

# Centrify Zero Trust Privilege Services Advanced Jump Start - 1000

The Centrify Zero Trust Privilege Services Advanced Jump Start 1000 package is intended for environments with 1000 or fewer Unix/Linux or Windows systems that make up the corporate enterprise. It is designed to give these enterprises the hands-on experience and training required to get a quick start on the deployment by implementing our Zero Trust Privilege Services best practices and utilizing our experienced consultants. The services includes twenty (20) days of consulting assistance deploying a pilot environment (up to 100 systems) and a design document detailing the customer's current environment and specific Centrify architecture, design, and processes implemented to assist in completing the overall deployment. If you have more than 1000 systems in your environment you should speak with the Centrify Professional Services Team and discuss your Client Assessment Form findings.

## Benefits

- Achieve up to 50% faster time-to-value
- Gain hands-on experience deploying the Centrify Zero Trust Privilege Services solution
- Gain hands-on experience configuring critical processes before implementing in a production environment
- Reduced management overhead
- A consistent, supportable implementation based on your existing business practices
- Reduced troubleshooting complexity
- A scalable Centrify Zero Trust Privilege Services maturity model to strengthen your security posture

## Enabled Capabilities

The following Zero Trust Privilege Services will be deployed:

- Credential Management: account password vault, secrets vault, SSH key management; centralized management of service, shared, application accounts
- Bastion Host, Secured Remote Access via RDP and SSH
- Multi-factor Authentication for vault access, login and privilege elevation
- Authentication Services: AD bridging, multi-directory brokering, local account & group management, identity consolidation
- Privilege Elevation with Least Privilege and Just-In-Time Access
- Desktop Apps privilege for Windows
- Centrify Access Request and Approval Workflow
- Gateway session monitoring and control
- Reporting Services and SIEM integration

## Engagement Management

Engagement management provides end-to-end oversight and management to ensure successful service delivery and on-site trainings. Centrify's engagement management add dedicated resources that provide the following essential elements to your project:

- Management focus and expertise
- Quality control and management
- Cost management

Your Centrify engagement manager will ensure your staff, change control processes and equipment are prepared for Centrify staff to work productively and efficiently so projects are completed on time and with the highest quality levels.

## Deliverables

At the completion of the service, you will receive the following:

- Centrify Design Document
- Centrify Zero Trust Privilege Services, Standard Edition software deployed on up to 100 systems.
- Up to five (5) Roles or Privilege Elevation through integrated access request and approval workflow.
- Centrify Reporting Services (CRS) installed and report templates shared so your team can build your own custom report queries.

## Duration

- Four (4) days of instructor lead Standard Training before the project begins.
- Twenty (20) days of remote consulting services. (If on-site consulting is preferred a T&E cost will be added to the quote).

## Who Should Attend

Unix/Linux, Windows, Security and/or System Administrators who need to deploy and administer Centrify Zero Trust Privilege Services in their environment.

## Prerequisites

- Intended for IT environments with no more than 1000 Windows, UNIX or Linux systems for the enterprise. We can help customize this offering if your organization has more than 1000 deployed Windows, UNIX/Linux systems.
- The participants should have a basic understanding of Windows, Active Directory and UNIX/Linux user authentication.
- Identify up to 100 systems in the environment to deploy Centrify services.
- Centrify adcheck utility run across targeted Unix/Linux systems.
- Targeted Windows systems joined to Active Directory domain.
- All issues reported by the Centrify adcheck utility resolved prior to engaging with a Professional Services consultant.
- Approval to create an Organizational Unit for storage of Centrify data in targeted AD domain prior to engaging with a Professional Services consultant.
- Individual with appropriate Active Directory permissions is available during Professional Services engagement.
- All Change Control required for implementation of Centrify Zero Trust Privilege Services, Standard Edition must be approved prior to the Professional Services engagement.
- Identify all legacy NIS, LDAP or Kerberos realms that will require identity consolidation.

Service does not include integration with LDAP proxy, SAMBA or network storage devices.

**Note: All UNIX groups and systems, Provisioning Groups, Service Accounts, Role Groups, Licenses, Zone Administration Groups and Zones must be stored under a single organizational unit in accordance with Centrify best practices.**

## Daily Logistics

DAY	ACTIVITY
1	Customer interviews and a detailed overview of the SOW
2	Discuss and analyze environment, and installation of console.
3 - 5	Review UNIX /etc/passwd and /etc/groups/ & Installation of console and build out of OU structure and zones.
6	Create a deployment plan for UNIX servers.
7	Initial deployment of software to group of test servers / user & access testing
8	Discuss deployment methodology and push to test systems.
9	Document design and deployment methodology.
10 - 19	Validate deployment methodology on final pilot systems. Install and configure CPS, MFA, and CRS for validation
20	Provide overview of deliverables and hand over the final release design document with deployment plan.

## Pricing and Ordering

This offering is invoiced on purchase and is valid for 6 months from the date of purchase. Contact your Centrify Sales representative for pricing details for your region and to arrange for a time, place, and schedule. Or email us at [sales@centrify.com](mailto:sales@centrify.com).

## Customizations

The Centrify Professional Services team has the expertise to handle or assist with many implementation customizations where needed. If there are additional implementation tasks that are required such as custom scripting, integrations, or any other technical services that will be useful to customer success with Centrify, our services team can set up a scoping call to provide custom implementation estimates to fulfill these needs.

## System Requirements for Training

For each student, the customer needs to provide a computer that meets or exceeds the minimum hardware requirements listed below:

- 4GB Memory . 64-bit Operating System
- Dual-core processor . A stable internet connection
- An HTML5 browser . The latest version of Java

Each student machine must be verified using this URL: <https://use.cloudshare.com/Ent/Machine.mvc/testpage>

**Note: All UNIX groups and systems, Provisioning Groups, Service Accounts, Role Groups, Licenses, Zone Administration Groups and Zones must be stored under a single organizational unit in accordance with Centrify best practices.**

## Key Assumptions

- Client understands that Centrifys performance of the Services and delivery of agreed upon deliverables under this Jump Start is dependent in part upon Clients actions, and Client therefore agrees to cooperate with Centrifys in a commercially reasonable manner in the completion of the Services by Centrifys. Centrifys will promptly notify Client of any delays of potential delays in Centrifys ability to undertake and complete performance in accordance with the applicable schedule resulting from the inaction of Client.
- Client understands that the implementation of Centrifys best practices are part of engagement estimation. It is expected that the single OU and sub-OU architecture will be implemented using our supported CreateOU powershell script, or the same architecture will be built manually before this engagement commences.
- Client understands that the implementation of Centrifys best practices will include a Parent Zone for standardized POSIX information for all users requiring Unix access. A Child Zone for computer objects that are in-scope of this engagement. For every classic zone being updated and migrated a Computer Role will be created inside the Child Zone for specific user access.
- Client will verify that each student computer for use during onsite training meets the minimum system requirements by using the system check at: <https://use.cloudshare.com/Ent/Machine.mvc/testpage>
- Client will provide the assigned consultant for the engagement a list of students for the onsite training. This list must be emailed a minimum of two weeks in advance of the scheduled training dates.
- Client will provide all hardware, software, facilities, equipment, and Client personnel (including technical resources) necessary to complete the project. These resources will be provided when they are needed in order to avoid project delays.
- Client will appoint a single point of contact for the duration of the project. This person will have project management responsibilities, be technically astute and familiar with Client change request processes as well as have the authority to expedite if necessary.
- Client management will make decisions and resolve issues in a timely manner in order to avoid project delays.
- If any Consulting Services engagement is canceled by Client less than three (3) weeks before the scheduled start date for such Services, Centrifys will most likely not be able to reschedule the engagement and be out the revenue. Centrifys will make every effort to redeploy the consultant and if Centrifys is able then the Client agrees to pay Client agrees to pay any reasonable fees and expenses incurred by Centrifys in terms of travel cancellations. If Centrifys is not able to redeploy the consultant then Client agrees to pay the full amount of the Consulting Fees that would have been properly invoiced by Centrifys had Client not canceled such engagement, and also any reasonable fees and expenses incurred by Centrifys in terms of travel cancellations. For multiple week engagements this only applies for each week that is less than the three (3) week cancellation notice.
- Client will have network connectivity and name resolution between all Client systems.
- Centrifys assumes that Client has a single Active Directory Forest in scope of this engagement.
- Centrifys assumes that no computers in a DMZ at Client are in the scope of this professional services engagement.
- Centrifys assumes that Client has a single logical project team in the same physical location, with representatives from the UNIX and Windows platforms participating as needed in the design discussions.
- All Client servers will be in the same data center or, if multiple data centers, there will be at least T1 connection speed between the main data center and the remote sites. It is also recommended that resources from other sites be identified in advance as project resources, if multiple remote sites are in scope.
- Client will provide Centrifys with an associate that has the proper administrative access to all agent servers and will have the ability to reboot servers as necessary within twenty-four (24) hours of request. Any applications the customer has running on these systems that need to authenticate to the operating system could be affected after the agent is installed since Centrifys is adding Centrifys PAM module. Some applications need to be restarted after Centrifys agent is installed in order to run properly. There is no way Centrifys can know every application running on all of the servers of Client and how they will react. What Centrifys has found is rebooting the server is the most reliable and safest way to ensure those applications are restarted appropriately.
- Client will ensure all systems meet the minimum patch requirements and system requirements for the Centrifys Suite (see Centrifys Product Release Notes for specific platform requirements). Centrifys recommends the use of 'adcheck' to verify system requirements.
- All systems and applications that will have Centrifys Suite of technologies installed must be on the Supported Platforms list at: <http://www.centrifys.com/directcontrol/platforms.asp>
- If the scope of this project involves any specialized customization or software development that is outside the current functionality of the Centrifys Suite of Products, that development work is subject to a 30-day warranty beginning on the completion of that development work.
- All materials and information generated or used by Centrifys in the performance of the Services, including but not limited to the work product delivered to Client ("Consulting Materials"), and all intellectual property rights therein, shall be the property of Centrifys. Centrifys hereby grants to Client a personal, non-transferable, non-sublicensable, non-exclusive license to use, reproduce, copy and display any Consulting Materials solely for Company's internal business purposes. Client obtains no title or ownership in any Consulting Materials, and Centrifys retains all right, title and interest in and to any Consulting Materials. Client retains all right, title, and interest in and to Client data.
- **Engagement Management** includes activities performed in support of this Jump Start that require management expertise, oversight, control, and direction in team building, communications, time management, quality assurance and quality control and management, and cost management. Centrifys Professional Services will regularly communicate personnel and resource requirements for this Jump Start to be a success, ensure

appropriate staffing and scheduling of Centrifly personnel for this Jump Start, and ensure deliverable quality and timeliness. This entails ensuring that Client is prepared for the services with all equipment and information as outlined in Exhibit A, as well as regular communications and the close out of the project.

- **Impracticability.** Centrifly shall not be required to provide any portion of the Services to the extent the performance of such Services becomes “Impracticable” as a result of a cause or causes outside the reasonable control of Centrifly including unfeasible technological requirements, or to the extent the performance of such Services would require Centrifly to violate any applicable laws, rules or regulations or would result in the breach of any software license or other applicable contract.

**Scope Change Control**

During the performance of the engagement, certain issues may arise that effectively prevent the completion of the work outlined in this Jump Start within the planned timeframe, such as, but not limited to, hardware or network failures or outages in Client’s environment, problems with Client’s in-house software or Client’s third-party software, or the unavailability of key Client personnel. If this situation occurs, the designated Centrifly representative will work with Client to identify and document the scope change, its impact on the project approach, timing, fees, resources, and the quality of project results. Centrifly will document this using either the Centrifly Change Request Form or an appropriate Change Control form provided by Client.

Any change in scope must be agreed to in writing prior to Centrifly reengaging on the project and will require the signature of the Centrifly Technical Services Vice President and the appropriate Client representative. Any other problems, disputes or issues arising during this engagement should be communicated as soon as possible after identification to the designated Centrifly Consultant for resolution.

**Timeframe and Resources**

Centrifly estimates that Centrifly’s work on the project will require the number of person-days reflected in the total days below in order to complete based upon the scope and assumptions described in this Jump Start and will be performed according to the following planned schedule:

<b>Activity</b>	<b>Estimated Days</b>
Centrifly Zero Trust Privilege Services Advanced Jump Start.....	24
<b>Total Days</b> .....	<b>24</b>

This proposal is based on a standard eight (8) hour workday. Any work performed in excess of a standard eight-hour workday may be subject to an hourly over time charge based on the hourly rate currently being charged to Client. If this condition occurs, Centrifly will notify the Client contact, provide a change request form and obtain approval in writing from the customer prior to the overtime work being performed.

In performing this engagement, Centrifly will assist in prioritizing and sizing Centrifly’s recommended changes, and will assist with implementing the recommended changes as time permits (i.e., up to the amount of time presented in the table above). Centrifly cannot commit to assisting with implementing all of the changes

Centrifly will recommend as it is impossible at this point in time to determine the amount of effort that will be required to fully implement those recommendations.

Circumstances may necessitate changes to the tasks and/or time estimates. If this situation occurs, Centrifly will follow the change control procedures in the Jump Start.

**Period of Performance**

The period of performance for this Jump Start begins upon the date of mutual signature by authorized representatives of Centrifly and Client and continues through the Completion Date (as defined below). All work must be scheduled to be completed within six months (180 days) of the start of the performance period. Any modifications or extensions will be requested through Change Control for review and discussion.

Completion date. The “Completion Date” will be the earlier of (1) the date on which all Services and Deliverables defined in Section 1 are completed, or (2) six months after the date of mutual signature of this Jump Start by authorized representatives of Centrifly and Client.

**Professional Fees and Expenses**

This is a fixed price engagement. The Services will be considered completed when the deliverables are completed or when the twenty (20) services days have been delivered, whichever happens first. This fee estimate does not include travel and expenses. This engagement is performed remotely via web conferencing.

**Personnel**

**Personnel Quality.** Centrifly agrees that all personnel used by Centrifly to perform the Services will be competent and adequately trained by Centrifly to perform the Services in accordance with the provisions of this Jump Start.

**Background Checks.** Centrifly shall perform commercially reasonable background checks on all personnel assigned by Centrifly to provide the Services under this Jump Start. These background checks include and are not limited to: criminal history for the past seven years, verification of employment, credit history, and education verification. Client may request in writing a letter of proof from Centrifly’s background check provider that the Background Check was completed successfully.

**Subcontractors Permitted.** Centrifly may engage a Subcontractor to perform all or any portion of its duties under this Agreement provided that any such Subcontractor agrees in writing to be bound by confidentiality obligations at least as protective as the terms of this Jump Start regarding confidentiality. Subcontractors are subject to Centrifly’s standard Background Checks. Centrifly remains responsible for the performance of such Subcontractor.

Centrifly will obtain written permission from Client before assigning a Subcontractor to work on this Jump Start.

**Subcontractor Defined.** As used in this Agreement, “Subcontractor” will mean any individual, partnership, corporation, firm, association, unincorporated organization, joint venture, trust or other entity engaged to perform hereunder. Subcontractors will be Centrifly Certified Administrators who have undergone a rigorous training program from Centrifly.

### Tasks to be completed by Client before Professional Services engagement begins

- Client will determine the owner and/or responsible individual for determining privileged access to each in-scope system.
- Client will install and utilize the Centrify DirectControl agent to complete the following steps in the in-scope Active Directory Forest:
  - **Step (1)** Discovery of all in-scope systems; and,
  - **Step (2)** Download all Centrify agent software; and,
  - **Step (3)** Perform an adcheck analysis of all in-scope systems, and clearing any errors from the analysis that would prevent the Centrify Suite installation.
- Client will be responsible for preparing and filing change management in advance as required to prevent schedule delays
- Client will provide an inventory of all UNIX/Linux hosts to be transitioned to Active Directory.

- Client will provide an inventory of all Windows hosts expected to be part of this engagement.
- Client will provide an inventory of UNIX/Linux user identities and UNIX/Linux groups to be transitioned to Active Directory.
- Client will provide a list of identities including user accounts, generic accounts, non-system accounts that are NOT going to be migrated to DirectControl
- Client will provide a network diagram or documentation that represents UNIX systems and the Active Directory Sites and Services
- Client will provide availability and contact information of an Active Directory Administrator with Enterprise Forest Admin privileges.

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Our mission is to stop the leading cause of breaches – privileged access abuse. Centrify empowers our customers with a cloud-ready Zero Trust Privilege approach to secure access to infrastructure, DevOps, cloud, containers, Big Data and other modern enterprise attack surfaces. To learn more, visit [www.centrifys.com](http://www.centrifys.com).

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# Appendix A

## Centrify Minimum Standard for Server Builds

### Connector Hardware Requirement

- Number of Collectors: 2
- Processor: 4 - core
- OS: Windows Server 2012 R2 or 2016 64bit GUI not server core
- Memory: 16 GB and of the 16GB will be used 4GB for cache
- Space: C: Partition normal OS build requirements; D: 50GB for application software
- CA Installed: Baltimore Cyber Trust Root CA, Centrify Tenant CA, DigiCert Global Root CA
- .NET Version: 4.6 or later
- Internet Access or the ability to use a proxy server
- Servers must be domain joined
- Telnet Client

### Centrify Management Console Server Hardware Requirements

- Number of Management Servers: 1
- Processor: 2 - core
- OS: Windows Server 2012 R2 or 2016 64bit GUI not server core
- Memory: 16 GB and of the 16GB will be used 4GB for cache
- Space: C: Partition normal OS build requirements; D: 50GB for application software
- CA Installed: Baltimore Cyber Trust Root CA, Centrify Tenant CA, DigiCert Global Root CA
- .NET Version: 4.6 or later
- Internet Access or the ability to use a proxy server
- Servers must be domain joined
- Active Directory PowerShell cmdlets
- Remote Server Administration Tools Pack (RSAT)
- Telnet Client

### Centrify Reporting Services Server Hardware Requirements

- Number of Centrify Reporting Services Servers: 1
- Processor: 2 - core
- OS: Windows Server 2012 R2 or 2016 64bit GUI not server core
- MSSQL: MS SQL Reporting Services, Configured with HTTP/S enabled
- Memory: 16 GB and of the 16GB will be used 4GB for cache
- Space: C: Partition normal OS build requirements; 150 GB for SSRS application software
- CA Installed: Baltimore Cyber Trust Root CA, Centrify Tenant CA, DigiCert Global Root CA
- .NET Version: 4.6 or later
- Internet Access or the ability to use a proxy server
- Servers must be domain joined
- Telnet Client

### Centrify MSSQL Server Hardware Requirements

- Number of MSSQL Servers: 1
- Processor: 6 - core
- OS: Windows Server 2012 R2 or 2016 64bit GUI not server core
- MSSQL: SQL Server 2014 or 2016; with Full Index
- Memory: 32 GB
- Space: C: Partition normal OS build requirements; 150 GB for SSRS Data
- CA Installed: Baltimore Cyber Trust Root CA, Centrify Tenant CA, DigiCert Global Root CA
- .NET Version: 4.6 or later
- Servers must be domain joined
- Telnet Client
- NOTE: MS SSRS can be installed on the same server that is running the MSSQL database

# Appendix B – Firewall Rules

## Centrify Connectors and Unix Servers Requirements:

Protocol	Port	Operations
API Proxy (HTTP Proxy)	8080	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional

IWA	8443	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional
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HTTPS	443	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional
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## Centrify Connector and Internet Connectivity:

Protocol	Port	Operations
Connector	443	Type:HTTPS (TCP) Source: Connectors Destination: outbound traffic to Internet

Service Bus	3001	Type: Customer Managed Only (TCP) Source: Connectors Destination: Internet Direction: Bi-Directional
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## Centrify requires the following ports for the Connector service and Domain Controllers:

Protocol	Port	Operations
DNS	53	Type: DNS (TCP,UDP) Source: Connectors Destination: Domain Controllers Direction – Bi-Directional

Global Catalog	3268	Type: Global Catalog (TCP) Direction: Connectors --> Domain Controllers
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LDAP	389	Type: LDAP (TCP,UDP) Direction: Connectors --> Domain Controllers
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Kerberos	88	Type: Kerberos (TCP) Direction: Connectors --> Domain Controllers
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Kerberos Password	464	Type: Kerberos Password (TCP) Direction: Connectors --> Domain Controllers
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SMB/CIFS	445	Type: SMB/CIFS (TCP) Direction: Connectors --> Domain Controllers
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Time Service	123	Type: NTP (TCP) Direction: Connectors --> Domain Controllers
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RPC Endpoint Mapper	135	Type: RPC Mapper (TCP) Direction: Connectors --> Domain Controllers
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RPC Endpoint (TCP Dynamic)	49153 to 65535	Type: RPC Endpoint (TCP) Direction: Connectors --> Domain Controllers
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## Appendix B – Firewall Rules (continued)

Centrify Privilege Service requires the following ports for the Connector service and Unix resources:

Protocol	Port	Operations
SSH	22	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional
HTTPS	443	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional
API Proxy (HTTP Proxy)	8080	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional
IWA	8443	CPS MFA (TCP) Direction - Unix Server to Connectors

Centrify Privilege Service requires the following ports for the Connector service and CPS portal Users:

Protocol	Port	Operations
SSH	22	Type: SSH (TCP) Direction: Workstations/Laptops --> Connectors
RDP	5555	Type: RDP (TCP) Direction: Workstations/Laptops --> Connectors

Centrify Reporting Services requires the following ports for MS SQL Server Reporting Service:

Protocol	Port	Operations
HTTP	80	HTTP SSRS URL (TCP) Direction – Centrify Management Server to MSSRS Server
HTTPS	443	HTTPS (TCP) Direction – Centrify Management Server to MSSRS Server
SQL	1433	Centrify Reporting Service (TCP) Direction – Centrify Management Server to MSSRS Server
HTTP	80	Centrify Reporting URL (TCP) Direction – User Workstation/Laptops to MSSRS Server (Optional)
HTTPS	443	Centrify Reporting URL (TCP) Direction – User Workstation/Laptops to MSSRS Server (Optional)

Centrify Reporting Services requires the following ports for the Centrify Management Server and MS SQL Server:

Protocol	Port	Operations
RPC	139	RPC (TCP) Direction - Centrify Management Server to MS SQL Server
RPC	445	RPC (TCP) Direction - Centrify Management Server to MS SQL Server
RPC	137	RPC (UDP) Direction - Centrify Management Server to MS SQL Server
RPC	138	RPC (UDP) Direction - Centrify Management Server to MS SQL Server



## Appendix B – Firewall Rules (continued)

Direct Control requires the following ports for UNIX Servers and Domain Controllers:

Protocol	Port	Operations
LDAP	389	Lightweight Directory Access Protocol (TCP/UDP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way
LDAP	3268	Global Catalog Searches (TCP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way
Kerberos	88	Kerberos Authentication (TCP/UDP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way
Kerberos	464	Kerberos Password Changes (TCP/UDP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way
DNS	53	Domain Name Service lookups (TCP/UDP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way
SMB	445	Samba (TCP/UDP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way
SNTP	123	Simple Network Time Protocol (UDP) Source: UNIX Servers Destination: Domain Controllers Direction: One-Way