

OSP: Optimise IT system performance

This is the ability to keep a personal computer system up to date, fully functional and operating efficiently; and to solve problems and errors involving the interaction between hardware and software components.

A. A foundation user can manage software, disks and devices to maintain hardware and software (system) performance, solve common hardware and software problems and errors, getting help with more difficult problems.

Examples of context: Organising files, backing up data in line with organisational guidelines. Solving common errors (eg a file that cannot be found on a computer hard drive); knowing how to restart hardware or software and get advice.

B. An intermediate user can carry out appropriate procedures to optimise system performance and can solve problems and errors on most types of hardware and software using skills and experience.

Examples of context: Using 'defrag' to improve disk performance. Errors might include: software that needs more memory to open or recovery from damage from viruses.

C. An advanced user can review and modify system settings to improve economy, efficiency and performance; and upgrade systems to improve capacity or functionality

Examples of context: Partitioning disks; identify and manage backup and storage procedures; adding memory; upgrade software

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Element	Performance Criteria	Knowledge	Examples of Content
The competent person will...	To demonstrate this competence they can...	To demonstrate this competence they will also ...	The examples given are indicative of the learning content at each level and are not intended to form a prescriptive list for the purpose of assessment
OSP:A1 Maintain hardware and software in working order	A1.2 Take appropriate steps to protect computer hardware against loss or damage A1.3 Run anti-virus and other security software regularly A1.4 Set up printers and other peripheral devices	A1.1 Identify the operating system and capacity of the computer system	Computer system: Make, model, serial number; operating system version; memory capacity; disk capacity Security software: Anti-virus, malware. Frequency, timing
OSP:A2 Manage files to maintain system performance	A2.1 Use file navigation software to organise files into an appropriate folder structure A2.2 Backup and restore files and folders A2.4 Carry out routine file housekeeping so that information is easy to find	A2.3 Identify why it is important to undertake routine file housekeeping of the information stored on computer systems	Information storage: Data files, folders, sub-folders, storage media File housekeeping: Following local guidelines and conventions for naming and labelling; organising files, folders and storage media; saving back-ups; deleting unwanted files
OSP:A3 Respond to common IT system problems and errors	A3.2 Respond appropriately to common IT system problems A3.4 Seek expert advice when appropriate	A3.1 Identify common IT system problems and responses A3.3 Identify where to get expert advice	IT system problems: Program not responding, paper jam, storage full, error dialogue Expert advice: Limits of own understanding and skills, help menus, manufacturer's guidelines, how to follow advice, information needed by experts
OSP:A4 Customise the working environment to meet needs	A4.1 Adjust system settings as appropriate to individual needs		System settings: Desktop, input and output settings

Using IT Systems

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The competent person will...	To demonstrate this competence they can...	To demonstrate this competence they will also ...	The examples given are indicative of the learning content at each level and are not intended to form a prescriptive list for the purpose of assessment
OSP:B1 Keep computer hardware and software operating efficiently	B1.2 Take appropriate steps to protect computer hardware from loss or damage B1.3 Configure anti-virus and other security software B1.4 Install and configure printers and other peripheral devices B1.5 Configure network settings for mobile and remote computing B1.6 Configure a computer to present or display information to an audience	B1.1 Describe the main features and functions of the computer operating system	Computer system: Make, model, serial number; operating system version; memory capacity; disk capacity Security software: Anti-virus, malware. Frequency; timing; updates, firewall settings Network settings: Remote access, connections and shared network folders, configure remote access settings, power management
OSP:B2 Manage files and disks to optimise performance	B2.1 Use file navigation software to organise files into an appropriate folder structure B2.2 Backup and restore files and folders B2.4 Manage file and disk housekeeping so that information is secure and easy to find B2.5 Share files and folders with other users	B2.3 Describe why it is important to undertake file housekeeping of the information stored on computer systems and how it affects performance B2.6 Distinguish between data and system file types	Information storage: Data files, folders, sub-folders, storage media; archives File housekeeping: Naming and labelling conventions; organising files, folders and storage media; saving back-ups; deleting unwanted files; changing default settings for saving data; properties; disk partitions
OSP:B3 Troubleshoot and respond to common IT system problems and errors	B3.2 Describe and record IT system problems to enable effective support B3.4 Troubleshoot and respond to IT system problems appropriately B3.5 Check that errors and problems have been resolved satisfactorily	B3.1 Describe common IT system problems and what causes them B3.3 Describe when to try to solve a problem independently, and when to get expert advice	IT system problems: Program not responding, paper jam, storage full, error dialogue, virus threat, memory low, connection loss Record IT system problems: Error log, description, frequency of occurrence, severity Expert advice: Limits of own understanding and skills, help menus, manufacturer's guidelines, how to follow advice, information needed by experts, where to get advice to deal with different hardware and software problems

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OSP:B4 Customise the working environment to optimise performance	B4.2 Select and adjust system settings to optimise performance as appropriate B4.3 Configure the automatic start of programmes and other graphical display options	B4.1 Describe methods that can be used to optimise system performance	System settings: Desktop, input and output settings; display settings, multiple monitors Optimise performance: Memory management; power management; disk partition
OSP:B5 Maintain software to meet performance needs	B5.2 Use appropriate techniques to maintain software B5.3 Locate and install driver files for different devices	B5.1 Describe when and how to upgrade software	Upgrade software: Benefits of upgrading; drawbacks of not upgrading; the need to check compatibility of software and hardware upgrades with other parts of the system Maintain software: Install software patches and upgrades
OSP:C1 Keep computer hardware and software operating efficiently	C1.2 Take appropriate steps to protect computer hardware from loss or damage C1.4 Use an appropriate fault-finding procedure to routinely monitor hardware performance C1.5 Configure anti-virus and other security software C1.6 Install and configure printers and other peripheral devices C1.7 Configure synchronisation and maintain security on remote access sessions C1.8 Configure a computer to present or display information to an audience	C1.1 Explain the factors that should be taken into account when choosing an operating system C1.3 Explain why routine fault-finding procedures are important	Fault finding procedures: Recommended by the manufacturer, diagnostic tools and probes; maintain fault log Security software: Anti-virus, malware. Frequency; timing; updates, firewall settings Characteristics of operating systems: Cost, ease of use, compatibility with software, proprietary or open source; availability of support; additional features
OSP:C2 Manage files to maintain and improve performance	C2.2 Use file navigation software to organise files into an appropriate folder structure C2.3 Archive, backup and restore files and folders	C2.1 Explain why it is important to undertake file housekeeping of the information stored on computer systems and how it affects performance	Information storage: Data files, folders, sub-folders, storage media; archives File housekeeping: Naming and labelling conventions; organising files, folders and storage media; saving back-ups; deleting unwanted files; changing default settings for saving data; file and folder options; sharing and synchronising files; disk management

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	<p>C2.4 Manage file and disk housekeeping so that information is secure and easy to find</p> <p>C2.5 Configure access to remote file systems</p>	C2.6 Distinguish between data and system file types	
OSP:C3 Troubleshoot and respond to IT system problems quickly and effectively	<p>C3.2 Carry out contingency planning to recover from system failure and data loss</p> <p>C3.3 Monitor and record IT system problems to enable effective response</p> <p>C3.4 Monitor system settings and adjust when necessary</p> <p>C3.6 Help others to select and use appropriate resources to respond to IT system problems</p> <p>C3.7 Check that errors and problems have been resolved satisfactorily</p>	<p>C3.1 Assess IT system problems, explain what causes them and how to respond to them and avoid similar problems in the future</p> <p>C3.5 Explain when and where to get expert advice</p>	<p>IT system problems: Program not responding, paper jam, storage full, error dialogue, virus threat, memory low; connection loss; hardware and software compatibility problems, system slow; intermittent errors; technically complex or serious errors; unrecoverable system failure</p> <p>Record problems: Error log, description, frequency of occurrence, severity; impact</p> <p>Expert advice: Limits of own understanding and skills, help menus, manufacturer's guidelines, how to follow advice, information needed by experts, where to get advice to deal with different hardware and software problems</p> <p>System settings: Basic input/output settings (BIOS), memory usage, display settings, network settings, power usage</p>
OSP:C4 Plan and monitor the routine and non-routine maintenance of hardware and software	<p>C4.2 Develop a plan for the maintenance of IT hardware and software</p> <p>C4.3 Monitor the implementation of maintenance plans, updating them where necessary</p>	C4.1 Clarify the resources that will be needed to carry out maintenance	Maintenance plans: Finance, expertise, materials, equipment
OSP:C5 Review and modify hardware and software to maintain performance	<p>C5.1 Use appropriate techniques to maintain software for optimum performance</p> <p>C5.3 Review and modify hardware settings to maintain performance</p>	C5.2 Clarify when and how to upgrade software	<p>Maintain software: Install software patches and upgrades, install and uninstall software, install operating system upgrades; install maintenance updates; administrative tools and procedures</p> <p>Upgrade software: Benefits of upgrading, drawbacks of not upgrading, the need to check compatibility of software and hardware upgrades with other parts of the system, the importance of keeping up-to-date, return on investment</p>