

# CENTRIFY INFRASTRUCTURE SERVICES ADVANCED JUMP START - 1000

The Centrify Infrastructure Services Advanced Jump Start is designed to give medium and large businesses the hands-on experience and training required to get a quick start on the deployment and operational use of Centrify DirectControl across their Windows, UNIX and Linux systems. The services include on-site training for up to ten (10) staff covering the Centrify Infrastructure Services, Standard Edition, as well as remote assistance deploying a pilot environment (of up to 100 systems) and documentation detailing the customer's current environment and a high-level plan to successfully complete the 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 50% faster time-to-production
- Gain hands-on experience deploying the Centrify 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 zero-trust baseline to strengthen your security posture using Centrify best practices

## 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:

- A final release Centrify Design Document (word format) that captures the Active Directory and Centrify architecture and optimal design specifically for your environment as well as the implementation of any Centrify specific critical processes that were newly implemented in your environment.
- Centrify Deployment Manager configured to discover and deploy to systems in your environment

- Up to ten (10) staff trained on Centrify Infrastructure Services, Standard Edition software
- Centrify Infrastructure Services, Standard Edition software deployed on up to 100 systems
- Centrify Reporting Services (CRS) installed and report templates shared so your team can build your own custom report queries.
- Up to five (5) DirectAuthorize Roles configured for Unix/Linux systems (login, listed, and root equiv) and up to two (2) DirectAuthorize for Windows roles if applicable to the engagement.

## Duration

- A 24-day package.
- Four (4) days of on-site instructor lead 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 the DirectControl product in their environment.

## Prerequisites

- If you have more than 1000 systems in your environment our Professional Services Team can help customize this package for larger scale environments.
- Completion of up to Step 3 in Deployment Manager – "Analyze your environment" completed for the in-scope UNIX and Linux target systems and results sent to Centrify two weeks prior to remote services, verification is provided 2 weeks prior to Centrify PS Consultant engagement start date.
- All issues identified during Step 3 resolved prior to remote services
- Approval to create an Organizational Unit for storage of Unix data prior to project start
- Individual with appropriate Active Directory permissions is available during remote services
- All Change Control required for implementation of Centrify DirectControl must be approved prior to project start.

- Service does not include NIS, LDAP, winbind, or legacy Kerberos migration
- Centrify Management Server and at least two Centrify Connector servers have been created
- Client provides verification 2 weeks prior to the Customer Success team, before the engagement commences.

**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.**

### Logistics

A reserved conference room should be equipped with a LCD projector and a whiteboard with dry-erase markers and a printer should be available. It is recommended that participants bring laptops with network connectivity to download additional documentation as required.

### 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.

### Centrify Infrastructure Services, Standard Edition Training Course Overview

The process of installing, configuring, and troubleshooting the Centrify software is easy, once you understand the fundamentals. This training will aid your staff in becoming proficient at these tasks, leading to a successful Centrify project. This technical training will lead your team through an example deployment using lectures, hands-on labs for architecture, installation, and testing, and documented lab guides for each of the students.

### 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 skill and expertise to handle or assist with many implementation customizations where needed. If there are extra implementation tasks that are required, custom scripting needs, custom integration requirements, or any other technical services that will be useful to customer success with Centrify, our services team can set up a pre-sale scoping call to provide custom implementation estimates to fulfill these needs.

### Course Logistics

The on-site standard training is scheduled for up to 10 students for (4) consecutive days.

For each student, the following requirements need to be met:

- One of the following:
  - Windows 7 or higher – Mac OS X 10.9 or higher – iOS 8 or Higher – Android 4.0 or higher
  - An internet connection capable of 1Mbps or better for computers – 3G or better for mobile
- A JavaScript enabled web browser

## Training Course Details

ITEMS	DETAILS
Duration	4 days of on-site training with hands on labs
Prerequisites	Student must have a basic understanding of UNIX, Active Directory, and SQL Server
Format	On-site instructor led training, lab demonstrations, and example lab guides (student lab environment is provided) for up to 10 students

## Section One Training Course Modules

MODULES AND DESCRIPTIONS	
1	<p><b>Introduction to Centrify (30 minutes)</b> – An overview of Centrify, our products, and dedication to customer satisfaction.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Background</li> <li>• Product line</li> <li>• Customer focus</li> </ul>
2	<p><b>Active Directory and Centrify Software (1 hour)</b> – Preparation for the Centrify deployment requires planning. We will start with a baseline for all teams to understand how the software works, and what elements will make you successful.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Following best practices</li> <li>• Creating organizational units</li> <li>• Overview of the Centrify Software</li> </ul>
3	<p><b>Deployment Manager (1 hour)</b> – There are many ways to deploy the Centrify software but, during training, the Deployment Manager is the fastest method. This sets a foundation for working with UNIX machines in a Windows environment.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Finding UNIX machines</li> <li>• Downloading Centrify agents</li> <li>• Analyzing UNIX machines</li> </ul>
4	<p><b>Zone Design (1.5 hours)</b> – Creating a hierarchical zone structure is crucial to a successful deployment. Understanding the reasons for zones, and how to work with hierarchical inheritance will allow you to design an easy to maintain environment.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Hierarchical user profiles</li> <li>• Global and Child zones</li> <li>• Delegation of control</li> </ul>
5	<p><b>Pre-Create Computers (1 hour)</b> – Being able to visualize your environment before deployment is valuable to ensure access is granted properly. This is one of the first steps to ensuring accuracy is maintained.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Prepare UNIX Computers</li> <li>• Join computers to zones</li> <li>• Preview structure</li> </ul>
6	<p><b>Managing UNIX Users (1 hour)</b> – Traditionally, UID management has been difficult and disparate. We will navigate you through the steps necessary to maintain current UID space, while also preparing for cleanup and simple maintenance.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• User profiles</li> <li>• Levels of profile over-rides</li> <li>• Importing users from current machines</li> </ul>

## Section One Training Course Modules (continued)

**MODULES AND DESCRIPTIONS**

**Basic Roles and Rights (2 hours)** – The heart of proper management ensures least privilege is adhered to in your organization. We will discuss the fundamentals for roles, rights, and access in this module.

**Key topics:**

- 7
- Levels of access
  - Assigning rights
  - Assigning roles

**Deploying the Software (1 hour)** – Using Deployment Manager, the software can be pushed to many UNIX machines at one time. After deployment, we will verify users have appropriate access and learn about the tools Centrify provides.

**Key topics:**

- 8
- Using Deployment Manager to push UNIX software
  - Testing access and roles
  - Access joined systems with Single Sign-On and KERBEROS

**Zone Provisioning Agent (2 hours)** – A difficult and time consuming task is the maintenance of UIDs. Using the Centrify ZPA can reduce or eliminate this process.

**Key topics:**

- 9
- Configuring the ZPA service
  - Understanding source groups
  - Review automated and semi-automated capabilities

**Roles and Rights with DZDO (2 hours)** – In keeping with least privilege, this module will focus on advanced capabilities of Centrify roles. We will also learn about the centralization of management for elevated permissions.

**Key topics:**

- 10
- Benefits of DZDO
  - Centralizing permissions
  - Verifying rights

**Using Computer Roles (2 hours)** – Managing single machines can be tedious. Computer roles will allow management, privileges, and rights to be applied to groups of machines.

**Key topics:**

- 11
- Defining a computer role
  - Creating AD groups for granting rights
  - Rapid deployment and expansion

**Multi-Factor Authentication Everywhere (1 hour)** – Compromised credentials are a very real threat and can cost an organization everything. Using multi-factor authentication (MFA) increases security and virtually eliminates threats.

**Key topics:**

- 12
- Installing and configuring the Cloud Connector
  - Managing roles and MFA profiles
  - Demonstration of MFA on an elevated privilege command

**Migrating Sudoers (1 hour)** – Rather than creating roles and rights individually, Centrify provides an import wizard for this process.

**Key topics:**

- 13
- Identifying sudoers data
  - Importing user and computer roles
  - Cleaning old data

Section One Training Course Modules (continued)

**MODULES AND DESCRIPTIONS**

14	<p><b>Active Directory Group Policy (1 hour)</b> – Applying a wide range of security policies has never been easier. AD Group Policies will allow for rapid deployment of these policies.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Explanation of Group Policy</li> <li>• Identifying policies for application</li> <li>• Verify policy compliance</li> </ul>
15	<p><b>ADEDIT (1 hour)</b> – For those preferring scripts and terminal interface, Centrify provides a command line interface using SDKs running on UNIX machines.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Using the CLI</li> <li>• Creating adedit queries</li> <li>• Review script sample</li> </ul>
16	<p><b>Direct Authorize for Windows (1 hour)</b> – Centrify is not limited to UNIX machines. The concepts we covered in this course apply to Windows machines as well.</p> <p><b>Key topics:</b></p> <ul style="list-style-type: none"> <li>• Installing the Direct Authorize for Windows agent</li> <li>• Creating roles, rights, and elevated desktops</li> <li>• Granting permissions based on match criteria</li> </ul>

**Key Assumptions**

- Client understands that Centrify’s performance of the Services and delivery of agreed upon deliverables under this Jump Start is dependent in part upon Client’s actions, and Client therefore agrees to cooperate with Centrify in a commercially reasonable manner in the completion of the Services by Centrify. Centrify will promptly notify Client of any delays of potential delays in Centrify’s ability to undertake and complete performance in accordance with the applicable schedule resulting from the inaction of Client.
- 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, Centrify will most likely not be able to reschedule the engagement and be out the revenue. Centrify will make every effort to redeploy the consultant and if Centrify is able then the Client agrees to pay Client agrees to pay any reasonable fees and expenses incurred by Centrify in terms of travel cancellations. If Centrify 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 Centrify had Client not canceled such engagement, and also any reasonable fees and expenses incurred by Centrify 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 (including workstations and servers the Centrify Suite will be installed on, regardless of on-premise vs. off-premise computer locations) and Active Directory connectivity functioning correctly prior to work beginning.
- Centrify assumes that Client has a single Active Directory Forest in scope of this engagement.
- Centrify assumes that no computers in a DMZ at Client are in the scope of this professional services engagement.
- Centrify 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 Centrify 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 Centrify is adding Centrify's PAM module. Some applications need to be restarted after Centrify's agent is installed in order to run properly. There is no way Centrify can know every application running on all of the servers of Client and how they will react. What Centrify 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 Centrify Suite (see Centrify Product Release Notes for specific platform requirements). Centrify recommends the use of 'adcheck' or Deployment Manager to verify system requirements.
- All systems and applications that will have Centrify's Suite of technologies installed must be on the Supported Platforms list at: <http://www.centrify.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 Centrify 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 Centrify 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 Centrify. Centrify 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 Centrify 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. Centrify Professional Services will regularly communicate personnel and resource requirements for this Jump Start to be a success, ensure appropriate staffing and scheduling of Centrify 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.** Centrify 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 Centrify including unfeasible technological requirements, or to the extent the performance of such Services would require Centrify 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 Centrify 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. Centrify will document this using either the Centrify Change Request Form or an appropriate Change Control form provided by Client.

Any change in scope must be agreed to in writing prior to Centrify reengaging on the project and will require the signature of the Centrify 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 Centrify Consultant for resolution.

### Timeframe and Resources

Centrify estimates that Centrify'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>
Centrify Infrastructure 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, Centrify 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, Centrify will assist in prioritizing and sizing Centrify'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). Centrify cannot commit to assisting with implementing all of the changes Centrify 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, Centrify 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 Centrify 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 Centrify and Client.



**Acceptance Period.** For each Activity described under this Jump Start, Client shall have a 15-day “Acceptance Period” beginning on the Completion Date. During the Acceptance Period, Client may reject an Activity on the basis that it fails to conform to the written description of the Activity or Client believes the Activity has not been completed by giving written notice to Centrify. Unless such rejection notice is given during the acceptance/rejection period, as described above, the Activity will be deemed accepted by Customer at the end of the Acceptance Period.

**Rejection and Cure.** Centrify shall have thirty (30) days from the date of written notification of non-completion to cure any **Nonconformance.** Acceptance on the Activity will then be calculated from the date of delivery of the new version of the Deliverables.

### Professional Fees and Expenses

The fees for the Services will be outlined in the customer quotation/product schedule. Any fees that are quoted on a daily basis are equated to an hourly rate based on an eight (8) hour day (hourly rate = daily rate divided by eight hours). Unless otherwise set forth in the customer quotation/product schedule, all Services are recorded and will be billed on this hourly basis. This fee estimate does not include travel and expenses. This engagement is performed remotely via web conferencing.

### Personnel

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

**Background Checks.** Centrify shall perform commercially reasonable background checks on all personnel assigned by Centrify 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 Centrify’s background check provider that the Background Check was completed successfully.

**Subcontractors Permitted.** Centrify 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 Centrify’s standard Background Checks. Centrify remains responsible for the performance of such Subcontractor. Centrify 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 Centrify Certified Administrators who have undergone a rigorous training program from Centrify.

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

- Registered students from Client will complete the online training before the start of this engagement.
- Client will determine the owner and/or responsible individual for determining privileged access to each in-scope system.
- Client will install, configure, and utilize Centrify Deployment Manager to complete the following steps in the in-scope Active Directory Forest:
  - Step (1) Discovery of all in-scope systems; and,
  - Step (2) Import all Centrify software into Deployment Manager; and,
  - Step (3) Performing an analysis of all in-scope systems, and clearing any errors from the analysis that would prevent the Centrify Suite installation.
- As an alternative to the use of Deployment Manager, Client will execute Centrify’s ‘adcheck’ across all UNIX servers in-scope of the initial design validation phase. Client will clear all error and warning result codes from the use of ‘adcheck’ on all in-scope servers.
- 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. This should be obtained from Deployment Manager but may be obtained through another method.
- 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. This should be obtained from Deployment Manager but may be obtained through another method.
- 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

Centrify delivers Zero Trust Security through the power of Next-Gen Access. Centrify verifies every user, validates their devices, and limits access and privilege. Centrify also utilizes machine learning to discover risky user behavior and apply conditional access — without impacting user experience. To learn more visit [www.centrify.com](http://www.centrify.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
HTTPS	443	Type: (TCP) Source: Unix Servers Destination: Centrify Connectors Direction: Bi-Directional

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

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
LDAP	389	Type: LDAP (TCP,UDP) Direction: Connectors --> Domain Controllers
Kerberos	88	Type: Kerberos (TCP) Direction: Connectors --> Domain Controllers
Kerberos Password	464	Type: Kerberos Password (TCP) Direction: Connectors --> Domain Controllers
SMB/CIFS	445	Type: SMB/CIFS (TCP) Direction: Connectors --> Domain Controllers
Time Service	123	Type: NTP (TCP) Direction: Connectors --> Domain Controllers
RPC Endpoint Mapper	135	Type: RPC Mapper (TCP) Direction: Connectors --> Domain Controllers
RPC Endpoint (TCP Dynamic)	49153 to 65535	Type: RPC Endpoint (TCP) Direction: Connectors --> Domain Controllers

## 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