# Types of maintenance

Maintenance refers to actions taken to:

* preserve the optimal condition of IT infrastructure
* ensure that agreements with external suppliers are in place to support the IT infrastructure, should problems occur
* upgrade the existing IT infrastructure to minimise future risks to business continuity
* fix problems as they occur.

Maintenance concentrates on the critical hardware and software of the organisation. However, it must also be considered in relation to non-critical hardware and software.

## Hardware maintenance

### Preventative and reactive maintenance

Preventative maintenance refers to actions taken to maintain hardware on a periodic basis, to prevent problems occurring in the future that may interrupt business continuity. An example of preventative maintenance is cleaning a workstation hard drive. We will look at preventative maintenance in more detail later in this topic. Upgrading elements of infrastructure is also a part of preventative maintenance.

Reactive maintenance refers to actions taken to fix hardware problems after the problems have occurred. An example of reactive maintenance is replacing a cable after it has proved to be defective.

## Software maintenance

There are different types of software maintenance. For example, an organisation may have custom-built software, which needs to be maintained by its programmers. Software provided by external suppliers may require such things as patches, version updates and driver updates to be provided and installed. Some examples of different types of software maintenance follow.

Preventative maintenance may involve modifications to detect and correct code that may cause errors in the future. These types of changes do not affect normal software functions, but they do affect the way that the code works behind the scenes. An example of this type of maintenance is adding new code to further validate input data.

Reactive maintenance refers to fixing software bugs after they have produced inaccurate results, or have caused processing to stop.

### Adaptive and perfective maintenance (or refinement)

Adaptive maintenance refers to upgrades to the software in response to changes in business requirements. An example of this is altering software to make it run on an Intranet.

Perfective maintenance or software refinement refers to changes to software that result in better performance or easier maintainability. An example of this is a change in software to provide better usability.

**QUESTIONS**

Additional Resources:

Click BBC

<http://www.google.com.au/search?hl=en&source=hp&q=%E2%80%9CClick%E2%80%9D+from+BBC&aq=f&aqi=&aql=&oq=&gs_rfai>=

Twitter

<http://www.google.com.au/search?hl=en&safe=active&q=twitter&aq=f&aqi=g10&aql=&oq=&gs_rfai>=

Push email

<http://www.google.com.au/search?hl=en&safe=active&q=push+email&aq=f&aqi=g10&aql=&oq=&gs_rfai>=

Instruction Manual

<http://www.google.com.au/search?hl=en&safe=active&q=Instruction+Manual+template&aq=f&aqi=g2g-m1&aql=&oq=&gs_rfai>=

1. Give examples of maintenance on non-critical hardware?

* Replace batteries on wireless peripherals
* Clean hardware such as a mouse with a trackball
* Clean monitor

1. Provide instructions on maintenance of:-
   1. Computer screen:
      1. Turn computer off
      2. Turn off monitor at power point.
      3. Spray monitor cleaner onto a microfiber cloth
      4. Very gently clean monitor with cloth
      5. Turn monitor on.
      6. Turn computer on
   2. Trackball mouse:
      1. Turn computer off
      2. Unplug your mouse from the computer
      3. Turn mouse over and locate plastic ring around ball
      4. Turn this ring slightly in a counter clockwise direction
      5. Spray inside of mouse with a can of compressed gas to release trapped particles and dirt
      6. Use tweezers to release dirt that didn’t dislodge
      7. Use isopropyl alcohol on a cloth to clean the mouse ball
      8. When dry return ball to mouse and plug mouse back in to computer
      9. Turn computer on
   3. Keyboard:
      1. Turn computer off
      2. Unplug keyboard
      3. Turn keyboard upside down and press the keys to release trapped dirt
      4. Spray keyboard with a can of compressed air to release any trapped particles or use a vacuum cleaner
      5. Dampen a cotton bud with a few drops of isopropyl alcohol and clean sides of keys
      6. Dampen a microfiber cloth with isopropyl alcohol and wipe the keys thoroughly
      7. When dry plug into computer
      8. Turn computer on
   4. Workstation hard drive:
      1. Organise files into folders
      2. Run dick cleanup to find files that are no longer used or required;
         1. Uninstall unused programs
         2. Uninstall unused files
         3. Clear temporary files
         4. Empty recycling bin
      3. Run Defragmenter to defragment files on your hard disk
   5. Advise the recommended termination for an Ethernet cable:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pin** | **T568A Pair** | **T568B Pair** | **Wire** | **T568A Color** | **T568B Color** | **Pins on plug face (socket is reversed)** |
| 1 | 3 | 2 | tip | [Pair 3 Tip](http://en.wikipedia.org/wiki/File:Wire_white_green_stripe.svg) white/green stripe | [Pair 2 Tip](http://en.wikipedia.org/wiki/File:Wire_white_orange_stripe.svg) white/orange stripe | [Rj45plug-8p8c.png](http://en.wikipedia.org/wiki/File:Rj45plug-8p8c.png) |
| 2 | 3 | 2 | ring | [Pair 3 Ring](http://en.wikipedia.org/wiki/File:Wire_green.svg) green solid | [Pair 2 Ring](http://en.wikipedia.org/wiki/File:Wire_orange.svg) orange solid |
| 3 | 2 | 3 | tip | [Pair 2 Tip](http://en.wikipedia.org/wiki/File:Wire_white_orange_stripe.svg) white/orange stripe | [Pair 3 Tip](http://en.wikipedia.org/wiki/File:Wire_white_green_stripe.svg) white/green stripe |
| 4 | 1 | 1 | ring | [Pair 1 Ring](http://en.wikipedia.org/wiki/File:Wire_blue.svg) blue solid | [Pair 1 Ring](http://en.wikipedia.org/wiki/File:Wire_blue.svg) blue solid |
| 5 | 1 | 1 | tip | [Pair 1 Tip](http://en.wikipedia.org/wiki/File:Wire_white_blue_stripe.svg) white/blue stripe | [Pair 1 Tip](http://en.wikipedia.org/wiki/File:Wire_white_blue_stripe.svg) white/blue stripe |
| 6 | 2 | 3 | ring | [Pair 2 Ring](http://en.wikipedia.org/wiki/File:Wire_orange.svg) orange solid | [Pair 3 Ring](http://en.wikipedia.org/wiki/File:Wire_green.svg) green solid |
| 7 | 4 | 4 | tip | [Pair 4 Tip](http://en.wikipedia.org/wiki/File:Wire_white_brown_stripe.svg) white/brown stripe | [Pair 4 Tip](http://en.wikipedia.org/wiki/File:Wire_white_brown_stripe.svg) white/brown stripe |
| 8 | 4 | 4 | ring | [Pair 4 Ring](http://en.wikipedia.org/wiki/File:Wire_brown.svg) brown solid | [Pair 4 Ring](http://en.wikipedia.org/wiki/File:Wire_brown.svg) brown solid |

* 1. Why is there A and B standards?
* Depending on the country where they are being made.
* A is used for regular and B is used for crossover cables.

1. Give examples of preventative maintenance on Windows 7 OS:

* Backup your files and system
* Install anti software such as antimalware, antivirus and antispyware
* Use the chkdsk utility to check the integrity of your hard disk
* Use the sfc /scannow to check file integrity
* Use registry cleaning to check and clean the registry such as Ccleaner
* Use the defrag utility to clean up fragmented files
* Use the windows 7 action centre to keep track of maintenance issues
* Regular update the system
* Use the Performance Information and Tools to check for your computers base score
* Limit start up programs

1. Give examples of reactive maintenance on Windows 7 OS:

* Use the anti programs to find and remove viruses, malware and spyware
* Use one of the windows 7 troubleshooter utilities to find and fix issues
  + Check for performance issues
  + Run maintenance tasks
* Use the device manager to check if hardware is performing as it should, and if it isn’t then use it to update or roll back the driver
* Use the Aero troubleshooter to fix display and power issues
* Install files that have been backed up

1. Give examples of adaptive maintenance on Windows 7 OS:

* Install software programs as they are required such as PDF and Adobe reader

1. Give examples of perfective maintenance on Windows 7 OS:

* Use the Microsoft automatic updates to install updates as they are released
* Install new versions of software as they are released
* Install security patches to existing software

1. Create an instruction manual for installing a software application that allows you to save and later replay an internet radio station program on IT e.g. “Click” from BBC, include screen captures
2. Twitter
   1. Explain “twittering”.

Twittering is the process of using the twitter application. It is when you make comments on the twitter application that other people can view and comment on. These can be things you are doing, thoughts about something, just keeping up with friends or used for business. Each twitter can be a maximum of 140 characters long.

* 1. Create an explanation of the instructions for creating a twitter for a corporate marketing client
     + 1. Go to the bottom of the twitter home page
       2. Click on “Get Started”
       3. Create a user name and password
       4. Enter your email address

1. Push Email
   1. What is “push” email?

Push email is when the email system is constantly on to ensure that all emails are ‘pushed’ through as they arrive. Instead of the user checking and collecting (or pulling) their queued emails from their email account, the emails are continuously pushed through.

* 1. Explain to a client how to get push email happening on a recommended device (show diagrams).

The following instructions are for a Gmail account on an iPhone. Download suitable push email software for your device

* + 1. Go to settings, then Mail, and Add account.
    2. Select “Microsoft exchange”
    3. In email field, enter full Gmail email address. Leave Domain field blank.
    4. Enter Gmail email address and password.
    5. Click next, in the server field enter “m.google.com” then click on next again.
    6. Select the Google services that you want to sync.
    7. Make sure that all important data is backed up before adding account.
  1. Explain a contingency plan if push email is not working.
     + 1. Use sms on mobile phone
       2. Use mobile phone to ring

References

Trackball mouse cleaning: <http://www.smartcomputing.com/editorial/article.asp?guid=&bJumpto=true&Isfrm=IN&article=articles/webonly/techsupport/18w10/18w10.asp&ArticleID=31027>

Keyboard cleaning: <http://www.helpwithpcs.com/maintenance/cleaning-keyboard.htm>

Ethernet termination: <http://en.wikipedia.org/wiki/TIA/EIA-568-B>  
<http://www.cablesense.com/tutorials/cables/>

Preventative maintenance: <http://windows7forums.com/blogs/mike/323-preventative-vs-reactionary-maintenance-how-save-your-computer-breakdown.html>

Reactive maintenance: <http://windows.microsoft.com/en-US/windows7/Ways-to-improve-your-computers-performance>

Radio recorder: <http://www.applian.com/freecorder4/>

Twitter <http://www.twittermarketing.net/>

How to create a twitter account: http://www.ehow.com/how\_4541204\_create-twitter-account.html

Push email: <http://www.top4download.com/emoze/kmjqwpxw.html>  
http://answers.oreilly.com/topic/1731-how-to-have-push-email-on-your-iphone-with-gmail/