Test Project

Module F – Security system operation and maintenance

Intelligent Security Technology

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Module F – Security system operation and maintenance

Competition Time: 120 min

Competition tasks and requirements

Project task description

A large biopharmaceutical industrial park has recently completed the construction of an intelligent security system. The system covers multiple subsystems, including video surveillance, intrusion alarm, perimeter protection, intelligent analysis, and parking management, and is used to ensure production safety and standardized personnel operations in the park. During the previous engineering implementation stage, the system integration team has completed the installation, deployment, and basic functional commissioning of various hardware devices. The project has now entered the system joint commissioning and operation and maintenance verification stage.

To ensure that the system can operate stably in a real production environment, the park security management department has entrusted you, as a security system operation and maintenance engineer, to conduct comprehensive system commissioning and functional verification. Please complete system configuration and commissioning according to each task requirement and ensure that the intelligent security system of the park can meet production safety management requirements.

Instructions to Competitors

1. At the beginning of the Competition, browse and confirm all task requirements. Competitors shall complete each task in the order provided in the Test Project to better manage the Competition pace and ensure the completeness of answers.
2. On-site network cables: only some finished network cables will be provided on site. Competitors shall make network cables as needed. All network cables must be checked according to the standard. If a cable does not meet the specification, it shall be remade immediately.
3. Device configuration: during the Competition, Competitors shall not modify device usernames or passwords unless required by the Test Project.
4. Troubleshooting: Competitors shall have basic system troubleshooting and fault-location ability and shall be able to inspect and make necessary adjustments to the operating environment by checking system logs, service status, network connectivity, and related configuration files.
5. Material storage: all screenshots or videos generated during the Competition must be uniformly saved to the designated path: "Desktop\Exam Materials\Module F\Screenshots" folder. Please ensure that all materials are complete and accurately named for subsequent assessment.
6. Screenshot requirement: ensure that each submitted screenshot shows the complete current screen. Screenshots must not be cropped or covered.
7. A screenshot tool is provided, with the file path: Desktop\Exam Materials\Configuration Tool\Snipaste\Snipaste.exe

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Initial Information

CONFIGURATION ITEM	CONFIGURATION CONTENT
Digitalized Security Platform	
Digitalized Security Platform	192.168.3.122
Account	admin
Password	vcom@2026

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1. System security operation and maintenance

Task F-1 – Batch inspection script

Task description

This task is the basic inspection stage for operation and maintenance of the intelligent park power and environmental monitoring and security systems. Competitors shall use the Thonny tool to complete parameter supplementation and syntax defect correction for the batch ping inspection script, and then automatically inspect the online status of all devices within the 192.168.3.0 network segment. The script shall count and display the total number of inspected IP addresses, the number of online devices, and the number of offline devices, providing data support for subsequent device troubleshooting and link maintenance.

Configuration requirements

CONFIGURATION ITEM	CONTENT
Target Inspection Network Segment	192.168.3.1 ~ 192.168.3.254

Task requirements

Requirement 1: Script parameter completion and syntax correction

Launch: [thonny.exe] Execution path: Desktop\Exam Materials\Configuration Tool\thonny\thonny.exe

Open the preset script ping_range.py under the path Desktop\Exam Materials\Module F\Resource Package.

Complete and correct the following according to the Competition requirements:

Complete the IP range configuration parameters in the script and set the specified inspection network segment range.

Check the loop traversal range and ping command execution parameters, troubleshoot and fix syntax errors and logical defects, and ensure that the script can run normally.

After correction, capture the complete Thonny code editing area. The screenshot must clearly show the configured IP range parameters. Name the screenshot F-1-1.png.

Requirement 2: Script execution and inspection result verification

After completing the parameters, click the Run button on the toolbar to execute the script. Observe the output in the Thonny Shell console at the bottom and confirm that the required content is displayed completely and clearly.

After the script has fully executed, capture the complete Thonny full-screen interface. The screenshot must fully retain all Shell console output and clearly show the three (3) statistical fields: total inspected IP addresses, number of online devices, and number of offline devices. Name the screenshot F-1-2.png.

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Task F-2 – Multi-node sensor communication troubleshooting

System: Building intercom system

Task description

After trial operation of the community building fire protection system, a fault occurred: the light sensor data could not be uploaded to the Digitalized Security Platform, and the original light linkage corridor lighting function failed. The system needs to be rechecked and troubleshot. The faults are mainly concentrated at the network layer, serial parameter layer, and Modbus communication layer.

Configuration requirements

CONFIGURATION ITEM	CONFIGURATION CONTENT
Communication Interface Device Configuration - Basic Information	
Device Type	RS485 - Eight Serial Ports
Device Name	Serial Server
Device Serial Number	123456789
Communication Interface Device Configuration - Network Configuration	
IP Address	192.168.3.80
Subnet Mask	255.255.255.0
Gateway Address	192.168.3.1
Communication Interface Device Configuration - Serial Port Configuration	
Serial Port	Serial Port 6
Local Port	507
Target Port	10563
Target IP Address	192.168.3.122
Baud Rate	9600 bps
Data Bits	8
Stop Bits	1
Parity Bit	None
Light Sensor Parameter Information	
Communication Parameters	baudrate 9600, bytesize 8, stop bit 1, no parity, Modbus-RTU
Light Sensor Reading Command	01030007000135CB

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Task requirements

Requirement 1

Network Connectivity Troubleshooting

Launch two (2) executable files: NetAssist.exe and Serial Server Configuration Tool.exe. Their file path is Desktop\Exam Materials\Configuration Tool.

Refer to the device configuration parameters to debug Serial Port 6. Set the protocol type of the Network Debugging Assistant to TCP Client. Set the remote host address to the serial server IP: 192.168.3.80, and set the remote host port to the Serial Port 6 local port: 507.

Click Connect in the Network Debugging Assistant to establish the TCP link. If connection timeout or connection failure is displayed, troubleshoot and repair the physical network cable and port blocking issues.When the debugging assistant log displays "The server is connected", the network link is normal. Capture the complete current interface. The screenshot must include the protocol type set to TCP Client, the remote host address set to serial server IP 192.168.3.80, the remote host port 507, and the debugging assistant log showing "The server is connected". Save the file as F-2-1.png.

Requirement 2

Modbus Communication Debugging

Launch: [thonny.exe] Execution path: Desktop\Exam Materials\Configuration Tool\thonny\thonny.exe

Open and verify the script: open Desktop\Exam Materials\Module F\Resource Package\LightTest.py, and confirm that the serial port parameters, Modbus command, and sensor specifications are consistent.

Click the Run button on the toolbar to start the script.

Enter the COM port number corresponding to the USB-to-RS485 module in the bottom Shell console as prompted, and press Enter to confirm.

If no serial port is recognized: run Desktop\Exam Materials\Resource Package\CH341SER.EXE, click the first button on the interface, wait until the system indicates that the driver installation is complete, close the window, and then rerun the script.

If the serial port fails to open: check whether the port is occupied, whether the RS485 wiring is correct, and whether the driver is installed properly.

The script automatically performs communication acquisition. The console output shall include three (3) communication cycles, printing the Modbus command 01 03 00 07 00 01 35 CB, the raw hexadecimal message, and the single light value each time.

After acquisition is completed, the script shall output the average value of the three (3) light readings.

When communication is normal, the output shall display: "Light sensor debugging is normal, and the device is operating without abnormalities."

The process shall automatically close the serial port and print the log at the end.

Working condition and screenshot requirement: before the test, ensure that the sensing surface of the sensor receives light normally. Capture the complete Thonny full-screen interface. The screenshot must include both the code editing area and all Shell running logs, and the log must clearly show the success prompt "Light sensor debugging is normal, and the device is operating without abnormalities". Cropping or covering is not allowed. Name the file F-2-2.png.

2. System Linkage Control

System: Intrusion and emergency alarm system

Task F-3 – Communication interface device – IO controller and door magnetic sensor module access configuration

Task description

This task is the front-end device access stage of the intrusion alarm system. The IO controller that has completed hardware wiring shall be connected to the communication interface of the security management platform. Communication parameter configuration and door magnetic sensor module configuration shall be completed to establish a stable data link and provide underlying hardware communication support for subsequent door contact linkage with the audible and visual alarm device.

Configuration requirements

CONFIGURATION ITEM	CONFIGURATION CONTENT - IO CONTROLLER	CONFIGURATION CONTENT - DOOR MAGNETIC SENSOR
Device Basic Information		
Device Type	RS485 - Eight Serial Ports	RS485 - Eight Serial Ports
Device Name	Serial Device	Serial Device
Device Serial Number	123456789	123456789
Network Configuration		
Serial Server IP	192.168.3.80	192.168.3.80
Subnet Mask	255.255.255.0	255.255.255.0
Gateway Address	192.168.3.1	192.168.3.1
Serial Port Configuration		
Serial Port	Serial Port 5	Serial Port 8
Local Port	506	509
Target Port	10563	10563
Target IP Address	192.168.3.122	192.168.3.122
Baud Rate	9600 bps	9600 bps
Data Bits	8	8

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CONFIGURATION ITEM	CONFIGURATION CONTENT - IO CONTROLLER	CONFIGURATION CONTENT - DOOR MAGNETIC SENSOR
Stop Bits	1	1
Parity Bit	None	None
Function Mapping Configuration		
Access Device Type	IO Controller	Door Magnetic Sensor
Access Device	IO Controller	Door Magnetic Sensor
Channel Type - Input RX	None	Door Magnetic Sensor
Channel Type - Output TX	Execute	None (Report Only)

Task requirements

Requirement 1

New Serial Communication Interface Configuration for the IO Controller

Log in to the backend of the Intrusion and Emergency Alarm System. Go to Device Management > Communication Interface Device, click the New button, and open the Communication Interface Device page.

On the new configuration page, completely fill in all configuration content corresponding to the IO controller serial port, covering the four (4) major modules on the page: parameter configuration, target server configuration, serial port parameters, and function mapping.

After all parameters are filled in, capture the current complete new communication interface device configuration page. The screenshot must clearly show all configuration items on the page. Save the screenshot as F-3-1.png.

Requirement 2

New Serial Communication Interface Configuration for the Door Contact Sensor

Log in to the backend of the Intrusion and Emergency Alarm System.Go to Device Management > Communication Interface Device, click the New button, and open a new communication interface device configuration editing page.

On the new configuration page, completely fill in all configuration content corresponding to the door contact sensor serial port, covering the four (4) major modules on the page: parameter configuration, target server configuration, serial port parameters, and function mapping.

After all parameters are filled in, capture the current complete new communication interface device configuration page. The screenshot must clearly show all configuration items on the page. Save the screenshot as F-3-2.png.

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Task F-4 – Door contact sensor linkage with audible and visual alarm device control configuration

Task description

This task belongs to the security linkage commissioning and acceptance scenario of the park entrance and exit intrusion alarm system. In the earlier project stage, on-site wiring for the door contact sensor was completed, serial server communication parameters were commissioned, and the serial device was connected to the intrusion alarm management platform, completing communication interface registration and device hosting. The front-end sensing and collection link now has a stable communication foundation.

This task requires two (2) core configurations to be completed in the backend of the intrusion alarm system: creating an abnormal door opening alarm judgment rule for the door contact sensor and setting the linkage execution logic that triggers the audible and visual alarm device when the door contact sensor detects an open-door status. The final goal is to realize a full-chain automated closed loop of "sensor collection - alarm judgment - device linkage - event traceability", in which the system automatically activates the audible and visual alarm device when the door contact sensor detects an abnormal opening event, while retaining complete alarm event details and operation logs. This meets the operation and maintenance management and project acceptance requirements for automatic audible and visual warning and full traceability of entrance and exit abnormal intrusion events.

Configuration requirements

CONFIGURATION ITEM	CONFIGURATION CONTENT
Door/Window Door Contact Arming - Arming Settings	
Defense Zone Number	3
Defense Zone Name	Property Room
Associated Communication Device	<Manual>
Associated Serial Port	<Manual>-
Linkage Management - Basic Information	
Linkage Name	Door Contact Abnormal Opening Linkage with Audible and Visual Alarm Device
Trigger Condition	
Arming Mode	Door Contact
Defense Zone Name	3
Associated Device	Door Contact Sensor
Linkage Management - Linkage Execution	
Associated Communication Interface Device	Serial Server
DO3 - Execution Action	On
Action Device	Audible and Visual Alarm Device
Duration	5 s

Task requirements

Requirement 1

Keep the ntrusion and Emergency Alarm System logged in. Go to Linkage Management > Linkage Configuration, click the New button, and complete all linkage basic information and linkage execution action parameters according to the configuration table. Enable the linkage rule.

Take a full screenshot of the Linkage Rules list page after adding the new linkage rule.

The screenshot must clearly show the linkage name “Door Contact Abnormal Opening Linkage with Audible and Visual Alarm Device” and the execution action “(DO3) On - Audible and Visual Alarm Device - Off”. Save the screenshot as F-4-1.png.

Requirement 2

After the alarm is triggered and the audible and visual alarm device linkage is executed, go to Linkage Management > Linkage Record. Query the execution log of this door contact linkage with the audible and visual alarm device. Capture the complete linkage record interface showing the linkage name “Door Contact Abnormal Opening Linkage with Audible and Visual Alarm Device” and the execution action “(DO3) On - Audible and Visual Alarm Device”. Save the screenshot as F-4-2.png.

3. System linkage strategy configuration

System: Video surveillance Management System

Task F-5 – Audible and visual alarm device installation and configuration

Task description

To realize linkage response between the video surveillance management system and the audible and visual alarm device, and to improve on-site warning and handling efficiency for abnormal events in the park, the hardware installation, serial communication parameter configuration, and device communication verification of the audible and visual alarm device shall be completed. Competitors shall complete device configuration according to the standard serial protocol parameters and verify the device communication status through the dedicated command, ensuring that the audible and visual alarm device can be normally identified and controlled by the video surveillance system and providing a stable and reliable hardware communication basis for subsequent linkage alarm strategy configuration and execution.

Configuration requirements

AUDIBLE AND VISUAL ALARM DEVICE - PARAMETER INFORMATION	CONTENT
Baud Rate	9600 bit/s
Data Bits	8 bits
Parity Bits	None
Stop Bits	1 bit
Error Check	CRC (Cyclic Redundancy Check)
Command for Reading Version Number (HEX)	01 03 00 31 00 01 D5 C5
Command for Turning On Alarm Light and Sound (HEX)	01 06 00 63 00 FF 39 94
Command for Turning Off Alarm Light and Sound (HEX)	01 06 00 63 00 00 79 D4

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Task requirements

Requirement 1

Launch UartAssist; executable path: Desktop\Exam Materials\Configuration Tool\UartAssist.exe

Use a USB-to-485 device to complete the RS485 serial protocol connection of the audible and visual alarm device.
Send the command 01 06 00 63 00 FF 39 94 to turn on the alarm light and buzzer, then send the command 01 06 00 63 00 00 79 D4 to turn off the audible and visual alarm. Capture a full screenshot of the current interface. The screenshot shall distinctly display the following information:

Baud rate: 9600bit/s

Data bits: 8

Stop bits: 1

Parity Bits: None

Complete turn-on command 01 06 00 63 00 FF 39 94 and its corresponding response data

Complete turn-off command 01 06 00 63 00 00 79 D4 and its corresponding response data

Save the Serial Debugging Assistant interface screenshot as F-5-1.png.

Task F-6 – Communication interface device installation and configuration

Task description

To build a stable and reliable remote communication link between the video surveillance management system and the audible and visual alarm device, and to realize real-time issuing of alarm commands and monitorable device status when abnormal events occur, the hardware installation and network parameter configuration of the communication interface device, namely the serial server, shall be completed. Competitors shall configure the TCP client mode of the serial server according to the specified target server address and port, establish an effective connection with the video surveillance system backend, ensure that the audible and visual alarm device can be remotely identified and controlled by the system, and provide underlying communication support for subsequent linkage alarm strategy implementation.

Configuration requirements

COMMUNICATION INTERFACE DEVICE - PARAMETER INFORMATION	CONTENT
Device Type	RS485 - Eight Serial Ports
Device Model	<Manual Input>
Device Name	Serial Server
Serial Server IP	192.168.3.80
Subnet Mask	255.255.255.0
Gateway Address	192.168.3.1
Serial Port Configuration	
Serial Port	Serial Port 7
Working Mode	TCP Client
Local Port	508
Target IP Address	192.168.3.122
Target Port	10563
Baud Rate	9600
Data Bits	8
Stop Bit	1
Parity Bit	None
Function Mapping	
Device Type	Audible and Visual Alarm
Access Device	Audible and Visual Alarm Device
Channel Type - Input RX	Audible and Visual Alarm
Channel Type - Output TX	Audible and Visual Alarm Device Status

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Task requirements

Requirement 1

Connect the serial server, power it on, and connect it to the audible and visual alarm device.

Requirement 2

Launch Serial Server Configuration Tool; its executable path is Desktop\Exam Materials\Configuration Tool\Serial Server Configuration Tool.exe.

Complete the parameter settings of the serial port connected to the audible and visual alarm device according to the configuration requirements table and take a screenshot of the completed serial server configuration and debugging page. Save the serial server configuration interface screenshot as F-6-1.png.

Requirement 3

Log in to the backend of the Video Surveillance System. Go to Device Management > Communication Interface Device. Through the serial server configuration modification function, complete screenshots of each configuration page for the serial port connected to the audible and visual alarm device, including serial port parameter configuration, target server configuration, serial port parameters, and function mapping. Save the serial port configuration screenshot as F-6-2.png.

Task F-7 – Detection event configuration

Task description

To build an active safety prevention and control system for key areas of the park, and to realize automatic recognition, strategy judgment, and linkage response for personnel intrusion events by the video surveillance system, video detection event and linkage alarm strategy configuration shall be completed. Competitors shall configure personnel movement detection event parameters based on the installed dome camera, including arming area, sensitivity, and arming time, and establish linkage between the event and the configured serial server and audible and visual alarm device. This ensures that when an illegal intrusion behavior is detected, the system can automatically issue commands to the audible and visual alarm device through the serial port, trigger on-site warning, and complete the full closed-loop configuration from video recognition to device linkage.

Configuration requirements

CONFIGURATION ITEM	CONTENT
Camera	
Camera Type	Dome Camera
Device Name	Dome Camera Test
Device Serial Number	<Manual>
Switch Port	1
Device Current IP Address	<Manual>
Target Address	192.168.3.168
IPv4 Subnet Mask	255.255.255.0
IPv4 Default Gateway	192.168.3.1
Preferred DNS Server	8.8.8.8
Alternate DNS Server	114.114.114.114
Username	admin
Password	123456
Device Event Management	
Associated Camera Name	Dome Camera Test
Camera Type	Dome Camera
Event	Detect Human Movement Only

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CONFIGURATION ITEM	CONTENT
Area Setting	Select All
Sensitivity	5
Arming Schedule	Monday to Sunday
Linkage Settings	
Communication Interface Device	Serial Server
Serial Port	Serial Port 7 (COM7)
Channel Type - Input RX	Audible and Visual Alarm

Task requirements

Requirement 1

Log in to the backend of the Video Surveillance System. Go to Device Event Management > Device Event List, click Edit, and complete the alarm parameter configuration for "Detect Human Movement Only". Three (3) screenshots shall be taken for Area Setting, Arming Schedule, and Linkage Settings, and saved as F-7-1.png, F-7-2.png, and F-7-3.png respectively.

The screenshots must completely and clearly show all configuration parameters: the alarm event is set to Detect Human Movement Only; the area setting is Select All Areas; alarm sensitivity is set to Level 5; arming time is set from Monday to Sunday; the linkage method is configured with the associated communication interface device as the serial device; and the channel input type RX corresponds to the audible and visual alarm.

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Task F-8 – Linkage result verification

Task description

To complete closed-loop verification of the park safety prevention and control strategy and ensure the effectiveness of the full chain from event recognition, alarm reporting, to linkage execution of the video surveillance system, functional verification and record retention of the configured motion detection and audible and visual alarm linkage strategy shall be completed. Competitors shall simulate and trigger the motion detection event of the dome camera, verify whether the system generates the corresponding alarm record, and confirm whether the audible and visual alarm device synchronously executes the linkage response. Finally, Competitors shall check the alarm record to complete traceable verification of the linkage effect, ensuring that the entire security linkage process is stable, reliable, auditable, and verifiable, and meets the compliance requirements of park safety management.

Configuration requirements

ALARM RECORD - HANDLING	CONTENT
Device Name	Dome Camera Test
Alarm Event Name	Motion Detection
Processing Content	Test

Task requirements

Requirement 1

Log in to the backend of the Video Surveillance System. Go to Alarm Management > Alarm Recordand ,switch to the Video Device Alarms tab. Locate the alarm record with the alarm event name “Motion Detection”. Capture the complete current page. Cropping or covering is not allowed. The screenshot must clearly show the alarm event name “Motion Detection”. Save the screenshot as F-8-1.png.

Requirement 2

Log in to the backend of the Video Surveillance System. Go to Alarm Management > Alarm Recordand ,switch to the Video Device Alarms tab. Locate the “Motion Detection” alarm record, click the Handle button, fill in the processing content, and complete closed-loop alarm handling to ensure that the full alarm handling process is traceable.

After processing is completed, click the Details button for this alarm record and capture the complete details pop-up window. The screenshot must clearly show three (3) core items: device name “Dome Camera Test”, alarm event name “Motion Detection”, and processing content “Test”. Save the screenshot as F-8-2.png.

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Task F-9 – System resource monitoring

Task description

Operation and maintenance staff of the biopharmaceutical industrial park need to regularly inspect the resource load of servers on the digital security platform. You are required to write and refine a Shell script to automatically collect data including system execution time, CPU and memory resources. The script shall unify unit conversion for memory parameters, automatically calculate memory usage rate, and wait for manual key confirmation to exit after execution. It supports daily operation and maintenance inspection of security platform servers and rapid identification of abnormal resource load.

Configuration requirements

CONFIGURATION ITEM	CONTENT
Git Operation Tool	Path: Desktop\Exam Materials\Configuration Tool\Git-2.40.1-64-bit.exe
Script File Name	Windows System Resource Monitoring.sh
Original Script Storage Path	Path: Desktop\Exam Materials\Module F\Resource Package\Windows System Resource Monitoring.sh
Script Editor Path	Desktop\Exam Materials\Configuration Tool\Notepad++\notepad++.exe (Optional; Notepad can also be used for editing)
Final Archive Path for Completed Script	Desktop\Exam Materials\Module F\Script file
Running Terminal Environment	Git Bash (Windows Platform)

Task requirements

Requirement 1

Tool Installation: Run the installer Desktop\Exam Materials\Configuration Tool\Git 2.40.1 64 bit.exe to complete full Git installation. Verify that Git Bash can launch normally and support bash script execution.

Script Editing: Open the source script file Windows System Resource Monitoring.sh. You may use notepad++.exe as the default editor, or switch to any other valid script editing tool.

Locate and repair all syntax errors and missing data collection logic. Add complete functional code to print current system execution time, collect CPU usage, acquire three categories of memory metrics, calculate memory usage rate, and implement enter key exit interaction.

Operation Verification: Right-click the script file and run it via Git Bash. Capture the complete full-size Git Bash window for filing. The captured screenshot shall present a valid non-empty value for Current CPU usage, and shall not include any Bash error prompts or the term "Failed" in the terminal output. Save the screenshot as F-9-1.png under Desktop\Exam Materials\Module F\Screenshots, with all output text and numeric values clearly legible.

Requirement 2

Operation Verification: Right-click the script file and run it via Git Bash. Capture the complete full-size Git Bash window for filing. The captured screenshot shall present a valid non-empty value for Total Physical Memory, and shall not include any Bash error prompts or the term "Failed" in the terminal output. Save the screenshot as F-9-2.png under Desktop\Exam Materials\Module F\Screenshots, with all output text and numeric values clearly legible.

Requirement 3

Operation Verification: Right-click the script file and run it via Git Bash. Capture the complete full-size Git Bash window for filing. The captured screenshot shall present a valid non-empty value for Used Memory, and shall not include any Bash error prompts or the term "Failed" in the terminal output. Save the screenshot as F-9-3.png under Desktop\Exam Materials\Module F\Screenshots, with all output text and numeric values clearly legible.

Requirement 4

Operation Verification: Right-click the script file and run it via Git Bash. Capture the complete full-size Git Bash window for filing. The captured screenshot shall present a valid non-empty value for Free Memory, and shall not include any Bash error prompts or the term "Failed" in the terminal output. Save the screenshot as F-9-4.png under Desktop\Exam Materials\Module F\Screenshots, with all output text and numeric values clearly legible.

Requirement 5

Operation Verification: Right-click the script file and run it via Git Bash. Capture the complete full-size Git Bash window for filing. The captured screenshot shall present a valid non-empty value for Memory Usage Rate, and shall not include any Bash error prompts or the term "Failed" in the terminal output. Save the screenshot as F-9-5.png under Desktop\Exam Materials\Module F\Screenshots, with all output text and numeric values clearly legible.

Requirement 6

Rename the debugged, fully functional script to Win_Resource_Monitor_Final.sh.

Save the final script file to the path: Desktop\Exam Materials\Module F\Script file

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Task F-10 – AI intelligent security O&M report generation

Task description

This task serves as the comprehensive concluding assessment of the module, evaluating contestants' full-process capabilities including hands-on operation of AI tools, integration of project materials, accurate keyword prompting, and output of structured operation and maintenance reports.

Based on all practical operation documents generated throughout the Module F Intelligent Security System Operation and Maintenance procedures (batch inspection script logs, sensor communication debugging records, configuration parameters of IO controllers, door magnetic sensors and audible and visual alarm devices, linkage alarm records of human detection via video surveillance, and fault troubleshooting screenshots), contestants shall use the supporting AI report generation tool, select Module F: Security System Operation and Maintenance as the analysis target, import all complete practical materials, input the designated business keywords, and invoke AI to generate a standardized operation and maintenance acceptance report for the intelligent security system of the biopharmaceutical industrial park. Contestants need to complete the entire workflow including report preview, proofreading, export and archiving, and retain complete screenshots of the operation interface as well as exported finished documents to support the completion acceptance of the park security project.

Configuration requirements

CONFIGURATION ITEM	CONTENT
Module	Custom selection
Keyword	Custom input
Report word limit	Custom input
File	Custom selection

Requirement

Log in to the backend of the AI Report System. Complete report generation by configuring Module, Keyword, Report word limit and File parameters. Export the generated report, save it to the designated path Desktop\Exam Materials\Module F\AI Report, and name the file ai_Report.pdf.

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