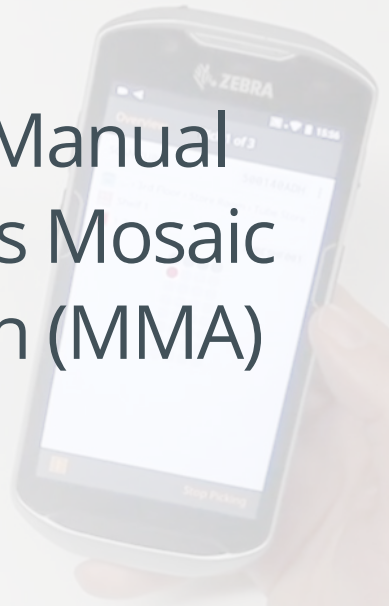# Bringing a Mobile Interface to your Manual Stores with Titian's Mosaic Mobile Application (MMA)

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v2.0

THE BENEFITS OF MOBILE INTERFACES FOR MANUAL STORAGE

Accurate and speedy sample **picking** and **placing** in manual stores, including fridges and freezers, is a daily requirement in the biopharmaceutical industry. The information on where each sample is stored is ideally held in specialist sample management software or a laboratory information management system (LIMS). The difficulty is to bring this electronic information to the physical storage and retrieval process.

You could have a PC next to a freezer to read the information whilst at the store, but this is not practical for multiple freezers or most storage locations. Alternatively, you could print the information, or even worse write it on a post-it note to carry with you. Whilst these methods can work, they do come with disadvantages:

- Inventory updates have to be entered manually, which is time consuming and prone to human error
- Inventory updates lag the actual event, so samples may have moved from their recorded location
- There is no validation of where samples have been picked or placed to
- It is easy to overlook or bypass updating the inventory if the user is in a hurry
- These methods are not suitable for fully audited environments which may require operations to be accurately time stamped

Mobile devices bridge this gap. They can be carried with the user and automatically update inventory in real time, as well as providing operator guidance and recording actions. Wi-fi enabled Personal Digital Assistants (PDAs) running Windows Mobile or Pocket PC were initially used. However, the widespread personal adoption of smartphones means these are increasingly replacing the older technology PDAs in the lab.

Smartphones combine camera-based barcode scanning, usually supplemented with a specific barcode reading LED, rapid processing and wi-fi connectivity in a single device that people are used to carrying. When these are integrated with inventory management software, they offer accurate inventory updates in real time and on the go – with the additional benefit that these updates are auditable. Who did what and when can be automatically captured and recorded.
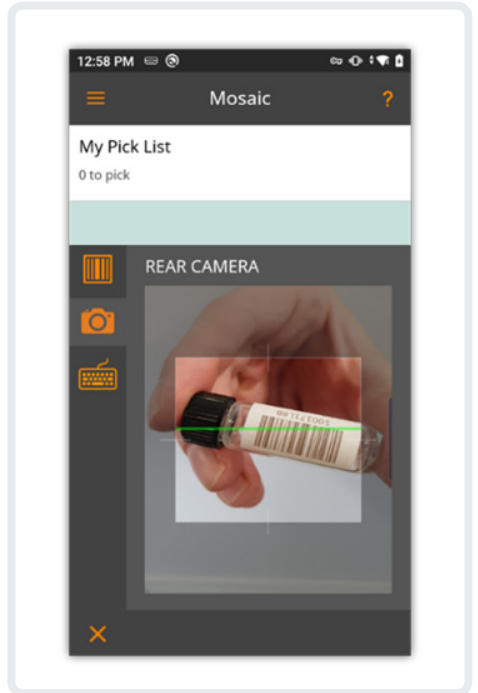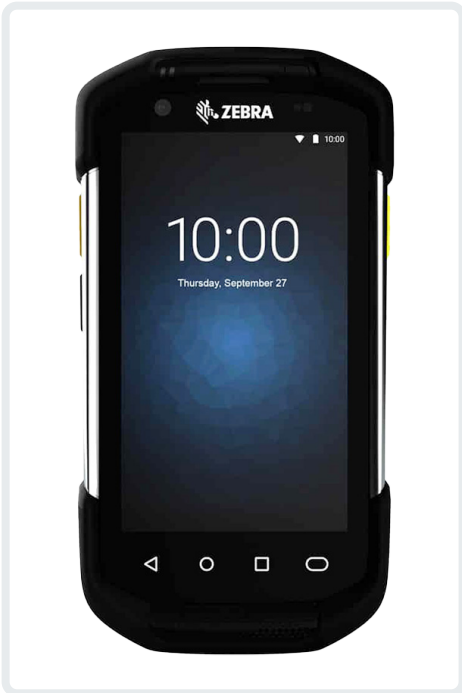
MOSAIC'S MOBILE APPLICATION

Titian Software's **Mosaic Mobile Application** (MMA) links modern mobile devices with Mosaic software to provide a trackable interface to your manual storage.

Titian's MMA supports both the 1D barcodes used for glass vials, racks and plates and the 2D barcodes used on tubes with no limitations on barcode size. However, mobile phone cameras – and even some laser scanners – struggle to recognise the small 2D datamatrix barcodes used on microtubes.

MMA is available for any Android or Apple device with camera scanning, but it works best with devices with an integrated scanner seen in many retail environments, such as the Zebra TC-series. All these mobile options are much simpler to deploy than their older PDA equivalents.

SUPPORTED OPERATIONS

MMA's easy to navigate interface helps you to perform sample picking and placing tasks quicky and accurately. When a barcode is scanned, it is automatically validated by checking it against inventory or lists to make sure it is the right sample. Labware information exchanges are validated and any errors, such as an unrecognized barcode, are flagged. This validation occurs in real time.

Tasks supported by MMA include:
- Labware enquiry
- Labware picking
    - Directly picking items
    - A personal pick list
    - Order based picking
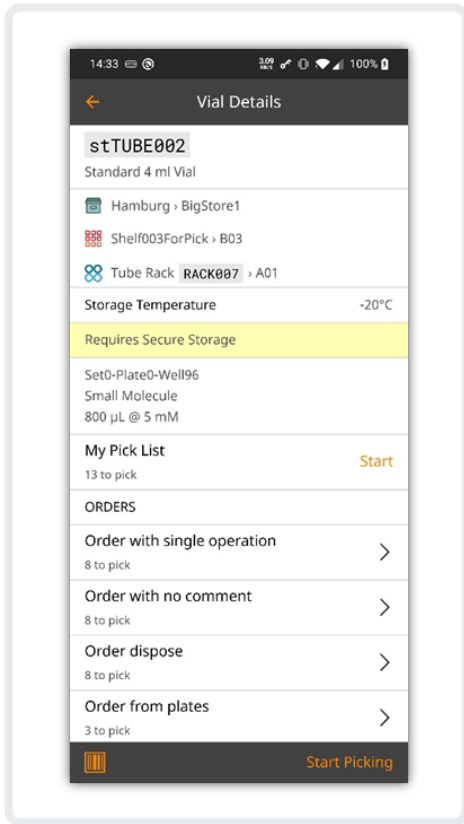- Labware placing
    - Directly placing items

USE CASE 1: LABWARE ENQUIRY

Simply scanning the barcode on an item of labware will display sample details on the MMA screen. This is particularly useful when the sample is hazardous and needs special handling, or it needs to be stored at a specific temperature.

Sample information which can be displayed includes:
- Barcode
- Basic substance information (substance name, substance type, amount, concentration, and so on)
- Container labware type
- Hazard information
- Location
- Storage temperature

The labware information screen also allows different processes to be performed, depending upon the location of the sample. For example, a user could start a Pick or Place operation, or the sample can simply be left in its current location.

USE CASE 2: LABWARE PICKING

Using MMA, samples held in a manual store can be picked in one of three ways:

1. Directly picking items

If you already know where in store the sample is located, then you can simply pick the labware and scan its barcode. MMA will display any sample hazard information and expiry date (if applicable), then update the inventory by moving the labware item to the default laboratory bench as a loose container.

2. A personal pick list

The MMA displays a count of items that have been assigned to your 'My Pick List' in Mosaic. Select the Start option to begin picking items on the list.
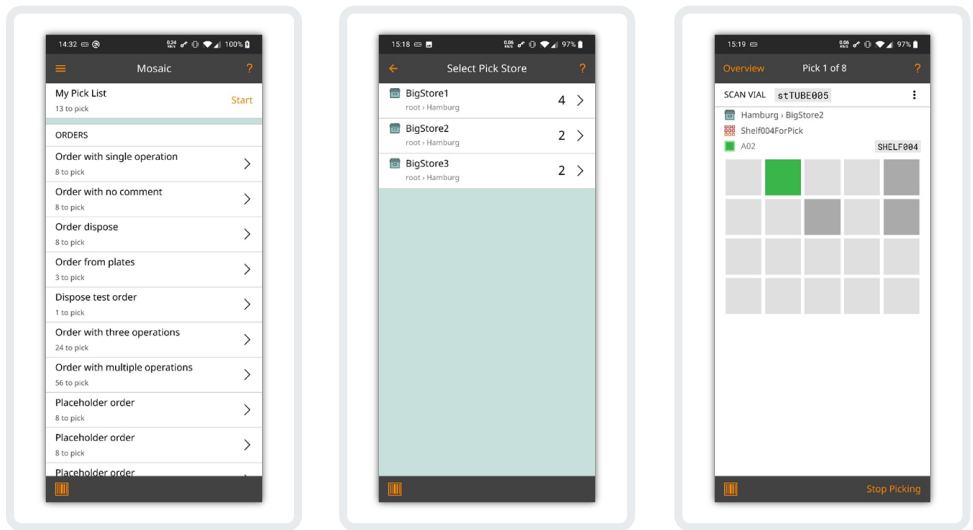

If your pick list is empty MMA will display "0 to pick" and there will be no **Start** option.

3. Order based picking

The MMA main page has an ORDERS section, listing any order that has at least one item located in a manual store. To start, you select the order you wish to process. This displays the order details page showing basic information regarding the order. From here MMA will graphically guide you to the stores to pick from (if there is more than one) and the exact location of each item.

You confirm each pick by scanning the item's barcode and placing it in a rack, whereupon MMA will update Mosaic's inventory.

Following a successful pick, MMA will suggest the next item to pick for the order. However, if you scan an item not required for the current order MMA will display an error and will not allow you to pick the item (in this mode).
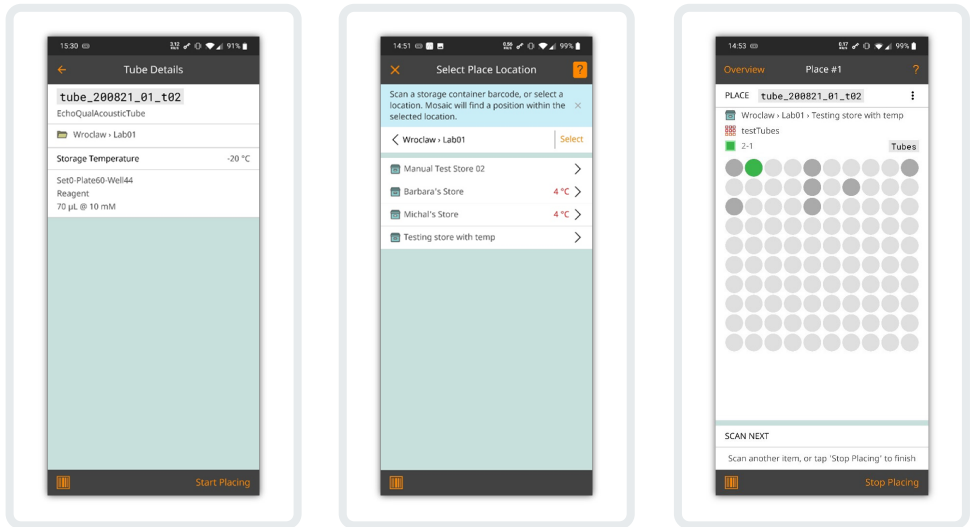
LABWARE PLACING

Directly placing items

If you scan the barcode on labware outside of a manual store, MMA will display the Labware Enquiry page. Included with the sample information will be the option to Start Placing. Select this or scan the barcode again to initiate the placing process.

MMA will display available locations where the sample may be stored. These suggestions will automatically take into account placing constraints such as:
- which labware items can be stored together
- whether the labware and store are compatible

- any specified storage temperature
- whether the sample is a controlled substance requiring secure storage

SUMMARY

Titian Software's Mosaic Mobile Application makes your manual storage more efficient by:
- Automatically updating inventory in real time
- Providing a time stamped audit trail suitable for regulated environments
- Avoiding human error by validating sample picks
- Speeding up picking and placing times by providing user guidance
- Enforcing sample storage criteria by guiding user choices
- Providing labware and location information when and where it is needed
- Displaying sample information simply by scanning a barcode
- Providing handling information and warnings for users

MMA's ability to link the manual storage and retrieval of samples to your electronic inventory in real time – and so make these actions traceable and auditable – solves a major unmet need in sample management.

ABOUT TITIAN SOFTWARE

Titian is the industry leader in providing sample management software for the Life Sciences. Using our Mosaic software, our customers see significant benefits in terms of throughput, response times, error rate reduction, sample conservation and cost savings due to markedly reducing the labour associated with managing sample collections. We also use our experience of integrating laboratory instrumentation and robotics into our systems to ensure that our clients make best use of their investment in research and development technologies.

Titian's development efforts never stop as we continue to advance Mosaic toward higher levels of efficiency and practicality for the user. The collaborative relationship between Titian and lab automation vendors continues to ensure that new applications are made available on a timely basis, and we pride ourselves on taking into account customer feedback for all Mosaic modules to drive our product to be the best it can be. It is all part of Titian's commitment to providing innovative solutions that make life easier for sample management professionals.

AUTHOR:

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Roger Martin worked for GlaxoSmithKline for 33 years. Originally a medicinal chemist working as a research chemist, he later transitioned to cheminformatics and then R&D IT, specialising in compound management software. He joined Titian Software in 2012 where he is a technical application consultant.

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