**SMB Configuration**  
*Optus Hosting Platform*

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Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Author** | **Date** | **Summary of Changes** |
| 0.1 | Jeffrey B. Collemer | 9/9/2011 | Initial version |
| 0.2 | Jeffrey B. Collemer | 9/20/2011 | Added Email and DB requirements |
| 0.3 | Jeffrey B. Collemer | 9/22/2011 | Added SMB Website Hosting details and DNS details |
| 0.4 | Jeffrey B. Collemer | 10/17/2011 | Clarified load balancer, DNS, and Certificates. |
| 0.5 | Jeffrey B. Collemer | 10/19/2011 | Added operating system requirements and call data file info. |
| 0.6 | Jeffrey B. Collemer | 10/20/2011 | Incorporated Steven Bruce’s comments and added a few more. |
| 0.7 | Jeffrey B. Collemer | 10/30/2011 | Restrict SSH/SCP/SFTP from end-customer web servers. |
| 0.8 | Jeffrey B. Collemer | 1/11/2012 | Added information regarding shard expansion. |
| 0.9 | Jeffrey B. Collemer | 1/17/2012 | Updated with HA details |
| 0.10 | Jeff Theroux | 1/25/2012 | Added note about SELinux being set to Permissive. Added NTP ports to networking rules. Specified Global and Warehouse Database servers running on the same physical server. Added RI IP addresses for VPN. |
| 0.11 | Jeff Theroux | 1/27/2012 |  |
| 0.12 | Jeff Theroux | 2/2/2012 | Added port rules for deploying sites to hosting servers and transferring pixel data from pixel recording servers. |
| 0.13 | Jeff Theroux | 2/7/2012 | Update section 10 to include upload directory for call data feed. |
| 0.14 | Jeff Theroux | 2/23/2012 | Add firewall rules. Specify one partition for disk space on servers. |
| 0.15 | Jeff Theroux | 2/27/2012 | Add firewall rule for SAML. |
| 0.16 | Jeff Theroux | 2/28/2012 | Add SMTP for Nagios, modify SSH for nagios to specify just nagios server to all servers (not all servers to all servers). |
| 0.17 | Jeff Theroux | 3/5/2012 | Add firewall rules (8180/8543 for back jboss server and load balancer related rules) and port 443 for front jboss server. |
| 0.18 | Jeff Theroux | 3/7/2012 | Add mysql firewall rule from front jboss to back jboss. |
| 0.19 | Jeff Theroux | 5/30/2012 | Added firewall rules for Optus Callback server, SMTP, JMS. |
| 0.20 | Manasa Denning | 5/06/2012 | Updated date and dependencies under section 7.2 Software |
| 0.21 | Jeff Theroux | 5/6/2012 | Corrected Front JBoss AS Cluster / AdMax Listener firewall rules. Updated TSA Servers and components to reflect where they are on production. Added firewall rule for Front JBoss AS Cluster to google.com (for Budget Estimation). Corrected SSH firewall rule regarding monitoring server. |
| 0.22 | Manasa Denning | 06/06/2012 | Update the name used for ports for bidding and budgeting server to admax server |
| 0.23 | Jeffrey B. Collemer | 6/15/2012 | Updated to include backup requirements. |
| 0.24 | Jason Stedman | 6/18/2012 | Update to include SMTP access for customer web servers |
| 0.25 | Jeff Theroux | 6/21/2012 | Added release versions to a few new firewall rules. |
| 0.26 | Jeffrey B. Collemer | 6/21/2012 | Updated release versions to a few new firewall rules. |
| 0.27 | Jason Stedman | 6/25/2012 | Added missing Percona instance to section 3.1 |
| 0.28 | Jason Stedman | 6/25/2012 | Removed minor formatting error. |
| 0.29 | Jeffrey B. Collemer | 6/28/2012 | Adding VIP checks for service availability. |
| 0.30 | Manasa Denning | 6/29/2012 | Adding missing firewall rules |
| 0.31 | Jeffrey Theroux | 6/29/2012 | Corrected section 1 server descriptions. |
| 0.32 | Manasa Denning | 07/09/2012 | Added updates to firewall rules section 4.1 |
| 0.33 | Manasa Denning | 07/19/2012 | Updated the firewall rules section 4.1 to remove port 443 for callbacks |

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# System Hosting Environment Requirements

The following environment is an estimate of the required application hosting to handle approximately 5,000 accounts.  The disk space below assumes on one partition with the full amount of space. All database servers should be hosted on physical hardware and not virtual machines and direct attached storage or a SAN is preferred. Additional shards (meaning an additional Account Database server and an additional Warehouse Database server) can be added to handle additional accounts. *Assumption: This is based on 5,000 accounts with an average of 12 campaigns with 75 core keywords per campaign.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Description | Qty | Cores | Memory | Disk | Notes |
| Web service & DB server | 2 | 4 | 16 GB | 500 GB | Redundant web service and DB server which serves as the primary endpoint for incoming requests and houses all content, templates, and customization settings. This server serves as the interface to Optus systems. |
| Reporting application server | 1 | 4 | 8 GB | 300 GB | Reporting server for historical performance data, scheduling, etc. Also serves to produce daily outgoing data feeds (to Optus). |
| AdMax processing server | 1 | 4 | 8 GB | 200 GB | Processes performance data from previous days and updates Google with new budgets and bids.  Processes daily search engine, pixel, and call tracking data. |
| Bidding/budgeting server | 1 | 4 | 8 GB | 200 GB | Processes all AdMax requests related to the SEM campaigns and communicates with Google |
| Account Database server | 1 | 8 | 32 GB | 500 GB | Database which stores all account configuration data (Shard #1). |
| Warehouse Database server | 1 | 8 | 32 GB | 500 GB | Warehouse which stores all historical performance data (Shard #1) |
| Load balancer (device) | 1 | N/A | N/A | N/A | Services VIP requests and balances them across the web service & DB servers. |
| Monitoring server | 1 | 2 | 4 GB | 100 GB | Monitors the system and alerts on issues |
| Pixel Tracking servers | 2 | 2 | 4 GB | 100 GB | Serves tracking pixels and records hits |
| End-customer web servers | 2 | 2 | 4 GB | 100 GB | Serves customer websites. (Typical specs are mentioned here - there is flexibility in requirements, based on availability and convenience) |

# Operating Systems

Operating systems should be 64-bit Red Hat Enterprise Linux 5. SELinux should set to permissive on all servers.

# Description of Interfaces

ODA’s components will need to communicate with one another. This communication, between components, is specified in this document.

ODA will be serviced by two main sets of servers – the TSA servers and Optus servers.

## TSA Servers

|  |  |  |
| --- | --- | --- |
| **Server** | **Components** | **Description** |
| Web service & DB servers | Front JBoss AS Cluster | Balanced, clustered web services which serves as the primary endpoint for incoming requests. These servers serves as the interface to Optus systems |
| Front Percona/MySQL DBs | Balanced, redundant DB server which houses all content, templates, and customization settings. |
| Self Service UI | Balanced, redundant customer-facing self-service web application. |
| Reporting application server  Data processing server | Optus Data Feeds | Produces performance .csv data feed files |
| Back JBoss AS | Reporting server for historical performance data, scheduling, etc. |
| Data Staging and Datamart Percona/MySQL DB | Used for staging and aggregating performance data for outbound datafeeds as well as hosting customer and reseller datamart tables. |
| AdMax processing server | Daily data processes | Processes daily search engine, pixel, and call tracking data |
| Budget Update | Processes performance data from previous days and updates Google with new budgets and bids.  Also serves to produce daily outgoing data feeds (to Optus). |
| Bidding/budgeting server | AdMax Listener | Processes all AdMax requests related to the SEM campaigns and communicates with Google |
| Global and Account Database server | Acct. Percona/MySQL DB | Database which stores all account configuration data (Shard #1) |
| Global Percona/MySQL DB | Global DB which stores data shared across all shards. *Note: This instances runs on port 3306*. |
| Warehouse Database server | WH Percona/MySQL DB | Warehouse which stores all historical performance data (Shard #1). *Note: This instances runs on port 3307.* |
| Monitoring server | Monitoring Software | Monitors the system and alerts on issues |
| Pixel Tracking server | Pixel recording software | Serves tracking pixels and records hits |
| End-customer Web servers | Website Web server | Hosts customer websites and SEM landing pages. |
|  |  |  |

## Optus Servers

The Optus servers and components involved:

|  |  |  |
| --- | --- | --- |
| **Server** | **Components** | **Description** |
| Optus Server | Optus Order Processing | Component which requests ODA changes. |
| Optus Deploy Service | Web service that services status updates after deployments are requested. |
| Optus triggerDeploy Service | Web service that services where site generation and AdMax deployments can be triggered. |
| Optus datafeed retriever | Transfers datafeed files from TSA servers. |

# Networking Rules

## Ports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Src** | **Src Port** | **Dest** | **Dest Port** | **Description** |
| ANY | ANY | End-customer web servers | TCP:80 | Web Access (HTTP) |
| ANY | ANY | Pixel Tracking Server | TCP:80 | Web Access (HTTP) |
| ANY | ANY | Self Serve UI | TCP:80  TCP:443 | Web Access (HTTP/HTTPS) |
| TSA and Optus servers | ANY | Load balancer gear | TCP:8443 | Secure Web Access (HTTPS) |
| TSA servers  SODA Quote  SODA Order  iProcess | ANY | Front JBoss AS Cluster | TCP:8443 | Secure Web Access (HTTPS) |
| Front JBoss AS Cluster | ANY | Front JBoss AS Cluster | TCP:7800 TCP:7801 TCP:7802 | JGroups clustering protocol  JGroups clustering protocol  JGroups clustering protocol |
| Front JBoss AS Cluster  AdMax Listener v1.3  Daily data processes v1.4  Budget Update v1.4  Monitoring Software v1.4 | ANY | Front JBoss AS Cluster | TCP:1090  TCP:1098 TCP:1099  TCP:1100  TCP:1101 UDP:1102  TCP:3873 TCP:4457  TCP:4458  TCP:4459  TCP:8009  TCP:8080 | JMX  RMI JNDI  HA JNDI, JMS  HA RMI, JMS  HA JNDI Discovery, JMS  JBossRemoting  JBoss Messaging  JBoss Messaging  JBoss Messaging  Web Access (HTTP), Management Console, Web Access (HTTP) |
| TSA servers | ANY | Front Percona/MySQL DBs | TCP:3306 TCP:3307 TCP:3308 | MySQL database access (MYSQL)  MySQL database access (MYSQL)  MySQL database access (MYSQL) |
| Front JBoss AS Cluster  Daily data processes  AdMax Listener  Budget Update  Monitoring Software | ANY | Back JBoss AS | TCP:8080  TCP:8180  TCP:8443  TCP:8543 | Web Access (HTTP) Secure Web Access (HTTPS) |
| TSA servers | ANY | Acct. Percona/MySQL DB | TCP:3306 TCP:3307 TCP:3308 | MySQL database access (MYSQL)  MySQL database access (MYSQL)  MySQL database access (MYSQL) |
| TSA servers | ANY | WH Percona/MySQL DB | TCP:3306 TCP:3307 TCP:3308 | MySQL database access (MYSQL)  MySQL database access (MYSQL)  MySQL database access (MYSQL) |
| Front JBoss AS Cluster | ANY | Forward Proxy | TCP:3128 |  |
| Forward Proxy | ANY | Googleapi.com | TCP:80 | Web Access (HTTP) (Whitelist) |
| Front JBoss AS Cluster  Daily data processes  AdMax Listener  Budget Update | ANY | Forward Proxy | TCP:3128 |  |
| Forward Proxy | ANY | Google.com | TCP:443 | Secure Web Access (HTTPS) |
| TSA servers | ANY | Monitoring Server | TCP:80 | Web Access (HTTP) |
| **Src** | **Src Port** | **Dest** | **Dest Port** | **Description** |
| TSA servers | ANY | TSA servers | TCP:3333  TCP:8080 | JMX, JMX web console |
| Front JBoss AS Cluster | ANY | End-customer web servers | TCP:22 | Secure FTP (SFTP)/Secure Copy (SCP) |
| Daily data processes | ANY | Pixel Tracking Server | TCP:22 | rsync pixel data |
| Monitoring Software | ANY | TSA servers | TCP:22 | Secure Shell (SSH), Secure Copy (SCP), Secure FTP (SFTP) for Nagios monitoring of all servers. |
| Front JBoss AS Cluster | ANY | Back JBoss AS | TCP:3306  TCP:3307  TCP:3308 | Customer Data web service needs to connect to datamart DB for graphs in self service UI. |
| All TSA Servers except pixel recording | Any | Optus SMTP Server | TCP:25 or  TCP:587 | SMTP server for e-mailing alerts. |
| Admax Server | Any | Front JBoss AS Cluster | TCP:8000-65535 | JMS port |
| Customer Web Servers (v1.4) | ANY | Optus SMTP Server | TCP:25 or  TCP:587 | Contact Us form. 587 not open and if required will be requested |
| SODA Order Capture | ANY | Daily Data Processes  Front JBoss AS Cluster | TCP:22 | SFTP Optus VOIP call statistics to TSA SFTP data feeds from TSA |
| TSA Servers | Any | au.pool.ntp.org | TCP:123  UDP:123 | NTP to keep server time in sync. Note: This is not required as long as Optus’s severs are in sync. |
| TSA Servers | Any | All Redhat yum repositories and mirrors | TCP:80  TCP:443 | Install scripts. Ports listed are the final destination ports, but the forward proxy port is 3128 |
| TSA Servers | Any | Percona yum repository (repo.percona.com) | TCP:80  TCP:443 | Install script for Percona. . Ports listed are the final destination ports, but the forward proxy port is 3128. Not currently in PROD. Infosec issue. |
| TSA Servers | Any | Any domain | TCP:80 | Install scripts (software downloaded from various websites for installation. This firewall rule can be removed once the installation is complete.) . Ports listed are the final destination ports, but the forward proxy port is 3128 |
| TSA Servers | Any | Any domain in our IP pool list. | TCP:80 | Application validates the domain name resolves through DNS and downloads a file to verify we can access hosted site. . Ports listed are the final destination ports, but the forward proxy port is 3128 |
| Front JBoss AS Cluster | Any | Optus MySQL Percona VIP  (Load Balancer) | TCP:3306 | MySQL Connectivity |
| Front JBoss AS Cluster | Any | Optus JBoss VIP  (Load Balancer) | TCP:8080  TCP:8443 | SOAP requests from self service UI |
| Front JBoss AS Cluster | Any | Optus Callback Server | TCP:80 | TSA software will call into Optus if we need to trigger an SEM deployment or site regeneration. |
| Admax listener | Any | Mascot reverse proxy | TCP:3128 |  |

## HA/Load Balancing configuration

Virtual IPs (VIPs) should be setup for:

|  |  |
| --- | --- |
| **Component** | **Binds to Server** |
| **Front JBoss AS Cluster** | Active/active load balanced VIP to the two “Web service & DB servers” servers. JBoss web services are stateless, so no affinity is required for this VIP. |
| **Front Percona/MySQL DBs** | Master/master Percona/MySQL replication with active/passive VIP configuration to the “Web service & DB servers” servers. Percona/MySQL DBs replication allows a failure of the active node causes a failover to the passive (replicated) DB – which becomes the new active DB. |
| **Self Service UI** | Active/active load balanced VIP with session affinity (IP affinity will suffice), to the two “Web service & DB servers” servers. This DNS entry must be available from the Internet, as the customer’s browser will use this to find the self-service UI. |

### VIP service availability checks

Virtual IPs (VIPs) should be checking the following to determine service availability:

|  |  |
| --- | --- |
| **VIP** | **Check for availability of the service** |
| **Front JBoss VIP** | Endpoints:  <https://odajboss01.syd:8443/Optus-BE/BudgetEstimateService> <https://odajboss02.syd:8443/Optus-BE/BudgetEstimateService>  SOAP Web Service Request:  <soapenv:Envelope xmlns:soapenv=["http://schemas.xmlsoap.org/soap/envelope/"](http://schemas.xmlsoap.org/soap/envelope/) xmlns:bud=["http://www.thesearchagency.com/BudgetEstimateService/"](http://www.thesearchagency.com/BudgetEstimateService/)>    <soapenv:Header/>    <soapenv:Body>       <bud:getBudgetEstimatesRequest>          <!--1 or more repetitions:-->          <budgetEstimateCriteriaList>             <businessAreaID>-1</businessAreaID>             <businessLocationID>VIP\_TEST</businessLocationID>             <currencyID>1</currencyID>             <preferSearchEngineOrigin>1</preferSearchEngineOrigin>          </budgetEstimateCriteriaList>       </bud:getBudgetEstimatesRequest>    </soapenv:Body> </soapenv:Envelope>  Expected response:  <soap:Envelope xmlns:soap=["http://schemas.xmlsoap.org/soap/envelope/"](http://schemas.xmlsoap.org/soap/envelope/)>    <soap:Body>       <ns2:getBudgetEstimatesResponse xmlns:ns2=["http://www.thesearchagency.com/BudgetEstimateService/"](http://www.thesearchagency.com/BudgetEstimateService/)>          <budgetEstimateResultList>             <result>                <resultCode>failure</resultCode>                <resultString>Invalid business area ID</resultString>             </result>             <budgetEstimateCriteria>                <businessAreaID>-1</businessAreaID>                <businessLocationID>VIP\_TEST</businessLocationID>                <currencyID>1</currencyID>             </budgetEstimateCriteria>          </budgetEstimateResultList>       </ns2:getBudgetEstimatesResponse>    </soap:Body> </soap:Envelope>  If the response does not return or is different, then it can be assumed that the service is not available. |
| **Front Percona/MySQL DB VIP** | SQL statement:  select 1 |
| **Self Service UI VIP** | http://SELF-SERVICE-UI-DOMAIN-NAME/css/page.css |

## VPN

A Net->Net VPN connection from TheSearchAgency.com domain to TSA servers within Optus will also be required.

TSA IP Addresses the VPN can be accessed from.

* 70.166.144.17
* 58.68.28.3
* 174.34.92.83

# Server Directory Permissions

Directories that require write permissions by the application.

|  |  |
| --- | --- |
| **Components** | **Directories** |
| All Servers | /tmp |
| Front JBoss AS Cluster | /var/www/sites  /usr/local/jboss-5.1.0.GA/ |
| Self Service UI | /usr/local/share/smb |
| Back JBoss AS | /usr/local/tsa  /usr/local/share/tsa  /var/local/tsa  /home/optus/datafeeds  /usr/local/jboss-5.1.0.GA/  /usr/local/jboss-4.2.1.GA/ |
| Daily data process | /usr/local/tsa  /usr/local/share/tsa  /var/local/tsa  ~tsaapp  ~pixspike |
| AdMax Listener | /usr/local/tsa  /var/local/tsa  ~tsaapp |
| Budget Update | /usr/local/tsa  /var/local/tsa  ~tsaapp |
| Pixel recording software | /usr/local/share/tsa  ~pixspike |
| Website Web Server | /var/www/html/customer\_sites |

# Databases

Several TSA servers will run Percona Server (<http://www.percona.com/>) on the following servers:

* Web service & DB servers
* Account Database server
* Warehouse Database server

The DB instances run on the “Web service & DB servers” should be a replicated and replicated in a master-master configuration.

The latest version of Percona Server v5.1.x should be used. TSA will require the following access to the DBs:

* Select
* Insert
* Update
* Delete
* Index
* Alter
* Create
* Drop
* Grant
* Create\_view
* Show\_view
* Create\_routine
* Alter\_routine
* Execute\_priv
* Trigger\_priv
* Event\_priv
* Create\_tmp\_table
* Lock\_tables\_priv
* References\_priv
* Reload\_priv
* Process\_priv
* File\_priv
* Show\_db\_priv
* Super\_priv
* Repl\_slave\_priv
* Repl\_client\_priv
* Create\_user\_priv

# Email

ODA’s components will need to email various parties. The first need is to email support staff when an issue is detected. In subsequent releases, functionality will be added that needs to e-mail the end-user once full form “Contact Us” functionality is rolled to production. As such, ODA will need access to a SMTP gateway.

# SMB Website Hosting

## IP Address Blocks

One or more IP address blocks should be made available for the hosting of the SMB websites. The size and number of blocks are negotiable in that for SEO purposes the best scenario would be only one website per IP. Obviously that is not reasonable in this situation. TSA’s recommendation is to allocate something on the order of 256 addresses in as many small blocks as possible.  They do not need to be in consecutive blocks and would be best if they were not.  16 non-consecutive blocks of 16 IP Addresses would be better than 4 blocks of 64 consecutive IPs. Note that 2 addresses per block are used for routing.

## Software

Dependencies for TSA applications are:

* RHEL - Red Hat Enterprise Linux Server release 5.8 (Tikanga)
* Percona/MySQL - 5.1.57-rel12.8
* JBoss - 5.1.0
* JBoss 4.2.1
* Apache - 2.2.3
* PHP - 5.3.3
* memcached - 1.4.7
* Apache Mobile Filter v3.50
* Pentaho Data Integration - 4.2.1-stable
* Nagios - 3.2.3

# DNS

ODA will require a single public DNS name assigned for the following:

|  |  |  |
| --- | --- | --- |
| **Purpose** | **DNS prefix** | **Binds to Server** |
| **Self Service UI** | A DNS name chosen by Optus |  |

All other servers can be chosen by Optus and will not be customer visible.

# Certificates

ODA and TSA will authenticate with a pre-shared self-signed certificate generated using 1024-bit DSA key generating algorithm. This should be installed on:

* Load balancer (device)
* Web service & DB servers
* “Optus servers” which need to communicate with TSA “Web service & DB servers”

# Data feed files

## Optus call data files

Call data files should be delivered daily, by 09:00 Australia time, the following day

File type: compressed or uncompressed file (zip or gzip compression)

File name format:

* call\_data\_YYYY-MM-DD.csv.gz
* or call\_data\_YYYY-MM-DD.csv.zip
* or call\_data\_YYYY-MM-DD.csv

File format: Comma separated values (CSV) with alphanumeric fields surrounded by double quotes

A “done” file must be sent as well once a file has been successfully sent in order to indicate the upload completed successfully. The file name should be the same as the feed with the .done file extension. The .done file should be empty. Example: "call\_data\_YYYY-MM-DD.done"

Fields:

* date
* customerID
* number of calls

Files should be delivered to the “Reporting application/Data processing server” server via SFTP. Authentication will be handled via a key pair for SFTP.

Upload destination: /home/optus/calldata

# Backup

## Backup Directories

The following are the required TSA application and configuration directories that should be backed up regularly – for each server.

### Reporting application server / Data processing server

\* /root/.kettle

\* /usr/local/share/tsa

\* /usr/local/tsa

\* /usr/local/jboss-4.2.1.GA

\* /usr/local/jboss-5.1.0.GA

\* /usr/local/apache-ant-1.8.2

\* /etc/hosts

\* /etc/crontab

\* /root

### Bidding/Budgeting Server

\* /var/local/tsa/log

\* /usr/local/tsa

\* /usr/local/share/tsa

\* /home/pixspike

\* /home/optus-feeds

\* /home/tsaapp

\* /etc/hosts

\* /etc/crontab

\* /root

### AdMax Processing server

\* /var/local/tsa/log

\* /usr/local/tsa

\* /usr/local/jdk1.6.0\_32

\* /etc/hosts

\* /etc/crontab

\* /root

### Pixel Tracking servers

\* /usr/local/share/tsa

\* /usr/local/share/php

\* /home/pixspike

\* /etc/hosts

\* /etc/crontab

\* /root

### End-customer Web servers

\* /var/www/html/

\* /etc/httpd/conf/httpd.conf/

\* /usr/lib/perl5/

\* /usr/lib64/perl5/

\* /usr/amf/

\* /root

\* /etc/hosts

\* /etc/crontab

### Web service & DB servers

\* /usr/local/tsa/mmw\_sitegen

\* /usr/local/share/smb

\* /usr/local/share/smb-admin-ui

\* /home/tsaapp

\* /etc/mysql

\* /etc/hosts

\* /etc/crontab

\* /root

### Global and Account Database server

\* /etc/mysql

\* /etc/hosts

\* /etc/crontab

\* /root

### Warehouse Database server

\* /etc/mysql

\* /etc/hosts

\* /etc/crontab

\* /root

### Monitoring server

\* /home/nagios

\* /usr/local/nagios/

\* /etc/nagios/

\* /etc/hosts

\* /etc/crontab

\* /root