



Video Conferencing on the Sandwell Broadband Network

This booklet describes the methods for video conferencing used by Sandwell schools.

It covers use of Click-to-Meet, NetMeeting and E164 protocols.

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Video Conferencing on the Sandwell Broadband Network

There are a number of ways that schools can video conference using the Broadband Sandwell network.

The main opportunities are:

- The Click to Meet server, at <http://ctmx.clickinto.org.uk/ctmexpress>
A plug-in will be required for use of this service.
Click to Meet is a multi point conferencing system, i.e. many users can join the same conference.
- IP or E164 addressing
You should use Net Meeting or similar software and enter the IP or E164 address of the system that you wish to conference with.
Currently, E164 using NetMeeting is a point-to-point conferencing system

To use either the Click to Meet, IP or E164 schemes your PC will need to have a valid IP address and a real gateway address. Many PCs in schools are configured with invalid gateway addresses*; this is done to minimize the spread of viruses and opportunities for off-site access.

*If this is the case, ask your school's network technician to set up a static IP address for systems that will be used for video conferencing.

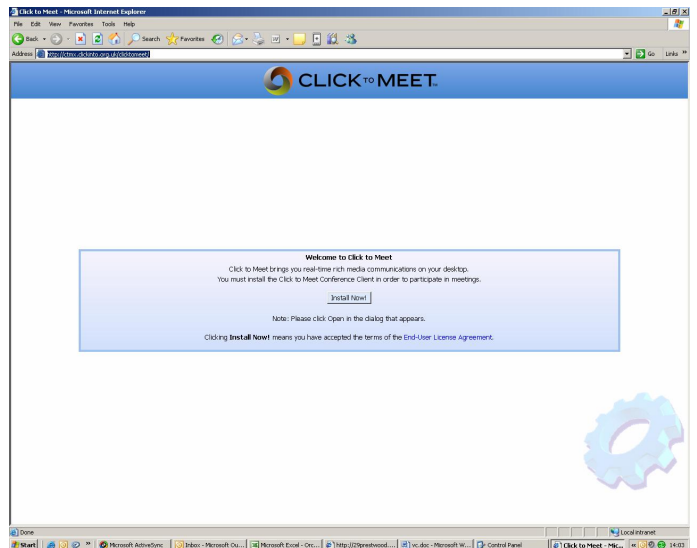
Starting Click to Meet

You will need a computer system which meets the requirements of Click to Meet. See the Requirements section on p.19.

Open an Internet Explorer browser window, and enter the url for the Click to Meet server <http://ctmx.clickinto.org.uk/ctmexpress>.

If Click to Meet has not previously been run on the PC you will have to install the conference client. This is a plug in for Internet Explorer that allows conference information to be transferred over the Internet.

Click the Download Now button to start installing the client.

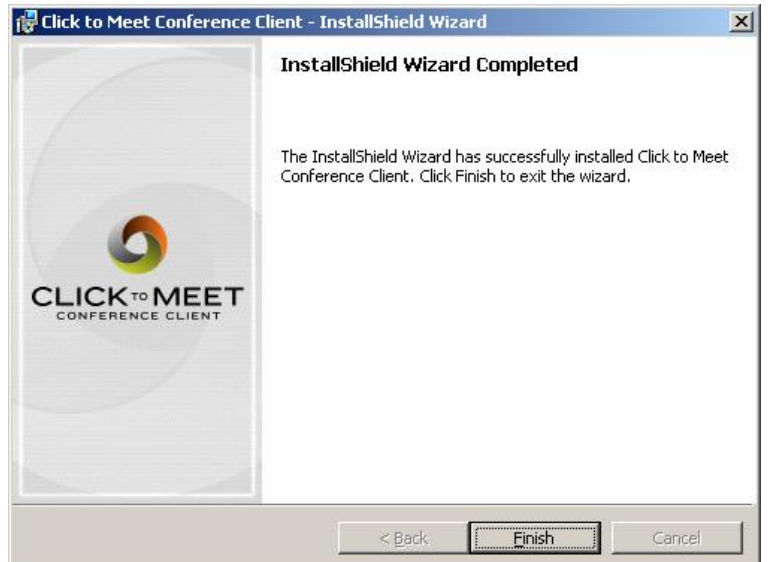


When prompted for File Download, click the Open button to start installation. You may need to have administrative rights on the PC to install software. Consult your network manager if you have problems.



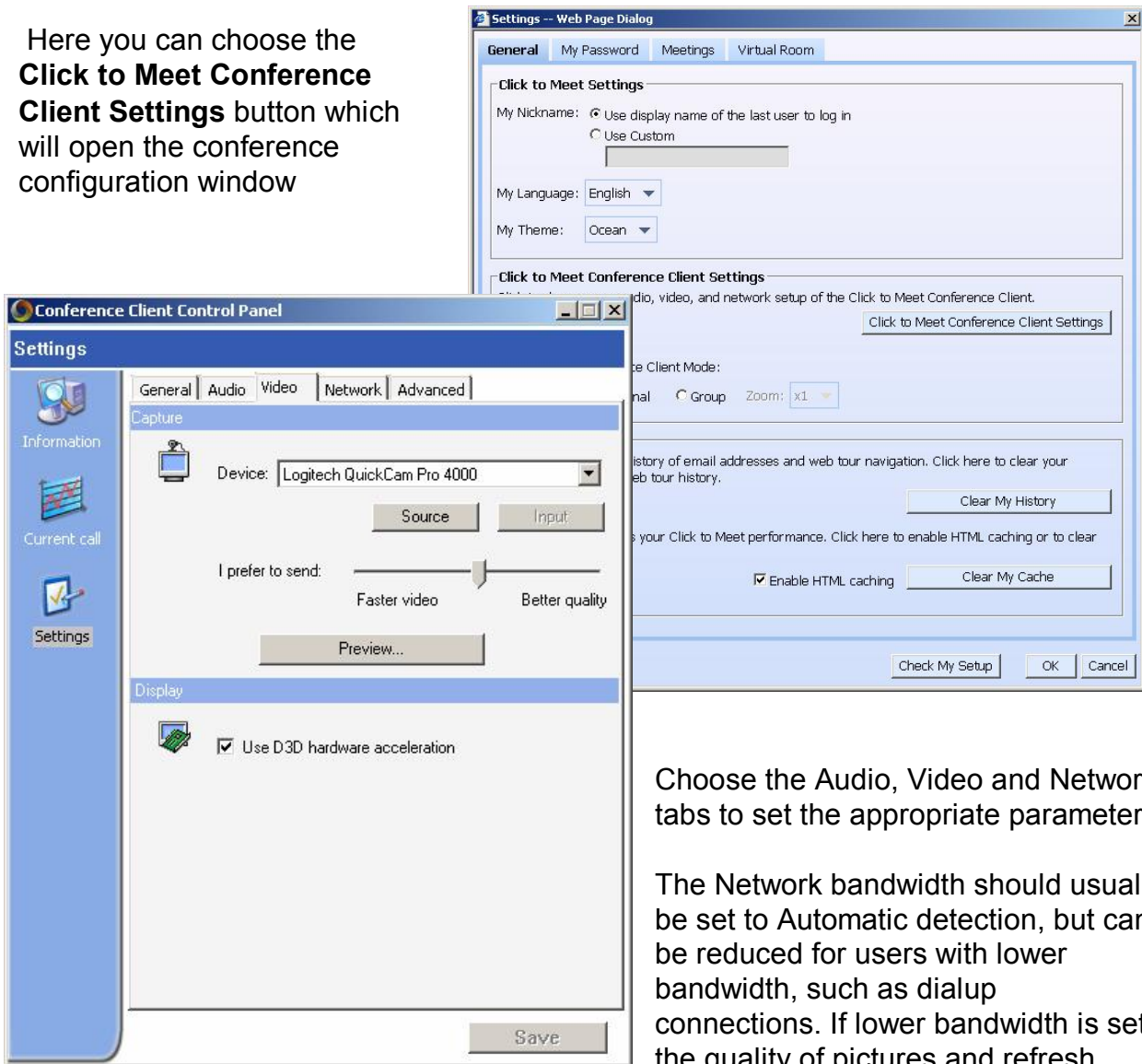
If requested, click to accept the terms of the license agreement, then click Install

Click finish once the installation has completed.



To configure the browser for Click to Meet, click Settings on the top left menus of the main lobby window (see p.7).

Here you can choose the **Click to Meet Conference Client Settings** button which will open the conference configuration window



Choose the Audio, Video and Network tabs to set the appropriate parameters.

The Network bandwidth should usually be set to Automatic detection, but can be reduced for users with lower bandwidth, such as dialup connections. If lower bandwidth is set, the quality of pictures and refresh

rates will be reduced.

The video source should be set to the camera that you wish to use. Some systems work better if the D3D hardware acceleration box is unchecked.

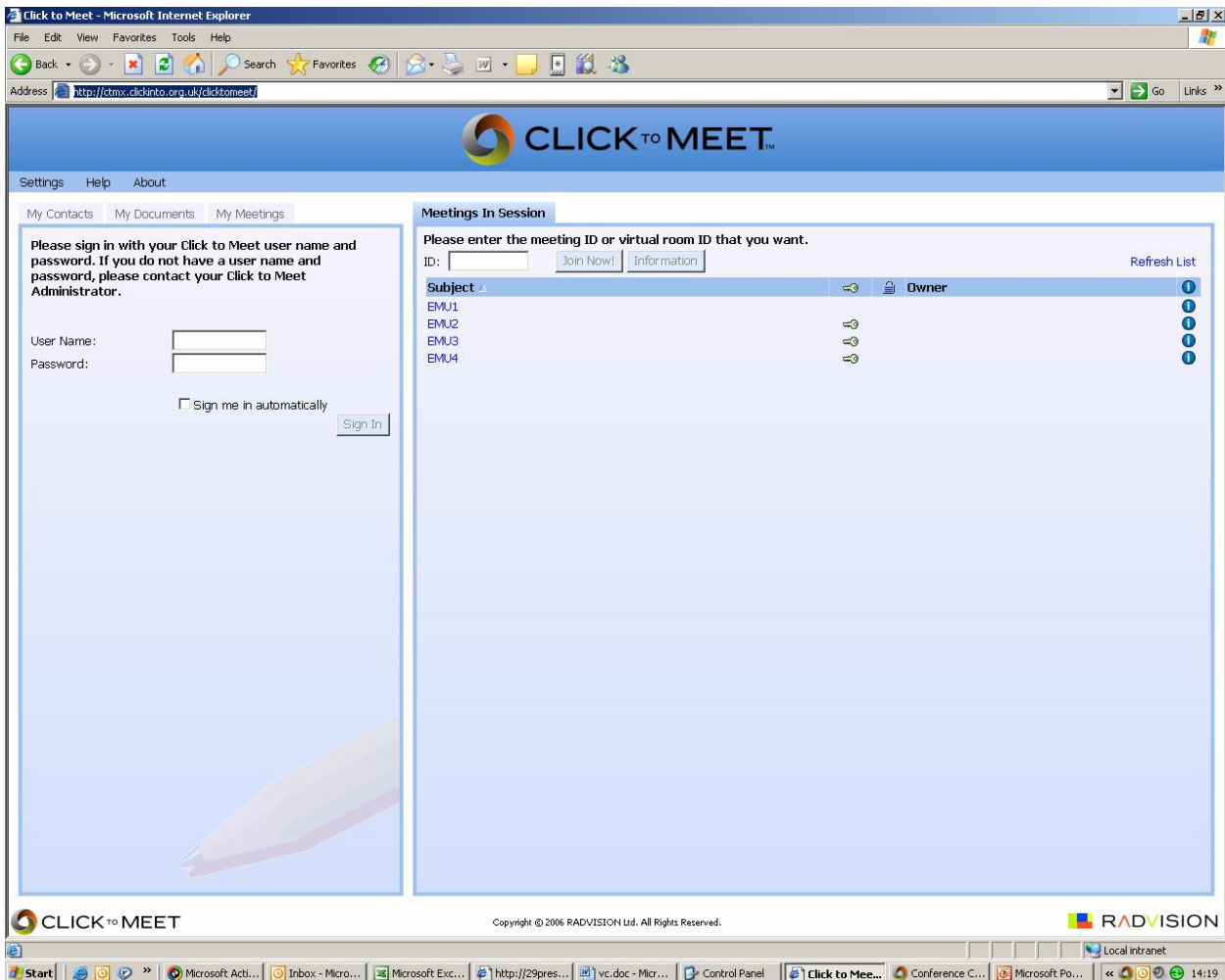
The Audio source refers to the microphone. Either plug a microphone into the computer's sound card or select a different microphone from the list. Please note that some webcams have built in microphones. These may be listed as USB devices here. The Audio playback will be the computer's sound card. Plug in a speaker system or headphones to hear sound from other delegates.

In some circumstances (depending upon the type of microphone and speakers being used) it may be necessary to uncheck the Automatic Gain Control and Microphone Boost boxes to improve audio quality. You should also mute the microphone in the PC's audio playback properties window, to prevent local loopback of the microphone.

Once you have set up your preferred settings, Save and close the settings window.

Joining a Click to Meet conference

Once the system has been configured, you will be redirected to the conference lobby page. This contains a list of conferences that are available.

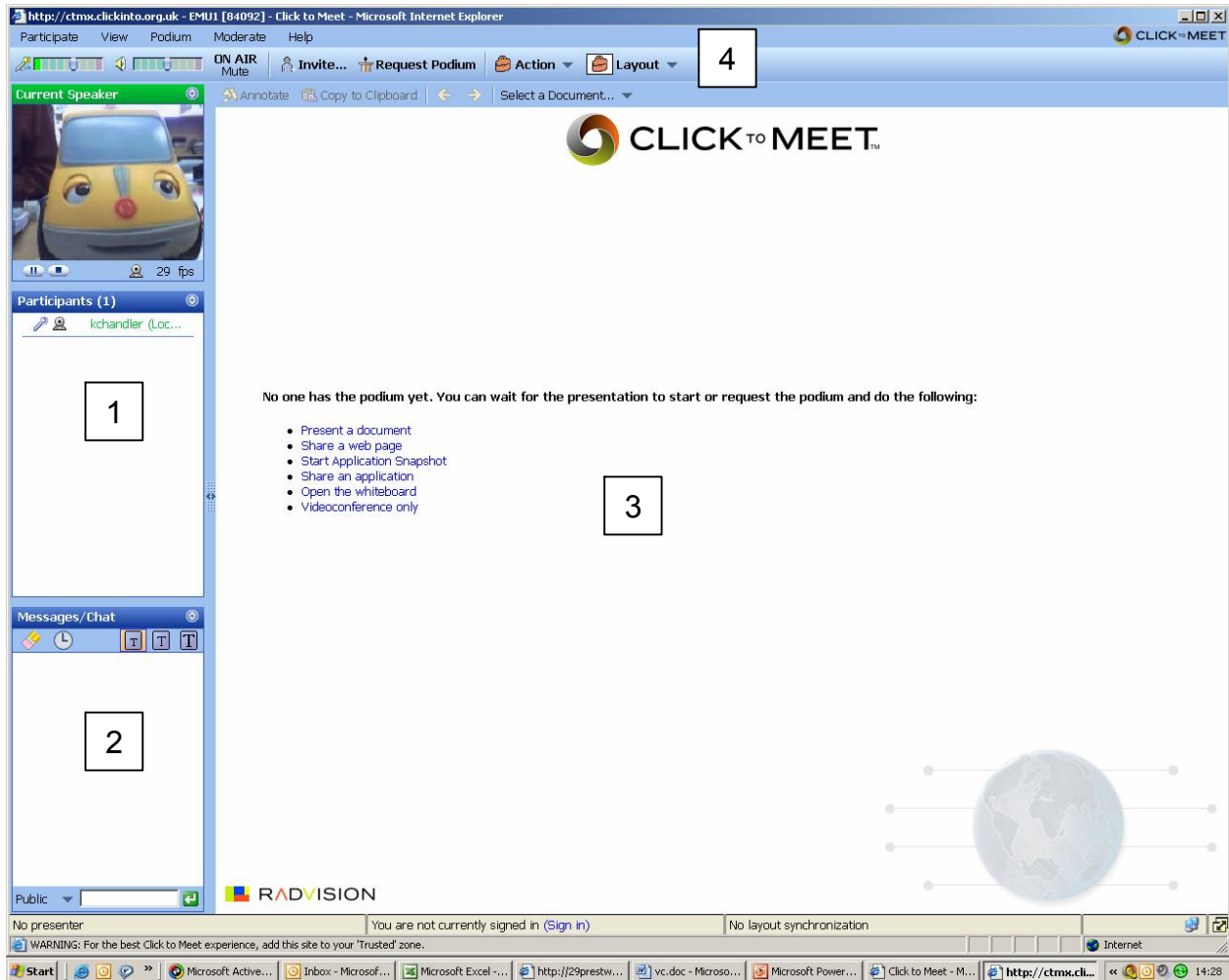


Click on the conference that you wish to join. If the conference is password protected, contact the conference administrator to ask for the password. Please note that passwords will only be given to authorised conference delegates.

If your conference is not listed, contact the conference organiser for the conference number. You can enter this at the top of the page to join the conference. Again, a password may also be needed.

The Click to Meet conference

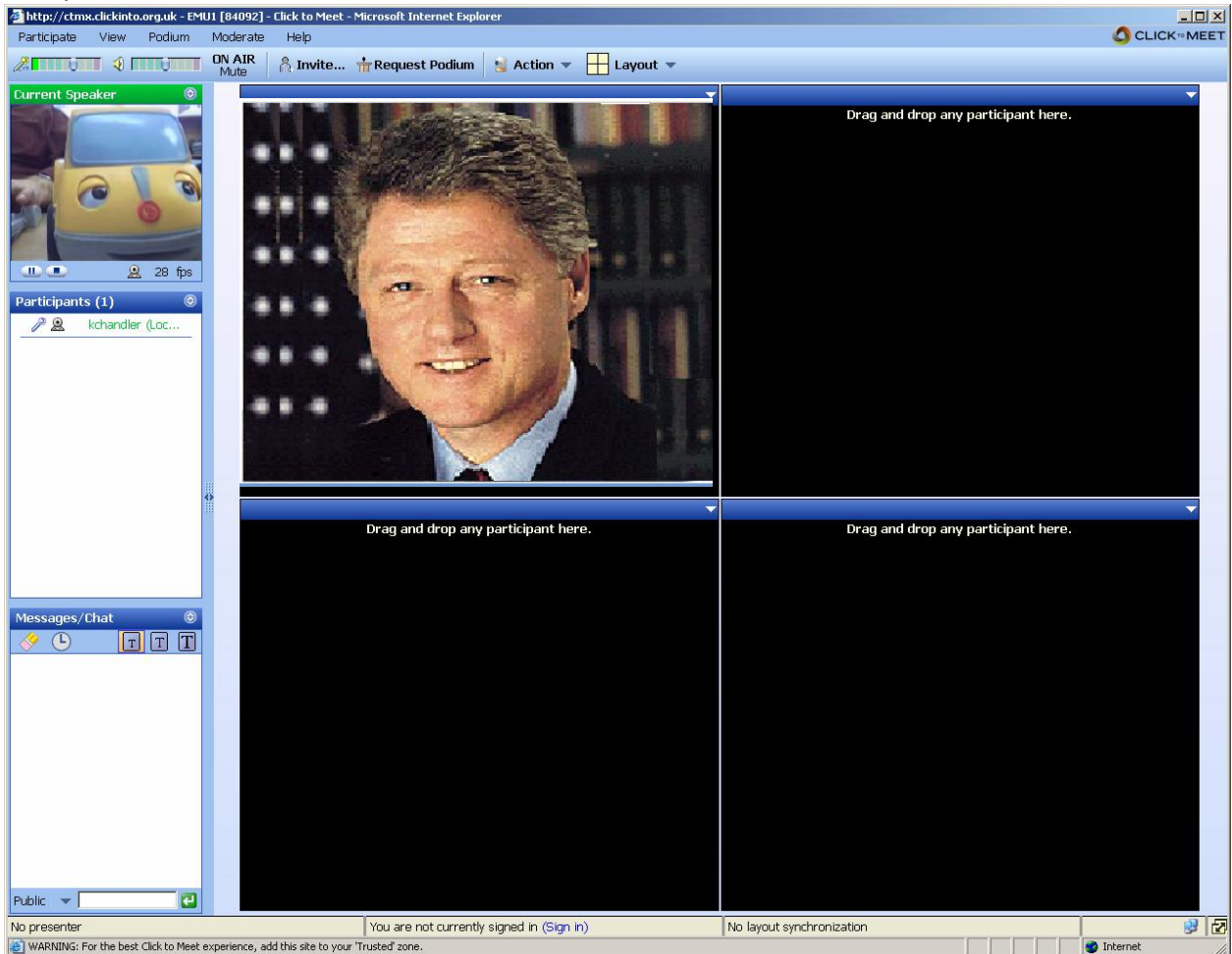
This is the main window that is displayed when you successfully enter a conference:



The highlighted areas have the following functions:

1. list of current conference participants
2. chat dialogue window: type text here and it appears on other participants' screens
3. whiteboard area. Depending on the viewing mode, this is where the focus of the work will be located.
4. tabs allowing access to extra functions

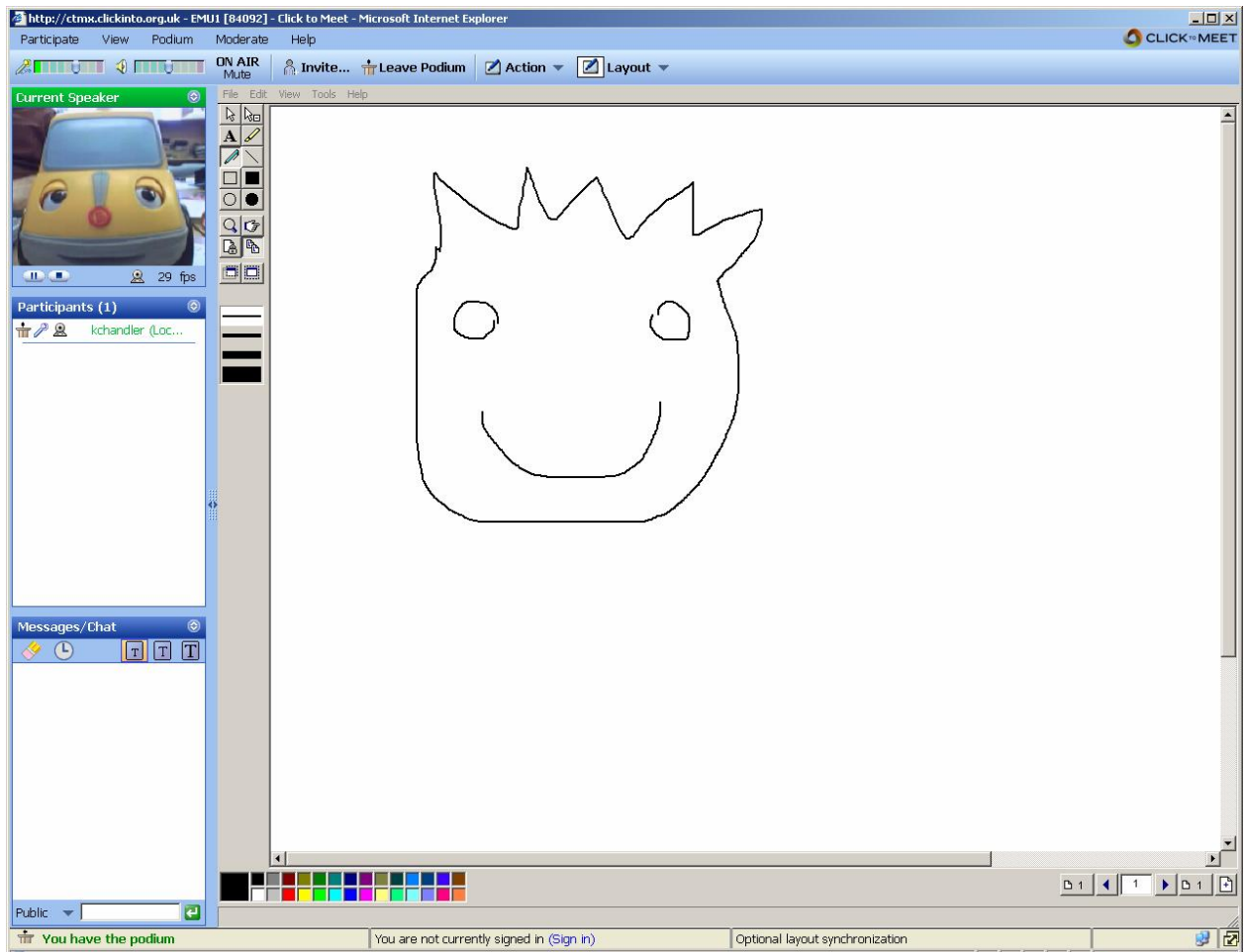
Click on the Video Chat tab to access the video chat window. This window can be configured to show multiple users of the conference. Drag from the participants list to the required empty video window. Change users by dragging another user onto an occupied window.



Different video configurations can be set by clicking on the Layout tab at the top of the screen.

Whiteboarding

The whiteboard tab allows a simple drawing tool to be used to share ideas. Control of the whiteboard is passed between users by requesting and releasing presentation, found in the Presentation menu. Once the conference is controlled by a user, all other users see the same screen as the controller.



Control can be passed between users by choosing request presentation from the Present menu (top left of the screen)

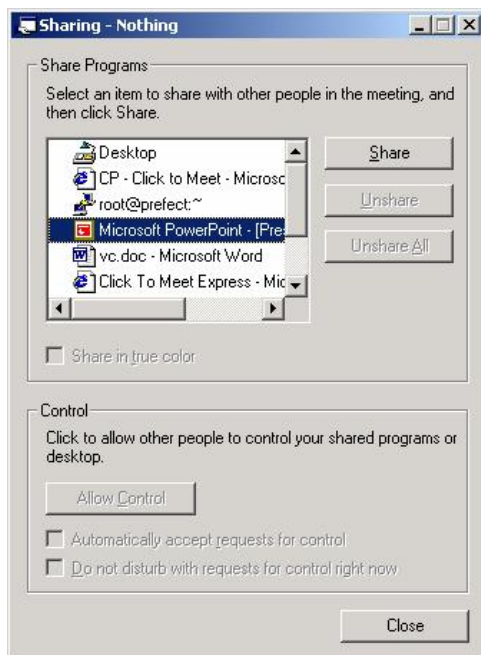
Sharing an Application

To share an application, you must:

- Be the presenter of the conference (click on the Presentation menu and choose Request Presentation)
- Have the desired application running on your PC

Click in the Application Share tab at the top of the screen. Click the link labelled

[Click here to share applications](#)



The dialogue box lists software running on the sharing PC. Highlight the application that you want to share, and then click the Share button.

Control can be passed to other users if the Allow Control section at the bottom of the window is selected.

Once the settings are correct, the application will be shared to the other conference attendees.

Please note that any saves, picture imports and file loading are carried out on the sharing PC. Any work that is saved must then be sent to other participants, possibly by email.

Please note: while you are sharing an application, it must be the top (uppermost) open window on your PC screen.

Video Conferencing Etiquette

Once you are in a conference, there are a number of small items that may require consideration. A full list can be obtained from the Becta website, www.becta.org.uk (type Video Conferencing in their search box). Here is a simple list to illustrate:

- Mute your microphone when you are not speaking; you may not wish others to hear any local comments
- some cameras also have a privacy system, use this to stop outgoing video when and if you need to
- remember to log out of the conference when you have finished. Someone else may be using the room after you and there is the possibility that their activity should not be broadcast (!)
- consider the lighting and acoustics of the room to show your organisation to best effect.

If it doesn't work...

It is best to find out beforehand. Ensure that you carry out a test conference well before the event to check that all systems will go. Problems can occur at either end of the conference, but you should be able to test and confirm that you can connect either end to the Click to Meet server.

Once you have carried out the test connection, LABEL the wiring and equipment or use a digital camera to PHOTOGRAPH the connections so that you can check them at a later date.

For the technically able:

- You will need to ensure that the PC has a valid gateway address. This will be 172.18.xx.254. The value of xx depends upon where on the network the PC is located.
- You may need to bypass proxy for: 172.* and *.clickinto.org.uk in your browser (172.*;*.clickinto.org.uk)

You will need to ensure that the camera's drivers install correctly

Ensure that you and other conference delegates agree the times and dates of the conference

Swap mobile phone numbers so that you can communicate with the person at the other end if they fail to log on at the agreed time; have they got problems, forgotten, or just mixed up the expected dates?

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Alternatives to Click to Meet

There are currently 60 concurrent licenses on the Click to Meet server. These are “concurrent” licenses, meaning that up to 60 users can connect at once. The 61st user will be asked by the software to wait until a user logs out so that a license is freed.

At present, no restrictions are placed on access to the service. If necessary, a license booking scheme will be activated and conference managers will “book” licenses and time in advance.

It is possible to video conference with other users without connecting to the Click-to-Meet service. All Windows PCs have a program called NetMeeting, which allows simple one-to-one video conferencing using a number of connection systems, including ISDN, IP and E164 (see below).

To start NetMeeting, either:

- find and double click on the NetMeeting icon, or
- click on start, Run, and type CONF in the dialogue box

Please note: the first time NetMeeting is run, you will be presented with a Configuration dialogue. Choose options that do not connect NetMeeting to a Directory.

Before placing a call, ensure that NetMeeting is running on both PCs.



To call another NetMeeting client, type in the IP ADDRESS of the other computer in the box at the top of the window. You can determine your IP addresses by clicking Start, Run, and typing CMD to obtain the Command window, then type IPCONFIG at the prompt.

```
CMD.EXE
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

c:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

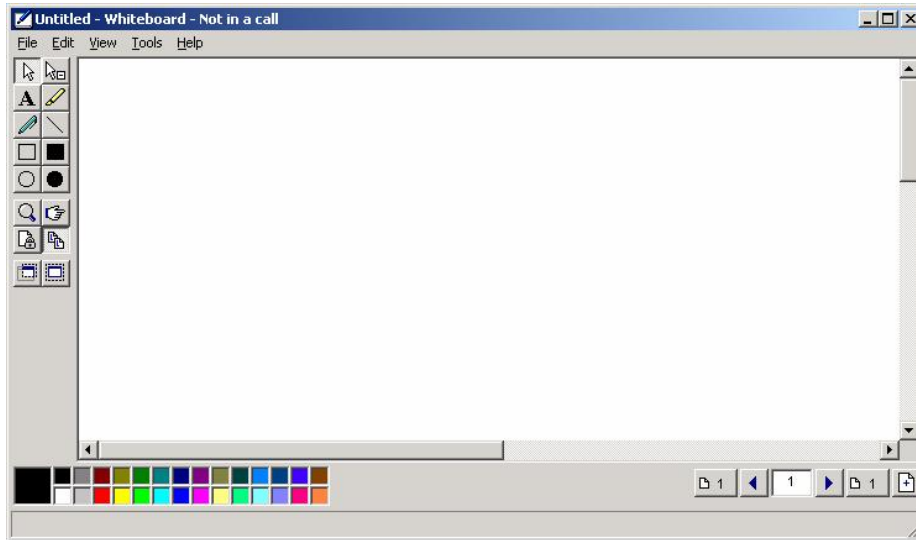
    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 172.18.7.172
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 172.18.7.254

c:\>
```

Here, the IP address is 172.18.7.172. Yours will be different to mine.

Once a connection is established, it is possible to view both video windows (View..My Video from the NetMeeting window), and to change the size of the other user's video display (Tools..Video..Window Size).

There is also a facility to share a whiteboard, as with Click to Meet service.



Calls to users outside of the school will require the use of a Gatekeeper service. The developing standard for this is E164, which is in place in Sandwell. Other users may not currently be able to connect to E164, but as the system is implemented, this will be resolved.

E164 Numbering Scheme

E.164 is a telephone number like numbering scheme that allows one Video Conferencing system to dial another by calling its E.164 number instead of the user having to know its IP address.

UKERNA has developed a national E.164 addressing scheme for Local Education Authorities and Regional Broadband Consortia to which Broadband Sandwell adheres.

Structure of Addresses

The structure of each E.164 address will accord to the following scheme.

UKERNA assigned		End user assigned. The schema detailed here is that recommended by the RBC Technical Group for use throughout all RBCs.		
International Prefix	Local / Regional Prefix	Category	Organisation ID.	End-Point ID
0044	02xxx (5 digits). Sandwell = 02158	1 digit	4 digits	3 digits

The RBC Technical Group recommends that the **End-user assigned** part of the address is structured as follows:

Category	A single digit defining the category of connection. This has a defined set of values, and therefore can be used to interpret the following digits of the address. UKERNA maintains the list of defined values on behalf of the RBC Technical Group. To date four values have been defined:	
	1	School
	2	Public Library
	3	Local Authority
	4	Adult or Community Learning Centre
Organisation ID	4 digits to define the particular organisation within category. For a school this will be the last 4 digits of the 7-digit DfES national school number (i.e. it will be unique within a LEA). For Click! Learning centers this will be made up of a number indicating the first three letters of the Learning Centre ID, followed by the remaining three digits of the Learning Centre ID LCA = 1 LCO = 2 LCW = 3	

End-point ID	3 digits to be defined by the organisation to identify individual endpoints within the organisation's site(s).
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Example 1 – School Video Conferencing End Point at Abbey Infant

Site Category: **1 (School)**

Organisational ID: **2102 (DfES number)**

End-point ID: **001 (End-point number 1)**

Resulting E.164 number: **0044 02158 1 2102 001**

Example 2 – Learning Centre Video Conferencing End Point at Smethwick Bangladeshi Youth Forum

Site Category: **4 (Learning Centre)**

Organisational ID: **LCA001 (A=1 + Learning Centre Code)**

End-point ID: **002 (End-point number 2)**

Resulting E.164 number: **0044 02158 4 1001 002**

E.164 Gatekeeper

It is the job of the gatekeeper to maintain a mapping of E.164 number to IP address of each registered end-point. Also, the gatekeeper has a H.323 proxy function that allows end-points both inside and outside of the Broadband Sandwell network to communicate using H.323.

In order to use E.164 addressing the end-point must register with a gatekeeper. Registration is normally automatic once the gatekeeper IP address has been configured into the end-point.

Please configure your H.323 Video Conferencing end-point with the following gatekeeper address: 217.65.158.8 (gatekeeper.clickinto.org.uk)

The full UKERNA document can be found at
<http://www.ja.net/schoolsbroadband/E164.pdf>

E164 Site Details

The examples above give the possibility for large numbers of E164 addresses; the list can be found at www.schools.sandwell.net/emu/broadbandinfo. A username and password will be required to view the website. The log on detail are the same as those used for the LEA's Extranet. Please ask you head teacher for the logon details.

Remember to:

- configure your H.323 Video Conferencing end-point with the following gatekeeper address: 217.65.158.8 (gatekeeper.clickinto.org.uk),
- ensure that the PC has a valid gateway address
- check that the target PC that you are conferencing with is also configured correctly!

Recommended Specification

While not a minimum specification, as Click to Meet should work on most recent computer systems, we recommend the following (well, we would, wouldn't we):

2GHz P4 processor
At least 512Mb RAM
64Mb graphics RAM
10/100 NIC

Windows XP with Service Pack 2
DirectX v.9
Windows Media v.9
Internet Explorer v.6

Internet Settings

Ensure that all Gateway addresses in use on PCs inside the Broadband Sandwell network are set correctly
Ensure that you have an Exception in your Internet Options for 172.*;*.clickinto.org.uk

