

Do away with the clutter of cables for wireless networks offer a simple and convenient way to connect computers. A look at how it works

are you still wired?



Dipayan Choudhury

Out of sight, out of mind—that's the term most sceptics might use to describe wireless networks. But with the market for wireless communication booming, wireless technology is now capable of reaching just about every corner of the earth. With new developments in the wireless arena, the tried and tested cabled LAN is beginning to take a backseat. As thousands of people exchange information through cellular phones, pagers and other

wireless devices every day, it's not surprising that wireless technology is making inroads into the field of personal as well as business computing.

With the growth of digital networking technologies that enable the transfer of data at higher speeds, the foundation has been laid for wireless digital data transfer. Today, almost all organisations, small or big, share information over the digital network. But the problem with such networks is that all the points in the network are hard wired. On the other hand, with

wireless networks you get the advantage of immense mobility. Now network users can move around anywhere even as they are still connected to the LAN.

An important feature of wireless LAN is that it can be used independently of a wired network. This means that multiple computers can easily be linked without the need for an extended cabled network. Take the case of a client servicing person in an ad agency. He might constantly be shuttling between the client's office and his own office, and may often be managing data at



both ends. Now suppose he has a laptop with a wireless client adapter, and both the client's office and his office use wireless networks. Then, when he walks into a room that has devices and other computers running wireless LAN, a connection with these devices can be immediately established and data transfer can take place. Thus, he doesn't have to worry about carrying a floppy or CD along for data transfers. As you can imagine, the flexibility offered by wireless LAN is immense.

One can visualise this without too much difficulty if you consider a meeting in which employees use computers with wireless connectivity without any cumbersome wires running between any of the computers. This 'ad hoc' network can be brought up and torn down in a very

short time as needed, either around the conference table and/or over a larger area.

The wires in wireless

One of the technologies proposed for achieving wireless and mobile LAN was that of using mobile IP addresses (*for more details, see story, 'Seamless Connectivity', CHIP, September 2000*). In 1990, the IEEE 802 standards group for networking set up a specific group to develop a wireless LAN standard similar to the Ethernet standard. On June 26, 1997, the IEEE 802.11 Wireless LAN Standard Committee approved the IEEE 802.11 specification. This step was of great importance as it provided the industry with a clear-cut specification for new products and components. This specification basically covers three aspects: FHSS (Frequency Hopping Spread Spectrum), DSSS (Direct Sequence Spread Spectrum) and IR (Infrared) physical layers. While the IR-based wireless system uses the invisible part of light, the Spread Spectrum (SS) systems basically use radio frequencies (RF) and the advantage is that they can coexist with other radio systems. In an SS system, the bandwidth used to transmit the signal is much greater than what is actually required.

DSSS vs FHSS

Initially the technology used for achieving a wireless LAN revolved around DSSS technology as it uses similar equipment as that used in the direct satellite broadcast industry. But as the technology advanced, FHSS became more popular and it became the industry standard by 1998.

In the DSSS methodology, a given signal at a given frequency is taken and spread across a band of frequencies where the central frequency is the original signal. A spreading code is applied to the transmitted signal to generate the spread signal. The spreading algorithm, which is the key, changes with time. This gives robustness to this system and when the ratio between the original signal bandwidth and the spread signal bandwidth is very large, the system offers great immunity to interference. Because the bandwidth is much wider than the minimum required, the amount of energy transmitted per specific frequency is very low. As a result, the signal does not interfere with the activity of other systems' receivers in the same area. This ensures smooth flow of data and it's also difficult to jam this data. Since the message may be present

on different frequencies, it can be recovered from here in case of an error. However, in actual conditions of wireless LAN, where the bandwidth is limited (DSSS systems have to be able to receive the energy present in their 'working band' which is about 20 MHz), the ratio of the spreading gets limited and therefore you don't get the best resistance against interference.

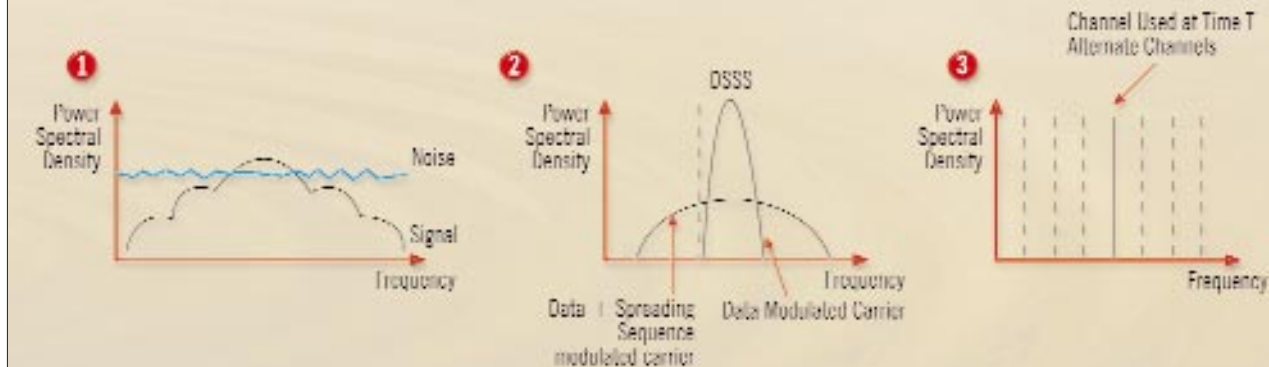
FHSS is much simpler in operation. Here, the data is sent through channels for a very short period but at a speed of more than 1 Mbps. Thus, a small fraction of data is transferred in bursts in a very short period of time. The data is transferred at a frequency which remains constant for a very small time and is then shifted to another frequency. The sequence of the frequency is determined randomly, which means the codes are repeated after a long time—typically after 65,000 unique codes. This makes this system very stable against interception and interference, especially since there is no 'spreading ratio'. But the level of interference also depends on the hardware filter that is used to reduce the interference.

Configuring networks

According to the IEEE proposal, there are two ways to configure a network, either as an ad hoc workgroup or an infrastructure work group. In an ad hoc network, usually every node can communicate with all other nodes as there is no fixed point in the network. This can be helpful if you are having a meeting of top executives. All the executives can get their laptops or handheld computing devices with their wireless ports to the meeting point, and be immediately connected to each other. Of course, in such a network, one machine acts as a master and the rest are configured as slaves. There are even special algorithms that operate for this wireless network to ensure identification of nodes and broadcast.

In an infrastructure workgroup, you have the fundamental building block of 802.11 wireless network structure, the architecture cell, known as Basic Service Set (BSS). The BSS has one or two wireless stations and a base station known as the Access Point (AP). All these stations communicate using the common MAC protocol (Medium Access Controller protocol, which is equivalent to the network card in a wired connection). You can also form a distribution system by connecting the access points together using Ethernet or other wireless protocols.

Wireless Technology based on Radio Frequency



Infographic: Jaya Shetty

In Spread Spectrum (fig 1), a radio is required to distribute the signal across the entire spectrum and cannot remain stable at a single frequency. The signals appear as noise in the band. Direct Sequence Spread Spectrum (fig 2) takes a signal at a given frequency and spreads it across a band of frequencies where the central frequency is the original signal. Frequency Hopping Spread Spectrum (fig 3) is based on the use of a signal at a given frequency that is constant for a small amount of time and then moves to a new frequency.

The wired data

Apart from the actual topology for a wireless network, there's also the question of data transfer to be addressed. Vital questions that immediately spring up are those related to the range over which a wireless network can be spread and secondly, the speed of transfer. Other considerations also include the interference or deterioration that the data faces.

The user density as also the expandability of the network is to a large extent determined by the capability of each node to counter interference. As mentioned before, a wireless network may be formed by using either radio frequency (RF) or Infra Red (IR).

The RF system is used normally in cases where the communication has to take place over long distances and all the points are not in the line of sight. RF signals can even travel through solid objects such as walls, so networking is possible even where there is no direct contact. Because of the SS modulation system used by the RF system, it can operate in the license free portion of the spectrum called the ISM (industrial, scientific and medical) band.

The license free bands place a limit on the broadcast power of any transmitter. Work on this technique started as early as World War II. In this technique, the signal appears to be noise in the band, and therefore is difficult to find and jam. This technique modifies itself well to the operating conditions of the Wireless LAN, and also provides for security of the data being transferred. Although there are several bands available for the

transfer of data, the most commonly used band is between the range 902-928 MHz, 2.4-2.5 GHz and 5.7-5.8 GHz. Even out of these, the 2.4-2.5 GHz is most popular as it is available for use in most countries. The 900 MHz bandwidth, on the other hand, is right now available only in the US.

An IR-based wireless system uses the invisible part of light. It is used normally where the computers are within line of sight and distances between systems is not more than 3 feet.

Unlike RF systems, IR cannot penetrate through solid materials, and there is signal deterioration even due to glass. So, one cannot actually imagine a wireless LAN with IR, but this is quite useful if you consider mobile devices or PDAs with docking stations within a range of 3 feet. In such systems you get speeds up to 1 Mbps when the distance between the host and the remote machine is less than 2 feet.

Wireless LAN is capable of operating at speeds in the range of 1-2 Mbps depending on the actual configuration of the network. Initially, the speed of the network, as specified by IEEE, suggested that the wireless network would have a throughput that would be five-10 times less than a wired network.

But when actual data transfers had taken place it was not as slow as the raw figures suggested compared to wired networks.

In FHSS, transfer rates are limited to just 2 Mbps while in DSSS, transfer rates are closer to that of Ethernet at 10 Mbps. DSSS thus has an advantage over an

FHSS system due to continuous data transmission, but has higher susceptibility to interference and also generates more interference.

The range of a wireless LAN largely depends on the type and placement of the antennae and the environment in which the system is operating. Using multiple antennae, which are physically separated from each other, is a common practice to improve the range of the wireless LAN. This is because the radio waves will be frequently reflecting from buildings, trees and other opaque objects.

Large antennae placed at a height above the ground will have a better range than an antenna that is low lying. The environment also plays a great role in the range. If the two communicating stations are within line of sight of each other, the range definitely improves.

The wireless world

With the promise of truly wireless communication, the possible uses and applications of wireless LAN are virtually limitless. Also, since there are many devices available today (such as Apple's AirPort network) that use this technology, there's greater likelihood of its widespread implementation. ■

Sites to visit

www.ndclan.com/Wireless/wireless.htm

Detailed aspects of wireless communication

www.ieee.org

The page for standards relating to all networking components and technologies

THE BACKBONE OF CONTENT

Thinking about videoconferencing or other bandwidth sapping applications? Unless you have been implementing multicasting backbone networks, you better think again



Illustration: Sean D'Souza

Gagan Sameer Juneja

It's a bandwidth hungry Internet world, and people out there are trying to implement the best technology that can squeeze in more bytes. Especially when it comes to streaming video and audio applications, resource management of bandwidth can increase speeds to a great extent, and that's where the different technologies come in.

Traditional network transfers take place using unicast protocols. Unicast refers to communication where data is sent from one single point or source to another specified destination or point. In such a scenario, there is still only one

sender and one receiver. The TCP suite (http, ftp, telnet, etc), which operates over the Internet, uses unicast. Unicast routers perform the task of transferring data from a local area network to a wide area network. So, if a particular node wants to send the same data to many destinations, it has to repeat the transfer that many times. Now, suppose that you are in a conference with five people. If you had to send data to all the recipients in a unicast fashion, you would have to send the same data five times. This would obviously increase the bandwidth requirements.

On the other hand you have broadcast and multicast technologies. In broadcast communication, data is sent from one

point to all the other points in the network. In this case there is just one sender, but the information is sent to all connected receivers in the network. So, if we take the previous conference example, many of these receivers will not be interested in the conference, but they will receive the data anyway. This also results in the wastage of bandwidth. Normally, the routers between one subnet and another subnet will not let broadcast packets pass through. Subnet refers to the portions of the network that share a common address segment.

Multicast technology, on the other hand, allows for data to be sent from one or more points to a specific set of other

points. So, there may be many senders as also many receivers. Again, unlike unicast, the data is not repeatedly sent to all the nodes. Rather, one copy of the data gets sent to all the receivers (or routers) from where it goes to the multiple receivers (*see infographic, 'How Networks Transmit'*).

Multicast data is therefore quite useful when information is sent from a single point to multiple recipients. For instance, take a video server which is used to telecast television programmes in multiple channels over the network. If the server were to send the same programme over and over again to multiple recipients, then even high bandwidth networks would find themselves starved of capacity.

Currently, experiments are underway with multicast backbone (or MBone), which runs over the Internet using IP Multicast (IP Multicast basically allows you to send data from one source to many destinations in networks using the TCP/IP suite).

MBone architecture

The MBone architecture, apart from using the IP Multicast Protocol, also makes use of 'tunnels'. The MBone network basically consists of different 'islands' which support multicasting. Each island will have one computer or router which has the ability to encapsulate and re-encapsulate multicast packets. These routers are connected to each other via unicast tunnels. The routers of the Internet segment are not aware of the multicast IP packets they are carrying since these packets are encapsulated within normal IP packets. This system of encapsulating or hiding multicast packets inside a standard unicast packet so that it can move over a unicast router is known as tunnelling. When this encapsulated packet reaches a multicast router (or mrouter), the packet is taken out and then distributed to the intended receivers as required or re-encapsulated to be sent to other mrouter. These mrouter can be ready-to-multicast routers or even computers dedicated to handle multicasting with appropriate software support which work in concurrence with the existing standard unicast routers.

Given that MBone works over the same Internet network and the media (cables, routers, etc) are also the same, it is also termed as a virtual network.

Multicast works with Class D of IP addresses, that is, addresses from 224.0.0.0 to 239.255.255.255, which have been reserved. All mrouter will have an IP address from these reserved slots. In MBone, a sender does not know who all will be receiving the packet. So, it is up to the receiver to ensure that it is a part of the multicast address group. If a computer or node wants to receive packets with multicast addresses, it issues an Internet Group Management Protocol (IGMP) request. As a result, the mrouter for that node will inform the other routers that such multicast packets will also have to be delivered to it.

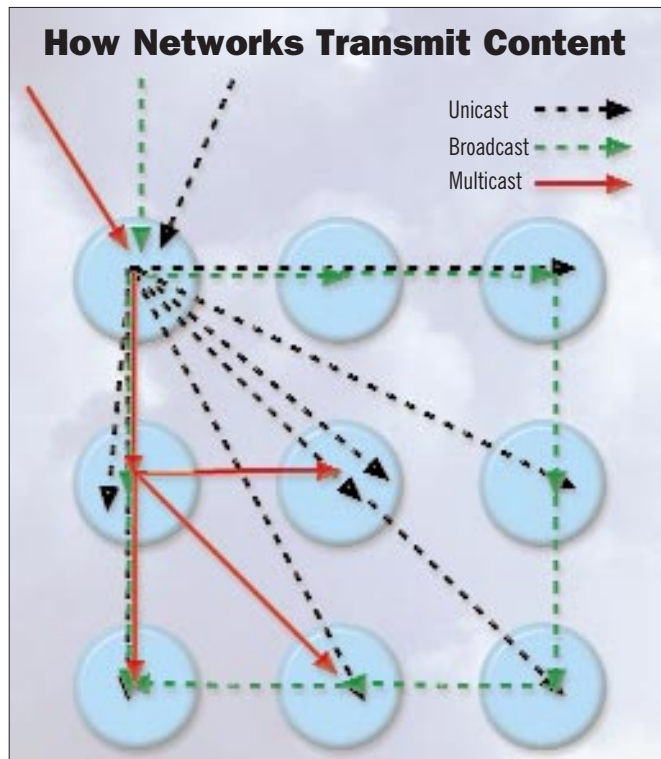
Basically, a client who wishes to send a multicast packet will place it over the local network. This packet will be picked up by the mrouter for that local network. Then based on the addresses the mrouter has, it will decide through which tunnels the multicast packet must travel. As it passes through the tunnel, it passes other mrouter which pick up the packet. If there are any clients in the mrouter's network who want to receive such packets, the mrouter will deliver it to that network. Also, the mrouter will forward the packet through tunnels to the next mrouter on its address list.

Initially, when there were not many mrouter using MBone, the packets used to travel to each router. With increasing users, there was a slight trimming of this list. Now, if an mrouter receives a packet for which it does not have any clients in the subnet or it

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has no tunnels to forward to, it drops the packet and also sends a signal ahead that it no longer wants to receive packets with that address. Again, when a client joins a particular address group, the mrouter for that client sends a signal that it now wants to receive packets with that address.

The benefits of using MBone or a multicast network are immense. For starters, many servers do not have to bother about sending data to many recipients, thus reducing the load on sequential unicast sessions. You can send information across to many people at the same time and, therefore an MBone network is quite useful for content or streaming media. The bandwidth saved can be used effectively for many services that would other-



As can be seen from the infographic, in a unicast environment (black arrow) the packets are delivered one-by-one to all the nodes. In a broadcast environment (green arrow), the packets pass from one node to another and thus reach all the nodes. In multicasting, on the other hand, the packets go through tunnels to mrouter which then transmit the packets to only those nodes that have requested for the specific data

wise have clogged the network. Multicast is quite useful for distributed applications and optimises performance to a great extent. There are a number of audio and video applications that can make use of the multicast technology. It makes it possible to have video and audio channels, videoconferencing, distance learning, kiosks, multimedia books or multimedia mail on a wider scale than before. For example, MBone is used for transmitting data from NASA's space shuttles. Another use of MBone is seen for corporates who can send software updates at a go or transfer huge databases across branches, instead of sending them one by one.

Presently, multicasting does have industry and vendor support and the cost of changing over to a multicast network isn't much if your network equipment has been purchased recently. Yet, there are bottlenecks, bugs and problems as the experimental MBone is being put to more widespread use, but it does carry with it the promise of many useful applications over the Internet. 🇮🇳

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Corrupt user profile, damaged registry, missing system files, error in Yahoo! Messenger's voice chat, cluttered desktop, display troubles... solutions to these and other problems




Virus in E-mail

I received an e-mail with a Fix2001.exe attachment, which even my anti-virus software allowed. After a few days I got an error message, titled Fix2001 that reads 'Illegal Operation'. Even though I have deleted the exe file, the error message doesn't close, so I have to restart the computer. I am also facing problems while working with Outlook and IE 5.

Ravi

Via e-mail

 This is a worm named I-Worm.Fix2001 which spreads through the Internet. The worm functions only in a Windows 9x environment. It installs itself into the system and hooks into Windows' Internet-access functions.

It retrieves e-mail addresses from the default mail client and sends copies of itself to them along with a message written in two languages, English and Spanish. When executed, the 12 KB file copies itself to the Windows\System folder. It creates a command in the Run registry key to launch itself every time Windows starts.

The worm has a very dangerous payload that is activated in case the text string in the worm's body is patched or corrupted (which is possible because the worm is transferred via Internet channels). In this case the worm overwrites the C:\Command.com file with a DOS trojan that erases all data on the hard drive the next time the computer boots.

To remove the worm, first search for a file named Fix2001.exe and delete it. Then open the Registry Editor and navigate to HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run\, If there is a value labeled Fix2001, delete it. Close all windows and restart.


Missing System Files

I have a Windows 98 system and every time I shut-down or start my computer, I get an error message that says that some system files have been replaced with older versions. The file C:\Windows\System\D

deml.dll is listed as the missing file. Please provide a solution for this.

Nallakkan

Via e-mail

 This problem occurs if a program you install replaces a system file on your computer but does not properly update the system file information stored on your computer or in your registry. To rectify this, rename the Ddeml.dll file in the Windows\System folder to a .xxx file extension. Extract the Ddeml.dll file from your original Windows 98 disks or CD-ROM to the Windows\System folder. To do this, in Windows 98, navigate to Start > Programs > Accessories > System Tools > System Information > Tools > System File Checker or simply run sfc.exe from the Run command in Start menu. Select Extract one file from installation disk and enter the filename you want to extract. The file you extracted should be in the Windows\Sysbckup folder. Now restart your computer.


If this doesn't work, then you have to register the Ddeml.dll file in the system registry. For this, click Start > Run, type regsvr32 c:\windows\system\ddeml.dll and click OK: . You will receive a message confirming that the registration process was successful. Restart your computer.

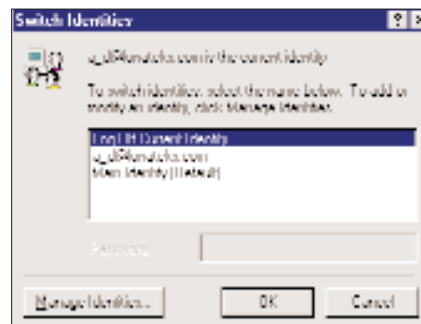
Password Protecting Outlook Express

When I open the address book it asks for my password but after I close the program and open Outlook Express, it opens without asking for my password. How do I ensure that it asks for a password each time?

Saurabh

Via e-mail

 When you open the address book directly from Start > Programs > Accessories > Address Book, you will be asked for a password for the particular identity. When you close the Address Book, Outlook Express still considers that identity as the current identity. Now, if you open



Log off identities before quitting Outlook


Outlook Express, it logs on to the same identity. To avoid this, you need to log off when you exit the Address Book. In the Address Book, go to File > Identities, select Log Off Current Identity and click OK. Now if you open Outlook Express, you will be prompted for a password.

Error Exporting Messages from Outlook Express

When I export my messages from Outlook Express (version 4.0) from File Menu > Export > Messages, I get an error message which reads: 'The export could not be performed. An error occurred while initializing MAPI'. However, the address book is being exported properly without any errors.

Rahul

Via E-mail

 This can happen if you configure Outlook Express as the default Messaging Application Programming Interface (MAPI) client. To work around this problem, restart your computer and start Outlook Express. Go to Tools > Options. Under the General tab, clear the Make Outlook Express my default Simple MAPI client check box and click Apply. Click OK when you receive the prompt, The Simple MAPI client has been changed. You may need to restart your machine for the change to take effect.

Quit Outlook Express and restart your computer. You should now be able to import or export messages without any hassles.



Offline Browsing

Is there a way to delete temporary Internet files and still keep files saved for offline browsing? Will it make a difference to system performance if I keep a large space on the hard disk, say 500 MB, for temporary Internet files? Can I copy my Favorites from another computer to mine?

Aftab

Via e-mail



In Internet Explorer, go to Tools > Internet Options. Under Temporary Internet Files, click on Delete Files. Here, it will ask you if you would like to delete the offline content also. Uncheck this box and click OK.

If you assign a space of around 500 MB for temporary Internet files, there would be a slight decrease in system performance as Internet Explorer will slow down while indexing and searching through the temporary Internet files. IE's caching algorithm is not very efficient either so such a large cache would be mostly wasted. Try a maximum cache size of 100 MB, or use third party software such as Netsonic.

You can copy files from the Favorites folder (in the C:\Windows directory) of one PC to another using a floppy. You can even copy the entire Favorites folder. A better option would be to upload the files on some online bookmark site from where you can share the Favorites folder and make it available offline with the help of your browser. You could try the services provided by www.myhq.com, www.syncit.com or www.iharvest.com.



Cleaning Up the Desktop

When we right-click on the taskbar, we can create the desktop as a toolbar so that all desktop items come to the taskbar. But the files on the desktop still remain. Is there a way to remove these items so that the desktop is clean?

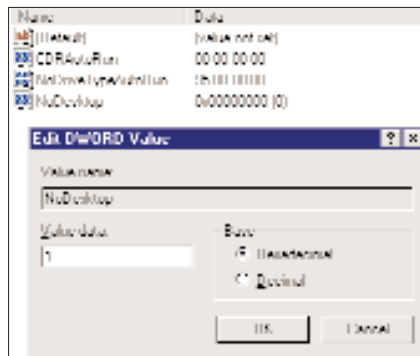
Muthu Krishnan

Via e-mail



A simple solution to the problem would be using Active Desktop. Go to Start > Settings > Active Desktop > View as a Web Page. Right-click on Desktop, go to Properties > Effects. Click on Hide Icons when viewed as Web Page. This will hide all icons on the desktop but it ends up using a lot of memory.

Another, riskier but more efficient, way to do this involves editing the registry. Back up the registry before you make any changes. In Start > Run type regedit and click OK. In the Windows Registry that opens, navigate to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer and right-click in the right



Change registry settings

pane. Click on New > Dword value and name the value NoDesktop. Double-click this value and in Value Data, change the value from 0 to 1; click OK. Exit the registry and restart Windows. You will not see the icons on the desktop, but will be able to see them on the taskbar. To get the icons back, change the value back to 0 and restart the machine. Note that you will not be able to view the desktop properties when you right-click, nor will you be able to autorun CDs.



An Unfit Display

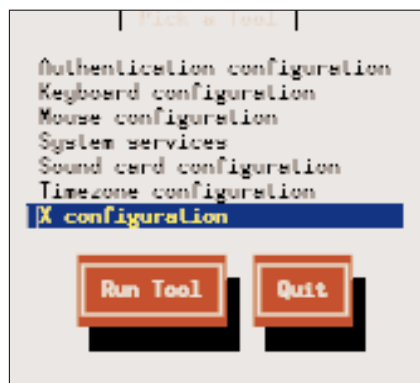
I tried installing Red Hat Linux 6.0 from the CHIP CD. The installation was successful but when the X window system started, the display was huge. I have a 14-inch Microtek monitor and the display spills out of the bounds of my monitor screen. How can I correct this?

Vipin

Via e-mail



The problem could either be because your graphics card is not supported under Linux, or because X window system is not configured properly. You should find your video card model and manufacturer, and look for drivers on the Internet at either the manufacturer's Web site or driver repositories around the world. You can download the latest Xfree86-SVGA file, which is available at



Configure X using setup

[ftp://rpmfind.net/linux/caldera/LTP/col/install/RPMS/XFree86-SVGA-3.3.6-6.i386.rpm](http://rpmfind.net/linux/caldera/LTP/col/install/RPMS/XFree86-SVGA-3.3.6-6.i386.rpm).

If you have the right drivers then the problem is because you have not configured X window system properly. Log in as root, type setup at the terminal, and press Enter. Go to Xconfiguration and press Enter. Linux will either detect your card or will ask you to configure it. If it does not detect your card, choose Custom. You should know your monitor's refresh rate, which can be obtained from the monitor's manual. Otherwise, use a refresh rate of 60 Hz, which is supported by most monitors. Using a trial-and-error method, you can find the best resolution for your PC. Choose a higher resolution, which should take care of your problem.



Corrupt User Profile

My Netscape Communicator sometimes shows a message that reads: 'This program has performed an illegal operation and will be shut down'. When I click on Details, it reads: 'Netscape caused an invalid page fault in module KERNEL 32.DLL at 0167: bff9db61'. The browser continues to work but this message remains on the screen even after I click on Close. The only way I can get rid of this message is by restarting the machine. Can you help me solve this problem?

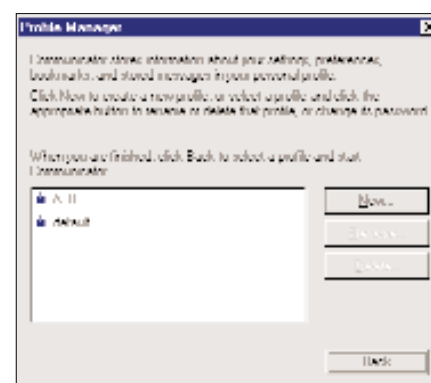
S.C. Jeswal,

Via e-mail



The likely cause of the error message is a corrupt User profile. To create a new user profile, shut down Communicator. Go to Start > Programs > Netscape Communicator > Utilities > User Profile Manager and create a new profile using the exact mail server settings as in your old profile. Make sure to give a different name to the new profile so that it doesn't overwrite your old profile. Check to make sure that the new profile is working, and then shut down Communicator.

In Windows Explorer, navigate to C:\Program Files\Netscape\Users*. Go to the old



Creating a new Netscape Profile

PROBLEM OF THE MONTH

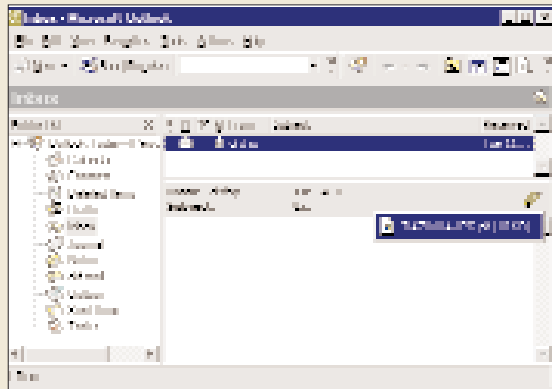


Virus, Worm or Trojan?

The W95/Dengue virus has infected my computer. I cannot remove it because McAfee 4.03 does not detect it. I cannot access anti-virus Web sites such as Symantec and McAfee for updates. How do I remove this virus?

Mayur

Via e-mail



One kind of MTX attachment



This is a new virus named MTX (W95.MTX). It is part virus, part worm and part backdoor Trojan. It arrives as an e-mail with no subject line or text body but includes one of several randomly chosen attachments. A user must double-click on the attachment to infect the system.

The virus and worm do no damage to the infected computer, but the Trojan opens port 1137 and has the potential to download destructive programs. MTX ranks 4 on the ZDNet virus meter but flaws in its execution have so far limited its spread.

The flaw causes Windows to prompt the user with an error message each time MTX tries to access the Internet. (For more detail on the virus, see *Pulse*, November 2000)

One way to deal with this virus is to delete the infected files. Restart the computer into DOS-mode and delete dropped files (mtx_.exe, ie_pack.exe and win32.dll in \Windows directory). Replace the infected files from backup at the DOS prompt.

You can also install the latest Outlook Express patch from <ftp://ftp.microsoft.com/peropsys/IE/IE-Public/Fixes/usa/Eyedog-fix/x86/q240308.exe>

Also, install the latest update of any anti-virus package. Symantec, AVG and McAfee are some which have the MTX fix.

```
attrib -h -r -s system.*
copy system.dat system.bak
copy system.da0 system.dat
attrib -h -r -s user.*
copy user.dat user.bak
copy user.da0 user.dat
attrib +h +r +s system.*
attrib +h +r +s user.*
```

These commands overwrite corrupt files with the working version of the same file. Restart your machine. Windows 95 should now be able to load without any error messages.



Trouble with Voice Chat in Yahoo! Messenger

When I try to use voice chat in Yahoo! Messenger, I get the following error message: Your computer does not support the required audio compression format. How can I rectify the error?

Deepak

Via E-mail



If Yahoo! Messenger isn't able to locate the DSP Group TrueSpeech audio compression (Codec) software on your computer, then you get this error. To install/enable this Codec, go to Start > Settings > Control Panel > Multimedia. Now, click on the Advanced tab. Click on the plus symbol next to Audio Compression Codecs to expand the list of installed Codecs.

If DSP Group TrueSpeech Audio Codec is not displayed, it needs to be installed. You will need your Windows setup CD for this. Open Control Panel > Add New Hardware icon. Click the Next button. When you are prompted whether to search for new hardware, select No and press Next. Select sound, video, and game controllers from the Hardware type and press Next. Select DSP Group from the Manufacturers list and TrueSpeech Software Codec from the Models list, then press Next and click Finish. Restart Windows for the effects to take place.

If you still face the error or the DSP Group TrueSpeech Audio Codec is listed in the Multimedia tab, select DSP Group TrueSpeech Audio Codec from the audio compression Codecs list and click Properties. Click Use this audio Codec and click OK. That should solve the problem. ■

profile name and copy the Mail folder, the News folder, the bookmark.htm file, the abook.nab file, and any .na2 files into the new profile directory. Check to make sure that everything is working and then go back to the User Profile Manager to delete your old profile.

If you still get 'illegal operation' messages, you may have a corrupt plugin folder. Go to C:\Program Files\Netscape\Communicator\Program and rename the plugins folder as oldplug. This should solve the problem.



Damaged Registry

I have a system running on Windows 95. During boot-up I get the following message: 'The registry could not be loaded. There is not enough memory or the registry is corrupt. Some devices may not be available.' After this the computer boots into Windows. Although I do not have a problem with any device, unlike in Windows 98, there is no program such as scanreg.exe in Windows 95. Even after reinstalling, I still get the same message, but have not come across any non-working device or

any other problem within Windows. Please help.

Amrish Kelkar

Via e-mail



The error message occurs because the registry is damaged. To fix it, when you start the computer, hold down the Shift key when you see the wallpaper of your desktop until all disk activity stops. This will ensure that Win95 skips the startup folder.

After Windows has finished booting, shutdown immediately. Restart the computer and bring up Win95 again. The error message should be gone now. Run RegClean 4.1, as a precaution.

If this does not fix the problem, restart your PC and keep the F8 key pressed during the startup sequence. When you get the boot menu, select Command Prompt Only mode. At the C: prompt, type the command, cd windows and press Enter. Now type the following commands, and press Enter after each command:

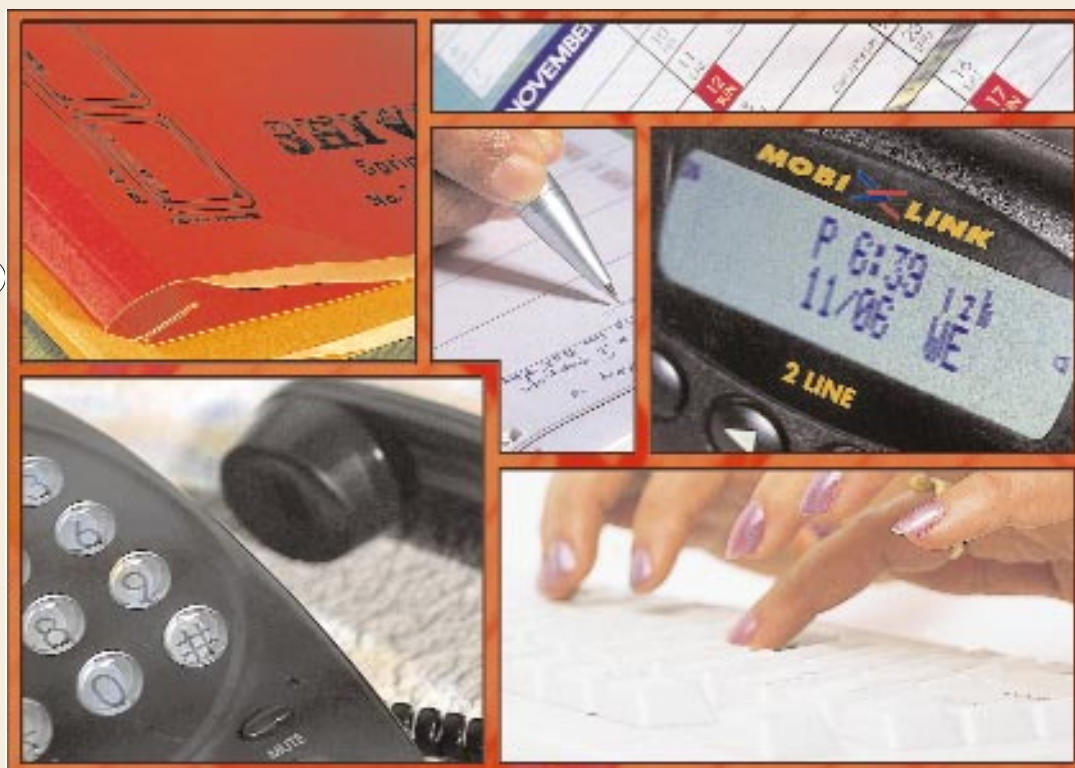
DO YOU NEED HELP?

Bring your queries
and problems to

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At your Fingertips

Personal Information Manager (PIM) software offer a convenient way to store your contact lists, schedules, ToDo lists, etc. And if you are on the move, you can access your lists through some Web-based PIMs. Let's take a look at how to best utilise these PIMs



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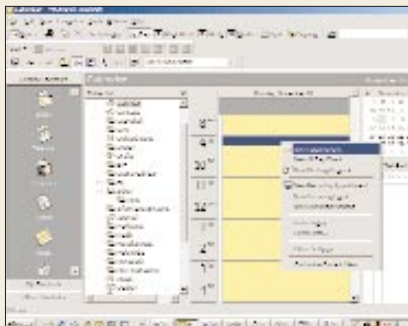
DESKTOP-BASED PIMS

OUTLOOK 2000

Outlook 2000 is one of the most popular personal information managers available today. It comes along with Office 2000, and offers many features.

Making appointments

While the usual way to make an appointment in Outlook 2000 is through the File > New > New Appointment menu, a better method is to use

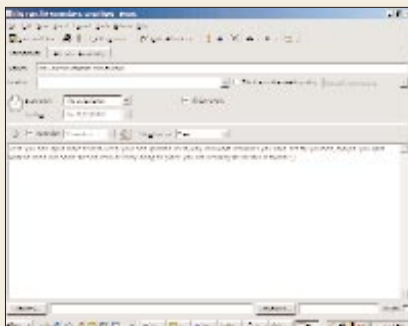


You can create new appointments from the Calendar

the Calendar. Just open the Calendar, and select the date and time when you want an appointment, right-click and select New Appointment and fill in the details.

Setting free appointments

When you create an Appointment in Outlook 2000, the appointment time shows up as busy on your Calendar. But if you want to show the Calendar schedule as Free when you make a new Appointment, just click on the All day event checkbox. Now, the event will show up at the top of the Calendar

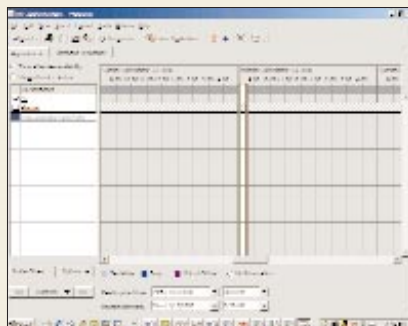


Use the All day event checkbox to set your status as free

as a banner, while your calendar remains free. The advantage of this is that when others view your calendar, the time on your calendar is not blocked out and the status for the entire day is set as free.

Turning an appointment into a meeting

To initiate a meeting from an appointment you have fixed, in the Appointment menu, click on the Attendee

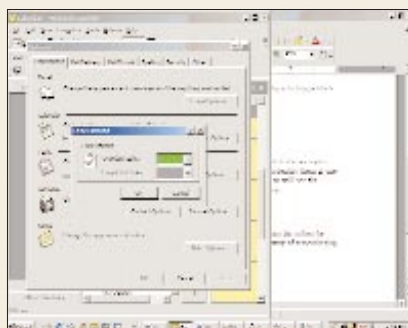


Invite other contacts to attend the meeting

Availability tab, and invite the other contacts and resources. In the Appointment tab, specify the location and then click on Send. This will send the message about the appointment to the selected contacts and initiate the meeting.

Using colour schemes for Tasks

If you want to identify the status of your tasks at a glance, then it is a good idea to use colour schemes. Looking at the colour you will come to know whether the task is due or it is completed. To do

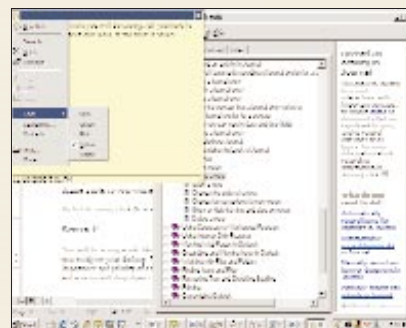


Colour coding makes tasks easier

this, go to Tools menu, click Options and select the Preferences tab. Click on Task Options to change the appearance of tasks. Select the colours for 'Overdue tasks' and 'Completed tasks' from the screen you get.

Note-making with Outlook

In Microsoft Outlook 2000, Notes are the electronic equivalent of sticky notes. You can use Notes to jot down your personal queries, reminders and anything else you would normally make a note of.



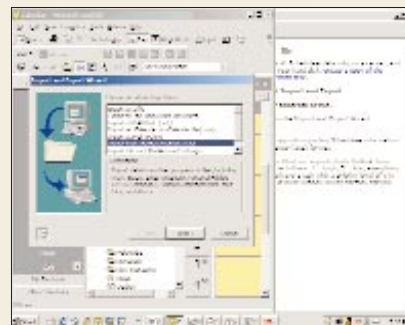
You can add colours to your notes in Outlook 2000

To create a Note, in the File menu, click New and select Note.

It's also possible to leave the notes open on the screen while you work, and any changes you make are automatically saved. You can also change the colour of your note to signify the importance and priority of a task. For this, click on the icon on the left hand side of the note. From the drop-down menu, click on Colors and choose the colour you want to assign.

Importing from Schedule+

If you are used to working with Schedule+, then don't sweat because you can easily import your data to Outlook 2000. In Outlook, go to File Menu, click Import and Export option and simply follow the instructions in the resultant

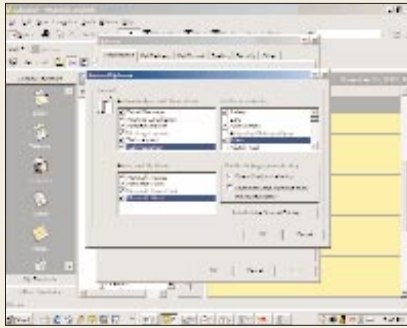


Outlook allows you to import Schedule+ files

wizard. Make sure to select Import from other program or file, and then select Schedule+ from the list. Follow the instructions of the wizard and the data will be imported into Outlook.

Recording journals

Journals offer a cool method to note down your daily log, or even important conversations. You can automatically have certain items such as e-mail messages or meeting requests entered into



Journal options allow you to automatically record items

the Journal. For this, click Options from the Tools menu and click on Journal Options in the Preferences tab. Here, you can select the items to be automatically recorded.

Shortcuts for Outlook

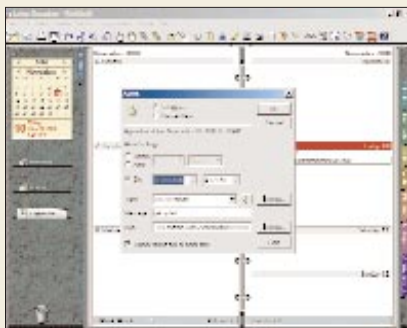
New Task	Ctrl+N
New Appointment	Ctrl+Shift+A
New Note	Ctrl+Shift+N
New Task Request	Ctrl+Shift+U
New Contact	Ctrl+Shift+C
New Meeting	Ctrl+Shift+Q
New Journal Entry	Ctrl+Shift+J

LOTUS ORGANIZER

This PIM from Lotus offers you utilities such as To Do list, contact manager, phone call manager and anniversary reminders.

Automatically opening files with alarms

When you have set an alarm for a specific time, you can also ensure that certain events take place with the alarm. One of these is automatically opening the files. In the main menu select the appointment and the time for the alarm. Along with this, give the complete path of the file or the application to be opened, or click the Browse button to locate the application if you don't



Setting alarms in Lotus Organizer

remember the path. When the alarm gets activated, you will get a box which describes the nature of the appointment. After you Dismiss the box, the application opens.

Right-click for faster access

When you right-click on a Notebook entry, you get a pop-up menu, which lets you set the attributes for that particular entry. Right-clicking on any of the sections of the Lotus Organizer file lets you set the preferences, include a section or add a new section from another Organizer file.

Using drag and drop

When you drag an item from one place in the notebook to another, a copy is not created. Rather, it is created at the place where it's dropped and then deleted from the original place. You can also select multiple items using the Shift and Ctrl keys. The drag and drop function comes in handy when you want to make calls, print or just drop items on the clipboard. Just drag the appointment to the toolbox and drop it on to any of the said applications.

Customising your screen

In the main menu, click on Select section and choose Customize. In the window that opens, click on the Book tab. Here, set the colour as well as texture for the binder. You also have the facility to browse and add your own bitmap from your database. To do this, click Picture and browse for the bitmap file.

Storing logins and passwords

In Lotus Organizer 6, you can organise Web pages and features that store the different user IDs and passwords you use for logging in to different sites. This is a good option if you have e-mail accounts with several Web mail services as you don't have to type in your password and login name—the Organizer will do it for you. To do this, click the Web tab on the main menu. In the New Web Entry dialog box that will open, enter the name of the Web page and the URL. Now click on the Account Detail tab and fill in the login name and password (optional) in the relevant fields.

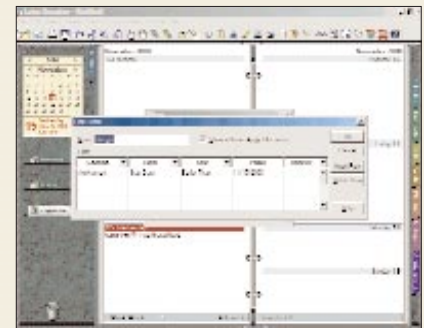
Capturing Web page contents

A very nice feature built into Lotus Organizer 6 is Easyclip, which lets you capture the content from a Web page to

a notepad as you surf. Even when you are purchasing anything online, you can ensure that the screen where you get the confirmation of your transaction gets captured, so that it stays as some sort of evidence in case you require it. Easyclip parks itself in the system tray. When you visit any Web page, just select the contact or content, click the Easyclip icon in the system tray and click Create Contact. The content on the site will get transferred to your system.

Filtering data

You can filter the data in Lotus Organizer so that you can select only specific records. For example, if you want to prepare a mailing list, you can use the filter so that you only get contacts of a particular city. To use filters, click Create in the main menu and select



You can filter data as per categories

Filters. Select Apply and in the new window that opens, fill in the Name, Section, Field, etc and click OK. Then select the name of the filter and click Apply. When you get back to the main menu, select View and click Apply Filter. You will now only get records which match your filter criteria. The filter can also be saved and added to an Organizer menu. This will let you switch between all and filtered view entries.

Working with planners

The planner option in Lotus has many features. It can show you the entire schedule in a graphical form. You can also assign colour codes to individual items, say a green colour to indicate vacation. To work with planners, in the main menu click Planner. In the Planner section that opens, select the category and just click against the date and month in the planner. You also have the option of changing the default colour to the colour of your choice.

REDBOX

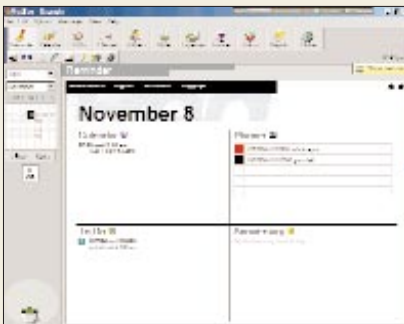
RedBox Organizer is an efficient utility that you can use to keep track of most of your personal information. Its cool interface makes it an easy-to-use software. You can download the software from www.chipindia.com/chipnow/insight.htm

Adding new names

In the Address section, to add the new names either press the New button or use the shortcut Alt+n. A new window will open with the empty fields. Enter the name, e-mail, URL, etc and click OK. The names will appear on the left side of the screen. Clicking on a name will highlight that name and other particulars will appear by the side.

Setting appointments

Click on the Reminder icon, and you get the Calendar, To Do, Planner and Anniversary options. Click on any of these options to get the options for that feature. For instance, click on Calendar,

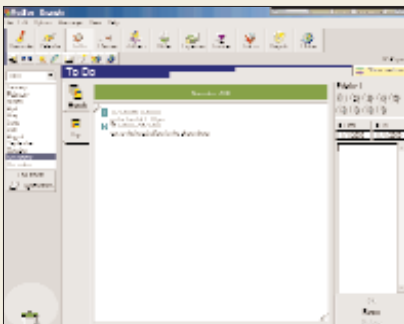


You can set appointments through the Reminder menu

select the date and time, and type in the appointment details. You can select to have an alarm with sound played and also specify if this is a recurring (daily, weekly, etc) meeting.

Doing things

If you have to remember lots of things and stuff to do, use the To Do option. Select the date and month, and type in

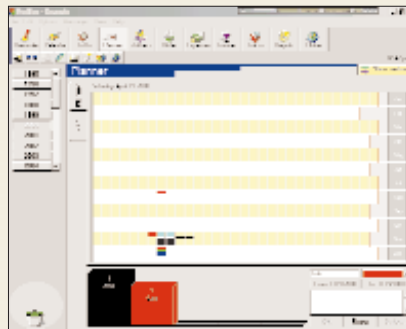


The To Do option gives you many features

the To Do message. You can also set the priority level (it provides for nine different priority levels). Click OK and the To Do task will appear on the left side of the screen.

Planning ahead

Click on the Planner icon to see the yearly planners. You can plan up to the year 2023. Click on the month and date for which you want to enter your planning information, and in the box



Use colour codes to indicate different planned events

at the bottom of the screen enter the details for that day. You can also choose to colour code the days. This would help indicate different planned events. Just select the colour from the Link box at the bottom and click OK.

Making notes

Notes allow you to keep important details about your work. Click on the Notes icon in the main screen. In the window that appears, click on the New button or use the keyboard shortcut



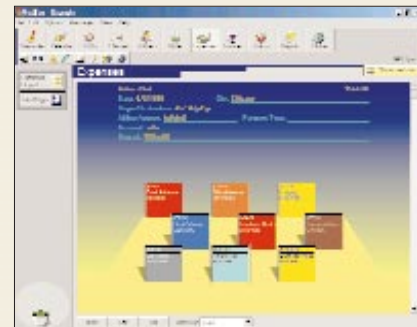
You can create different types of Notes in RedBox

Alt+N. You get a text title box, wherein you can enter the title for the note. Click OK; you can now enter the notes. If you want you can even import the notes from a text file, though the size limit for the notes is 30 KB. You can also save the notes in a different folder, using the New Folder option. There are three different

types of Notes possible—Daily, Business and Private.

Tracking your expenses

RedBox also provides you with an option to keep track of your expenses. Click on the Expenses icon to get the



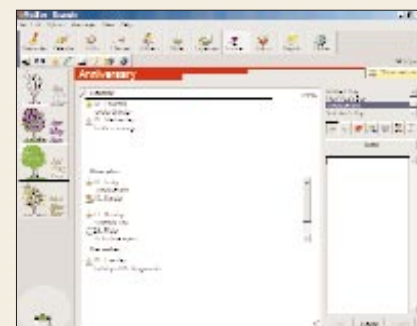
Keep note of your expenses with the Expense manager

Expenses screen. Click on New to add the details of your expenses. You can select the type of payment you are making from the drop-down list, and accordingly the fields that have to be filled change. At present, there are only five currencies supported (and no, there's no support for Indian rupees). You can even specify a colour for a particular type of expense. Fill in the details and click OK; the expenses screen will show the details of the expenses.

Remembering anniversaries

If your memory isn't that good, then you can do well to make use of RedBox's anniversary reminder. Click on the Anniversary icon. Select the date and month and fill in the details of the event or occasion and click on OK.

You can also choose to select an icon for that occasion (maybe a heart



Anniversaries are special occasions, so remember them

for wedding anniversary). RedBox also comes with certain preset occasions such as Valentine's Day, Thanksgiving Day, etc.

Generating reports

If you are using RedBox a lot, then you would like a central place where you can view all the information that you have entered in the different sections. The Report section is precisely for that. Click on it and you get a screen with a drop-down box listing all the sections. From this list you can select the section for which you want a report.

Getting city information

RedBox also comes with a globe, which provides city-specific information. Click on the Globe icon, and you get to see the different cities featured. Select the city you want information on, and you get details such as currency, population, locations, etc. Looking at the globe, you can also make out where it is day and where it is night at that point in time.

Measuring Distances

You can measure the distance between two countries using the Globe in RedBox. It's very simple to do that. Just locate a place on the globe and then drag the mouse to the other place. You immediately get the distance between the two places, followed by a box on time difference. In this box, you can select the two cities from the drop-down list, and you get the time difference as well as the distance. You can even choose to view the distance in nautical miles, metres or miles.

Managing contacts in Web style

You can arrange that your contacts and ToDo lists display in the form of an attractive Web page. Click the Edit button on the main menu and select Web publishing. In the window that opens, select the items you want to publish and click Next. You are then prompted for the date from and to which you want to publish.

The file name of the Web page is also listed here by default, and you can change it if you want to. Click Finish, and you now have an HTML file with your contact list. You can open this file in any browser or upload it to your Web page if you wish.

PRIMASOFT ADDRESS ORGANIZER

PrimaSoft is a great utility tool from PrimaSoft PC, and comes with address book, dialler, anniversary reminders, etc. You can download the software from www.chip-india.com/chipnow/insight.htm

Finding names faster

If you are interested in finding the name of a contact, which lies between the alphabets A to F, for example, use filters for faster searches. Click the All-record button and in the window that opens,

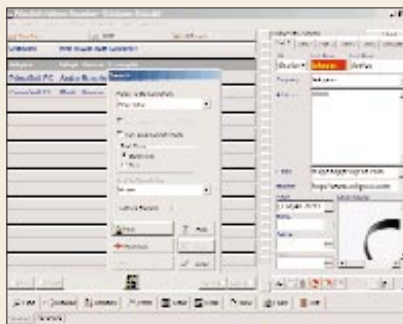


You can use filters to get to your data faster

select First Name from the list. In the Edit box, select the Between radio button and enter the alphabets A and F in the two empty fields; click on OK. You can use such search techniques for e-mail and other information too.

Using the in-built search

PrimaSoft comes with a search option of its own. Select Search from the main menu and in the window that opens, select the field (always use All Fields if you are not sure of the name of the field



You can search by different fields

you are searching for). Use the Non-stop search option and it will tell you how many records it has found that match your criteria.

Avoiding duplicate data

When you are entering new information, you may sometimes wonder

whether you have already entered this information. You can easily cross-check whether this information exists or not. Go to the Summary from Advance option and select the field which has the particular value held by the data. This window will display all the specific fields in the first column and the number of instances (count) in the second field. If the count is more than one, then you can assume that data with the same unique information has already been entered.

Deleting/adding items

The right way to delete or add items in the list is to right-click on the drop down list and then click the Edit list from the Display menu.

Adjusting your window

One of the things that people often miss is a little red handle at the bottom of the PrimaSoft screen. This is the tool which allows you to size your window. All you need to do is drag the handle back or forth as per your requirements.

Calculating the number of records

To see the number of records you have in your database, click on the last record that you have entered. You will see the total number of records highlighted at the right end of the screen below the detail panel.

Enabling faster typing

Instead of typing the same information again and again in different records, you can use the template function in PrimaSoft. Right-click the blank button at the top-right of the screen and select the Save record to template option. In the new window that opens, type the name of the template and save it.

Backing up data

PrimaSoft has an in-built backup option. Select Maintenance from the Advance button at the bottom left of the screen. In the drop down menu that appears, select Backup. It will ask you to type 'yes' in the empty field. Once you have done this, your data gets backed up. To ensure safety of data, do this at least once a week.

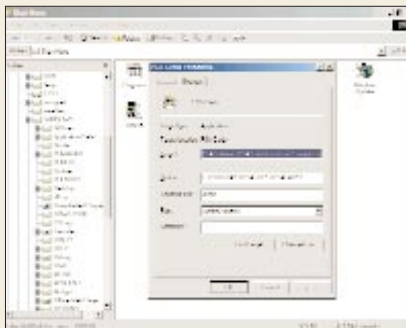
Security in PrimaSoft

If there are many people accessing your PC, then it makes sense to specify a

login name for your PrimaSoft database. Click on the User option in the Options menu, and specify your login name and password. The next time you start the software you will be prompted for the login and password. But if you want the other people to access your database over the network then use the single user option.

Loading files automatically

If you want to load some specific file automatically when you start PrimaSoft, then you can configure the same. Right-click

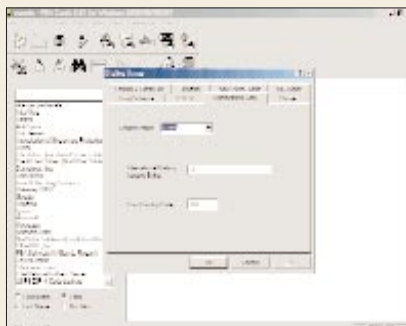


Modify the program properties to automatically load a file

the Start button and click the Explorer. The Explorer window opens with the Start Menu directory under Windows highlighted. Go to the Programs option, select the PSA card icon, right-click on the icon and select Properties. Move to the Shortcut tab. Here, you will get the target file which is opened followed by the name of the sample card file (sample.car). Change this file name to the file name you want automatically opened. An alternative method is to check the Preferences option in the PrimaSoft software to make it open the last file used. PrimaSoft then opens the last file used every time you start it.

Dialling correctly

To dial a number which also features a country code, do the following. Enter



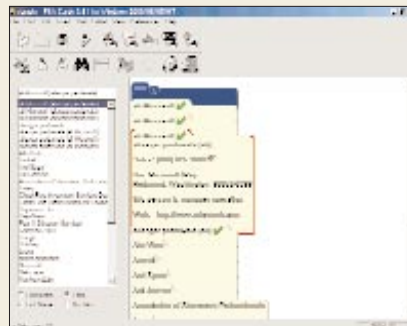
Prefix your international dialling code with a + sign

the country code with the plus sign at the beginning (+91, for example), leave a blank space and enter the area code. The blank space tells the program where the country code ends and area code starts.

To make international calls, you have to enter additional information in the International calls dialog box. Just click on Dial from the main menu and select Dial Setup option. In the box that opens, select the International Calls tab and enter the information in the empty tab for dialling from (choose the location) and the international code and country code.

Entering multiple contacts of one company

If you have more than one contact in the same organisation, use the duplicate entry command to take care of it. This will help you remember the person along with the company the person works for. Just click Edit from the main menu and select the Duplicate Current Entry option. When the dialog box



You can specify multiple contacts for the same company

opens, enter the prefix, the name of the company, the first and the last name of the person and the nick name. The particular contact will be highlighted with the company name also.

KABOOM ORGANIZER 5.0

Kaboom Organizer 5.0 is a feature-rich personal information manager, which you can download from www.chip-india.com/chipnow/insight.htm. This software comes with many features which cater more to the home user than the general business user.

Making simple notes

The Kaboom Organizer comes with a plain, easy-to-use diary journal. When you click its icon on the main menu, the journal editor opens. Here, you can simply type in anything related to your day-

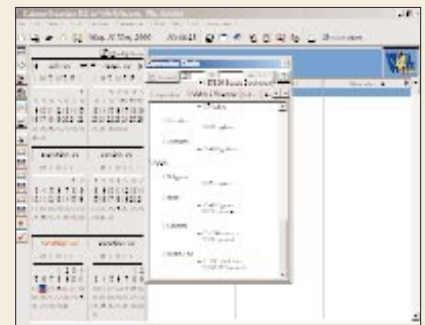
to-day work or any other aspect like you would do in a diary. You can also specify the font size, the journal date and title, or erase the page.

Maintaining schedules

Click on the schedule icon on the main menu. A new window will open; select the Option button and specify the new schedule. A new window for the date will open. Select the date for schedule (the current date will be there by default), click accept and type the schedule in the blank area.

Converting measures

Kaboom has a conversion feature which



Use the conversion chart to convert different measures

enables you to convert weight, temperature and distances at the click of the mouse. Just click the Conversion button on the Calendar menu to open the conversion box. In the first empty field, enter the value of the measure against its unit and click Convert.

In the menu that pops up, select the unit you want it converted to and simply move your mouse over the number that you have typed to be converted. A yellow coloured description box will pop up, displaying the result of your operations.

Managing your shopping list

A useful feature in Kaboom is the Shopping List manager, which helps you keep track of your shopping budget. Go to Facilities from the main menu and select Shopping List to open the Shopping List manager.

Here, enter the items you've purchased along with the rate, in one of the four categories and click the last square button on the extreme right. You will get the amount you have spent on the present purchases and also the cumulative amount that you have spent till date on your purchases.

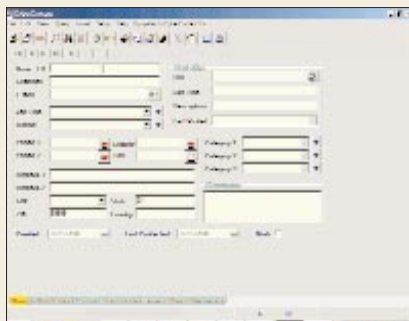
CYBERCONTACT

CyberContact is a versatile contact and information Manager designed to meet the needs of the Internet user. With this software, you can easily keep track of all your Web information. CyberContact Light Edition can be downloaded from www.chip-india.com/chipnowinsight.htm



Maintaining records

Unlike many other PIMs, CyberContact has a detailed form structure which



There are many fields for data entry in CyberContact

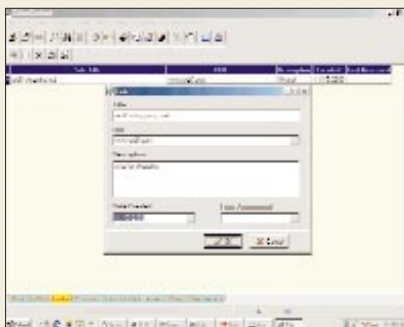
helps you keep a detailed database of information. The first screen lets you enter the details of your contact. All you

have to do is put in the details and then click on the plus sign for a record to be inserted. Click on the minus sign and the record gets deleted. It has a Web style navigational interface with forward and back keys to move through records.



Keeping track of Web sites

If you want to keep a record of your favourite Web sites, then CyberContact will come in handy. Click on the Link tab. Now all you have to do is fill information related to the site/link you like such as the title of the site, URL, the description or reason why you like the



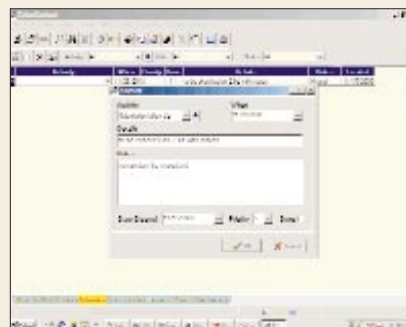
You can give details of your favourite Web site

site, etc. Enter the date of creation of the URL record and the date when you last accessed it. You now have a complete record.



Recording activities

Recording your activities and keeping a tabular view is really helpful. Entering activity lists is similar to entering Web sites. The moment you click on the



You can specify priorities while recording activities

Activity tab, a window opens for you to enter the activity record. Enter the details, description, notes, etc and mark it as done when you have finished.

95

NET-BASED PIMS

If you store your contact information in some diary or use a software, then there's always the chance that your data might get corrupted or lost. And if you don't have a laptop or PDA, you cannot carry your data along with you when you are travelling.

In such cases, it's much simpler to also maintain a database of your contacts, schedules, appointments, etc on the Web, so that you can access it from anywhere if you have Internet access. There are many sites which allow you to store contact information and most of these sites are free. Many sites also remind you at frequent intervals in the form of e-mails.

NETBUNNY (www.netbunny.com)

NetBunny is a free contact manager and address book site, which provides a private database to store information about your friends and other contacts. To start storing your contact list, you will need to enter your first name, last name and e-mail address for a free signup. You can log in the next time as a member.



Adding contacts

NetBunny offers two methods to add



Click on Add to enter records

contacts. There's the Quick! Add function, where you can add contacts by specifying only minimal details such as the name, contact details, etc.

The other option is through the Add function which gives you all the fields for that contact. This includes company details, personal information, interests and hobbies, Web site addresses, etc.



Searching for contacts

You can search for contacts easily by



You can search on different fields

typing the characters of the first name in the Search field on the left. At the top, you have the Search option using the Last Name.

To search for contacts based on different fields, click on the Search button. You get a listing of the fields and you can combine fields using the Boolean operators such as 'and', 'or', etc. It is also possible to get a listing of all the contacts by simply clicking on the List option. This gives you a horizontal screen listing. If you so desire, you can even download the entire listing to your PC.

ONLINEELEPHANT (www.onlineelephant.com)

This site acts as a reminder service and sends reminders to the e-mail address you specify when you sign up. The best part is that there are different types of reminders that you can configure.

Setting reminders

Once you log in, in the options that you have, click on Compose Message. Select



The Message Manager to manage your reminders

the type of reminder (you get many options such as appointment, birthday, due payments, etc) and type in the reminder message. Click on Next; you will be asked about the frequency of the reminder messages (once a day, once a week, etc). Click on Next again and you are all set to receive reminders. If you later on want to delete the reminder, click on Message Manager from the opening screen, select the message and click Erase.

EORGANIZER (www.eorganizer.com) eorganizer allows you to maintain your ToDo lists, appointments, address book, birthdays, anniversaries and notes free of cost at this site. You have to register first and log in before you can access the features of eorganizer.

Working with reminders

Clicking on Reminder in the right frame will take you to a screen where you get the details of the reminders you might

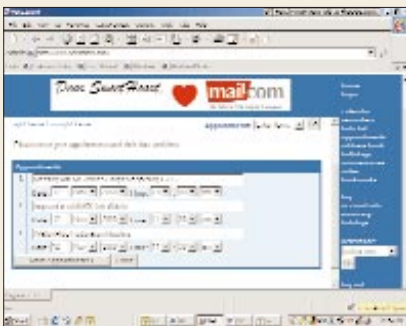


You can specify yearly or monthly reminders

already have entered. To enter a new reminder, from the drop down box, select Enter reminder and click on Go. In the screen that comes up, enter the details of the reminder, including the reminding frequency and category of the reminder.

Maintaining a ToDo list

Click on the ToDo option, and you can choose either to enter, view or print the calendar. You can enter up to three ToDo items at a time and also define the priority at the same time. You have three priority levels—high, medium and low.



With eorganizer you can have your ToDo list

You can also categorise your ToDo items from the vast choices available in the List drop-down box.

Exporting eorganizer address book

It's possible to export the data that you have stored in eorganiser to your PC. Just go to Address Book link in the main menu of eorganizer. From the drop-down menu of Address Book, select Export Items and click on Go. In the resultant screen, select the fields that you want exported, and also specify a filter according to which the data will be sorted. The export options also include whether you want a comma delimited file or tab delimited or other options. Click on Create Export File when you are done with the options, and you get a data file in a new browser window, which you can save.

Keeping appointments

Click on the appointments option in the right frame. You can then enter new appointments, giving the details and the time and date. Click on Done when you have finished entering the appointments.

VISTO (www.visto.com)

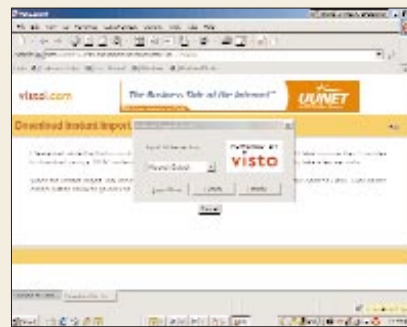
This is one more place on the Net where you can organise your personal information. The difference is

that it also offers you free e-mail address and you can also upload your files.

Importing Address Book

If you want to have one centralised place where all your different address books are stored, then you can use the Import Address Book utility that Visto offers. Click on the Import Address Book option in the main screen. You will first have to download the Instant Import software, which allows you to import from Microsoft Outlook, Outlook Express and Palm Desktop.

Once you download the software, you get a box asking you to select the e-mail client you want to export from. Select the client and the addresses are

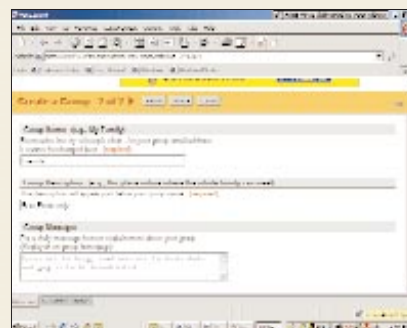


You can import the Visto address book to your PC

imported to Visto's Address Book, where they are arranged alphabetically for easy reference.

Creating Groups

If you want to keep track of the team you are working with, or if you want an e-discussion with your group, schedule



Use groups to manage teams better

group events or share files, then you can create a Group. Click on the Group link, and follow the steps. You get to create a group e-mail id, and you can invite others to join the group. You can select whether the group members can upload files or photographs.