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CATEGORY: WindowsNetworking

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Networking operations directly affect connectivity, authentication, application availability, and system reachability. These SOPs ensure every network-related action performed through RDAM Script Wizard is **controlled**, **auditable**, and aligned with enterprise operational and security standards.

SOP 1 – Get Network Adapter Information

Script Name: Get Network Adapter Information **Category:** WindowsNetworking **Version:** 1.0
Approved By: IT Operations / Engineering

1. Purpose

This script retrieves detailed information about network adapters, supporting troubleshooting, inventory, and configuration validation.

2. Scope

- Windows servers and workstations
- Physical and virtual adapters

3. Definitions

- **Adapter:** Network interface used for communication.
- **Link Speed:** Maximum supported throughput.

4. Preconditions

- Operator must have permission to query network configuration.

5. Required Inputs

- Optional: Adapter name filter

6. Procedure Steps

1. Input Collection
 - Wizard prompts for optional filter.
2. Adapter Enumeration
 - Retrieve all network adapters.
3. Attribute Retrieval
 - Extract:
 - Adapter name
 - MAC address
 - Link speed
 - IP addresses
 - DHCP status
 - DNS servers
 - Status (Up/Down)
4. Output Formatting
 - Present structured adapter list.
5. Logging
 - Log filter, operator, timestamp.

7. Expected Output

- Detailed network adapter information.

8. Post-Execution Validation

- Operator may verify via `ipconfig` or `Get-NetAdapter`.

9. Error Handling

- Access denied
- Invalid filter
- Adapter not found

10. Security Considerations

- Network configuration may reveal sensitive infrastructure details.

11. Audit Logging Requirements

- Operator ID
- Filter used
- Timestamp

12. Organizational Benefit Statement

This script provides a consistent, auditable method for retrieving adapter information, supporting troubleshooting and configuration management.

SOP 2 – Set Static IP Address

Script Name: Set Static IP Address **Category:** WindowsNetworking**

1. Purpose

This script configures a static IP address on a network adapter, supporting server deployments, application requirements, and network stability.

2. Scope

- Windows servers and workstations
- IPv4 and IPv6

3. Definitions

- **Static IP:** Manually assigned IP address.

4. Preconditions

- Operator must have administrative rights.
- IP configuration must be approved by network team.
- Adapter must exist.

5. Required Inputs

- Adapter name
- IP address
- Subnet mask or prefix length
- Default gateway
- DNS servers

6. Procedure Steps

1. Input Collection
 - Wizard prompts for adapter and IP details.
2. Validation
 - Confirm adapter exists.
 - Validate IP format.
 - Validate gateway and DNS.
3. Configuration Update
 - Apply static IP settings.
4. Post-Update Verification
 - Confirm adapter reflects new configuration.
5. Logging
 - Log adapter, IP, operator, timestamp.

7. Expected Output

- Confirmation of static IP configuration.

8. Post-Execution Validation

- Operator may verify via `ipconfig`.

9. Error Handling

- Invalid IP
- Access denied
- Adapter not found

10. Security Considerations

- Incorrect IP settings may cause loss of connectivity.

11. Audit Logging Requirements

- Operator ID
- Adapter name
- IP address

- Timestamp

12. Organizational Benefit Statement

This script ensures static IP configuration is performed safely and consistently, supporting network stability and application readiness.

SOP 3 – Set DHCP Configuration

Script Name: Set DHCP Configuration **Category:** WindowsNetworking**

1. Purpose

This script configures a network adapter to obtain IP settings automatically via DHCP.

2. Scope

- Windows servers and workstations
- IPv4 and IPv6

3. Definitions

- **DHCP:** Dynamic Host Configuration Protocol.

4. Preconditions

- Operator must have administrative rights.
- Adapter must exist.

5. Required Inputs

- Adapter name

6. Procedure Steps

1. Input Collection
 - Wizard prompts for adapter name.
2. Validation
 - Confirm adapter exists.
3. Configuration Update
 - Set adapter to DHCP for IP and DNS.
4. Post-Update Verification
 - Confirm adapter receives DHCP lease.

5. Logging

- Log adapter, operator, timestamp.

7. Expected Output

- Confirmation of DHCP configuration.

8. Post-Execution Validation

- Operator may verify via `ipconfig /all`.

9. Error Handling

- DHCP server unreachable
- Access denied
- Adapter not found

10. Security Considerations

- DHCP may assign unexpected DNS or gateway settings.

11. Audit Logging Requirements

- Operator ID
- Adapter name
- Timestamp

12. Organizational Benefit Statement

This script ensures DHCP configuration is applied safely and consistently, supporting dynamic network environments.

SOP 4 – Flush DNS Cache

Script Name: Flush DNS Cache **Category:** WindowsNetworking**

1. Purpose

This script clears the DNS resolver cache, supporting troubleshooting, name-resolution issues, and stale-record cleanup.

2. Scope

- Windows servers and workstations

3. Definitions

- **DNS Cache:** Locally stored DNS lookups.

4. Preconditions

- Operator must have permission to modify DNS cache.

5. Required Inputs

- None

6. Procedure Steps

1. Flush Operation
 - Clear DNS resolver cache.
2. Post-Flush Verification
 - Confirm cache cleared.
3. Logging
 - Log operator and timestamp.

7. Expected Output

- Confirmation of DNS cache flush.

8. Post-Execution Validation

- Operator may verify via `ipconfig /displaydns`.

9. Error Handling

- Access denied
- DNS client service unavailable

10. Security Considerations

- Clearing cache may temporarily increase DNS lookup latency.

11. Audit Logging Requirements

- Operator ID
- Timestamp

12. Organizational Benefit Statement

This script provides a controlled, auditable method for clearing DNS cache, supporting troubleshooting and name-resolution accuracy.

SOP 5 – Test Network Connectivity

Script Name: Test Network Connectivity **Category:** WindowsNetworking**

1. Purpose

This script tests connectivity to a remote host, supporting troubleshooting, diagnostics, and network validation.

2. Scope

- Windows servers and workstations
- IPv4 and IPv6

3. Definitions

- **Connectivity Test:** ICMP or TCP-based reachability test.

4. Preconditions

- Operator must have permission to test connectivity.

5. Required Inputs

- Hostname or IP
- Optional: Port number

6. Procedure Steps

1. Input Collection
 - Wizard prompts for host and optional port.
2. Test Execution
 - Perform ICMP ping.
 - If port provided, perform TCP test.
3. Output Formatting
 - Present latency, success/failure, and diagnostic details.
4. Logging

- Log host, port, operator, timestamp.

7. Expected Output

- Connectivity status and diagnostic details.

8. Post-Execution Validation

- Operator may verify via `ping` or `Test-NetConnection`.

9. Error Handling

- Host unreachable
- Firewall blocking
- Invalid host

10. Security Considerations

- Connectivity tests may reveal network topology.

11. Audit Logging Requirements

- Operator ID
- Host
- Port
- Timestamp

12. Organizational Benefit Statement

This script provides a controlled, auditable method for testing connectivity, supporting troubleshooting and network validation.

SOP 6 – Get Routing Table

Script Name: Get Routing Table **Category:** WindowsNetworking**

1. Purpose

This script retrieves the system routing table, supporting troubleshooting, network path analysis, and configuration validation.

2. Scope

- Windows servers and workstations
- IPv4 and IPv6 routes

3. Definitions

- **Route:** A rule defining how traffic is forwarded.

4. Preconditions

- Operator must have permission to query routing configuration.

5. Required Inputs

- None

6. Procedure Steps

1. Retrieve Routing Table
 - Extract IPv4 and IPv6 routes.
2. Attribute Extraction
 - Destination
 - Gateway
 - Interface
 - Metric
3. Output Formatting
 - Present structured routing table.
4. Logging
 - Log operator and timestamp.

7. Expected Output

- Complete routing table.

8. Post-Execution Validation

- Operator may verify via `route print`.

9. Error Handling

- Access denied
- Routing service unavailable

10. Security Considerations

- Routing data may reveal network architecture.

11. Audit Logging Requirements

- Operator ID
- Timestamp

12. Organizational Benefit Statement

This script provides a controlled, auditable method for retrieving routing tables, supporting troubleshooting and network analysis.