

National Occupational Standards

Sector: IT

Occupation: Systems Administrator Associate

MQF Level: 4

Units:

- SAA401-Knowledge and use of Microsoft Products
- SAA402-Knowledge and use of Linux OS commands
- SAA403-Basics in networking for troubleshooting.
- SAA404-Elementary debugging and programming
- SAA405-Data Centre Operations & Procedures
- SAA406- Safety Standards based on Latest IEC Documentation

SAA401 - Knowledge and use of Microsoft Products

This unit describes what Knowledge is needed in the Microsoft product area, and what is expected by a system administrator to carry out in Microsoft products.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Be familiar with Microsoft OS server's features
2. Assess what type of OS is needed.
3. Maintain Active Directory Structure and replication
4. Structure a domain forest
5. Configure different types of Microsoft OS
6. Troubleshoot Microsoft DHCP server
7. Troubleshoot Microsoft DNS server

Required Knowledge

The level 4 System Administrator Associate must know and explain:

1. How to use the Task Manager and schedule jobs and backups
2. The Event Viewer features for easy troubleshooting.
3. Command line Prompts such as using diskpart, ping, arp, ipconfig, and dir commands.
4. In Setting up the Networking part of the OS
5. In Setting up the language and keyboard settings on Microsoft OS Products.
6. The creation or assigning groups in Microsoft OS Products
7. How to create a Domain and propagate it to other servers by joining to the domain
8. The registry importance, how it works and to remove or create a registry key.
9. Troubleshoot basic issues on the OS Network and use of the System services
10. Updating the system and patches and assess if a patch will affect other software.
11. On how to install Office products and Microsoft OS

Required Skills

The Level 4 System Administrator Associate must be able to:

1. To work with minimum supervision
2. Report any anomalies that where found during inspection.
3. Get as much information as possible from the user to troubleshoot the issue.
4. Create a reference database of the current equipment and log anything related to the device for history records.
5. Use the mentioned Reference database and assess if the device needs a replacement or can be fixed.
6. Assist superiors in Planning Backup Jobs or maintenance routines.
12. Use the Task Manager and schedule jobs and backups
13. Command line Prompts such as using diskpart, ping, arp, ipconfig, and dir commands.

14. In Set up the Networking part of the OS
15. In Set up the language and keyboard settings on Microsoft OS Products.
16. Creation or assign groups in Microsoft OS Products
17. Create a Domain and propagate it to other servers by joining to the domain
18. Remove or create a registry key.
19. Troubleshoot basic issues on the OS Network and use of the System services
20. Update the system and patches and assess if a patch will affect other software.
7. Install Office products and Microsoft OS

SAA402- Knowledge and use of Linux OS

This unit describes what Knowledge is needed in Linux and other Linux related areas, and what is expected by a system administrator Associate to carry out while troubleshooting Linux OS.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Know the differences available between Linux OS Systems, and type of support offered by the vendor.
2. Assess what type of Linux OS is needed.
3. Install a Linux OS system
4. Conduct Initial Configuration of a Linux server and desktop
5. Setup and troubleshoot a DHCP server
6. Setup and troubleshoot a DNS server

Required Knowledge

The level 4 System Administrator Associate must know and explain:

1. The system Monitor, and how to switch off any services through the system monitor
2. The use of the Command lines such as ls, cd, mv, man mkdir, rmdir, touch, locate, clear, and ifconfig, chmod
3. The setup Network card, using both the Command line or GUI
4. The steps for setting up the language and keyboard settings on Linux OS
5. How to create assign and creating groups in Linux
6. How to troubleshoot basic issues on OS Network
7. How to troubleshoot using the Linux log files in the logs folder.
8. Updating the system and patches and assess if a patch will affect other software.
9. How to install pkg files and other 3rd party packages.

Required Skills

The level 4 System Administrator Associate must be able to:

1. Work with minimum supervision
2. Report any anomalies that where noted during maintenance or troubleshooting

3. Get as much information as possible from the user to troubleshoot the issue.
4. Create a reference database of the current equipment and log anything related to the device for history records.
5. Use the mentioned Reference database and assess if the device needs a replacement or can be fixed.
6. Assist superiors when needed to schedule backup Jobs on Linux machines.
10. Switch off any services through the system monitor
11. Use the Command lines such as ls, cd, mv, man mkdir, rmdir, touch, locate, clear, and ifconfig, chmod
12. Setup Network card, using both the Command line or GUI
13. Set up the language and keyboard settings on Linux OS
14. Create assign and creating groups in Linux
15. Troubleshoot basic issues on OS Network
16. Troubleshoot using the Linux log files in the logs folder.
17. Update the system and patches and assess if a patch will affect other software.
18. Install pkg files and other 3rd party packages.
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SAA403- Basics in networking for troubleshooting.

This unit describes what is expected, and what knowledge is needed to troubleshoot and maintain a network and prevent issues or long down time to users.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Know the 7 OSI Layers as to identify issues.
2. Read a topology diagram
3. Assist a network engineer in patching and splicing network or fibre cable.
4. Identify a cat 5e colour scheme.
5. Know what routing is.
6. To identify a passive or managed switch, Routers and firewalls.
7. Differentiate between a router and a firewall.
8. Differentiate between an IPv4 and an IPv6
9. Troubleshoot Lan or WIFI Packets.

Required Knowledge

The level 4 System Administrator Associate must know and explain:

1. The different classes of IPv4 schemes that are available.
2. How to compute an IPv4 class C subnetting and scheme.
3. What Multicast, broadcast and Unicast are, and how to troubleshoot them.
4. What a straight through or crossover ethernet patch cable is.
5. On how to Install a Modem or router and identify wan port from a Lan port.
6. Routing and how a routing table works
7. VLans and where they are used.
8. WIFI network and how it works

Required Skills

The level 4 System Administrator Associate must be able to:

1. Work with minimum supervision
2. Report any issues that needs assistance to complete the task
3. Wire a Network wall port or patching new cables in the patch panel rack.
4. Use one electronic device to test network cables
5. Get as much information as possible from the user to troubleshoot the issue.
6. Create a reference database of the current equipment and log anything related to each device for history records.
7. Label all the cables, equipment and rack for easy tracing and faster troubleshooting.
8. Keep a list of all the firmware updates and create.
9. Assist superiors for a backup plan if updates fail or revert due to issues of such updates.
9. Compute an IPv4 class C subnetting and scheme.
10. Troubleshoot Multicast, broadcast and Unicast

11. Install a Modem or router and identify wan port from a Lan port.

SAA404- Elementary debugging and programming

This unit describes what type of skills and knowledge are needed for a systems administrator associate to perform tasks in programming and debugging code. This is an asset due that most of the time a system administrator needs to check what is stopping an application from working properly, especially when Microsoft visual basic applications or Linux applications are involved. When a candidate knows some basics of programming he/she can assess better the issue and report the vendor or Software house exactly what the issue is.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Read a structured program in C or Visual Basic
2. Automate most of the day to day task using the supplied Microsoft or Linux software.
3. Read Microsoft command prompt or PowerShell Language

Required Knowledge

The level 4 System Administrator Associate must know and explain:

1. How to create or modify small applications using PowerShell or command prompt Language.
2. The steps to test such applications before committing them to end users.

Required Skills

The level 4 System Administrator Associate must be able to:

1. Plan and keep record of any changes done for history logs and troubleshooting
2. Assist Programmers in troubleshooting issues and tests.
4. Read a structured program in C or Visual Basic
5. Automate most of the day to day task using the supplied Microsoft or Linux software.
3. Read Microsoft command prompt or PowerShell Language
3. Create or modify small applications using PowerShell or command prompt Language.
4. Test such applications before committing them to end users.
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SAA405- Data Centre Operations and Procedures

The current unit describes the knowledge and skills needed for a systems administrator associate regarding data centre operations and procedures. Given that data centres are restricted areas and strict policies are in place as security measures. Procedures can vary from one company to another, but the following are the general rules by which a system administrator needs to abide

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Note any anomalies or problems while inspecting cabinets
2. Use one monitoring system.

Required Knowledge

The level 4 System Administrator Associate must know and explain:

1. The setup and maintenance of a Server Cabinet.
2. In Racking a server in a cabinet
3. The different types of Power Plugs available.
4. The Safety regulations in place and their importance.

Required Skills

The level 4 System Administrator Associate must be able to:

1. Work with minimum supervision
2. Value costumers by adopting a professional look and attitude.
3. Assist customers while in the data centre
4. Keep track of who went in and out of the data centre
5. Assist superiors when necessary in racking devices or planning the Cabinets.

SAA406- Safety Standards based on Latest IEC Documentation

The Current unit describes the knowledge and skills needed by the candidate to perform job requirements in a safe manner as safety is an important part in this role. A general safety standard is already in place, and is updated periodically as new technology is released. The candidate must be well aware of such documentation and must adhere to it.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Update and check frequently in the IEC safety Standards.
2. Assist superiors in updating the Information Security policy with new safety standards.
3. Adopt and use new safety equipment.

Required Knowledge

The level 4 System Administrator Associate must know and explain:

1. The basic safety equipment required in a data centre or IT Server Room.
2. All the Electrical Warning Signs
3. The latest IEC documentation
4. The importance of a security Policy Document.

Required Skills

The level 4 System Administrator Associate must be able to:

1. Identify the type of suppression systems available
2. Read any service logs for safety equipment.
3. Report any issues accordingly to his superiors.