



Whitesmiths

Harness the power of IBM TRIRIGA in the palm of your hand.



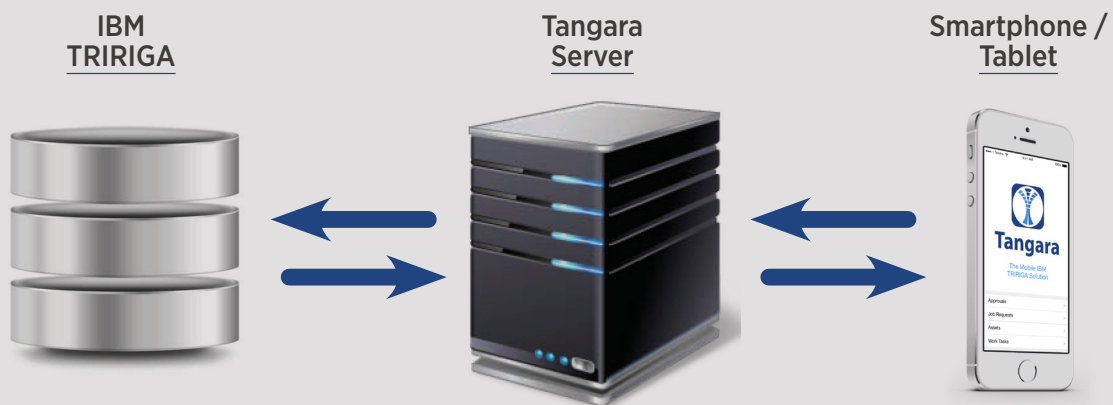
The Mobile IBM TRIRIGA Solution

Tangara® is an IBM TRIRIGA mobile environment extending the functionality of TRIRIGA to a mobile workforce. Tangara integrates with TRIRIGA's business objects, workflows and events, alerting the user to actions required. Tangara is designed for server side application configuration, adding or modifying data, behaviour or layout, e.g. adding fields to a form, is achieved by editing XML definition files residing on the Tangara server. The resultant change immediately propagates to all client devices. There is no need to re-deploy or re-download the device application. Smartphones and tablets now have considerable local storage. Tangara's offline capability enables access to the user's TRIRIGA data when no network connection is present; allows the device to be fully operational for days without network access. Once quickly loaded with data, only changes are transferred between the mobile device and the Tangara Server. The data synchronisation is performed seamlessly, and data held on the mobile device is encrypted and completely secure. The current Tangara "out of the box" applications include work requests, approvals, work tasks, inventory, floor plans, and assets capture and enquiry. The Tangara client application has access to the device's camera for scanning barcodes, and capturing and attaching photos to TRIRIGA business objects. Signatures can also be captured, and map integration with location data assists in directing users to locations using turn by turn directions with audio assistance. Interactive CAD drawings provide further enhanced usability by providing visual representation of spaces.

Tangara deployment is rapid and can usually be completed in just a few weeks. The Tangara server is written in Java and uses a database for local cacheing. It is deployed on either enterprise Linux or Microsoft Windows Server. Customer Support is available 24x7 with Whitesmiths trouble ticketing system maintaining and reporting on each incident reported.

STREAMLINE YOUR BUSINESS PROCESS

- › Create Work Request
- › Submit for Approval
- › Approve Work Request
- › Assign Work
- › Material Purchases
- › Distribute Work
- › Prioritise Work
- › Perform Work
- › Work procedure steps
- › Return To Office
- › Complete Paperwork
- › Collect Work Orders
- › Review Work Orders
- › Enter Data Into Database
- › Inventory
- › Material Purchases



TAKE ADVANTAGE OF A MOBILE WORKFORCE

- › Uses the smartphone's notification system alerting users whenever they require actioning of approvals.
- › It's fast! the Tangara client application on the handset starts up in a couple of seconds providing access to your IBM TRIRIGA system.
- › Fully native application for optimal performance on both iOS and Android.
- › User Security is consistent with existing IBM TRIRIGA settings.
- › Utilises the handset's built in camera as an advanced barcode scanning tool to track assets and inventory.
- › All the application updates are controlled centrally and distributed seamlessly to all the Tangara users without need for reinstallation.
- › Integration with IBM TRIRIGA uses a separate middleware server simply configured to meet your mobility needs.
- › Whitesmiths can configure Tangara to access and create any items in IBM TRIRIGA on a per install basis.
- › Supports the raising of job requests, the approval process, asset management, inventory and work task management.

Customer Benefits

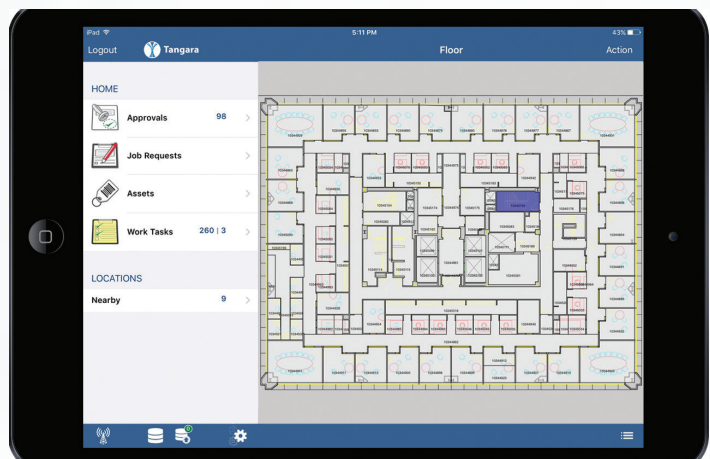
- › Lowers operating costs & improves productivity by streamlining workflows & eliminating paperwork
- › TRIRIGA users are no longer tied to their desktop or laptop PC
- › Controlled data entry means improved report quality
- › Faster response, users receive notifications from TRIRIGA workflows
- › Complete support for requests, work tasks, approvals & assets
- › Can incorporate other TRIRIGA functionality with simple configuration
- › Data is secure; protected by strong encryption
- › Captures images for attachment to requests, approvals, assets & work tasks
- › Captures on screen signatures for client sign-off of work tasks
- › Inbuilt device camera is also a barcode scanner
- › Map integration & TRIRIGA location data – jobs can get done faster
- › Staff can use their own iOS or Android device

Key Features

- › Tangara designed for IBM TRIRIGA by Business Partner – Whitesmiths
- › Able to use TRIRIGA anywhere, anytime on mobile device
- › Works offline - full access to user's TRIRIGA data without network coverage – auto syncs data to server when coverage available
- › Alerts sent from TRIRIGA workflows
- › Fully configurable to suit individual organisation's requirements
- › Available for Apple iOS release 7 & later, plus qualified Android devices
- › Uses TRIRIGA's inbuilt security, roles, data & workflow functionality
- › Scan barcodes, capture signatures & attach photos to TRIRIGA records
- › Simple 'per device' license; no additional server license
- › All communications & data storage secured by strong encryption
- › Only a small object migration package required for install on TRIRIGA
- › Interactive CAD drawings
- › 24x7 Support via US 1-800 number or email

Floor-plans & CAD

- › Capability to locate employees, assets, work tasks & spaces using interactive TRIRIGA CAD diagrams
- › Search visually and Interact with objects on a floor-plan
- › Ensures users see the latest CAD drawings
- › Easily direct users to a location



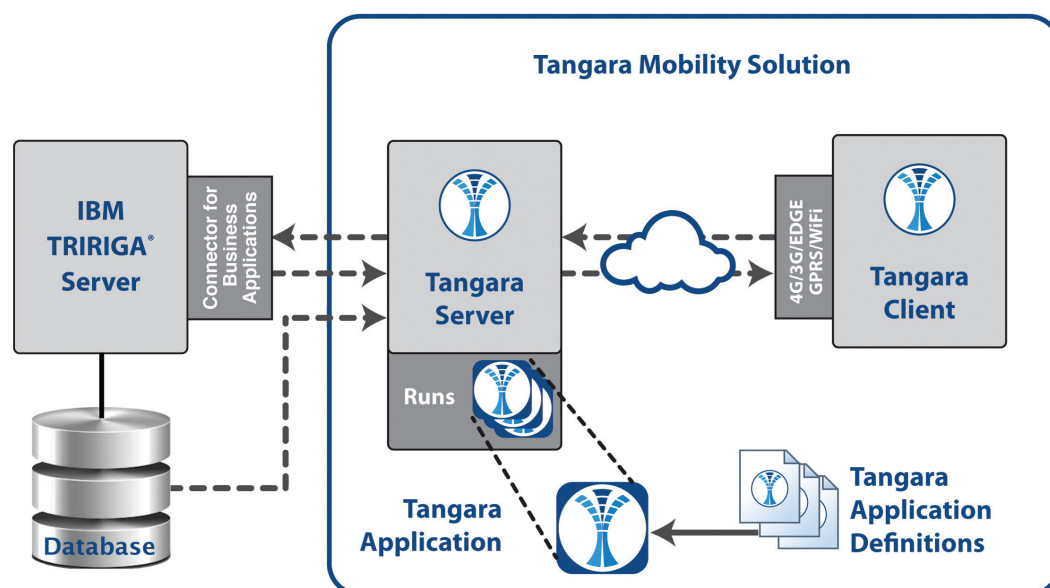
TODAY'S TECHNOLOGY WORKING FOR YOU

- | | |
|----------------------------------|--------------------------------|
| › Receive approval notifications | › Add new assets |
| › Make approval decisions | › Identify and view asset data |
| › Raise new job requests | › Manage assigned work tasks |
| › View existing job requests | › Manage Inventory |
| › Condition Assessment | › Purchases Work Materials |

TANGARA PRODUCTION SERVER

Tangara Server Function

The Tangara Server is a middleware server which manages the communications between the Web Services application programming interface (API) provided by the IBM TRIRIGA Connector For Business Applications and the mobile devices running the Tangara Client application.



IBM TRIRIGA is a configurable Integrated Workplace Management System (iWMS). Most TRIRIGA implementations have been customised to meet the requirements of the organisations operations. The Tangara server was architected with the knowledge that each TRIRIGA instance will be different. There are a group of queries and a couple of altered workflows installed via an object migration package that is accessed from the TRIRIGA server. The Tangara server logic is specified in a series of XML files.

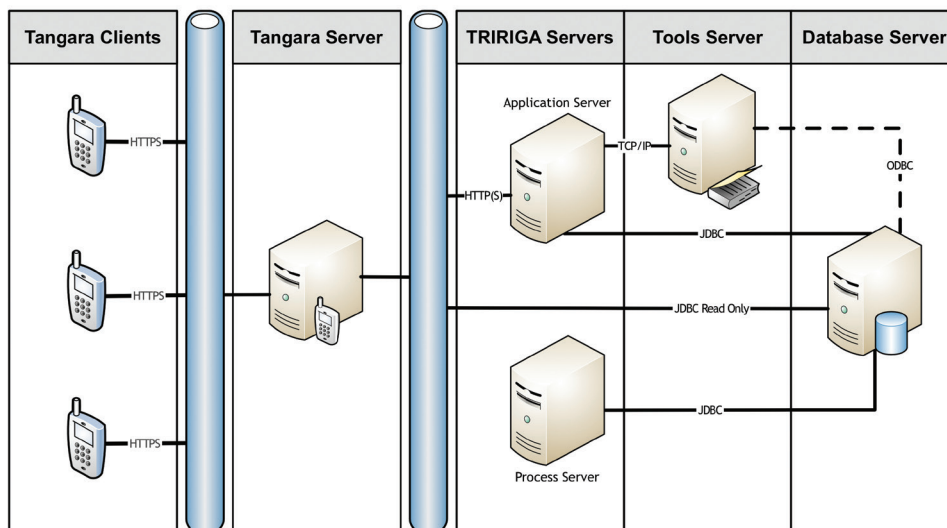
The specification for the client behaviour is also defined for the Tangara client application in the Tangara Application Definitions. These client definitions are also XML files.

Operating System and System Software Components

Component	Name	Release
Operating System	Red Hat Enterprise Linux	6.0 or higher
Operating System	Microsoft Windows Server	2012 Release 1
Java Runtime	J2RE	1.7 or higher
Relational Database	MySQL/MariaDB	5.x/10.x
NoSQL Database	OrientDB	2.x Community Edition
Application Server	Tomcat	7.0 or higher
Tangara Sever Application	Tangara Server Application	2.x
Web Server	Apache HTTP	2.x

High Level Tangara Integration Architecture

The diagram below shows the high level network interconnection between the Tangara Client Application the Tangara Server and the TRIRIGA Servers.



Server Hardware Configurations

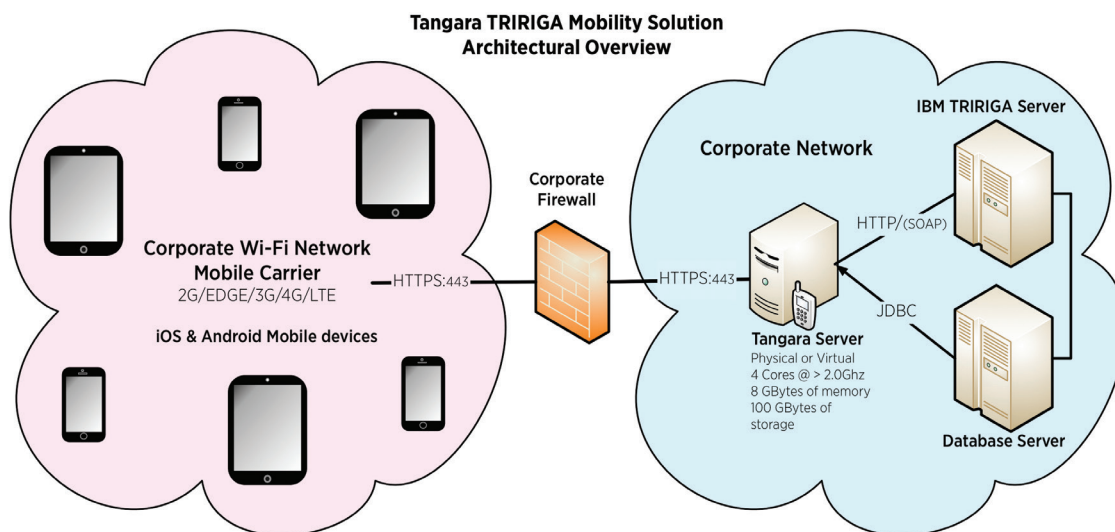
The following are recommended hardware requirements to support a range of Tangara client devices. These servers can be implemented as virtual machines.

Configuration	Tangara Users	Servers	Processor Cores	Min/Pref Memory	Disk Storage
Small	250	1	4	8/16GB	80GB
Medium	500	1	6	16/24GB	120GB
Large	1,000	1	8	32/64GB	160GB
Enterprise	1,000 +	Multiple	8	64GB	160GB

Tangara Server Networking

Tangara uses HTTPS for all data communications between the Tangara Client and the Tangara server. Communications between the Tangara server and the TRIRIGA server use HTTP/SOAP or HTTPS/SOAP.

The Tangara Server uses an externally signed SSL Certificate for secure communications



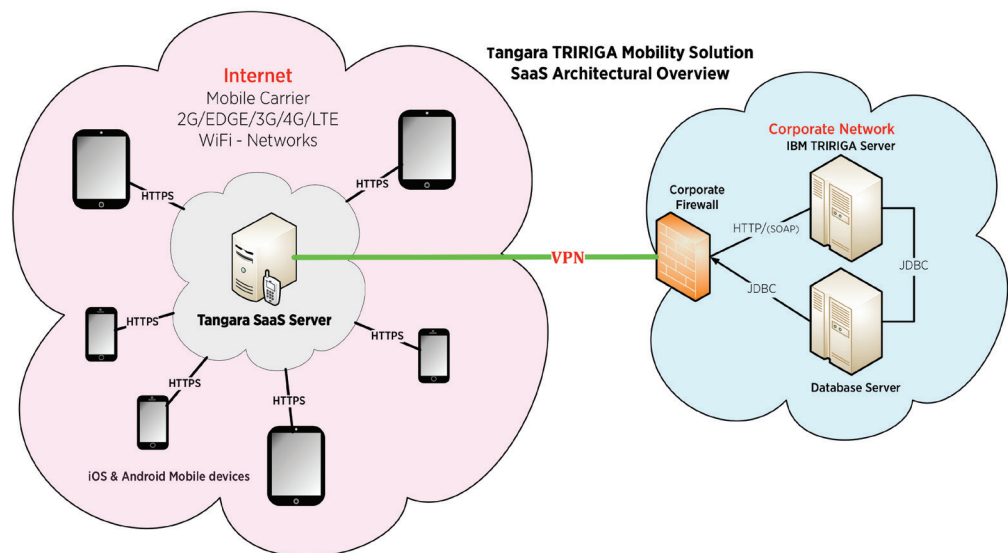
TANGARA SAAS

Whitesmiths' Tangara® SaaS is the first cloud computing mobile product available for IBM TRIRIGA.

Customers with Apple and Android smart mobile devices can connect to the cloud and have the same capabilities as an on premise implementation of Tangara. Whitesmiths is offering a simple, affordable, competitive SaaS solution with pricing based on the number of mobile users.

Benefits of Tangara SaaS

- Tangara SaaS is affordable; sold on a subscription basis which includes software upgrades, maintenance and support.
- Customers can select the subscription that meets their immediate TRIRIGA mobility needs.
- Zero infrastructure; the complexity of the underlying IT infrastructure is handled by Whitesmiths.
- Data and configuration backups all done in the cloud.
- Security is paramount, all data communications and data stored on the mobile devices is fully encrypted. Communications between cloud based Tangara SaaS server to IBM TRIRIGA is via secure VPN.
- Tangara SaaS allows mobile users to work anywhere, online with WiFi or using cellular carrier data networks. Also Tangara SaaS supports off-line client operation.
- Tangara SaaS cloud infrastructure can seamlessly expand to meet the increasing needs of your business operation.



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