructions are written for FMS 5.1, running on Windows® 7 operating system, but similar screens would appear for other versions of FMS 5.xx and Windows® operating systems.

Network

The setup will require network connectivity between the two computers. This will be an IT department issue and can be checked by "pinging" the main monitor computer from the remote client computer. If the ping is successful and the main monitor computer replies to the pings then the network has already been setup to allow the traffic. If the ping fails, IT must be brought in to establish the network traffic between the two computers. It is beyond the scope of this document to describe the nuances of inter-network communications, but it is a relatively simple procedure for the IT department to grant traffic. If the database resides on a different computer, that computer will also need to allow traffic between it and the Client computer.

Specifically, IT will need to allow the TCP port 4002 on the monitor computer and TCP port 5432 on the database computer. Port 4002 is the default FMS Broadcast port and Port 5432 is the default PostgreSQL port (MySQL is 3306).

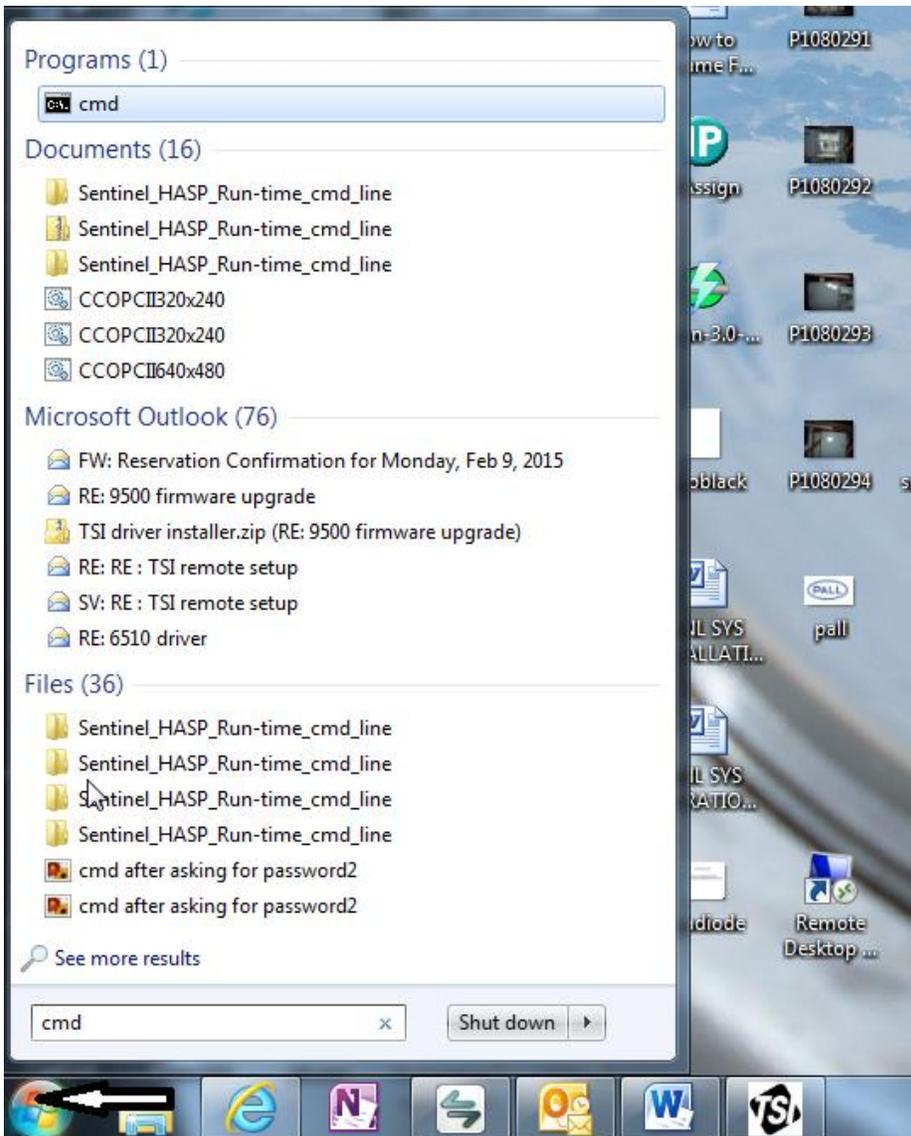The steps to determine if a computer can be pinged are listed below:

1. Hold on the Microsoft key ⊞ while pressing **<R>** key.

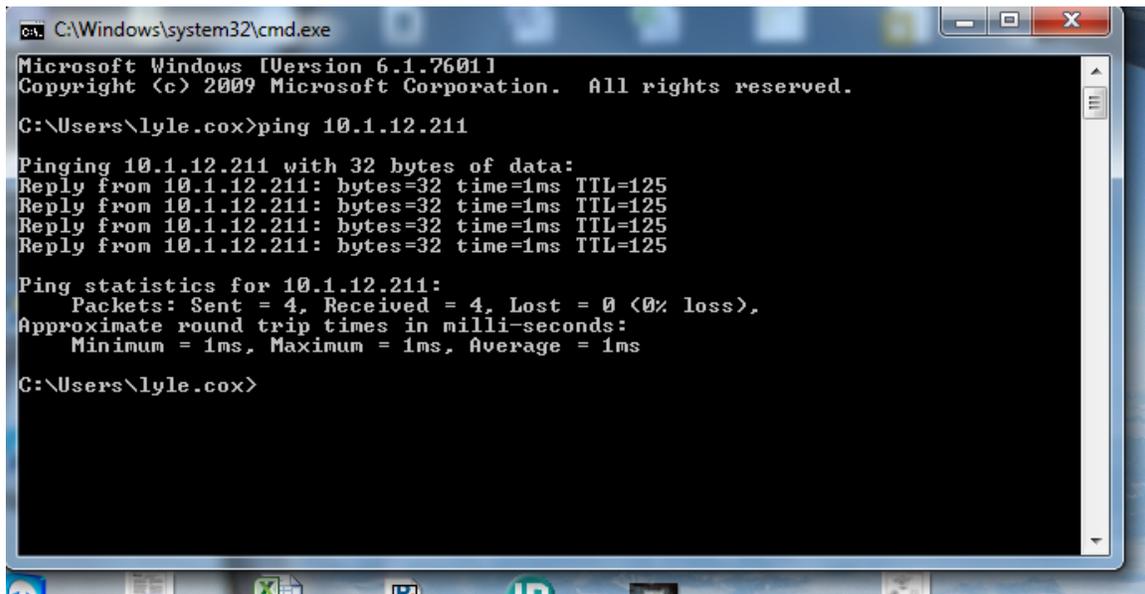2. In the Run window, type **cmd** and press **Enter**.
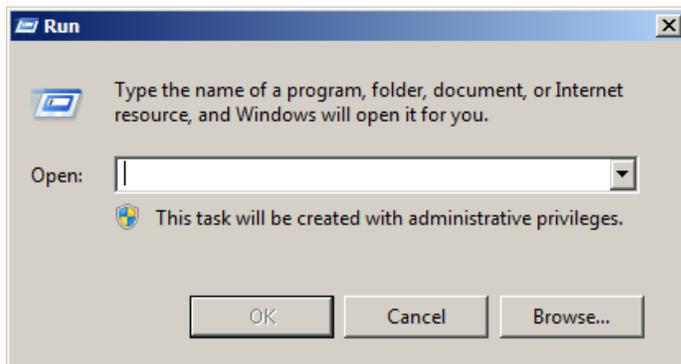
3. A DOS Command window will open.
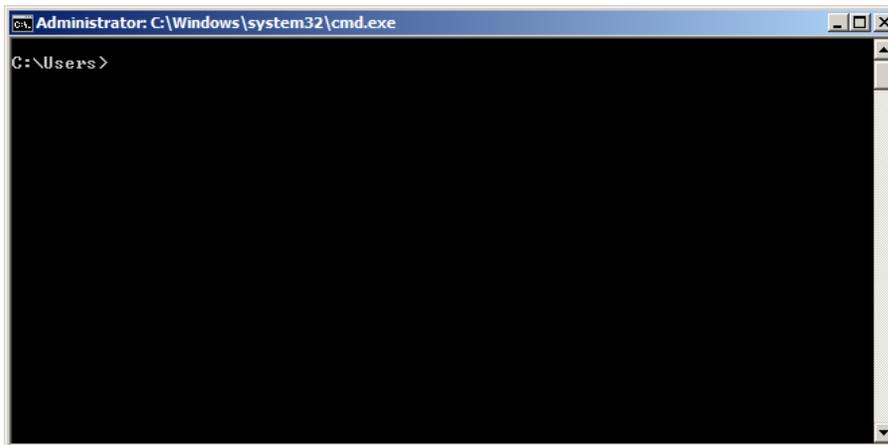
4. Type **ping xxx.xxx.xxx.xxx** with the x's representing the IP address of the remote monitor computer.

5. If the ping is successful, the remote machine will reply.

A failed ping will look similar to the picture below:

Software

Install the FMS Client software according to the instructions included on the install disk. Note, this is not a full install, but is a custom install. The instructions are provided for the setup to do a Client only install. Make sure to set the computer up with the firewall and time considerations. It is important to set up 24 hour time format to have Client generate reports correctly.

Client Configuration

The Client software must be configured to communicate with a remote Client. Since the Client will not allow interface without seeing an active monitor, an xml file must be first modified so the Client does not lock up.

1. Open the file **C:\FMS5\Config\ClientOptions.xml** with an xml editor such as WordPad.

2. Scroll to the bottom of the document and add the following lines:

    ```
    <RemoteMonitor RequestPort="4002" MonitorAddress="10.1.12.211"/>.
    ```

3. Replace `xxx.xxx.xxx.xxx` with the actual IP address of the monitoring computer.

    Insert the lines BEFORE the final <Options line.

    An example is shown below:

    ```
    <Options>
     <Identification Name="Client" BroadcastPort="4001" LicenseKey="your
    license key number will appear here"/>
     <AuditLogging AuditSource="Lyle's Client" AuditNode="SV1794"/>
     <Modules List="PhoenixContact,Generic,Calculated,AsciiOutput"/>
     <Settings FontSize="10" DateFormat="dd-MM-yyyy hh:mm:ss" FontType="Times"
    Language="English">
      <ColourSettings MsgColorStandard="0" FailureBackColour="#5050fa"
    AlarmBackColour="#fa5050" WarningBackColour="#fafa4b"
    NeedAckFontColour="#000000" OkBackColour="#4dfa58"
    NoMeasureBackColour="#ffffff" FailureFontColour="#ffffff"
    AlarmFontColour="#000000" WarningFontColour="#000000"
    OkFontColour="#000000" NeedAckBackColour="#50fafa"
    NoMeasureFontColour="#000000"/>
      <SoundSettings NeedAckSound="" WarningSoundEnabled="0"
    NeedAckSoundEnabled="0" FailureSound="" AlarmSoundEnabled="0"
    AlarmSound="" WarningSound="" FailureSoundEnabled="0"/>
      <AutoLoginSettings AutoLoginEnabled="0" LogoutDisabled="0" UserName=""
    Password="" AutoLoginNode=""/>
      <ScheduledReport UseYearFolder="0" UserName=""
    ScheduledReportLocation="" ExternalReportViewerLocation="C:/Program Files
    (x86)/Adobe/Reader 10.0/Reader/AcroRd32.exe" ReportLocation="" FullName=""
    UseSharedReportLocation="0"/>
      <EmailSettings SenderAddress="lylecox1@comcast.net"
    SmtpServer="smtpcorp.com" EmailEnabled="1"/>
      <MapSettings UseStatusFont="1" AlwaysScale="1"/>
      <StatusSettings DisplayWarningStatus="1"/>
     </Settings>
     <RequiredMonitors NodesList=""/>
     <ViewMonitorMessages IgnoreNodeMessageList=""/>
     <RemoteMonitor RequestPort="4002" MonitorAddress="10.1.12.211"/>
    </Options>
    ```

4. Save the file and start the Client. The Client will now see the monitoring node. This will give real time information. An additional step must be taken to access historical data through the database. The database configuration file must be modified to allow access of the Client to the database.

Database Configuration

The database must be configured to allow a Client access to the data. This is much the same as adding Client computers to the database by editing the pg_hba file. The only difference is the IP address must open up the two networks. In the following example, the main monitoring node and Client are assigned the IP address of 192.168.2.20 and the remote Client is assigned 192.168.10.25, which represents two different networks.

Navigate to the pg_hba file.conf and open it with an editor such as WordPad.

C:\Program Files (x86)\PostgreSQL\9.3\data\pg_hba.conf

Your version might be different than 9.3 so adjust the path to match your PostgreSQL version.

Scroll down and find the lines:

```
# IPv4 local connections:
host    all             all             127.0.0.1/32            md5


add the highlighted line:
host    all             all             192.168.200.0/24        md5
```

This line opens the database to all computers that are on the 192.168.200.x networks. The /24 allows any computer with the starting address of 192.168.200 to communicate with the database. Similarly, if the Client computer IP address was something like 192.173.10.5, you would replace the 168 with a zero and add /16.

Note
As a note of caution, some systems will use computers with multiple network cards. The IP address of the network card used to communicate with the FMS system must be used. If no historical data is available when viewing a sample point, check to make sure the correct IP address has been added to the pg_hba.conf file.

Save the file and restart the PostgreSQL service in **Control Panel | Administrative Tools | Services** and scroll down to PostgreSQL service. Select **restart**.

The remote Client will now be able to communicate with the database and access historical data.

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