



*Mobile Ad Network
Installation Guide
JAVA - Enterprise Version*

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1. Introduction

The purpose of this document is to enable customers and their IT teams install Mobile Ad Network from adserversolutions.

This document provides server side installation details. Documents to integrate mobile APIs into mobile applications are supplied separately.

2. Technologies & Versions Supported

Operating Systems	Linux (Flavors include Ubuntu, CentOS etc)
Java	Java 6
Application Server	JBOSS (6.0.0.20100721-M4)
Web Server	Apache or Nginx for User Interface, Nginx for Ad Serving
Databases	MySQL 5.1
Memcached	memcached-1.4.14
System Architecture	Multiple server support.
Hosting	Virtual Dedicated, Dedicated, Cloud (Support for AWS only)
SMTP Server	Will work with any SMTP server.
Minimum space requirements	500 mb MSSQL space

3. Packages Supplied

jMobileAdnetwork-ui.war	This package contains application for publishers and advertisers.	UI Server
jMobileAdnetwork-admin.war.gz	This package contains application for administrators.	UI Server
jMobileAdnetwork-agency.war.gz	This package contains application for agency.	UI Server
jMobileAdnetwork-rtn.war.gz	This package contains application for ad serving.	Business Server (Ad Serving Component)
jMobileAdnetwork-CacheManager.gz	This package contains application to manage cache.	Business Server (Ad Serving Component)
jMobileAdnetwork-EmailProcessing.gz	This package contains application for sending out emails.	UI Server

jMobileAdnetwork-scripts.gz	This package contains database and shell scripts.	Database Servers
jMobileAdnetwork-MobileAppApis.zip	This package contains all APIs for integrating ads into mobile applications.	Distribute to Mobile application developers

4. Third Party Relationships

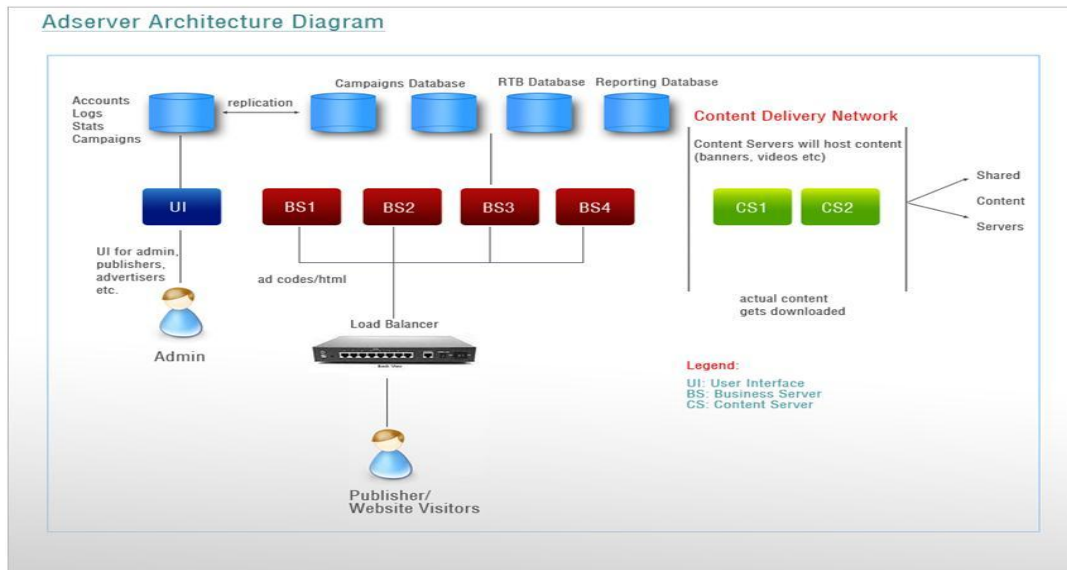
Max Mind Database	Customers to acquire their own licensed copy
Mobile User Agent Database	Product uses public database but customers may supply third party data source like WUFRL.
CDN	Customer may set up a relationship with CDN provider to serve ads

5. Enterprise Deployment

5.1. Architecture Planning

Enterprise deployment requires planning the network architecture based on capacity requirements. Typical enterprise architecture for a high volume operation is presented below.

This diagram is applicable to both dedicated servers and cloud environment. However, for cloud set up, additional set up details are applicable for configuration and auto-scaling.



Definitions of proposed servers:

UI Server (UI):

Reserve a server for the main portal that will serve as a point of access for all users. This server will use its own database for persisting information like ads, campaigns, orders and statistics. You may use multiple UI servers that may be load balanced.

Business/Web Servers (BS1, BS2 and so on):

Business/Web servers will be used for ad serving. These servers will be the busiest servers that will select ads from database based on supplied criteria. Business servers will have to be load balanced for high throughput and failover.

Content Servers (CS1, CS2 and so on):

You may reserve separate servers for serving content. While business servers select ads to stream, it will be content servers that will actual stream content down to client browser and devices. A CDN solution may also be considered by clients to stream content.

Database Servers (DB):

Reserve separate servers for main master database and reporting databases. Additional read databases may be set up on same or separate instances with replication. Read databases are used only by ad serving component of the application.

Appendix A also provides a diagram for system flow and how various components interact with each other.

Appendix B provides recommended server specifications.

5.2. Deployment Scenarios

- 1. One physical server hosting UI, BS, DB and CS**
Only recommended for small adnetworks or for QA/Staging environments. Clients will not derive real benefits of an enterprise set up. Only some benefits of enterprise product like memory based processing will be available.
- 2. One server for UI, BS and CS and separate single database instance**
This enterprise set is useful for clients who wish to segregate their content streaming from core business logic. Clients will not derive real benefits of an enterprise set up. Only some benefits of enterprise product like memory based processing will be available.
- 3. Separate servers for UI and BS, separate database server instances for master and reporting databases and separate CS, preferably with external CDN provider**
Ideal enterprise set up. Each business server can deliver anywhere from 60-100 million impressions per month.

5.3. Database Set Up

Steps:

- Deploy mysql database as per specifications in Section 2 above.
- Specific parameters:
 - o innoDB pool size must be at least 32mb
 - o Ensure that mount where mysql files reside has enough space
- Set up master database (m-adn) on a single server.
- Set up reporting database (m-adn-reporting and m-adn-scrub) databases on another instance.
- Replicate logsmaintotals table only from reporting to master database (uni-directional).

- Create following user ids (it is important to create separate user ids as connection pooling is effectively managed by doing so:
 - o m-adn
 - o m-adn-reporting
 - o m-adn-jms
 - o m-adn-rtn
- Unzip jMobileAdnetwork-scripts.gz and run all scripts inside dbscripts folder to set up the databases.

5.4. Web Server Configuration

Steps:

- Deploy apache/nginx, java, jboss and memcached as described in Section 2 above.
 - o For apache and nginx, ensure that proxypass definition is entered in configuration file so that all traffic on port 80 is routed to jboss port.
 - o Turn off custom logging in web servers for web servers that will serve ads.
- Deploy the war files. Place these war files inside designated servers as mentioned in Section 3 above.
 - o
- Update mysql-ds.xml file with correct connection string information on all web servers.
- Update web.xml file with parameters applicable for your deployment.
- From admin console, ensure that all the wars and JMS queues are visible.
- Additional configurations
 - o Update /etc/security/limits.conf
 - * hard nofile 10000
 - * soft nofile 10000
 - o Etc/hosts, if applicable
 - o Update run.conf of jboss to increase xms and xmx values to be at least half of total RAM on web servers.
 - o Change jboss admin console password

5.5. Load Balancer Configuration

Steps:

- Define domains for your application. Examples:
 - o www.myadnetwork.com will point to UI server
 - o Ads.myadnetwork.com will point to business servers for ad rotation
- Point these domains to the virtual IP by changing A-record in your registrar entry.
- In primary pool of your load balancer, point these domains to the appropriate servers.
- Define a failover pool which can take over in case all servers in primary pool fail. Provide a graceful message to end customers from the failover server.

5.6. Scripts Deployment

The application comes with number of scripts that must be scheduled as cronjobs. Table below provides information on each script and server where they have to be deployed.

Note that if you use new database names for your installation, then you will need to update each script to change database reference. Mysql userid/password also has to be updated in each script.

statements.sql	Monthly publisher statement production	Mastersh/Adhoc directory,
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		Install in Master DB
CampaignPublisherDailySpacing.sh DBBackupDaily.sh CampaignPublisherDailySpacingReset.sh DBBackupLYMReporting.sh CampaignPublisherImpsBurnt.sh DeriveUnpluggedAdSpaces.sh CampaignsExpiredOnHold.sh NetworkCampaignsDailySpacing.sh CampaignsImpsBurnt.sh NetworkCampaignsDailySpacingReset.sh Optimizer.sh	Ad server monitoring, KPI and backup scripts	Mastersh/Cronjob directory, Install in Master DB
Crontab.txt	Recommended schedules for various scripts	Mastersh/Crontab directory, install in Master DB
usp_job_archive_logs.sh usp_job_international.sh usp_job_archive_logs.sh.orig usp_job_load_scratchpad.sh usp_job_archive_truncate_logs.sh usp_job_reset_scrub_checkpoint.sh usp_job_autorefresh.sh usp_job_robotic.sh usp_job_autorefresh.sh.turnoff usp_job_scrub_truncate.sh usp_job_autorefresh.sh.v1.turnon usp_job_stats.sh usp_job_badurl.sh usp_job_stats_sync.sh	Scripts to scrub raw impression logs and produce rolled up data	Repsh/Cronjob directory Note: not all scripts are mandatory and are based on your business requirement, usp_job_stats_sync.sh required only is separate databases are used for master and reporting and replication is not implemented.
Crontab.txt	Recommended schedules for various scripts	repsh/Crontab directory, install in Master DB

6. Cloud Deployment

If you wish to deploy the product in a cloud, Ad Server Solutions provides support for deployment in Amazon Web Services (AWS) cloud.

All the above deployment steps are applicable with following exception and additional steps:

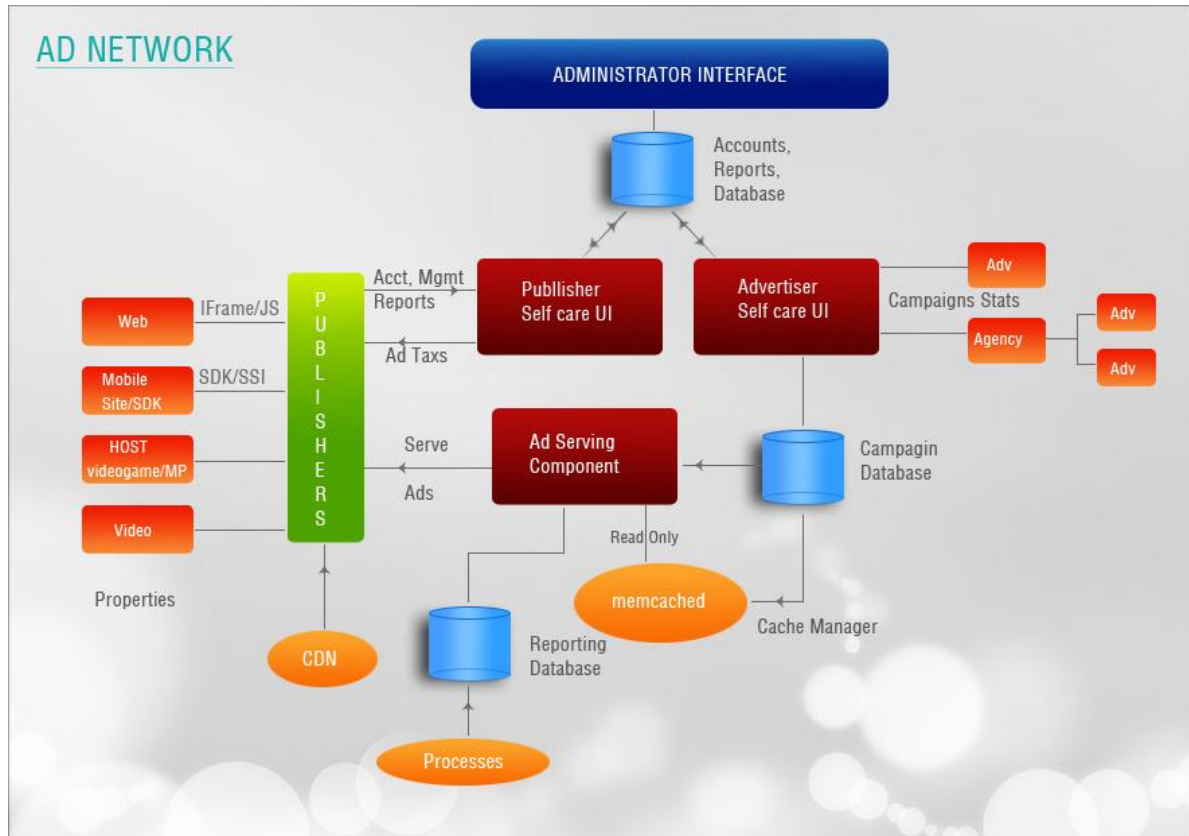
1. If database services like AWS RDS are used, then scripts need to be installed on the UI server since RDS does not allow command line access to install cron jobs.
2. For auto-scaling implementation, where servers are added dynamically when load increases, a separate set up instructions will be made available to set up auto-scaling.

7. Deployment Verification

Following needs to be verified to ensure that deployment is successful:

1. Jboss admin console should be accessible. All wars and queues should be visible.
2. Login to user interfaces must work.
3. Ad rotation should display ads (set up test campaigns).
4. Logs tables must be written into in reporting database.
5. Reports in user interface should work.

Appendix A



Appendix B – Recommended Server Specifications

Database Server

Remote Backup: No Remote Backup Needed
GainstownSpecial: Dedicated Enterprise Plan 1
Primary hard drive: 4 x SATA RAID 10 (7,200 rpm)
Hard Disk Size: 500 GB 7200 RPM SATA hard drive
Processor: Intel Dual Xeon E5520 Quad Core Gainstown
Memory: 8GB DDR3 SDRAM
Solid State Drives: No SSD Drive
Backup Hard Drive: SATA Backup Drive
Backup Disk Options: 500 GB SATA (7,200 rpm)
Operating System: Linux OS
Linux OS: CentOs 5 – 32Bit
PCI Compliance Certification: No PCI Compliance Certification
Control Panel: cPanel/ Web Host Manager – Fully Managed
ServerSecure: Server Secure
Application Auto Installer: No Auto Installer required
Bandwidth: 10000GB Monthly Transfer (5000 in + 5000out)
Port Speed: 100M uplink port

Web Server

Remote Backup: No Remote Backup Needed
Solid State Drives: No SSD Drive
DS.P2: Dedicated Professional Plan 2
Bandwidth: 8000GB Monthly Transfer (4000 in + 4000out)
Port Speed: 100M uplink port
Additional Storage Array: No Additional Storage Array
Primary hard drive: SATA Drive (7,200 RPM)
Hard Disk Size: 500 GB 7200 RPM SATA hard drive
Processor: AMD Dual x8 Opteron 6128
Backup Hard Drive: SATA Backup Drive
Backup Disk Options: 500 GB SATA (7,200 rpm)
Memory: 4GB DDR2 SDRAM
Operating System: Linux OS
Linux OS: CentOs 6 – 64Bit
PCI Compliance Certification: No PCI Compliance Certification
Control Panel: cPanel/ Web Host Manager – Fully Managed
ServerSecure: Server Secure
Application Auto Installer: Softaculous

Switch

DS.SW: Private Switch
Private Switch: 16 Port Gigabit Switch

Load Balancer

DS.LB: Load Balancer

Load Balancer: ZEUS Shared Load Balancer

Number of Virtual IP Addresses (VIP): 1 Load Balanced VIP

Number of Servers: 2-4 Servers

File replication: Managed File Replication Services

End of Document