PAGER Communication Driver

Driver to send pager messages using
Telocator Alphanumeric Protocol (TAP).

Contents

Introduction

The PAGER driver enables the capability to send pagers on a Studio application, according to the specifications discussed in this document.

This document was designed to help you install, configure, and execute the PAGER driver to enable communication with these devices. The information in this document is organized as follows:

- **Introduction**: Provides an overview of the PAGER driver documentation.
- **General Information**: Provides information needed to identify all the required components (hardware and software) used to implement communication between Studio and the PAGER driver.
- **Installing the Driver**: Explains how to install the PAGER driver.
- **Configuring the Driver**: Explains how to configure the PAGER driver.
- **Executing the Driver**: Explains how to execute the driver to verify that you installed and configured the driver correctly.
- **Troubleshooting**: Lists the most common error codes for this protocol and explains how to fix these errors.
- **Sample Application**: Explains how to use a sample application to test the PAGER driver configuration.
- **Revision History**: Provides a log of all modifications made to the driver and the documentation.

✍ **Notes:**

- This document assumes that you have read the “Development Environment” chapter in the Studio *Technical Reference Manual*.
- This document also assumes that you are familiar with the Windows NT/2000/XP environment.
  If you are unfamiliar with Windows NT/2000/XP, we suggest using the **Help** feature (available from the Windows desktop **Start** menu) as you work through this guide.

General Information

This chapter explains how to identify all the hardware and software components used to send pager messages from a Studio application using the PAGER driver.

The information is organized into the following sections:

- Link Characteristics
- Driver Characteristics

Link Characteristics

To establish communication, you must use links with the following specifications:

- **Communication Port**: Any serial port with a modem connected.
- **Physical Protocol**: Defined by the modem connection.
- **Logic Protocol**: TAP.
- **Specific PC Board**: External modem or modem card.

Driver Characteristics

The PAGER driver is composed of the following files:

- **PAGER.INI**: Internal driver file. *You must not modify this file*.
- **PAGER.MSG**: Internal driver file containing error messages for each error code. *You must not modify this file*.
- **PAGER.PDF**: Document providing detailed information about the PAGER driver.
- **PAGER.DLL**: Compiled driver.

✍ **Notes:**

- All of the preceding files are installed in the `/DRV` subdirectory of the Studio installation directory.
- You must use Adobe Acrobat® Reader™ (provided on the Studio installation CD-ROM) to view the *PAGER.PDF* document.

You can use the PAGER driver on the following operating systems:

- Windows NT/2K/XP
- Windows CE

For a list of the operating systems used for conformance testing, see “Conformance Testing” on page 4.

Conformance Testing

The following hardware/software was used for conformance testing:

- **Driver Configuration**:
  - **Baud Rate**: 9600
  - **Data Bits**: 8
  - **Stop Bits**: 1
  - **Parity**: None
  - **COM Port**: COM1
- **Cable**: Modem cable if using an external modem.

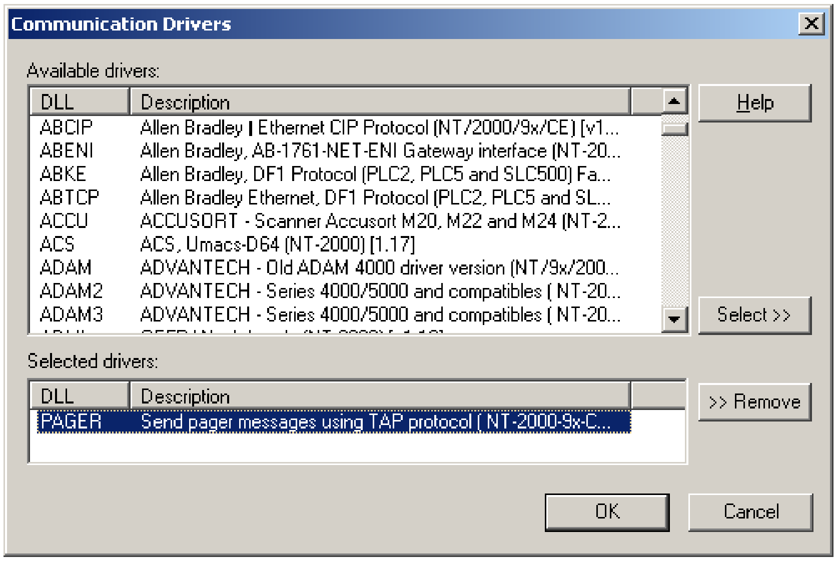
Driver Version	Studio Version	Operating System	Equipment
1.00	6.0	WinXP+SP1 WinCEv4.1	56000bps Trellis Data/FAX/Voice external Modem

Installing the Driver

When you install Studio version 5.1 or higher, all of the communication drivers are installed automatically. You must select the driver that is appropriate for the application you are using.

Perform the following steps to select the driver from within the application:

1. Open Studio from the **Start** menu.
2. From the Studio main menu bar, select **File** → **Open Project** to open your application.
3. Select **Insert** → **Driver** from the main menu bar to open the *Communication drivers* dialog.
4. Select the **PAGER** driver from the *Available Drivers* list (as shown in the following figure), and then click the **Select** button.



Available drivers:

DLL	Description
ABCIP	Allen Bradley I Ethernet CIP Protocol (NT/2000/9x/CE) [v1...
ABENI	Allen Bradley, AB-1761-NET-ENI Gateway interface (NT-20...
ABKE	Allen Bradley, DF1 Protocol (PLC2, PLC5 and SLC500) Fa...
ABTCP	Allen Bradley Ethernet, DF1 Protocol (PLC2, PLC5 and SL...
ACCU	ACCUSORT - Scanner Accusort M20, M22 and M24 (NT-2...
ACS	ACS, Umacs-D64 (NT-2000) [1.17]
ADAM	ADVANTECH - Old ADAM 4000 driver version (NT/9x/200...
ADAM2	ADVANTECH - Series 4000/5000 and compatibles (NT-20...
ADAM3	ADVANTECH - Series 4000/5000 and compatibles (NT-20...

Selected drivers:

DLL	Description
PAGER	Send pager messages using TAP protocol (NT-2000-9x-C...

Communication Drivers Dialog Box

5. When the **PAGER** driver displays in the **Selected Drivers** list, click the **OK** button to close the dialog.

Attention:
For safety reasons, you must use special precautions when installing the physical hardware. Consult the hardware manufacturer's documentation for specific instructions in this area.

Configuring the Driver

After opening Studio and selecting the PAGER driver, you must configure the driver. Configuring the PAGER driver is done in two parts:

- Specifying communication parameters
- Defining tags and controls in *STANDARD DRIVER SHEETs* (or Communication tables)

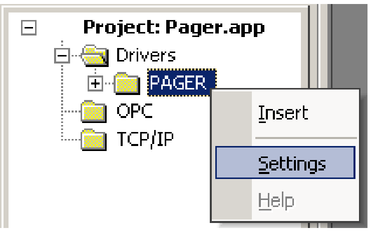
Worksheets are divided into two sections, a *Header* and a *Body*. The fields contained in these two sections are standard for all communications drivers — except the **Station**, **Header**, and **Address** fields, which are driver-specific. This document explains how to configure the **Station**, **Header**, and **Address** fields only.

> **Note:**
> For a detailed description of the Studio *STANDARD DRIVER SHEETs*, and information about configuring the standard fields, review the product's *Technical Reference Manual*.

Setting the Communication Parameters

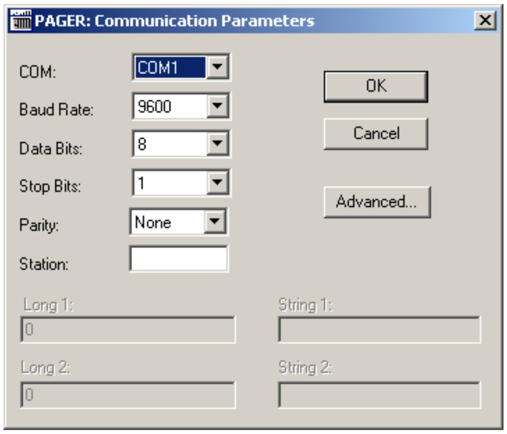
Use the following steps to configure the communication parameters, which are valid for all driver worksheets configured in the system:

1. From the Studio development environment, select the *Comm* tab located below the *Workspace*.
2. Click on the *Drivers* folder in the *Workspace* to expand the folder.
3. Right-click on the PAGER subfolder and when the pop-up menu displays, (as shown in the following figure) select the **Settings** option.



Select Settings from the Pop-Up Menu

The *PAGER: Communications Parameters* dialog displays (as follows).


PAGER: Communication Parameters

COM: COM1
Baud Rate: 9600
Data Bits: 8
Stop Bits: 1
Parity: None
Station:
Long 1: 0
String 1:
Long 2: 0
String 2:

Communication Parameters Dialog

4. Click the **Advanced** button on the *Communication Parameters* dialog to open the *Advanced Settings* dialog and configure the settings that are necessary.

> ✍ **Notes:**
>
> - Do not change any of the other *Advanced* parameters at this time. You can consult the Studio *Technical Reference Manual* for information about configuring these parameters for future reference.
> - Generally, you must change the *Advanced* parameter settings if you are using a DCE (Data Communication Equipment) converter (232/485 for example), modem, and so forth between the PC, driver, and the host. You must be familiar with the DCE specifications before adjusting these configuration parameters.

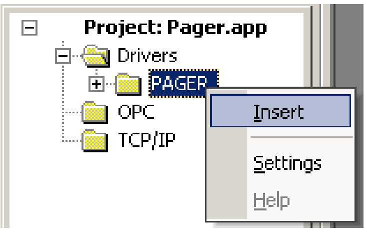
Configuring the Driver Worksheets

This section explains how to configure the *MAIN* and *STANDARD DRIVER SHEETs* (or communication tables) to associate application tags with the device addresses. You can configure multiple Driver Worksheets — each of which is divided into a *Header* section and *Body* section.

Configuring the *STANDARD DRIVER SHEET*

Use the following steps to create a new *STANDARD DRIVER SHEET*:

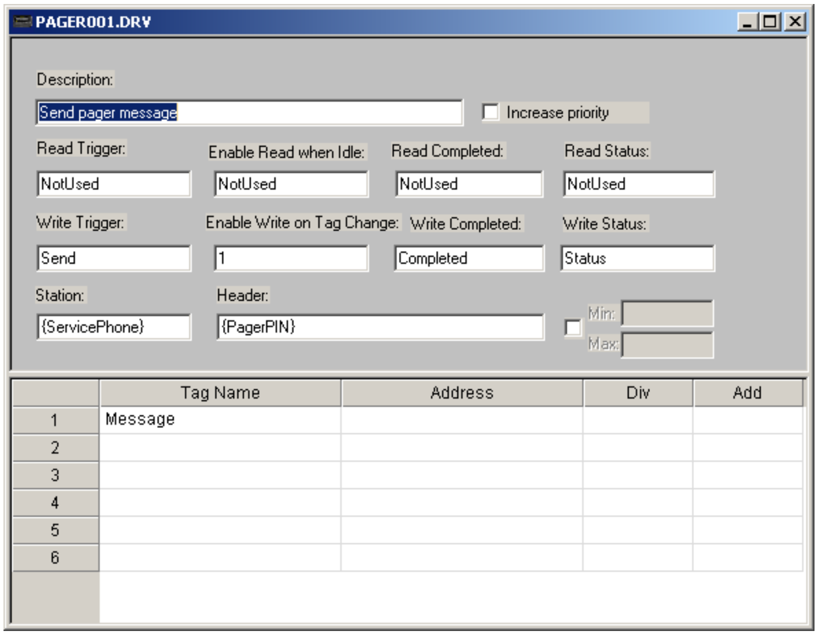
1. From the Studio development environment, select the *Comm* tab, located below the *Workspace* pane.
2. In the *Workspace* pane, expand the *Drivers* folder and right-click the <*Driver Name*> subfolder.
3. When the pop-up menu displays (as shown in the following figure), select the **Insert** option.



Inserting a New Worksheet

> ✍ **Note:**
>
> To optimize communication and ensure better system performance, you must tie the tags in different driver worksheets to the events that trigger communication between each tag group and the period in which each tag group must be read or written. Also, we recommend configuring the communication addresses in sequential blocks to improve performance.

The *STANDARD DRIVER SHEET* displays (similar to the following figure).



Description: Send pager message

☐ Increase priority

Read Trigger:	Enable Read when Idle:	Read Completed:	Read Status:
NotUsed	NotUsed	NotUsed	NotUsed
Write Trigger:	Enable Write on Tag Change:	Write Completed:	Write Status:
Send	1	Completed	Status

Station: {ServicePhone}

Header: {PagerPIN}

☐ Min: Max:

	Tag Name	Address	Div	Add
1	Message			
2				
3				
4				
5				
6				

STANDARD DRIVER SHEET

In general, all parameters on the Driver Worksheet (except the **Station**, **Header**, and **Address** fields) are standard for all communication drivers, but they will not be discussed in this document. For detailed information about configuring the standard parameters, consult the *Studio Technical Reference Manual*.

Note:

- This communication driver performs only write operations.

4. Use the following information to complete the **Station**, **Header**, and **Address** fields on this worksheet.

- **Station** field: Service phone number (e.g.: 9,18002506325)
- **Header** field: Pager PIN number (e.g.: 4102232345)

After you edit the **Header** field, Studio checks the syntax to determine if it is valid. If the syntax is incorrect, Studio automatically inserts the default value in the **Header** field.

Also, you can type a tag string in brackets **`{Tag}`** into the **Header** field, but you must be certain that the tag's value is correct and that you are using the correct syntax, or you will get an invalid Header error. By using this capability, you can enable the user to specify the Service Number and the Pager PIN during run-time.

- **Address** field: The address field is not used in this driver; the values of the tags on the **Tag Name** column specify the messages that will be sent.

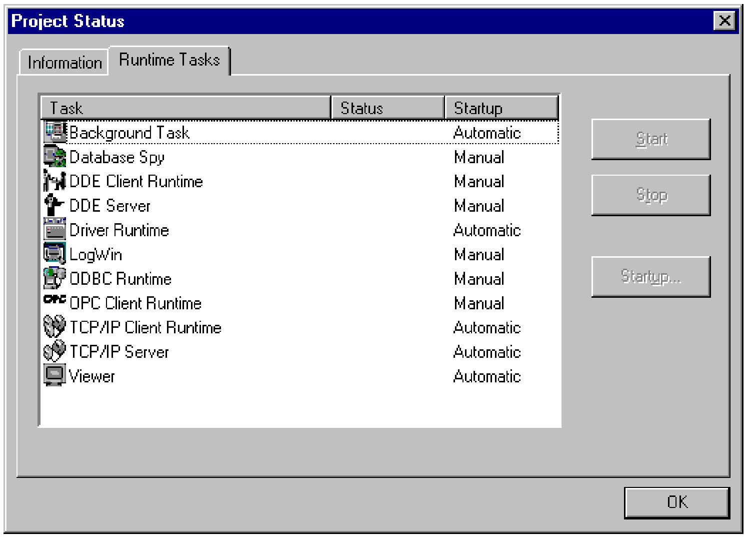
Executing the Driver

After adding the PAGER driver to a project, Studio sets the project to execute the driver automatically when you start the run-time environment.

To verify that the driver run-time task is enabled and will start correctly, perform the following steps:

1. Select **Project** → **Status** from the main menu bar.

   The *Project Status* dialog box displays, as follows.



Task	Status	Startup
Background Task		Automatic
Database Spy		Manual
DDE Client Runtime		Manual
DDE Server		Manual
Driver Runtime		Automatic
LogWin		Manual
ODBC Runtime		Manual
OPC Client Runtime		Manual
TCP/IP Client Runtime		Automatic
TCP/IP Server		Automatic
Viewer		Automatic

Project Status Dialog Box

2. Verify that the *Driver Runtime* task is set to **Automatic**.
   - If the setting is correct, click **OK** to close the dialog box.
   - If the **Driver Runtime** task is set to **Manual**, select the **Driver Runtime** line. When the **Startup** button becomes active, click the button to toggle the *Startup* mode to **Automatic**.
3. Click **OK** to close the *Project Status* dialog.
4. Start the application to run the driver.

Troubleshooting

If the PAGER driver fails to communicate with the device, the tag you configured for the **Read Status** or **Write Status** fields will receive an error code. Use this error code and the following table to identify what kind of failure occurred.

Error Code	Description	Possible Causes	Procedure to Solve
0	OK	Pager message was sent successfully	None required.
1	INVALID OPERATION	The application tries to use a read operation in the worksheet.	Remove any tag or constant value form the Read Trigger and from Enable Read When Idle fields.
2	BUFFER OVERFLOW	The pager service uses a protocol other than TAP	Check the protocol that your pager service uses and change the service if necessary.
3	NACK	The pager service did not recognize the message that we tried to send. It might be because you are required to enter with a password that is not supported for this driver.	Contact your vendor with your communication log file.
4	LINE IS BUSY	The message could not be sent because the phone line is busy.	Try again after a few minutes.
5	NO DIAL TONE	The phone line is not connected in your modem.	Check your connections and make sure that your phone line is working properly.

⇨ **Tip:**
You can verify communication status using the Studio development environment *Output* window (*LogWin* module). To establish an event log for **Field Read Commands**, **Field Write Commands**, and **Serial Communication** right-click in the *Output* window. When the pop-up menu displays, select the option to set the log events. If you are testing a Windows CE target, you can use the Remote LogWin of Studio (**Tools** → **Remote Logwin**) to get the log events from the target unit remotely.

If you are unable to establish communication with the PLC, try to establish communication between the PLC Programming Tool and the PLC. Quite frequently, communication is not possible because you have a hardware or cable problem, or a PLC configuration error. After successfully establishing communication between the device's Programming Tool and the PLC, you can retest the supervisory driver.

To test communication with Studio, we recommend using the sample application provided rather than your new application.

If you must contact us for technical support, please have the following information available:

- **Operating System** (type and version): To find this information, select **Tools** → **System Information.**
- **Studio version**: To find this information, select **Help** → **About.**
- **Driver Version**: To find this information, read the full description of the driver on the **Communication Drivers** Dialog Box.
- **Communication Log**: Displays in the Studio *Output* window (or *LogWin* window) when the driver is running. Be sure to enable the **Field Read Commands**, **Field Write Commands**, and **Serial Communication** for the LogWin window.
- **Device Model** and **Boards**: Consult the hardware manufacturer's documentation for this information.

Sample Application

You will find a sample application for drivers in the **`/COMMUNICATION EXAMPLES/<`*`Driver Name`*`>`** directory. We strongly recommend that you check if there is a sample application for this driver and use it to test the driver before configuring your own customized application, for the following reasons:

- To better understand the information provided in the section of this document.
- To verify that your configuration is working satisfactorily.
- To certify that the hardware used in the test (device, adapter, cable, and PC) is working satisfactorily before you start configuring your own, customized applications.

> ✍ **Note:**
>
> This application sample is not available for all drivers.

Use the following procedure to perform the test:

1. Configure the device's communication parameters using the manufacturer's documentation.
2. Open and execute the sample application.

> ⇨ **Tip:**
>
> You can use the sample application screen as the maintenance screen for your custom applications.

Revision History

Doc. Revision	Driver Version	Author	Date	Description of changes
A	1.00	Lourenço Teodoro	Mar/17/1999	First driver version.