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## **CTI Comet USB User and Developer Guide**

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## Have I Got Everything?

Please check the package contents and make sure you have all the equipment listed below. If you find you have something missing please contact us immediately.

### *Package Contents*

- I. 1 x CTI Comet USB
- II. 1 x USB Cable
- III. 1 x Telephone cable



# Installation

## Connecting the unit

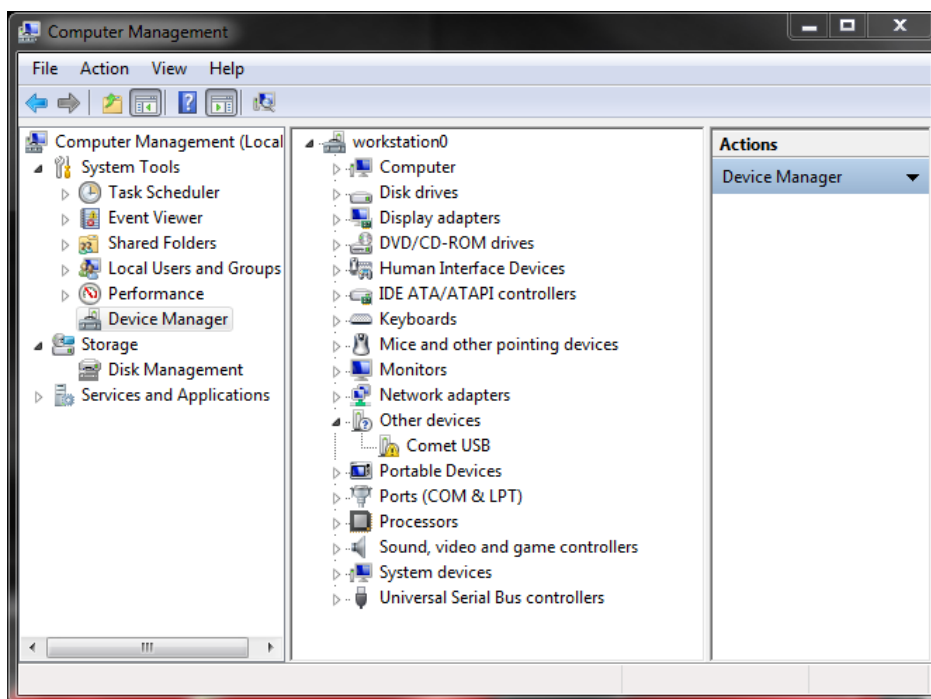
**Step 1** – Unpack the CTI Comet USB parts and check the package contents with those on page 4.

**Step 2** – Connect the Comet to the computer using the supplied USB cable and connect the Comet to the telephone line using the remaining cable.

**Step 3** – Install the drivers for the unit. This is outlined in the following section.

## Installing the Drivers

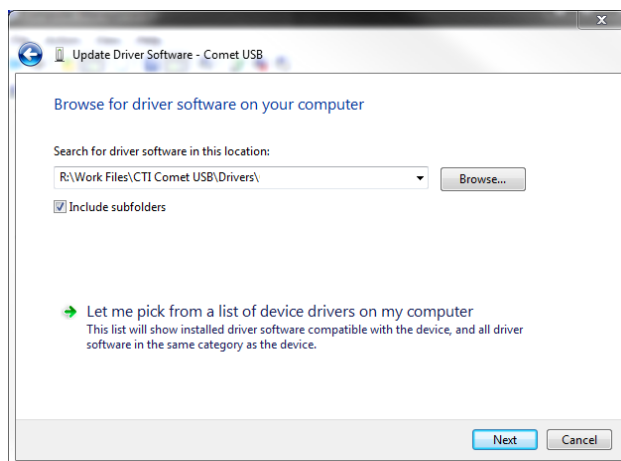
**Step 1** – Right click on my computer and then select “Manage”. Once the window has loaded, select device manager on the left.



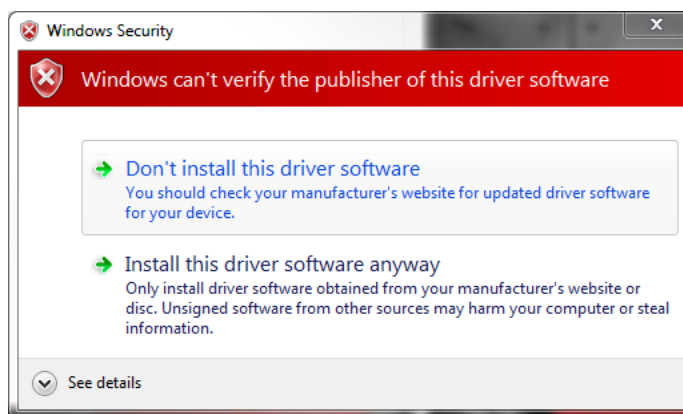
**Step 2** – Download the Comet USB drivers from <http://www.crucible-technologies.co.uk/products/WEB-COMET> and extract the files or insert your driver CD.

**Step 3** – Right click on “Comet USB” shown under “Other Devices” and select “Update Driver Software”.

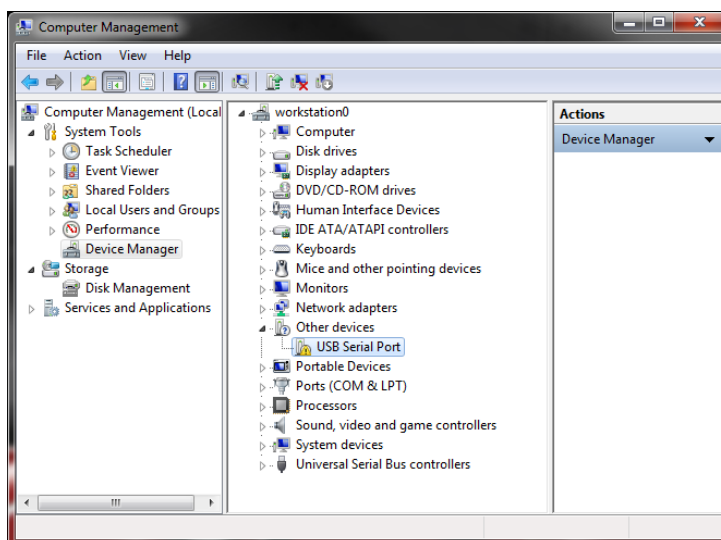
**Step 4** – Select “Browse my computer for software drivers” then selecting either the location of the downloaded drivers or the location of the driver CD and then click “Next”.



**Step 5** – Windows will then warn you that it cannot verify the publisher of this driver software. Click “Install the driver software anyway”.



**Step 6** – Once the driver has been installed you will then need to repeat steps 3 to 6 for the “USB Serial Port”.



# Development Notes

## General

The Comet is a device for decoding the Caller ID from the telephone line and presenting it on a virtual serial Port on a PC. With appropriate application software, the Comet will allow the display and recording of the caller ID information and time/date of an incoming telephone call.

The following information describes the operation of the device and gives some details about the presentation of the data. This should allow CTI software developers to provide turn-key applications. Some information regarding Caller ID is also presented.

**NOTE:** The Comet is a hardware only product and is not supplied with any software apart from the device driver required to allow it to connect as a virtual serial port on a Windows PC.



## Specification

There are four major types of Caller ID to be found around the world. They can be categorized as follows:

- US FSK: Ring, FSK data, Ring.

- ETSI FSK: Ring, FSK data, Ring.

- BT FSK: Line reversal, FSK data, Ring

- ETSI DTMF: Ring, DTMF data, Ring

The Comet is designed to work with all of the FSK data formats ie US FSK, ETSI FSK and BT FSK. It can do this because it detects ring OR line reversal signal as the start of the Caller ID sequence.

There are minor differences between the FSK types as to how the data is formatted. However, the Comet does not try to interpret the data it receives from the PSTN. It checks the data for errors by using the checksum and then passes it as received to the PC. In this way, any differences between the FSK types can be resolved with the application running on the PC.

The Comet detects and reports on only the Caller ID information on the telephone line.

## Hardware

The Comet is powered from the USB interface. When the unit is connected to the USB port the red LED comes on to indicate that the unit has power. When a call comes in, the green LED flashes to indicate information being received and sent along the USB. The green LED will also flash when information is written to the virtual COM port. This can be a useful diagnostic e.g. to check that the service has actually been switched on by BT, or that the telephone line is connected.

## Specification of Data

The serial data is presented at a baud rate of 1200, with 1 start and 1 stop bit. The data is sent whenever there is activity on the telephone line. The Comet does not receive any data from the PC.

### Caller ID Structure

Within the FSK data types, there are two types of message structures. The one used in Europe (including the UK) and most of the US is known as the Multiple Data Message Format, MDMF, and is described below. The other message structure is known as the Single Data Message Format, SDMF, and is not described here. It is only used in some parts of the US. The MDMF Caller ID message typically consists of the following.

<b>Message type</b>	1 byte
(always sent)	
<b>Message length</b>	1 byte (= all the bytes to follow, except the Checksum)
(always sent )	
<b>Parameter type</b>	1 byte
(at least 1 sent)	
<b>Parameter length</b>	1 byte (= x)
<b>Parameter</b>	x bytes (actual displayable information)
<b>Parameter type</b>	1 byte
<b>Parameter length</b>	1 byte (= y)
<b>Parameter</b>	y bytes (actual displayable information)
....	( more parameters. Actual number of parameters sent can be 1 or more)
<b>Checksum</b>	1 byte (used for checking for any errors)

**Message type**

For valid Caller ID this will in most instances be 80H. For message waiting 82H is sent but this is little used. In general, if 80H is not received from the serial port, the whole Caller ID string can be discarded.

**Message length**

This is a total of all the bytes to follow, except the Checksum. It is useful as an error check.

**Parameters**

This is the actual payload of the Caller ID data. There are a number of parameters that are defined. The most important ones are outlined below. Any other parameters received need to be accounted for, but then can be ignored.

**Time & Date=01H**

This parameter is always sent with a length of 8 and is structured as follows. (This can be assumed to be "real time" accurate to within 1 minute and can be used to update the PC clock if required.)

First 2 bytes	Month
Next 2 bytes	Day
Next 2 bytes	Hours
Last 2 bytes	Minutes

**Calling Line Number=02H**

The maximum length of the number sent is 18 characters. Spaces and/or dashes are sent as delimiters.

**Reason for absence of number=04H**

This parameter is set as follows:

WITHHELD=50H (P ASCII)

UNAVAILABLE=4FH (O ASCII)

**Calling Line Name=07H**

This parameter was initially designed to send the callers name. However, international calls have "INTERNATIONAL" in this field, and some payphone calls have "PAYPHONE" in this field.

**Call Type=11H**

This parameter is only sent for ETSI FSK and BT FSK. In general it can be ignored. There are three call types defined:

Voice call	01H
Ring back when free	02H
Message waiting	81H

## Message Example

Byte sent (decimal)	Description
128	<b>Message Type</b>
34	Message Length
17	<b>Call Type Parameter</b>
1	Parameter length
1	Call type = 1 (Voice Call)
1	<b>Date &amp; Time Parameter</b>
8	Parameter length = 8
49	1
48	0 (Month = 10)
49	1
48	0 (Day = 10)
48	0
51	3 (Hour = 3)
51	3
48	0 (Minutes = 30)
2	<b>Calling Number Parameter</b>
10	Parameter length = 10
49	1
50	2
51	3
52	4
53	5
54	6
55	7
56	8
57	9
48	0 (Number = 1234567890)
7	<b>Calling Name Parameter</b>
7	Parameter length = 7
80	P
69	E
84	T
69	E
82	R
32	(Space)
82	R
161	<b>Checksum</b>

## USB COM Port Auto Find

The Comet USB uses a virtual COM port on the computer to keep some legacy support. On our website we have some Visual Basic .NET code that automatically returns the COM port number of any connected Comet USB devices.

<http://www.crucible-technologies.co.uk/help/comet/cometfind.aspx>

## Interface Software

ActiveCID.Net for Comet is a .Net Framework 3.5 Component designed for Visual Studio.Net that interfaces with the CTI Comet and makes its functionality easily accessible from other applications. ActiveCID.Net allows incoming calls to be monitored. Information for incoming calls includes the full BT & cable caller display message.

ActiveCID.Net is available for purchase from the Crucible Technologies website at <http://www.crucible-technologies.co.uk/products/CACP>.

The ActiveCID.Net software is provided without support.

## **AFTER SALES SERVICE**

At Crucible Technologies we pride ourselves in providing excellent technical support. Having been established for more than 20 years, we know this makes us stand out from other suppliers.

“We will provide unlimited telephone support for 30 days following purchase of the product. Following this period, we will provide unlimited e-mail support for the life of the product. This will allow us to keep the cost of the product competitive.”

When contacting us for support, please have the following information to hand (or include in e-mail):

- Serial number of unit (usually on base of product)
- Where purchased from? (ie directly from us or a reseller)
- Your contact details including tel, fax and e-mail address
- Description of the problem

## **GUARANTEE**

Your Crucible Technologies product is guaranteed for 1 year from the date of purchase. Please keep your invoice as proof of purchase. Should a problem arise with the product, please contact: [info@crucible-technologies.co.uk](mailto:info@crucible-technologies.co.uk) for technical assistance. If you wish to return your product, please contact us via the details on the back page and instructions for returning the product will be given. If you send any items back to us without arranging a returns number then we do not guarantee any repair or refund of the item. This guarantee does not affect your statutory rights.



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