# http://www.jokebandit.com/assets/logoGraphic.gifProcess calls from help desk

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# Help desk procedures

## Help desk basics

The help desk is a department within a company or organisation that responds to user’s technical questions. Most large software companies also have help desks to answer user questions. Questions and answers can be delivered by telephone or email. There is even help desk software that makes it easier for the people running the help desk to quickly find answers to common questions.

In a large organisation, the help desk itself may be an organisation that supports external clients; with up to twenty people staffing it every hour of the day, while in a small place, the help desk may be staffed by one person.

Help desk staff read and collect relevant information about the problem or questions clients have. Problems are registered on a database, analysed and eventually solved. Resolving the problem is done either by the help desk person, or by a person they have ‘escalated’ it to, usually an expert, or someone who needs to check the problem on-site.

|  |  |
| --- | --- |
| **Question:** | **Answer:** |
| What can assist prompt problem resolution | Help desk software. |
| What is the help desk database for? | To register problems for further analysis and resolution. |
| Recommend a free Help Desk software:  e.g. see [www.download.com](http://www.download.com)  Explain its qualities. | Web Help Desk  <http://www.webhelpdesk.com/free-help-desk-software.html>   * Extensive knowledge base – both internal and external * Supports all operating systems * Ticket history * Multi level escalation path |

## Identifying clients and recording problems

All problems handled by the help desk must be recorded. Records are essential for following up problems and in determining causes and suitable solutions.

Reports derived from records can reveal the causes of repeated problems, be they due to faulty equipment, network configurations, software bugs or the need for more user training. This information can then be used to improve computer systems by documenting configuration changes, budgeting for upgraded equipment, or updating software programs.

After the help desk staffs identify themselves in answering calls, they follow pre-determined procedures to identify the client, usually by a series of questions.

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| **Question:** | **Answer:** |
| How can the Help Desk improve computer systems? | By documenting recurring problems. Also by documenting changes and important data. |
| Why is it important to identify the client and problem? | To discover any previous issues with the clients computer and their solutions. Also to ensure the client is entitled to use the help desk. |
| What sort of reports can the recommended Help Desk software produce? | Reports of recurring issues such as faulty equipment, network configuration, software bugs and the need for more user training. |

### Equipment details and warranty status

Each workstation should have its equipment and software registered on the help desk software system, or an inventory control system. Depending on the size of the company and the number of computers, there may be a number of items to be registered.

Equipment registration details include the warranty status of equipment or software programs, or if they are covered by maintenance agreements or service level agreements. In such cases when agreements exist, if equipment is tampered with or software programs altered, the warranty or agreement becomes invalid.

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| **Question:** | **Answer:** |
| Why do we need correct hardware identification? | To ensure that the client or equipment is entitled to use the help desk, such as under the service level agreement or under warranty. |
| Give an example of an action that makes the warranty invalid? | Tampering with a piece of equipment would void the warranty or altering software. |
| Give an example of a typical warranty for a small business? | http://www.epson.com.au/warranty/ onsite\_laser\_2yr.asp?fromnav=4  **Epson laser printer:**   * 2 year on-site warranty. * Available only within 50kms of service agent. * Must provide proof of purchase to service agent. * Only available on business days between business hours. * Warranty void if printer tampered with or not used as directed * Any non-genuine accessories will void the warranty such as generic ink or parts. |

## Prioritising problems

Some problems can be solved immediately, while others need to be passed on and reviewed by those with more experience. This is known as escalating the problem.

When there are a number of problems to be solved, they need to be prioritised according to how critical they are.

Point-of-sale systems such as cash registers and airline reservation systems are critical for a company to function. Any problems such as those critical to the business and affect multiple users, are given the highest priority. A failed network printer affecting 20 users that prints accounting business material may be classified as a medium-level problem. A problem such as a screen-saver failing, that only affects one user’s machine and has not affect on their work, would be set to a low priority.

The help desk staff need to question clients to find out the specific problem and cause, so the then assign it a priority level.

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| **Question:** | **Answer:** |
| Why do we need a priority level assigned to a problem? | To ensure that the most urgent issues are taken care of first such as a mission critical server as opposed to a rarely used printer. |

Complete the following table to enter the rest of the priorities.

|  |  |  |
| --- | --- | --- |
| Priority | Definition | Example |
| First | Many users, many or major systems | There is a crash of the hard disk that holds a major database of all products for a retail store. |
| Second | Many users, major system. | Critical software used every day by many users cannot be accessed. |
| Third | Many users, minor system. | Email connection problem intermittently for all users. |
| Fourth | Many users, minor system. | A laser printer is not printing. |
| Last | One user, minor system | Email cannot be read from user’s computer. User can read email from other computers. |

## Following-up and finalising problems

As the problem moves towards being solved, the client needs to be notified regularly of progress. Usually the support personnel working on the problem will notify the client or the help desk staff who originally took the call. How exactly this is done will depend on organisational procedures.

All information about problems must be logged and tracked from when a help desk person receives the call or email, to work by support personnel and the close of the call. This helps build a complete picture of the computer environment and provides a knowledge base for future reference.

When the problem is solved, the client should be contacted for the last time to check that they are satisfied with the result.

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| **Question:** | **Answer:** |
| Who logs a problem into the Help Desk system? | By the help desk staff who first took the call or email. |
| Who can enter further details about a problem into the Help Desk system? | The support personnel who is working on the problem. |
| Who updates the client about the problem? | Either by the support personnel or by the help desk staff who first logged the issue. |

## 

## Examples of help desk calls

Each of the examples below is handled in a different way.

#### Scenario

Jo is the help desk operator at ‘Computers are You Pty Ltd’. She makes decisions on how to handle each of the calls and what priority levels they get. The priority levels in Jo’s company are as follows.

Computers are Your PLTY Ltd — Help desk priorities

|  |  |  |
| --- | --- | --- |
| Priority | **Criticality** | **Description** |
| 1 | Urgent | Business is unable to operate |
| 2 | Major problem | Part of the business unable to operate |
| 3 | Minor problem | Business can continue but minor application or a computer is inoperable. |
| 4 | Answered immediately | These calls may range from urgent to minor, but can be answered within three minutes. |
| 5 | Pending | Awaiting further instructions from client. |

#### Example 1

Jo receives a call from John in Accounts:

‘How do I add email addresses to my Outlook Address Book?’

Jo can answer this call straight away and she talks John through the options in Outlook that he needs to choose in order to add the email addresses:

‘Open ‘Outlook’, choose ‘contacts’, and double click on the person’s name. Enter the email address in the ‘Email’ dialogue box found on the right side of the screen.’

Jo logs this call into the help desk database and assigns it a priority: \_\_\_ (put your answer).

#### Example 2

Jo receives a call from Pinko(??) in the Marketing Department:

‘The floppy disk is jammed and I can’t remove it from the floppy disk drive’.

Jo can’t attend to this problem from her desk. She assigns it a priority level of 3 (put your answer \_\_\_) and passes it onto Maria, the local support officer. Maria goes to Pinko’s computer and is able to remove the floppy disk by using a paddle pop stick to manoeuvre the disk out. The metal on the top of the disk had bent, and by using the paddle pop stick she was able to level out the metal, and pull out the floppy disk.

What does Maria do now?

Answer: Maria logs the solution into the database and then contacts the client to tell them that the issue is now resolved.

#### Example 3

Jo receives an email from James in Marketing:

‘My version of MYOB is older than the version used in the Finance Department. I need my version updated to ensure that our reports are compatible.’

The installation will take an hour or so to update and configure. But first it must be escalated it to a higher authority for approval. The Software Manager will need to approve the upgrade and register the upgrade. Then, a level 2 help desk support person will perform the upgrade.

Jo enters the information into the help desk database, assigning a priority of 2 (put your answer). She also attaches an alert to the problem to the Software Manager, Silvio. The Software Manager will receive an email and link to the problem. He can approve it immediately if he has all the information at hand. Then the next step will automatically move the problem to the level 2 help desk support staff. They will arrange a suitable time with James to install the upgrade.

## Closing the call

When a problem has been solved, it is called closing the call. The client needs to be advised that the problem has been solved. They may be required to carry out actions again as when the problem occurred to confirm that the system functions properly.

It is then necessary to report the solution back to the help desk.

How can this be done?

Answer: By logging the resolution and testing procedure and result into the help desk database.

In larger companies or for complex problems, reports are required to be written for each problem, and how they were solved. This information is useful in analysing any current trends in faults of computer equipment or software. Failing equipment may require hardware purchases, and software may require updates in programming or patches for operating systems.

Report writing and preparation are discussed in the final two sections of this unit.

### Reflection activity

A workstation uses a wireless mouse and keyboard.

There is a new person at the workstation and they do not have knowledge of the system for acquiring parts.

Write down the typical life cycle of the help desk call, from the initial call to the final closing of the problem.

**Caller: Hello, I have a problem with my computer.**

**HD Operator: Hello, what type of problem are you experiencing?**

**Caller: I can’t use my mouse.**

**HD Operator: Have you tried restarting your computer?**

**Caller: Yes, I have already tried that twice. Then I plugged in a mouse from another workstation and that worked.**

**HD Operator: Has this happened before?**

**Caller: Yes, about twelve months ago, it was the batteries.**

**HD Operator: Ok, so it could be the batteries. I will requisition new batteries for your mouse. You can now go to the storeroom and get them. Are you able to install them?**

**Caller: Yes, I should be able to. Thank you.**

**HD Operator: You are welcome. I will call tomorrow to ensure that the problem is fixed. Please contact me again if this isn’t the issue.**

Note how long it took to gather all the initial information to know what the problem was. For the main part of solving the problem, this will depend on the problem’s severity and its implications on the rest of the system. Consider the following questions to help you follow the life cycle of the problem.

* Did the problem need to be escalated to another level?

Answer: No, batteries needed to be requisitioned from the storeroom. That should solve the issue.

* Was expert staffs required?

Answer: No, because the client has a basic working knowledge of installing peripherals. If the client hadn’t known how to install them someone would have needed to install them for him/her.

* Was it necessary to purchase any hardware parts? Was it necessary to update any software programs?

Answer: No, because the batteries are kept in the storeroom due to the large number of wireless mouses and keyboards used by the company and they only need to be ordered when stock is running low.

* Was it necessary to update configuration or network settings?

Answer: No, because it is only a minor issue which could be resolved by installing a piece of hardware.

* How many users were inconvenienced while the problem was being solved?

Answer: The person with the issue was the only person that was inconvenienced, although if the work they do is critical and people depend on him to complete his work before they can complete theirs, it could be a problem.

# 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.

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| **Question:** | **Answer:** |
| In a workstation with a wireless keyboard and mouse, give an example of preventative maintenance? | Replacing the batteries regularly whether needed or not. |
| In a workstation with a wireless keyboard and mouse, give an example of reactive maintenance? | By having the batteries required in stock at all times and showing staff how to install them. |

## 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.

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| --- | --- |
| **Question:** | **Answer:** |
| In a workstation with Windows 7 give an example of software preventative maintenance? | * By installing and updating anti programmes and running them automatically. * By installing and running special software that can pick up issues with the software. * By updating existing software on a regular basis. |
| In a workstation with Windows 7 (developer version) give an example of software reactive maintenance? | * By doing a regular backup. * By making a boot disk. |

### 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.

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| **Question:** | **Answer:** |
| What are some of the versions and some corresponding applications of Windows 7: | Example  **Windows 7 Ultimate:**   * Work in the language of your choice and switch between any of 35 languages. |
| In a workstation with Windows 7 software give an example of software adaptive maintenance? | Regular updates to ensure that everything is the latest version. |
| In a workstation with Windows 7 (developer version) give an example of perfective maintenance? | No updates. Not doing anything to it until there is an issue. |

# Warranty and maintenance agreements

All critical hardware and software should be covered by a warranty or maintenance agreement (which can also be called a service agreement).

All hardware components and software are sold under warranty for a set period in which time their repair or replacement is the responsibility of the supplier, so long as faults are due to normal use. You usually have the option of extending the warranty when you buy a product, especially with larger hardware items. Or you can enter into a maintenance agreement when the initial warranty expires.

A maintenance agreement is an agreement between the organisation and the supplier for ongoing maintenance of the hardware or software. Maintenance agreements can be on a fixed service basis at 24 hours a day, 7 days per week (24/7); 8 hours a day, 5 days a week (8/5); 12 hours a day, 5 days a week (12/5) or on a per-call basis.

The benefit of the fixed service type of maintenance agreement is that you are more likely to get a dedicated and faster response. Depending on the terms of the agreement, your maintenance costs are also likely to be covered, although such ongoing contracts can be expensive.

A per-call basis means you receive the services of the supplier as required. Although cheaper than an ongoing maintenance contract in the long-term, you usually must wait until a technician is available (which may cost you in downtime), and you are charged for labour and parts.

Software should also be covered by a warranty or maintenance agreement. Warranties and purchase agreements usually include free upgrades of packaged software. Software warranty only lasts for a short time, so an ongoing maintenance agreement for critical software should be in place. If customised software has been developed in-house, a maintenance agreement will not be necessary because it will also be maintained internally.

### Reflection activity

Locate a maintenance agreement for Dell PC on 2 Years Next Business Day (8x5) Onsite Response Extension (Parts + Labour).

See <http://www1.ap.dell.com/content/topics/topic.aspx/ap/topics/services/en/details_dimen?c=au&l=en&s=bsd>

What is covered by the maintenance agreement?

Answer:

<http://www.dell.com/content/topics/global.aspx/services/client_support/nbd?c=us&l=en&cs=RC956904>

To have access to the next business day maintenance there are some procedures:

1. First you need to participate in a phone based trouble-shooting. The help desk personnel will decide if a technician is required.
2. The call must be logged before 5 pm to ensure next day response. If the call is not logged by 5 pm the technician may not be able to come to the work site until two days.
3. Next day response is dependent upon parts being available.
4. Next day response is only available if the client isn’t in the location offered by the more expensive 4 hour response warranty.
5. It is only available on business days with 10 hours per day.
6. Dells next day on-site warranty only covers some hardware such as certain servers, storage and computers.
7. Dell includes the trouble shooting of some software but doesn’t guarantee that any question will be resolved.
8. It doesn’t include

* Preventative maintenance,
* Installation or de-installation
* Anything not covered by the service description.
* Peripherals,
* Accessories
* Software application set-up

# Determining maintenance procedures

When determining maintenance procedures, an organisation needs to take into account risks to the business continuity and how critical the IT components and/or software are to this.

The sources of this information are:

* internal service level requirements and agreements
* warranty and maintenance agreements
* supplier procedures.

## Response time standards

Response times are outlined in service level agreements. Standard response times need to be established, based on a service request priority rating. Standard response times can be determined by:

* Determining the criteria for rating the priority of a service request. For example, *critical* priority occurs when the network goes down.
* Aligning those ratings with standard response times in the client’s service level agreements.

The response time standards should have been negotiated at the time of purchase of the IT component or software. Under warranty agreements, response times may be set, but under maintenance agreements they are negotiated. Sometimes, suppliers have set options from which you select the one that best suits your needs. Response times will depend on how critical the product is that requires maintenance, the level of risk to business continuity, and how much the organisation is paying for the maintenance agreement.

## Solving the problem

As outlined above, during the initial stages of solving the problem, it needs to be determined whether the problems can be:

* solved immediately
* need the assistance of those who are more experience
* need to be resolved by outside resources.

For equipment under warranty, the supplier needs to be notified to solve the problem. As mentioned under Help desk procedures, if local support personnel do this instead, the warranty usually becomes invalid.

In most cases with calls from the help desk, the operator taking the call solves the simpler problems. More complex calls, or those where a technical person is required on-site, are recorded in the help desk system, allocated a priority and assigned to system or network support personnel.

The support personnel will review the problem and take into account the sources of information listed above, such as service level agreements and risks to business continuity.

The problem may be solved at this point, in which case the solution will be logged and the client notified and assured that all is working well before the problem is closed. If the problem is not solved, more contact with the user may be necessary to obtain further information on how the problem arose. Running various diagnostics may prove useful here to pinpoint how problem has originated.

Where service requests are automatically escalated to a more senior IT staff member, the level of risk to the business continuity needs to be assessed, so that the more critical service requests are addressed first.

Calls are then closed as outlined under Help desk procedures above.

**Question**

A workstation experiences a major failure that is diagnosed as a hard drive failure requiring replacement.

The workstation is a Dell PC on 2 Years Next Business Day (8x5) Onsite Response Extension (Parts + Labour) warranty.

|  |  |
| --- | --- |
| **Question:** | **Answer:** |
| Can the problem be solved immediately? | No, depending upon when the call is logged in the call centre will determine when the technician will come out to the work site. |
| Do you need the assistance of someone else? | Yes, a service technician to replace the hard drive. |
| Does the problem need to be resolved by outside resources? | Yes, a service technician will be needed to replace the parts. |
| What do you advise the user about the expected repair and time for completion of the workstation? | That the problem may be fixed tomorrow depending if the parts are available. |

# Summary

The maintenance of IT infrastructure is a crucial role of an organisation’s IT department. Many problems are raised with the help desk, and all information needs to be recorded, from the initial call to the resolution of the problem or query. Reports derived from records can reveal trends that may indicate the need for a change in hardware, software or user training.

When determining maintenance requirements, both critical and non-critical software and hardware systems need to be considered. Likewise, it is important to consider whether the client is an internal customer or external supplier, and whether there is a maintenance agreement in place.

Response time standards, escalation procedures and reporting procedures will vary according to the conditions laid down in maintenance agreements, and according to the procedures set by the parties involved.

After each help desk call has been resolved, the user needs to be contacted. The user must be satisfied with the end result before the call is closed. The help desk software system must be updated to reflect the closure of call. In some organisations, a technical report is required for each problem. These are usually completed on a standard pro forma document that is used later for analysis.