Microbiological Reporting System
Version 3.5
System Specification

WJP Software Limited

Change Control.

This explains the changes that have taken place in this document.

Version	Change	Date
1.0	Specification written and first copy published.	01/06/2020
1.1	Minor updates to wording of specification	15/06/2020
1.2	Addition of Development Section	17/07/2020
1.3	Added Time Plan and Validation Section	07/12/2020
1.4	Added Version Numbers and Formatting Errors	08/04/2021
2.0	Add Stock Management	19/04/2021
2.1	Add Studys	21/04/2021
2.2	Added new Infrastuture Type which is external server	30/06/2021
2.3	Updated IT Infrastructure	28/11/2021
3.1	Explanation of file storage types	15/01/2024
3.2	Remove Data Table usage	28/02/2024
3.3	Cloud hosting statement	30/06/2025
4.0	Updated for Version 3.5	06/01/2026

1. Introduction

This is the specification for Microbiological Monitoring System (MRS 3.5), which is a routine environmental monitoring (EM) data system for use by Quality Control (QC) Laboratories and the Pharmacy Units they serve. The application focuses on being able to record and report a large amount of EM data quickly and easily while maintaining total data integrity. There are also features that cover laboratory Testing

1.1 Purpose

This specification can be used as a stand-alone document to help understand what the system is capable of, or as part of the validation process. When required, a User Requirement Specification (URS can be compared to this and WJPS can create a document showing the cross over between your URS and this specification.

1.2 Intended Audience

This document is intended for prospective and current owners, in addition to users of the system. These may be QC Laboratory Managers, Directors of Pharmacy, Aseptic Unit Managers or Information Technology (IT) Managers.

1.3 Scope

This document covers:

- Definitions, Acronyms and MRS Terminology
- Overall System Description
- Technical Specifications
- Dependencies
- System Features

1.4 Definitions/Acronyms and MRS Terminology

- API – The business logic provider of application data that the Web Application displays in a readable way.
- AWS - Amazon Web Services Used to store documents.
- Client Application – A Windows Desktop Application.
- COA – Certificate of Analysis.
- CRM – Customer Relationship Manager.
- Customer – Normally, the trust who send the request in.
- 'Data In' – Use of the Desktop App by the QC laboratory to process samples and record results. (see 'Web' for the aseptic unit reporting application)
- Desktop App – The QC laboratory facing part of MRS.
- EM - Environmental Monitoring
- Exception – An out of specification result, typically an exceeded Action Level.
- IIS – Internet Information Services
- Instance – A user configured group of plates e.g. Manufacturing, Sessional, Weekly. Manufacturing Instances allow the entry of batch details of products prepared. Sessional Instances allow unlimited use of a specific set of plates to cater for multiple sessions being performed during any one period.
- LIMS – Laboratory Information Management System.

- MHRA – Medicines and Healthcare products Regulation Authority.
- MRS – Microbiological Reporting System.
- MRS AF - Microbiological Reporting System Additional Features.
- MRS Cube – A piece of hardware, this is a USB Camera and Lightbox for taking pictures of upto 90mm plates.
- MRS Room Sheet – A pre-approved templated request for analysis indicating which room this is for, and the plates in that instance. An operator can then complete this stating which Plates are sent and the Operator and Server for each plate.
- MS SQL – The Microsoft Scripted Query Language Server, which stored the data for the application.
- Operator – The person who has physically been in contact with the plate or is performing the dispensing or production activities being monitored.
- P Number – A barcoded unique number that is given to a paperwork copy of the MRS Room Sheet that allows accurate matching with the corresponding plates after incubation (see S Number).
- Plate – In MRS terminology a 'Plate' could be a control plate, settle, finger touch or contact plate. It could also be user defined EM sample e.g. swab or particle count. It allows user configuration of environmental monitoring templates to the required detail.
- Plate Groups – A number of Plates, i.e. Critical or Settle that are set up to allow other users to trend results. These Plate Groups can be set up and administered by Site Admins.
- Plate Type – This is a configuration setting in MRS that identifies to the system how the Plate should behave, ensures plate types are grouped to allow easy interpretation by the operator and ensures the correct Action Levels are assigned.
- Room – The rooms that make up a unit.
- S Number – A barcoded unique number that is given to a stack/s of plates that allows accurate matching with the corresponding paperwork.
- Server – The computer that provides the data to the client, runs scheduled tasks and runs the Web Interface using IIS.
- Server – The person who has sprayed and wiped into the room or work-zone.
- Site Admin – A Web User who can set-up other web users for their site, they can also create plate groups.
- Super Users – An administrator of a section of the program. They can override settings set by the application.
- TVC – Total Viable Count, the total number of colonies on a plate.
- Unit – The unit where the plates are exposed, there is a relationship between a customer and unit.
- URS – User Requirements Specification.
- User – A system user.
- VM – Virtual Machine.
- Web Application – An IIS Web Application that is powered by an API.
- 'Web Reporting' – The MRS application that allows Pharmacy Units to view, prepare reports and trend results uploaded by the QC Laboratory.

- Web User – A user who only has access to the web system.

1.5 Standardisations

WJPS have several set protocols that we adhere to throughout the whole system.

- Configuration. Although the system is not bespoke, there are several changes and features that can be turned on or off to map to your process; only WJPS can alter these.
- Everything is audited. Every action performed within MRS is date and time stamped to the user and is fully auditable; this cannot be turned off.
- Data is never truly deleted. If data is entered in error and needs to be removed it is flagged as deleted to allow the correct data to be entered. Once flagged, the data can be overwritten but it also remains intact and can be fully reconstructed by WJPS if required.
- Delete Data is audited. Although data may be 'hidden' for overwriting, the act of 'deleting data' is anything but hidden and is fully auditable and visible on the daily activity logs.
- Changes to the same data. If two or more users try to save the same result at the same time, then the system won't allow that to happen. Each piece of data is timestamped, and if this timestamp has changed between the data read and data write, it won't allow the user to go ahead and save it.

2. Overall Description

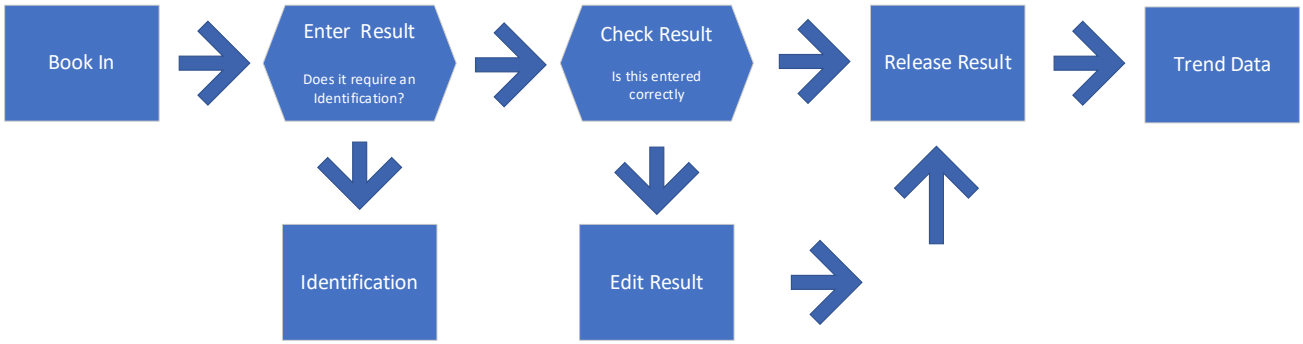
The Microbiological Reporting System (MRS) is a routine environmental monitoring and trending system for Pharmacy Units and their clean rooms. It can operate at a Regional Laboratory or individual Trust level. There are two applications that make up MRS, the Desktop App which allows data to be entered, and the Web App where results are reported on and trended.

The system follows all the key stages of microbiological monitoring and allows users to set up plates that will be in a room, create requests for analysis based on these plates, book in plates after exposure into an incubator and read them after their incubation period. When plates are read, they can be visually identified and using the Identification module, laboratories can add full analytical Identification at a later date, and this will automatically update any exception, alert and result reports.

Out of specification reports are automatically sent out to customers via email, and can be accessed through the web interface to trend and report on with all other results.

The system will also act as a Laboratory Information Management System.

The workflow is as follows:



2.1 Migration for earlier versions of MRS

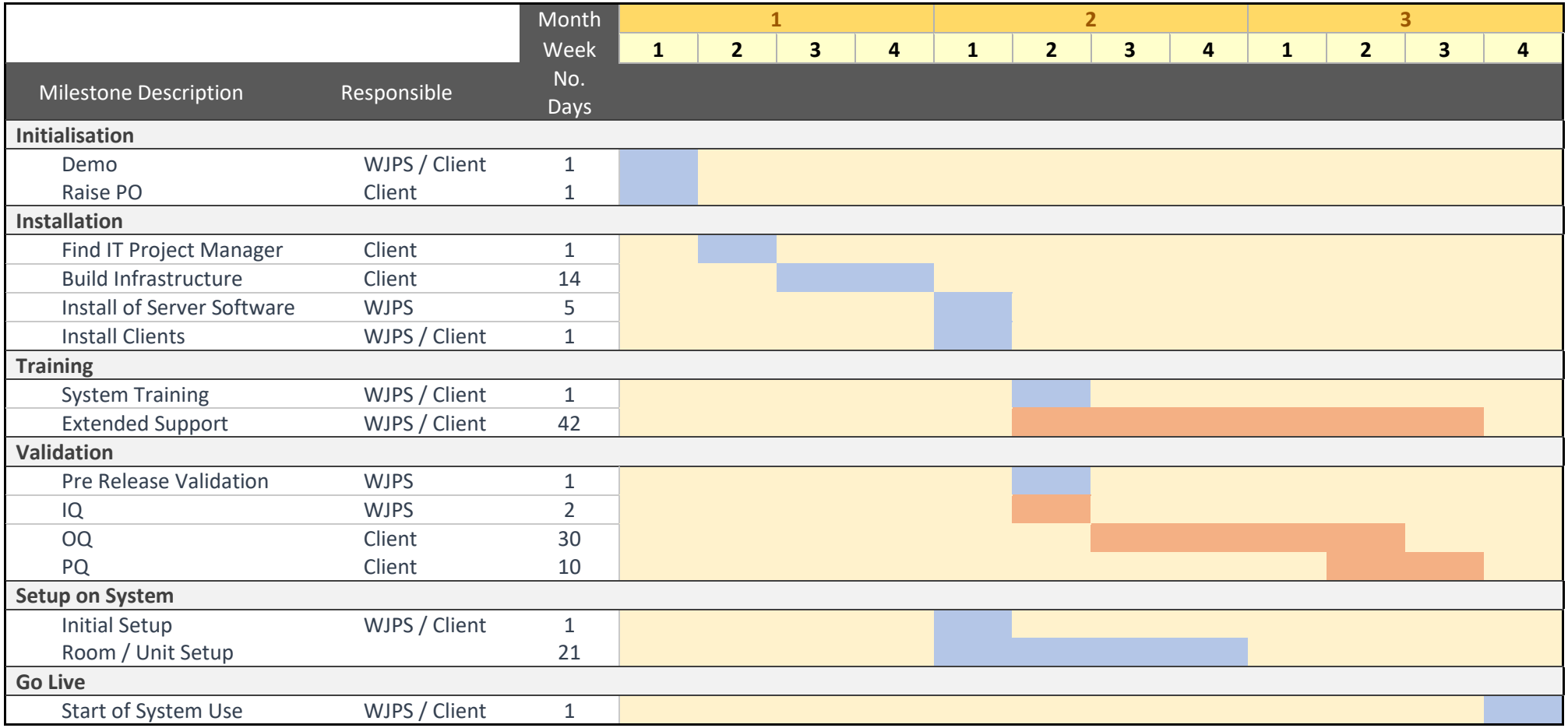
Where possible we will take data about room set-ups etc. from MRS 2.5 and earlier into MRS 3. As MRS has been around for about ten years, we took the decision to rewrite MRS from scratch, meaning some of the data in tables etc. is stored differently. We have written a process to import room set-ups from old versions, but we do not want to manipulate historic data for migration. This is to ensure compliance with current MHRA Data Integrity guidance. Taking historic data over would be complex and require post-migration validation.

Users who use MRS 2.5 and earlier will maintain access to two systems. This will allow historic data to be accessed on the legacy system, and current data on MRS 3.

2.2 Timescales

The Gantt chart below shows estimated timescales.

Milestone Description	Responsible	No. Days
Initialisation		
Demo	WJPS / Client	1
Raise PO	Client	1
Installation		
Find IT Project Manager	Client	1
Build Infrastructure	Client	14
Install of Server Software	WJPS	5
Install Clients	WJPS / Client	1
Training		
System Training	WJPS / Client	1
Extended Support	WJPS / Client	42
Validation		
Pre Release Validation	WJPS	1
IQ	WJPS	2
OQ	Client	30
PQ	Client	10
Setup on System		
Initial Setup	WJPS / Client	1
Room / Unit Setup		21
Go Live		
Start of System Use	WJPS / Client	1



Key

Optional Requirement

Standard Requirement

2.3 Technical Specifications

Below are the technical specifications for Desktops and Servers

2.3.1 Desktop Requirements

- Operating System: Windows 7 or later (32-bit or 64-bit).
- Minimum Supported Resolution: 1280 x 1024.
- .Net Framework Version: 4.6.2 or later.
- Active Directory Access: Only if active directory accounts are used.
- Network access HSCN and Connectivity to the Server

The Desktops should also have access to a label printer (we recommend and supply Zebra GK420D or GK420T), and a 2D Barcode scanner (we recommend and supply Zebra DS4308)

2.3.2 Server Requirements

- Operating System: Windows Server 2019 or later.
- SQL Server: SQL Server 2019 or later.
- Memory Required: 8GB or greater.
- Storage Requirements: 10GB + Operating System requirements.
- CPU Core Count: 2 or more (if a VM).
- Remote Access: WJPS requires remote access to this server.
- IIS: IIS 8 or later.
- SMTP: SMTP access required.
- Active Directory Access: If active directory accounts are used.
- Network access HSCN and Connectivity to the Server

2.4 Dependencies

To operate MRS requires.

- Microsoft SQL Server 2022 or higher is required to store the Client Application Data.
- Internet Information Services 8 or higher
- Active Directory (Optional)

2.5 Infrastructure

According to the size of your installation, there are several set-up options; these are listed below.

Option	Infrastructure	Notes
Onsite	Infrastructure 1 (Please see Appx 4.1.1)	All data is held on-site, and data is shared within the host trust or other organisations only.
Onsite DMZ	Infrastructure 2 (Please see Appx 4.1.2)	All data is held on-site, and data is shared within the host

		trust or other NHS. Data can be accessed by Non-NHS organisations through the DMZ
Onsite Offsite	Infrastructure 3 (Please see 4.1.3)	Data is held on and off-site. The main reporting database sits on-site and the web interface sits off-site with read-only access to the onsite database. This allows data to be accessed with your own trust and other NHS and Non-NHS customers of yours. Often referred to as our cloud solution.
Offsite	Infrastructure 4 (Please see 4.1.4)	Data is held off-site. This allows data to be accessed within your own trust and other NHS and Non-NHS customers of yours. Often referred to as our cloud solution.

2.6 Cloud hosting

All components of the MRS solution can be hosted off-site within a secure HSCN/N3-connected environment. In this configuration, no on-site server infrastructure is required; only a lightweight access client is installed on PCs that require system access.

WJPS provides a fully managed hosting service, including server provisioning, operating system and application patching, security updates, and regular backups.

Systems are deployed on shared servers. In shared environments, all systems are strictly segregated and no data is shared between organisations.

Although hosted off-site, the environment supports secure, read-only access to data, enabling controlled data sharing within a trust and, where authorised, with NHS and non-NHS organisations.

The hosting environment and operational processes comply with ISO 27001 (Information Security) and ISO 9001 (Quality Management). WJPS and its infrastructure providers are also compliant with the NHS Data Security and Protection Toolkit (DSPT) and Cyber Essentials.

This deployment model is commonly referred to as the "cloud solution". For NHS organisations, hosting is provided within NHS-aligned infrastructure rather than public cloud platforms. For private sector customers, hosting may be provided on a public cloud platform, secured through IP restrictions and equivalent security controls.

In accordance with our hosting providers, the service is delivered with a 99.5% uptime target on a 24/7 basis. Customers will be notified in advance of any planned changes, and scheduled maintenance to hardware or operating systems is carried out outside normal working hours (Monday to Friday, 09:00–17:00).

Daily backups of system data are performed and stored off the server using Acronis backup services. In addition, a weekly bare-metal server backup is taken to support full system recovery.

Backup processes are monitored, and any backup failures generate alerts to WJPS for investigation. As part of system validation, backup and restore processes are verified and documented.

2.7 File Storage

This is normal text. MRS 3 allows users to store files, either on their own or as part of notes with in a object. These files can be stored via Amazon Web Services (AWS) S3 Buckets, on the Database as Binary Long Objects (BLOBS) or on a File Server. Below are the details required for each storage type. Once storage has been set it is more difficult to move to different storage types.

2.7.1 AWS

To be stored in AWS the server and PC's that the software is installed on must have a connection to the internet and be able to access AWS. The files are stored in an S3 bucket, the is only for the Trust. These buckets have different folders for each section that a file may come from. The files are stored as GUID filename. The database holds the file name and storage location. Files are only requested from the bucket if they are required to be downloaded.

2.7.2 Database

To be stored in the Database, the PC's and server require no additional access. There is a separate table in the DB to store the files, however this method does mean that the database can get large versy quickly.

2.7.3 File Server

To be stored on a File Server, or File Share, this share must be setup and accessible. The system can use an impersonate username for this. Meaning access could be provided to a service or similar rather than individual users. This file storage area will require folders for each section of the program where the file may come from. The files are stored as a GUID filename.

2.8 Password Storage

Where passwords are stored in the system (If not using AD) they are stored as a Bcrypt streing with a weight of 12.

2.9 MRS Cube

The MRS Cube is a piece of hardware that acts as a lightbox with a webcam in. This directly connects to a PC via USB, and feeds photos into multiple areas within MRS. These

photos are stored via AWS. Photos can also be marked up electronically to highlight growths.

2.9.1 MRS Cube Specification

Camera	16MP (IMX298 Sensor)
Len	Manual Focus, 75° Field of View
Lighting	6000K LED Strip, 24V 2A Power Supply
OS Support	Windows 11 (Plug and Play)
Connectivity	USB – Works with or without MRS Software
Output	Save to MRS or directly to file.

3. System Features and Requirements

3.1 Data In:

Introduction:

The part of MRS, often referred to as the Desktop App, is installed on a desktop in the QC Laboratory. This is where most of the data entry happens, including the booking in of samples for analysis and the entry of results and Microbiological Identification. It also facilitates the configuration and creation of environmental monitoring templates.

This normally is installed on several machines in the QC Laboratory and is a .NET application that needs installing on each computer that requires access.

Within the app, there are two feature sets, Routine Environmental Monitoring and Non Rotitine. There are separate licences for each of these products, and one can be purchase without the other. Customers, Identifications (inc Growth Type Editor) and User Settings are generic as they are used by both feature sets.

3.1.1 Routine Environmental Testing

3.1.1.1 Room Editor

Introduction

The system works on a hierarchy for Customer, Unit and Room. Once a Customer has been entered on the system the Room Editor can be used to create as many Units and rooms as required. Each room can have as many plates as required specified, along with a Location, Plate Type, Grade and Alert Level. The action level is automatically assigned to the plate in accordance with GMP based on the Plate Type and its EU GMP Grade.

Each Room can be assigned several Instances. These are user defined collections of Plates into smaller more usable groups. Each Instance can have a separate Incubation period specified and can also be configured as Sessional or Manufacturing Instances. Users can also assign operators on a room by room basis. If the room is configured as a manufacturing room, users can set up which items are to be made, and assign a shortcode for each item.

Once specified by the user, each instance has a unique instance number assigned. This is used by the system to identify which Room and Plates relate to that instance for future requests and reporting.

From the Instance, a request for analysis sheet or MRS Room Sheet is created listing the key details and plates to be booked in that Instance. Operators can state which plates they are sending and the details of each operator and server for each plate.

Features

- Initial system configuration or migration of existing set-up performed by WJPS
- Additional full user configuration possible with intuitive functions below:
- Add / Edit Room
- Add / Edit Unit
- Add / Edit Room Operators
- Add / Edit Room Web Users
- Add / Edit Room Manufacturing Products
- Add / Edit Room Plates
- Add / Edit Room Instances
- Set Plates in a Room Instance
- Activate / Deactivate a Room
- Print MRS Room Sheets

3.1.1.2 Plate Type Editor

Introduction

The Plate Editor allows users to set what Plate Types are being used in the system. By standard, we set up the Plate Types: Settle Plate, Contact Plate, Finger Touch Plate, Active Air Sample, Positive Control, Negative Control. Additional types can be created and configured by the user to meet all their monitoring needs. Plate Types define how a plate behaves in the system regarding out of specification reporting and can be used to group plates.

Features

- Standard Plate Types pre-configured by WJPS
- Fully customisable monitoring schedules possible with user defined plate types
- Add / Edit Plate Type.

3.1.1.3 Grade Editor

Introduction

The Grade Editor allows you to set what EU GMP Grade of Plates are in the system. You can then set the Action Level for each Plate Type. MRS allows multiple level microbiological identification (e.g. initial visual Identification), followed by further species level MALDi-TOF identification. The Grade Editor also allows the user to set at what TVC Further Identification is required for each Grade, i.e. Action Level, Alert Level, Any Growth, None.

Features

- EU GMP Environmental Grades pre-configured by WJPS
- 'In-house' grade configuration possible to allow response to any monitoring schedule
- Add / Edit Grade
- Set Action Level for Each Grade / Plate Type
- Force Second Read (Instances with this Plate Grade in must be second read, regardless of the Second Read Level)
- Ignore a Plate Type on a Grade (This is a Plate Type that is not to be used)

3.1.1.4 Growth Type Editor

Introduction

The Growth Type Editor allows you to set up Growth Types in the system in a Hierarchy of Visual Identification, Genius and Species Level. Each Growth Type can have a Unique Short Code, Parent and Free Text Source of Contamination.

Features

- Build catalogues to meet local microbiological flora
- Established microbiological catalogue available on installation
- Short codes allow accurate entry of regular microorganisms
- Add / Edit Identification
- Add / Edit Images (From the MRS Cube or Uploaded) of Growths as a learning resource
- Ability to set a Growth Type to Default (i.e. the standard visual identities)
- Set a colour to be used for the growth type. This colour is used for Plate Mark up and in Growth Type reports.
- Import and Export Growth Types to a CSV. This can be edited in Excel or similar and then re-imported.

3.1.1.5 Incubator Setup

Introduction

The Incubator setup allows you to set the name of Incubators that you are using during the book in process. If you are using split incubation it also allows you to set how long plates should stay in the incubator for.

Features

- Add / Edit Incubators
- Set Incubator for Split Incubation (Set Duration)
- View Incubator contents

3.1.1.6 Book In Plates

Introduction

When the lab has received an MRS Room Sheet and corresponding plates, they can enter the details from the sheet to the system prior to incubation. Using the intuitive interface users can quickly identify which plates have been received and the operator/server for each plate. The system user can also set the date of incubation, batches of media used (this can be linked to MRS AF), and the incubator that the plates are going to be put in. If the instance is a sessional instance, then you can enter which session it is part of.

At Book-In each stack of plates, the corresponding paperwork, and the entry on the database are given unique numbers that allow rapid matching after incubation. The stacks are given a label (S Number), and the paperwork is given a label (P Number). This ensures that post-incubation results can only be entered against these plates..

From the Book-In function, a Book-In can also be edited if any details have been entered incorrectly.

Within the Book-In function you can also view the contents of each incubator, including plates that are ready to read. If plates are to be moved, a to move list is shown, allowing you to block move Plate stacks from one Incubator to another with reconciliation and audit. When a stack has finished the incubation period in the first incubator, the incubation period is paused until it is moved to a new incubator.

Features

- Intuitive user interface for fast and accurate booking of plates
- Full traceability with three-way Database/Plate/Paperwork booking function
- Add / Edit Book In.
- View Ready to Read List
- View Ready to Move List
- Move Plate Stacks to a new Incubator according to the Read to Move List.
- Move all conents of an incubator if there is a failure.

3.1.1.7 Enter Results

Introduction

After Plates have been Booked In and Incubation completed, the results are entered using this component. Having entered an S and P number, the details of the Book-In are shown and the user can add the TVC and a visual identification for each plate. If a TVC is greater than the set level for Identification (Alert Level, Action Level, Any Growth, None) of the plate type and grades, an identification is created automatically and booked into the Identification list. If the TVC has exceeded the Action or Alert Level for a plate, then an Exception for that plate is automatically created. For each plate, there can be multiple types of growths.

Enter Results can be exited mid-way through a read, and as data is already in the database, this is classed as a partial read. Other results can be read at a later time using

the same S and P number to access the Book In again. Once the Result Set has been read in its entirety, it will be passed on the system to the checking stage or released.

Using the MRS Cube or Image upload a photo of the plate can be added to the result, this is then displayed to the customer via the web interface.

If the Operator, Server or Batch Number was entered wrongly at Book-In, this could be corrected now with a note to explain the change.

If Second Read is enabled (WJPS Setting) the system will choose wether a Result Set is to be second read, according to either the percentage set in the config or the Force Second Read option in the Grade Editor. Users are alerts at the end of their read if a second read is required. The second reader reads the plates blank, and cannot see what was previously entered. The system will evluate in the reads are the same, if there are the first will automatically be chosen. If not then the release will see both reads and chose the appropriate read.

Features

- Fast barcode driven mode available for fast accurate result entry
- Post incubation three-way Database/Plate/Paperwork prevents data integrity failures
- Out-of-specification results automatically identified (in accordance with the Grade Editor) and flagged to the user.
- Multi-stage result entry/check/release meets current Data Integrity guidance
- Enter Results
- Add Images of Plates at the read stage. These images can be marked up. Therefore the number of growths in the Result is pre populated.
- Override Bookin Information
- View Read List
- Second Read options (System set)

3.1.1.8 Exception Reports

Introduction

If an Alert or Exception of a Plate has been exceeded then an Alert or Exception Report will have been created. Here you will see those reports (one report per Plate). It will show the details of the plate and contamination, Visual ID or Full ID if available. In-lab users can add a comment or note and then release the exception report. This will create an email which will go out to all of the room's users that have exception Reports enabled.

The report will also show any related exception reports and their statuses. A related exception report is one that has happened on the same day in the same room for another plate.

Features

- Independent stage for out-of-specification result check and release, improves data integrity and allows full user control for communication.

- All primary data is automatically populated on the report removing the requirement for transcription
- Release and comment on exception and alert reports
- Show alert reports
- View previously released exception and alert reports

3.1.1.9 View Results

Introduction

When a result set has been booked in or entered, users can view the status in View Results. This will quickly identify at what stage the plate is; Booked-In, Partially Read, Read, Checked, or Released. If a check stage is turned on, this is where the user can check that the result has been entered correctly. If not, they can mark it for editing, and another user can then make the change to the data.

By default only the top 500 results will be loaded, users can load all results though.

Features

- View Bookings
- View Result Sets (Read, Partially Read or Released)
- Check Result Sets
- Mark Result Sets for Edit
- Action and complete the Edit. This is audited and an explanation is required. Only unreleased result set can be edited. However result sets can be recalled (i.e. unreleased)

3.1.1.10 Edit Result Sets

Introduction

If an error on a Result Set needs rectifying then it can be done here in View Results, you can edit one or more results in a result set and change any of the entered details. To edit a Result Set, it must be unreleased first and marked for editing. When the change has been made, the result can be re-released or released for the first time.

Features

- Quickly identify result errors and flag for authorised amendment
- Edit Result

3.1.1.11 Release Result Sets

Introduction

When a Result Set has been read and/or edited, it is ready for release. Ready to release result sets show up in this form automatically, and allow registered users to read and release the result sets. Users can then see the result in a read-only format along with any Exception Reports created.

If a second read has been activated, then the release is able to see both reads. If there is a discerepancy the released needs to choose when read to use.

Features

- User configured result release stage if required, 100% release, or fast release for negative plates and manual release only required for results with contamination present.
- Release Results
- Mark Result Set for Edit

3.1.1.12 Identifications

Introduction

In the Grades Editor, users can specify if a Further Identification is to take place when there has been an out-of-specification result. If this has been set up, then the Enter Results application will automatically create a unique identification number for that plate and link them together. Users can add Identifications from other organisations on here along with the Identification Type. They can also set the Customer, Reference Number and other details of the Identification. A label and record are then created for that Identification.

When the Identification is fully Identified, then the users can set the details of what they have found, their details are also recorded at this stage. Another user can release this, at which point they can access a Certificate of Analysis which is printable. This is also emailed to the customer and available on any MRS Result which is being further Identified.

A comment can be added to each growth to give more detail.

Features

- Three-way Database/Plate/Result matching using system-generated unique numbers
- Fast barcode entry mode to reduce transcription and improve data integrity
- Book In Identification
- View Ready to Analyse
- Analyse Identification
- Release Identification / Unrelease
- Add Images of Plates at the read stage. These images can be marked up. Therefore the number of growths in the Result is pre populated.
- View Print COA
- Send the Identifcation using HL7 message and receive an HL7 message back. This can be send to either a machine or separate systems.

3.1.1.13 Customers

Introduction

Users can set details of their customers; this can form a CRM of Customers. Tests and Units are assigned to Customers throughout the process. When details of a Customer are changed, the system asks for a note explaining this change.

Users can add a Main Address as well as a Finance Address.

Features

- Add / Edit Customers
- Set customers price band (percentage uprise)
- Generate Customer Usage Report
- Generate an Invoice Report based on a date range.

3.1.2 Media Management

Media management is made up of a number of modules. Within All Modules advanced search works please see Advanced Search.

3.1.2.1 Suppliers

Introduction

The Suppliers module allows users to record and manage details of suppliers used by the laboratory. This forms a central supplier register and supports assignment of products to suppliers throughout the system.

Any changes to supplier details require a note explaining the reason for the change, ensuring full auditability.

Features

- Add / Edit Suppliers
- Copy Address (can be used to create a label)

3.1.2.2 Media Products

Introduction

The Media Products module provides a central catalogue of products used by the laboratory. For each product, users can record cost, selling price, lead time, and minimum and maximum stock levels.

This information is used to generate order reports, identifying items that require reordering based on current stock levels and average usage over the defined lead time.

Products can have acceptance criteria defined against them. These criteria may be simple Yes/No checks, date-based checks, or Test results. Manufactured products can also be defined, allowing a product to be composed of one or more other Media Products.

Supporting documentation, such as datasheets and safety information, can be uploaded and stored against each product.

Kits are a special type of product that are expected to be returned once issued. Kit handling is covered separately within the Kits module.

Features

- Add / Edit Products
- Add / Edit Product Categories
- Add / Edit Hazard Types
- Add / Edit Unit of Issue
- Define Acceptance Criteria for Products
- Upload Product Documentation (e.g. COSHH / Material Safety Data Sheets)

3.1.2.3 Product Batches

Introduction

The Product Batches module is used to record and manage batches of media received into the laboratory. Each batch must be assigned to an existing Media Product, allowing the system to apply the relevant acceptance criteria.

For each batch, users record the batch number, date of manufacture, expiry date, and quantity received. Acceptance criteria can then be executed; some checks are performed automatically based on date information, while others require user confirmation. Each acceptance check records who completed it and when.

Files and notes, such as certificates or delivery documentation, can be attached to a batch. Once acceptance criteria have been successfully completed, the batch can be released and made available for use in orders. Batches may also be released before all acceptance criteria are completed, provided a justification note is recorded. All actions are fully auditable.

Features

- Add / Edit Batches
- Run and Record Acceptance Criteria
- Release / Unrelease Batch

3.1.2.4 Orders

Introduction

The Orders module is used to define order templates, including their contents and delivery frequency. Orders can be configured as one-off or recurring, with frequencies ranging from weekly through to six-monthly.

At this stage, users define the products included in the order rather than specific product batches. Batch selection is performed later when the order is built. Users also specify the next due date to ensure the first order is generated at the correct time.

Features

- Add / Edit Orders (Template Orders)
- Set Order Frequency and Next Due Date
- Pause and resume an order.

3.1.2.5 Dispatches

Introduction

The Dispatches module is used to build, pick, and dispatch orders created from order templates. During order build, users assign specific product batches to each order and set the dispatch date.

When building orders, the system displays all orders due up to and including the selected dispatch date. Batch selection can be performed automatically by the system or manually by the user. Pick lists and dispatch notes can be generated to support fulfilment.

Once an order is built, the next dispatch date is automatically calculated based on the order frequency and the system-generated dispatch date, regardless of when the order is physically picked or prepared. The system validates stock availability at build time and automatically creates back orders for any items that are not currently in stock.

If an order contains a Kit, a corresponding Kit record is automatically created and logged for return tracking.

Features

- Build Orders Using Available Product Batches
- Pick Orders
- Dispatch Orders
- View Dispatched Orders
- Generate Picking Lists
- Generate Dispatch Notes
- Automatic Kit Creation for Dispatches Containing Kits

3.1.2.6 Chemical Inventory

Introduction

The Chemical Inventory module allows users to record and manage chemicals held within the laboratory, including their receipt, storage, and disposal.

Items can be imported directly from internal dispatches, with all relevant information such as batch number, expiry date, and quantity automatically populated, removing the need for duplicate data entry. The system maintains a full audit trail of chemical disposal, recording who disposed of an item and when.

Users can generate reports at any time to show the chemicals currently held in stock.

Features

- Import Dispatches as Chemical Inventory Items
- Record Disposal of Chemical Items (with user and date)
- Generate Reports of Chemicals Currently in Stock

3.1.3 Non-Routine

None Routine contains a set of modules relating to Tests, Kits, Identifications and the Instrument Register.

3.1.3.1 Criteria Template

Introduction

Criteria Templates are used to define the individual test criteria that make up a Test Template. A single Test Template may consist of multiple criteria, representing separate sub-tests.

Each criterion is defined with a name and configuration that can be reused across studies. Users can specify the test category, criteria type (True/False, Value, Range, or

Alert/Action), units of measurement, and result precision. Where applicable, associated standards can also be defined; standards are managed as Media Products.

Constraints defined in the Criteria Template can be overridden when added to a Test. All changes to criteria are fully audited.

Features

- Add / Edit Criteria Templates
- Define Test Category and Criteria Type
- Set Units and Result Precision
- Assign Standards (Media Products)

3.1.3.2 Test Templates

Introduction

Test Templates define the tests and activities to be carried out for a specific study or project. Each template includes a name, worksheet reference, specification, strength, associated consumables, and the tests to be performed.

Sub Tests within a Test Template are created using Criteria Templates. While criteria definitions are inherited, users can set study-specific constraints where required. A base cost per test can be defined to support internal or customer cross-charging.

Test Templates can be quarantined or archived to prevent future use. All changes are audited, with notes available to explain amendments. Once a Study Template is in use, only superusers are permitted to modify its configuration.

Features

- Add / Edit Study Templates
- Add and Configure Test Criteria within a Study Template
- Quarantine and Archive Study Templates
- Add / Edit Study Template Consumables
- Set Base Cost per Test

3.1.3.3 Tests

Introduction

The Tests module is used to record individual studies and capture the results of the tests that make them up. Each study is created from a Study Template, and the system automatically calculates the study cost based on the customer and template configuration.

For each test, users can record results along with the batch numbers and expiry dates of any consumables used. Test results are automatically evaluated to determine whether each test is satisfactory or unsatisfactory. Users may also add test notes to provide additional context.

A final study result is calculated automatically. If all tests are satisfactory, the overall result is satisfactory; if any test is unsatisfactory, the overall result is unsatisfactory.

Each study must be checked by a second user and then released. Users can also record whether an invoice has been raised. Once released, a Certificate of Analysis (COA) can be generated, detailing the consumables used and all test results.

Features

- Add / Edit Studies
- Enter and Evaluate Test Results
- Record Consumable Batch Numbers and Expiry Dates
- Generate Consumables Usage Reports
- Generate Certificates of Analysis (COA)

3.1.2.10 Instrument Register

Introduction

The Instrument Register provides a central record of all laboratory instruments. It allows users to manage ownership, usage, and maintenance information, including calibration and service requirements.

Each instrument can be assigned to specific users or roles, configured with service and calibration intervals, and grouped into Instrument Kits to support operational workflows. The system maintains a full service and calibration history, recording when an instrument was sent for service or calibration, where it was sent, and the associated certificate details on return.

The Instrument Register supports reporting to allow users to review instrument status

Features

- Add / Edit Instrument
- Track and Record Service and Calibration History (dates, provider, certificate reference)
- Generate Reports based on Kit Status
- Add / Edit Instrument within an Instrument Kit

3.1.3 User Settings

3.1.3.1 Users

Introduction

Allows system users to be set up. A user can be set up from an existing Active Directory account, thus meaning they login using the username and password assigned to them by the organisation. When this method is used, the application never stores their password, only confirms that it is correct. Each user can be assigned to one user group (see User Groups). Users can also add an electronic signature which MRS will use when reports are released by the user. From here, users can also be logged out and reset, including logging out all active users. The application stores where a user has logged in from, and only allows the users to be logged in at one location at a time. There are times when the OS closes the program etc. when a user does not log out first, so this option is required.

Features

- Fully secure access and user details
- Full user management by system administrators. Assign user permissions and access as required
- Add / Edit Users
- Create User from AD Login

3.1.3.2 User Groups

Introduction

Allows you to set up as many User Groups as required. User Groups specify which applications a group has access to and whether they can Read Only, Read/Write or whether they are a Superuser. A Superuser for a program in MRS is granted permission to edit previously set fields or data. All modifications to data are audited, for example, only a superuser can unrelease a test. When a superuser login is required, a superuser login and password details must be entered to confirm this user is present.

Features

- Create role-based permission groups that can be easily assigned to multiple users.
- Add / Edit User Levels

3.1.3.2 Audits

Introduction

The Audit keeps a log of every action that a user does; this allows you to view an audit trail for every user of the application. Within each System Module, you can view the Audits for the individual actions themselves. This gives the details of the change, the area in which it was done, the date and time of the action, and the user who performed it."

A lot of the audit trail takes place behind the scenes; this program is for viewing and searching the audit.

Features

- User configured audit reports available instantly

- View Audit
- Search Audit

3.1.4 Advanced Search

Introduction

Advanced Search is available across multiple MRS Media Management and Non-Routine modules. It allows users to create searches using one or more fields to quickly locate relevant data.

Searches can be saved and shared with other users to improve efficiency and consistency. Typical use cases include identifying items such as tests awaiting release, for example where the final result is complete but not yet released.

Features

- Run searches by manually entering search criteria
- Build search queries using a Visual Query Builder
- Save searches with user-friendly names
- Load previously saved searches
- View and run Top Searches for quick access

3.2 Web Reporting (Data Out):

Introduction:

Trending takes place on the MRS Web App. This takes the data and allows customers of the QC Laboratory to trend it in a number of ways. Each user has their own login and is assigned access to the data within one or more rooms present in the system. The Customers' need access to a web browser and access to the website for this system. MRS Web System Administrators can manage users system-wide and determine their level of access to data.

MRS Web System Administrators can manage users system-wide and determine their level of access to data.

3.2.1 Web Users

Introduction

MRS Web Users are separate to Users of the desktop app, as they are Customers of the QC Laboratory. Here you can set what rooms/units they have access to, the Web Address used to access the system, if they are designated as site administrators, and if they can receive and sign off on Exception Reports.

When a new user is added, an email is sent to their provided address containing their password and access details.

Features

- Full user management by system administrators. Assign user permissions and access as required

- Add / Edit Users
- Add / Edit Rooms that Users have
- Reset Password

3.2.2 Plate Groups

Introduction

Web Users who are Site Admins (an option that can be set when setting up or editing a user) can create groups of plates which are then used within trending reports. There is no limit to the number of groups that can be created. Example Groups that Users may want to add are: Critical Plates, All Plates, Left Hand Side Plates. Only Site Admins can create and edit these, but these groups are available to all Web Users.

Features

- Fully customisable result reports, intuitive to create, instant and repeatable once configured
- Add / Edit Plate Groups

3.2.3 Results

Introduction

Web Users can view their results for a unit; they can see these over the past three years (though a longer limit can be configured if required). If these reports have exceptions on there would be a link to these. Each report is based on the instance of the unit; therefore, there might be more than one instance of a room for a date, i.e. Daily Plates and Weekly Plates. Users can see on the instance which plates were exposed alongside the classification and TVC for each plate.

Features

- View Results from Past 3 Years

3.2.4 Exception Reports

Introduction

Web Users can view all of their exception reports and the details contained within each of them. They can add comments to these and close them when necessary. Each report will specify one Plate, give all details of the Room in which it was exposed, and show any Growths found on the plate alongside any attached comments from the laboratory.

These reports can be printed.

Features

- Complete information reported for all out-of-specification results allows the correct actions to be taken by the result owner.
- View Exception Reports
- Comment on Exception Reports
- Close Exception Reports

3.2.5 Identification Reports

Introduction

Web Users can see any further identifications they have. Once these further identifications are on the system, they will automatically update any Results and Exception Reports. There will be one Identification Report per plate. Using this they can also view any Identifications they have that are not related to MRS Results.

Features

- View Identification Reports
- Respond to Identification Reports

3.2.6 Trends

Introduction

The trend is a range of Graphs and Fail Rates calculated from the data entered in the other stages.

Features

- Monthly Report
- Plate Failure Rate
- Operator Failure Rate
- Growth Type Breakdown

4. Support

This section explains how WJPS provide support to end users.

4.1 Support Detail

When getting in touch with support please include as much detail as possible about the issue. It is useful to know:

- Where the issue happened including the software.
- What you were doing just before the incident.
- A screenshot of the error, and or the error report.
- What effect this is having on you, is it a minor inconvenience or is it stopping you working etc.

4.2 Types of Support

You can get in touch with WJPS in several ways.

4.2.1 Ticketing

Our preferred method via https://wjps.freshdesk.com. This requires a login to our support site, but allows you to view the state of any other support requests you have made. A proforma can also be filled which will prompt you for many of the details of your issue. This is our preferred method.

4.2.2 Email

An email can be sent to support@wjps.co.uk. This will feed into our ticketing system and an account created for you if one doesn't exist.

4.2.3 Phone

You can speak to one of the team at 01677 392001. From this call we will create a ticket so that we can track the issue. Contact by phone is very useful for more complex issues that may be more difficult to convey when writing in a ticket or email.

4.3 Turnaround Times

This table shows the turnaround times for our support. Our recent resolution time for all tickets has been 30 hours.

Priority	Title	Max Resolution Time	Description
P1	Urgent	24 Hours (1 Day)	An urgent issue which is stopping you from using the system and causing a backlog of work. Normally a system wide issue. *Examples: System, is not accessible.*
P2	Very Important	168 Hours (1 Week)	A very important issue that needs resolving so users can use all functions of the system. Normally effects only one part of the system, or one result. *Examples: Cannot save results. Cannot access part of the program.*
P3	Important	336 Hour (2 Weeks)	A important issue for which there is a workaround, but that needs fixing to allow normal function to resume. *Example: The data is stored in the system but displaying incorrectly. Inc Password Resets*
P4	Inconvenient	672 Hours (4 Weeks)	A problematic issue for which there is a workaround, but that isn't affecting the input or output of data.

			Example: A field is missing on a report.
P5	Cosmetic	2016 Hours (3 Months)	A cosmetic issue that has no effect on data but would be an improvement to the system. *Example: There is a typo in the application.*
P6	Project	10000 Hours (Up to a Year)	A project is an addition to the system. Normally dealt with outside our support system. *Example: A new feature is required on the system.*

Workarounds may often be released for an incident, and then a change requested and made to the system.

4.4 Maintenance

Server and operating system maintenance is scheduled outside normal working hours. Any upgrades to MRS are planned and agreed in advance with the client and may result in a period of system downtime of up to half a day.

No system upgrade or update will be carried out without prior client approval.

4.5 Validation

A validation pack can be provided by WJPS at extra cost. This pack will walk you through inputting data into the system using a range of scenarios, and ensuring that it is output in the format required. To run through this successfully, there will be a certain amount of validation data that WJPS will feed into the system. We will then expect you to also create or use some of your own for the validation process.

WJPS expect the validation to take 4-6 weeks (though this can be shortened considerably if someone is working on the system constantly). As part of the validation pack, WJPS provide advanced support for a period no longer than 6 weeks from your validation start-date in order to help the user and guide them through the validation if necessary. We ask that during this time you let WJPS know when you intend to be working on validation to ensure that a member of our team is available to work with you.

5. HL7 Messages

The system uses the HL7 protocol for sending and receiving data between devices. This has currently been refined for MRS talking to MRS on the same or different networks however because we are using the standard protocol it can work with any device that can ingest HL7 messages.

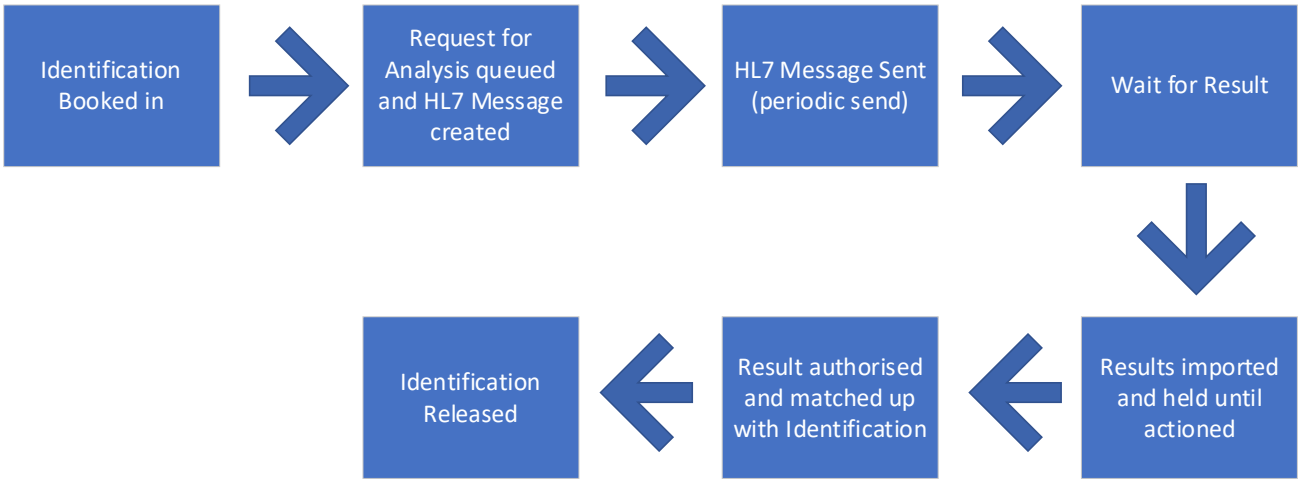
To communicate with other machines it will need the following info:

- Endpoint (IP and Port)
- Application
- Facility

MRS will send messages at a set period, Client users will just add the message to a queue.

5.1 Request Protocol (Customer -> Supplier)

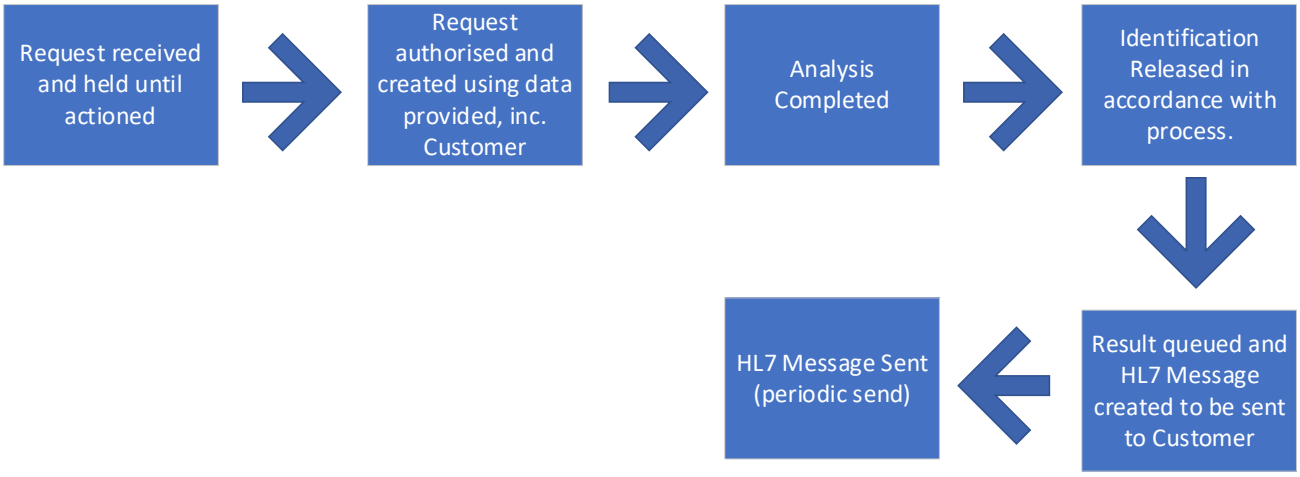
This flowchart shows the request process through to the reciveving the result, and releasing the Identification.



This allows the analysis section to be completed by a machine or external lab. However the release of the identification follows the same procedure as prescribed by MRS.

5.2 Results Protocol (Supplier -> Customer)

This flowchat shows the results process carried out once a request has been received.



5.3 Messages

There are a number of message types that MRS use:

- OML_O21(Request)
- OUL_R22 (Result)

5.3.1 OML_O21

This is a request that is sent from MRS. This passes the information either to another instance of MRS, or an HL7 device / piece of software.

```
MSH|^~\&|MRS|NHS01|MRS|QCL|20260107082042+0000||OML^O21^OML_O21|M
RS_20260107082042598_0001|P|2.5.1||||||||MRSAppVersion^3.5.0.0~H
L7AppVersion^1.0.0.0
PID||4|4~VH01
ORC|NW|ID1177|||||||20251217143158+0000
OBR||ID1177||Iden^Please identify||20260107082042+0000
SPM|ID1177|&ID1177||Growth||||||||||||20251217143158+0000
```

- MSH: Message Header Details
- PID: This is the MRS Customer that the request is come from
- ORC: New for ID1177 (This is the ID used by the Customer)
- OBR: The Observation Requirement for ID1177
- SPM: How the specimen for ID1177 is provided to the supplier.

Please note this example is for ID1177.

5.3.2 OUL_R22

TBC

6. Development

This section explains how WJPS develop the product.

6.1 Development Life Cycle

WJPS develop MRS 3 using an Agile Methodology. This means that we can add / change the software quickly, whilst involving clients. "We aim to release the software on a 3-monthly schedule, however immediate bug-fixes which could be causing an issue or stopping use of the system will be dealt with as soon as they become apparent

6.2 Developer Testing

WJPS Test systems constantly while we develop solutions. This statement explains what we carry out. The aim is to correct any problems we encounter, before we reach the next stage of testing.

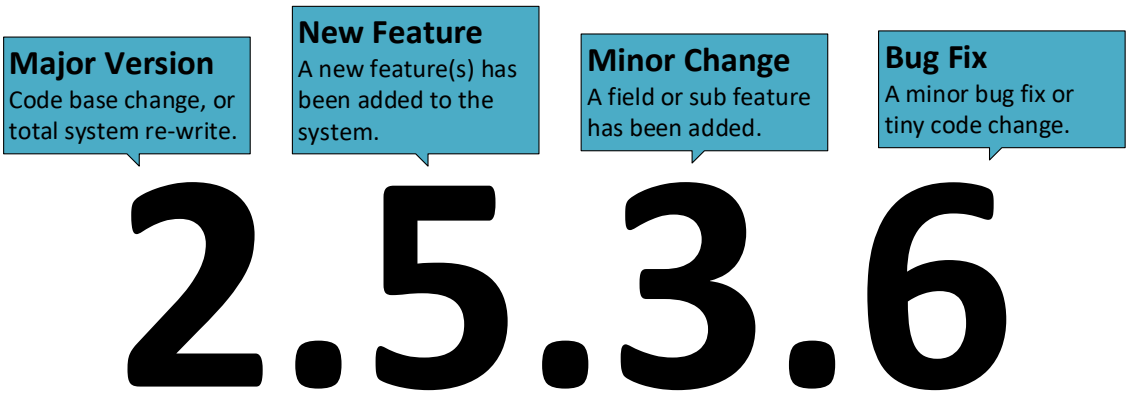
- Code Inspection.
- Unit Testing and Automated Testing.
- Component Testing.
- Whole System Testing.
- Simple Simulations.
- Security Testing.
- Usability Testing.

Development Testing is often carried out by the developers themselves, but as the system becomes more developed and stable, this is then passed to other members of the team to carry out further Usability and Simulation Testing.

Where possible this kind of testing aims to stop errors creeping into the IQ/OQ, PQ and live stages, but as with any system we cannot test for every eventuality and this is where errors may occur. WJPS always recommend that you use the system in line with the usage guidance.

6.3 Version Numbers

WJPS work to a definition of version numbers which is show below.

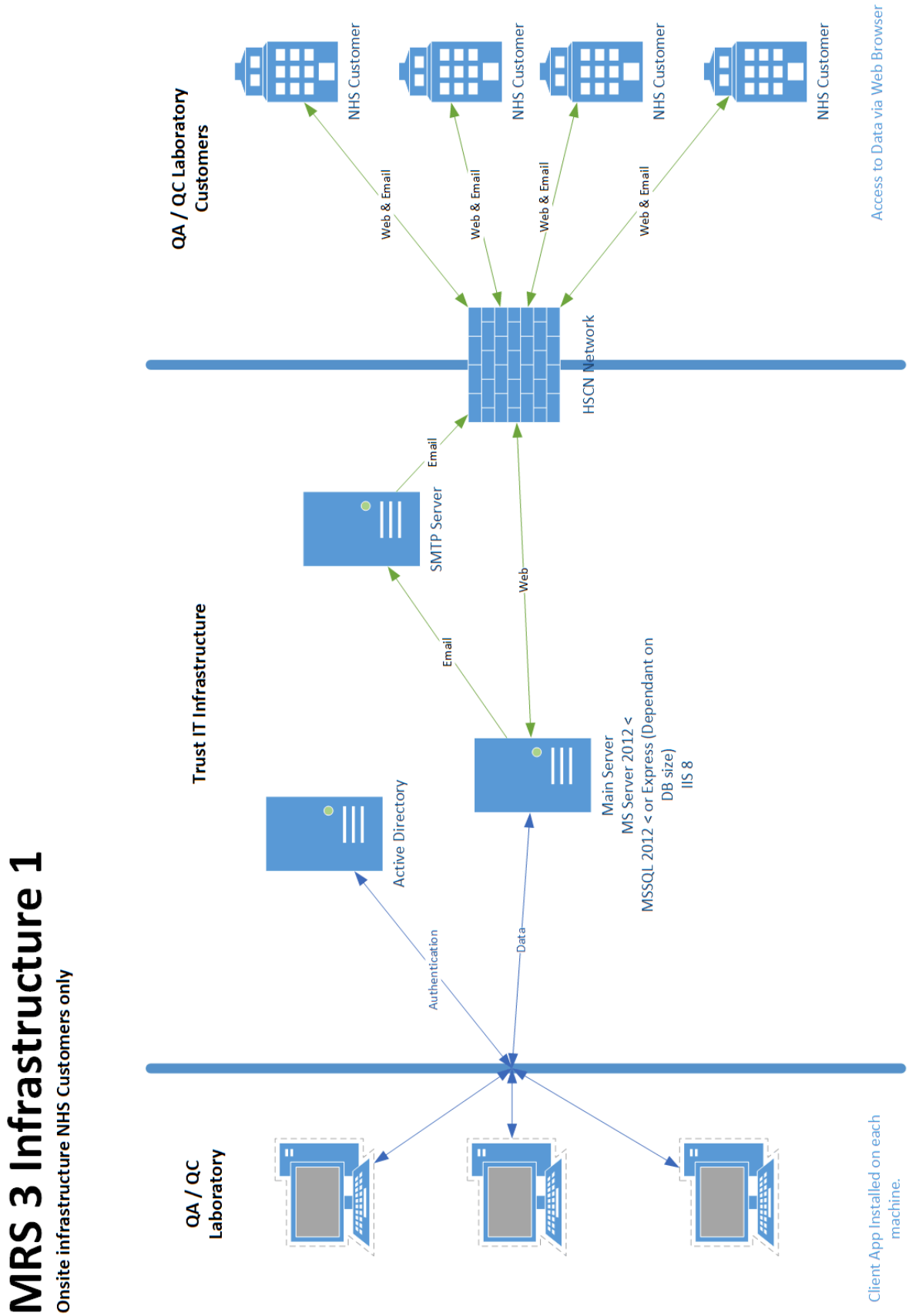


7. Appendix

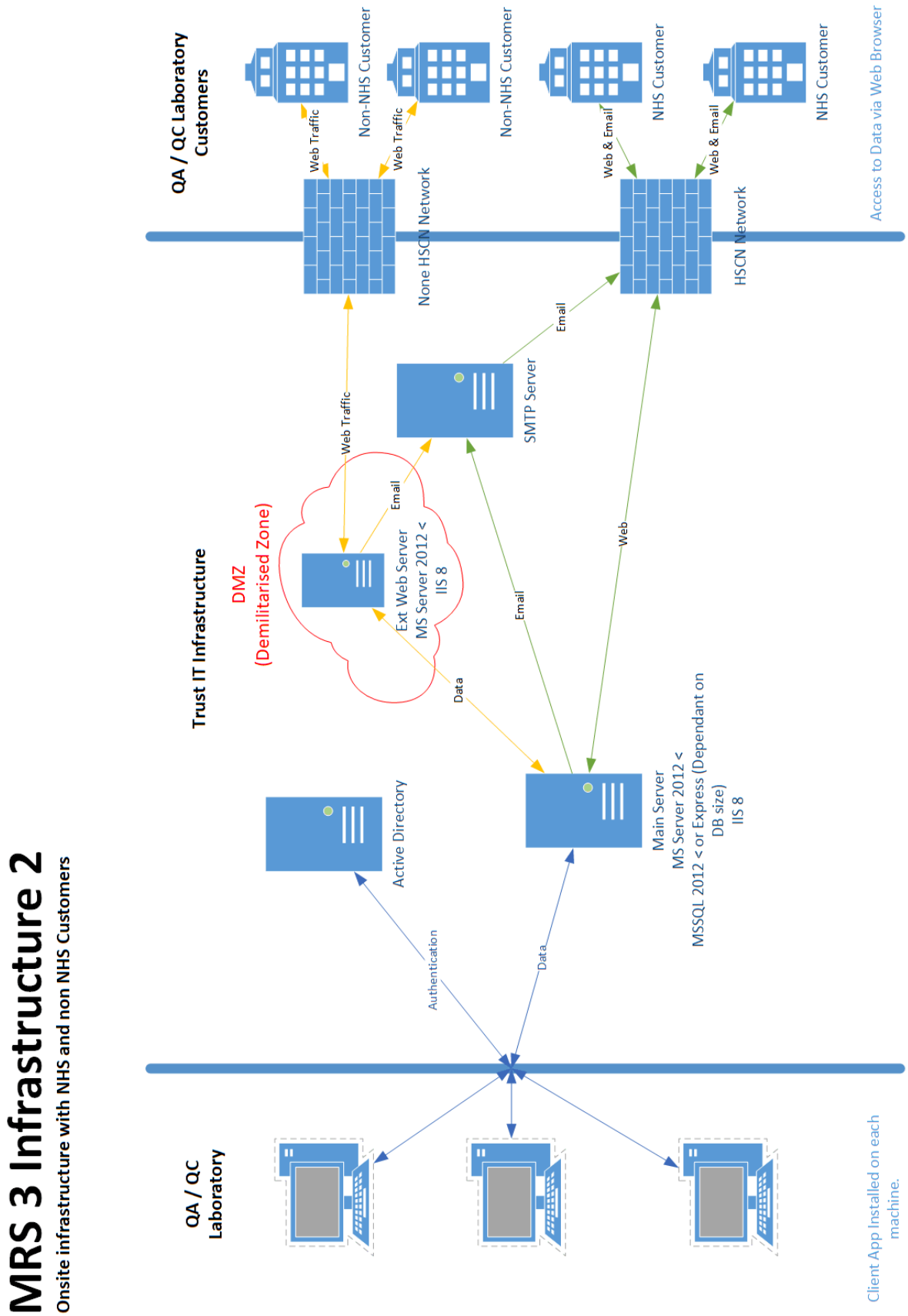
7.1 Infrastructure Diagrams

These diagrams show the infrastructure options on MRS 3. They are referenced in the specification.

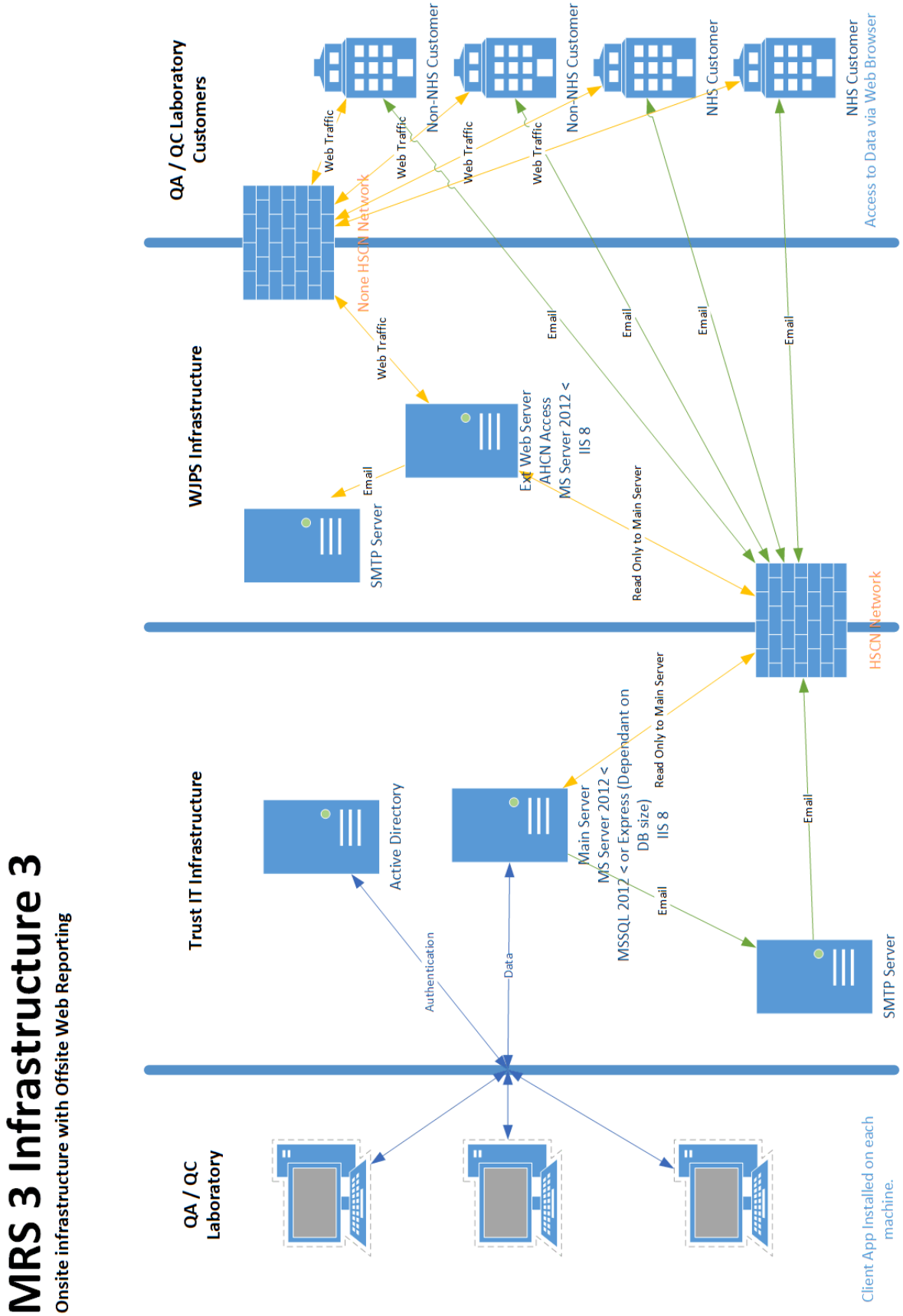
7.1.1 Onsite


MRS 3 Infrastructure 1
Onsite infrastructure NHS Customers only
QA / QC Laboratory Customers
NHS Customer
NHS Customer
NHS Customer
NHS Customer
Web & Email
Web & Email
Web & Email
Web & Email
Access to Data via Web Browser
HSCN Network
Email
SMTP Server
Web
Email
Trust IT Infrastructure
Active Directory
Main Server
MS Server 2012 <
MSSQL 2012 < or Express (Dependant on DB size)
IIS 8
Authentication
Data
QA / QC Laboratory
Client App Installed on each machine.

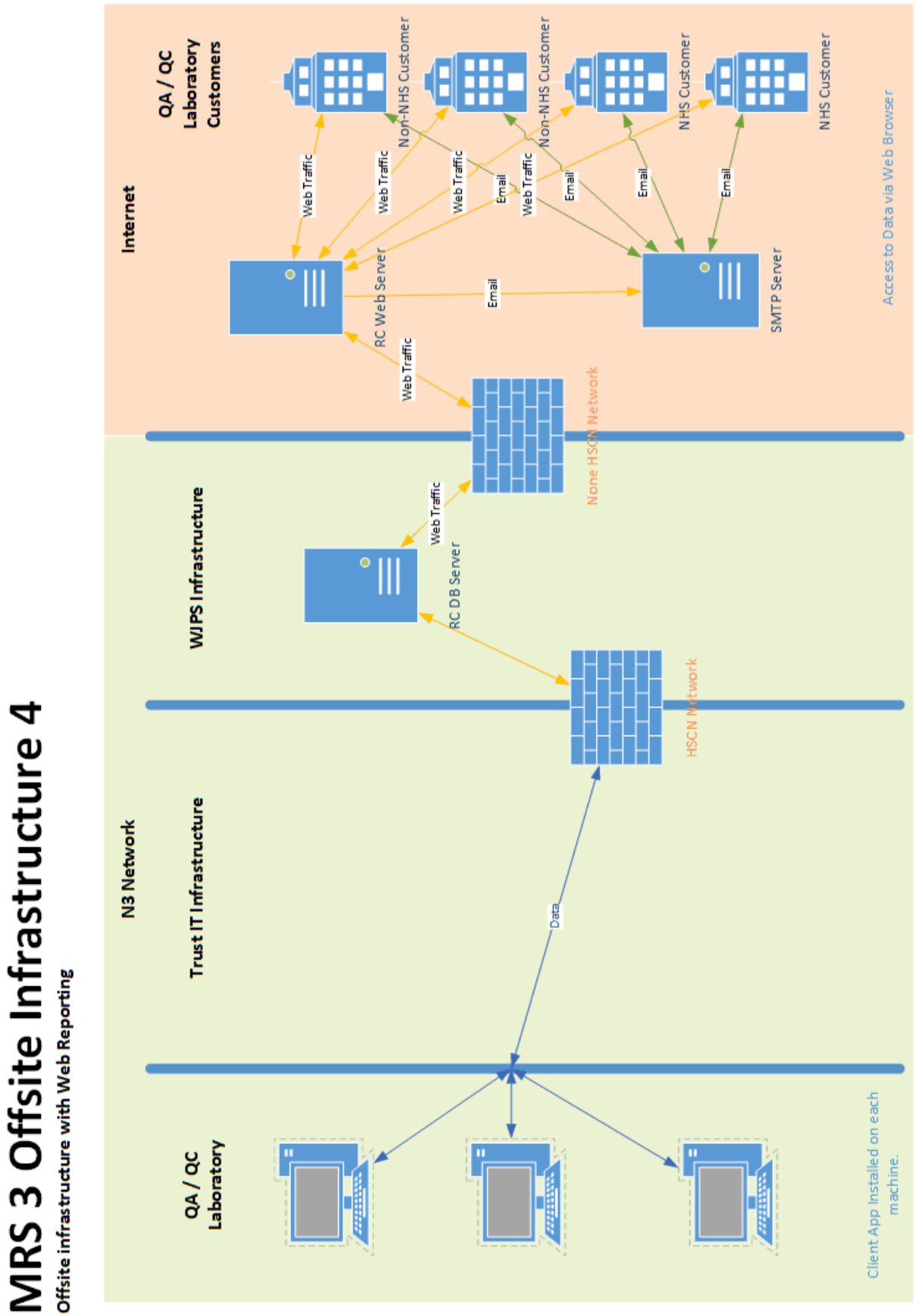
7.1.2 Onsite DMS



7.1.3 Onsite / Offsite



7.1.4 Offsite Server

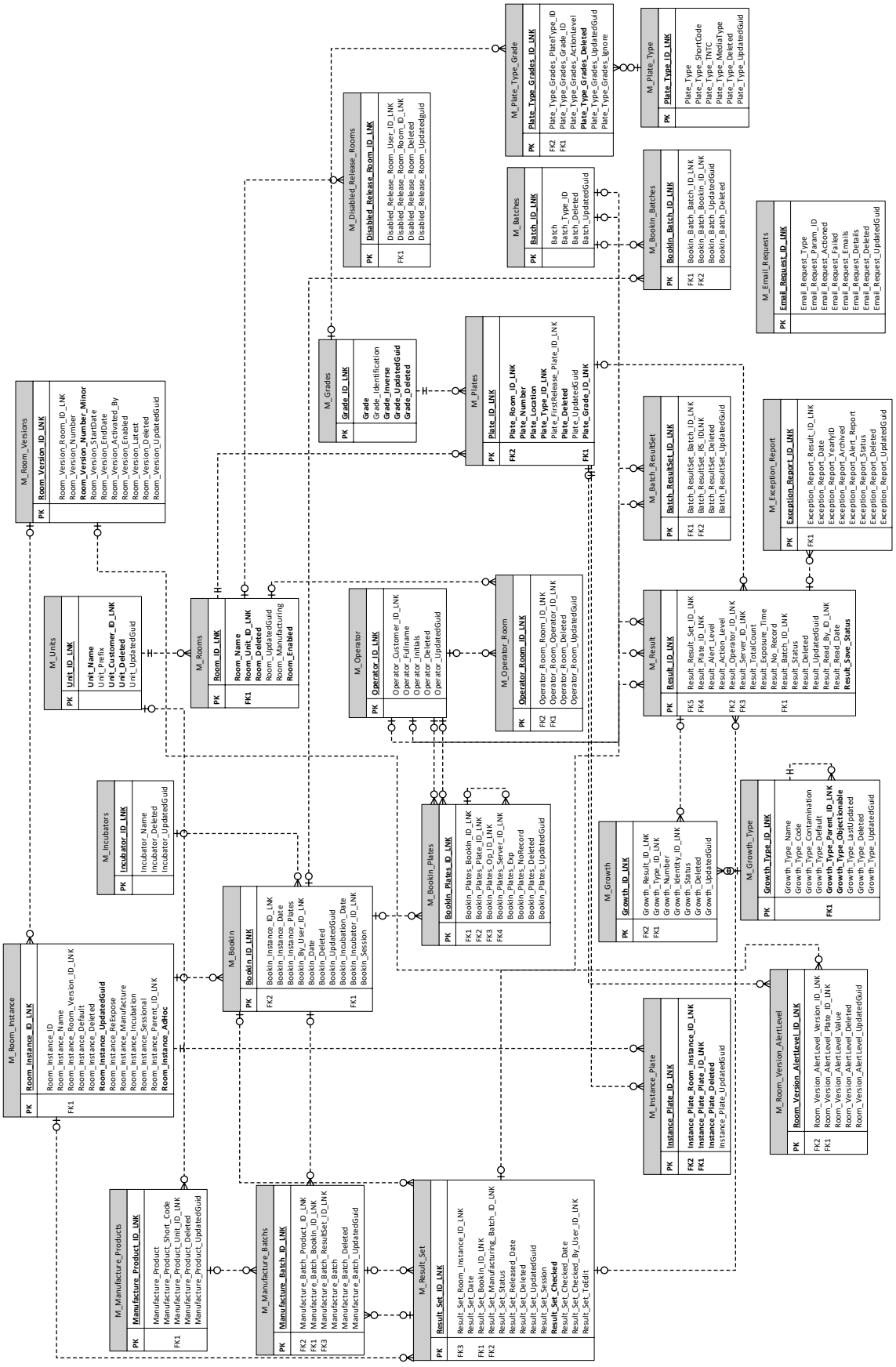


7.2 Database Diagrams

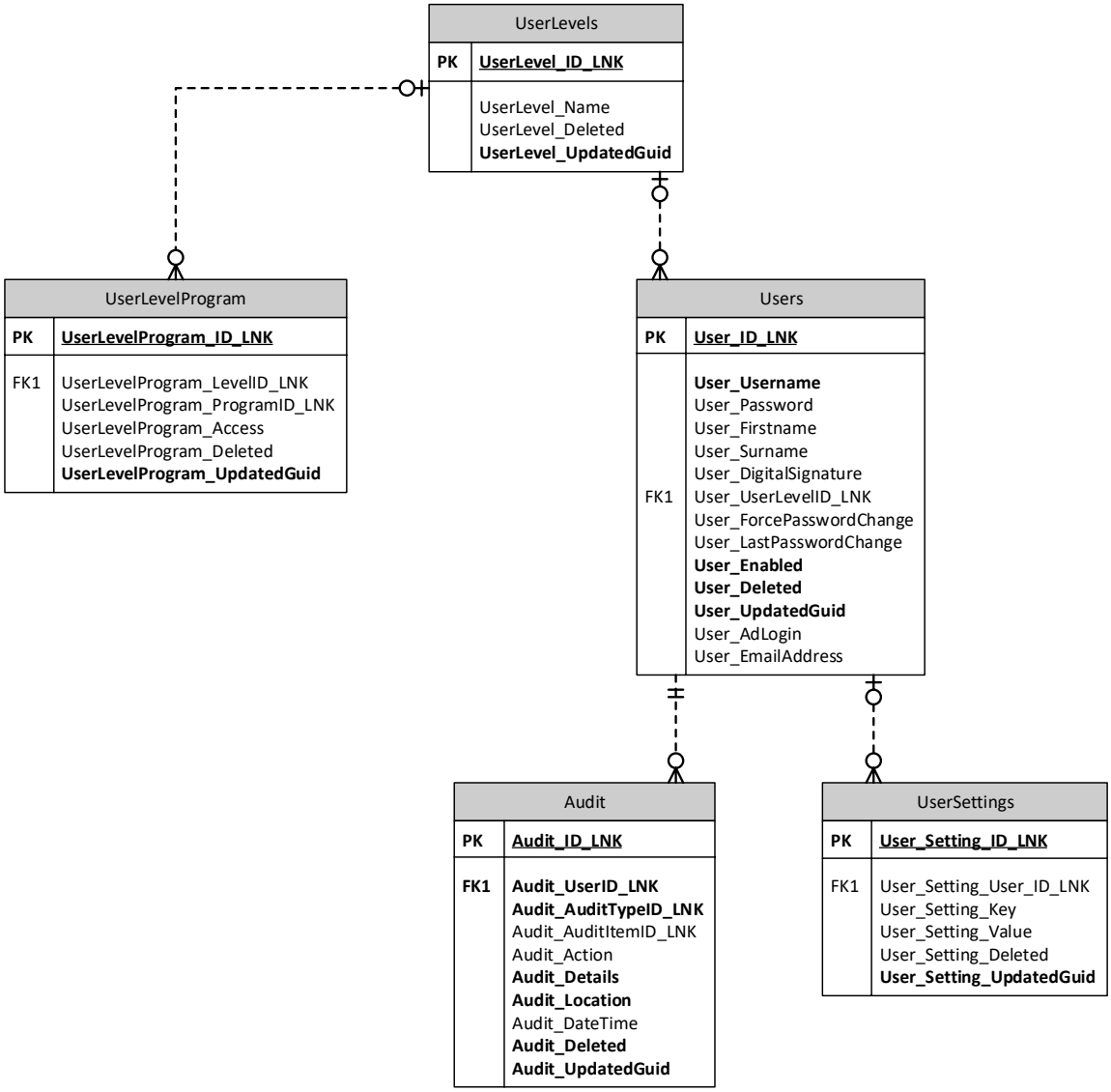
These diagrams show the structure of the different databases that form the backbone of MRS 3.

Their usage is referenced within each application section of the specification.

7.2.1 MRS 3 DB


M_Room_Versions
Room_Version_ID_LNK
Room_Version_Room_ID_LNK
Room_Version_Number
Room_Version_Number_Minor
Room_Version_StartDate
Room_Version_EndDate
Room_Version_Activated_By
Room_Version_Enabled
Room_Version_Latest
Room_Version_Deleted
Room_Version_UpdatedGuid
M_Units
Unit_ID_LNK
Unit_Name
Unit_Prefix
Unit_Customer_ID_LNK
Unit_Deleted
Unit_UpdatedGuid
M_Rooms
Room_ID_LNK
Room_Name
Room_Unit_ID_LNK
Room_Deleted
Room_UpdatedGuid
Room_Manufacturing
Room_Enabled
M_Operator
Operator_ID_LNK
Operator_Customer_ID_LNK
Operator_Fullname
Operator_Initials
Operator_Deleted
Operator_UpdatedGuid
M_Operator_Room
Operator_Room_ID_LNK
Operator_Room_Room_ID_LNK
Operator_Room_Operator_ID_LNK
Operator_Room_Deleted
Operator_Room_UpdatedGuid
M_Grades
Grade_ID_LNK
Grade
Grade_Identification
Grade_Inverse
Grade_UpdatedGuid
Grade_Deleted
M_Plates
Plate_ID_LNK
Plate_Room_ID_LNK
Plate_Number
Plate_Location
Plate_Type_ID_LNK
Plate_FirstRelease_Plate_ID_LNK
Plate_Deleted
Plate_UpdatedGuid
Plate_Grade_ID_LNK
M_Disabled_Release_Rooms
Disabled_Release_Room_ID_LNK
Disabled_Release_Room_User_ID_LNK
Disabled_Release_Room_Room_ID_LNK
Disabled_Release_Room_Deleted
Disabled_Release_Room_UpdatedGuid
M_Plate_Type_Grade
Plate_Type_Grades_ID_LNK
Plate_Type_Grades_PlateType_ID
Plate_Type_Grades_Grade_ID
Plate_Type_Grades_ActionLevel
Plate_Type_Grades_Deleted
Plate_Type_Grades_UpdatedGuid
Plate_Type_Grades_Ignore
M_Plate_Type
Plate_Type_ID_LNK
Plate_Type
Plate_Type_ShortCode
Plate_Type_TNTC
Plate_Type_MediaType
Plate_Type_Deleted
Plate_Type_UpdatedGuid
M_Batches
Batch_ID_LNK
Batch
Batch_Type_ID
Batch_Deleted
Batch_UpdatedGuid
M_Bookin_Batches
Bookin_Batch_ID_LNK
Bookin_Batch_Batch_ID_LNK
Bookin_Batch_Bookin_ID_LNK
Bookin_Batch_UpdatedGuid
Bookin_Batch_Deleted
M_Email_Requests
Email_Request_ID_LNK
Email_Request_Type
Email_Request_Param_ID
Email_Request_Actioned
Email_Request_Failed
Email_Request_Emails
Email_Request_Details
Email_Request_Deleted
Email_Request_UpdatedGuid
M_Batch_ResultSet
Batch_ResultSet_ID_LNK
Batch_ResultSet_Batch_ID_LNK
Batch_ResultSet_BS_ID_LNK
Batch_ResultSet_Deleted
Batch_ResultSet_UpdatedGuid
M_Exception_Report
Exception_Report_ID_LNK
Exception_Report_Result_ID_LNK
Exception_Report_Date
Exception_Report_YearlyID
Exception_Report_Archived
Exception_Report_Alert_Report
Exception_Report_Status
Exception_Report_Deleted
Exception_Report_UpdatedGuid
M_Result
Result_ID_LNK
Result_Result_Set_ID_LNK
Result_Plate_ID_LNK
Result_Alert_Level
Result_Action_Level
Result_Operator_ID_LNK
Result_Server_ID_LNK
Result_TotalCount
Result_Exposure_Time
Result_No_Record
Result_Batch_ID_LNK
Result_Status
Result_Deleted
Result_UpdatedGuid
Result_Read_By_ID_LNK
Result_Read_Date
Result_Save_Status
M_Incubators
Incubator_ID_LNK
Incubator_Name
Incubator_Deleted
Incubator_UpdatedGuid
M_Bookin
Bookin_ID_LNK
Bookin_Instance_ID_LNK
Bookin_Instance_Date
Bookin_Instance_Plates
Bookin_By_User_ID_LNK
Bookin_Date
Bookin_Deleted
Bookin_UpdatedGuid
Bookin_Incubator_Date
Bookin_Incubator_ID_LNK
Bookin_Session
M_Bookin_Plates
Bookin_Plates_ID_LNK
Bookin_Plates_Bookin_ID_LNK
Bookin_Plates_Plate_ID_LNK
Bookin_Plates_Op_ID_LNK
Bookin_Plates_Server_ID_LNK
Bookin_Plates_Exp
Bookin_Plates_NoRecord
Bookin_Plates_Deleted
Bookin_Plates_UpdatedGuid
M_Growth
Growth_ID_LNK
Growth_Result_ID_LNK
Growth_Type_ID_LNK
Growth_Number
Growth_Identity_ID_LNK
Growth_Status
Growth_Deleted
Growth_UpdatedGuid
M_Growth_Type
Growth_Type_ID_LNK
Growth_Type_Name
Growth_Type_Code
Growth_Type_Contamination
Growth_Type_Default
Growth_Type_Parent_ID_LNK
Growth_Type_Objectionable
Growth_Type_LastUpdated
Growth_Type_Deleted
Growth_Type_UpdatedGuid
M_Room_Instance
Room_Instance_ID_LNK
Room_Instance_ID
Room_Instance_Name
Room_Instance_Room_Version_ID_LNK
Room_Instance_Default
Room_Instance_Deleted
Room_Instance_UpdatedGuid
Room_Instance_ReExpose
Room_Instance_Manufacture
Room_Instance_Incubation
Room_Instance_Sessional
Room_Instance_Report_ID_LNK
Room_Instance_Adhoc
M_Instance_Plate
Instance_Plate_ID_LNK
Instance_Plate_Room_Instance_ID_LNK
Instance_Plate_Plate_ID_LNK
Instance_Plate_Deleted
Instance_Plate_UpdatedGuid
M_Room_Version_AlertLevel
Room_Version_AlertLevel_ID_LNK
Room_Version_AlertLevel_Version_ID_LNK
Room_Version_AlertLevel_Plate_ID_LNK
Room_Version_AlertLevel_Value
Room_Version_AlertLevel_Deleted
Room_Version_AlertLevel_UpdatedGuid
M_Manufacture_Products
Manufacture_Product_ID_LNK
Manufacture_Product
Manufacture_Product_Short_Code
Manufacture_Product_Unit_ID_LNK
Manufacture_Product_Deleted
Manufacture_Product_UpdatedGuid
M_Manufacture_Batches
Manufacture_Batch_ID_LNK
Manufacture_Batch_Product_ID_LNK
Manufacture_Batch_Bookin_ID_LNK
Manufacture_Batch_ResultSet_ID_LNK
Manufacture_Batch
Manufacture_Batch_Deleted
Manufacture_Batch_UpdatedGuid
M_Result_Set
Result_Set_ID_LNK
Result_Set_Room_Instance_ID_LNK
Result_Set_Date
Result_Set_Bookin_ID_LNK
Result_Set_Manufacturing_Batch_ID_LNK
Result_Set_Status
Result_Set_Released_Date
Result_Set_Deleted
Result_Set_UpdatedGuid
Result_Set_Session
Result_Set_Checked
Result_Set_Checked_Date
Result_Set_Checked_By_User_ID_LNK
Result_Set_Toedit

7.2.2 MRS 3 Users DB



7.2.3 MRS 3 Notes DB

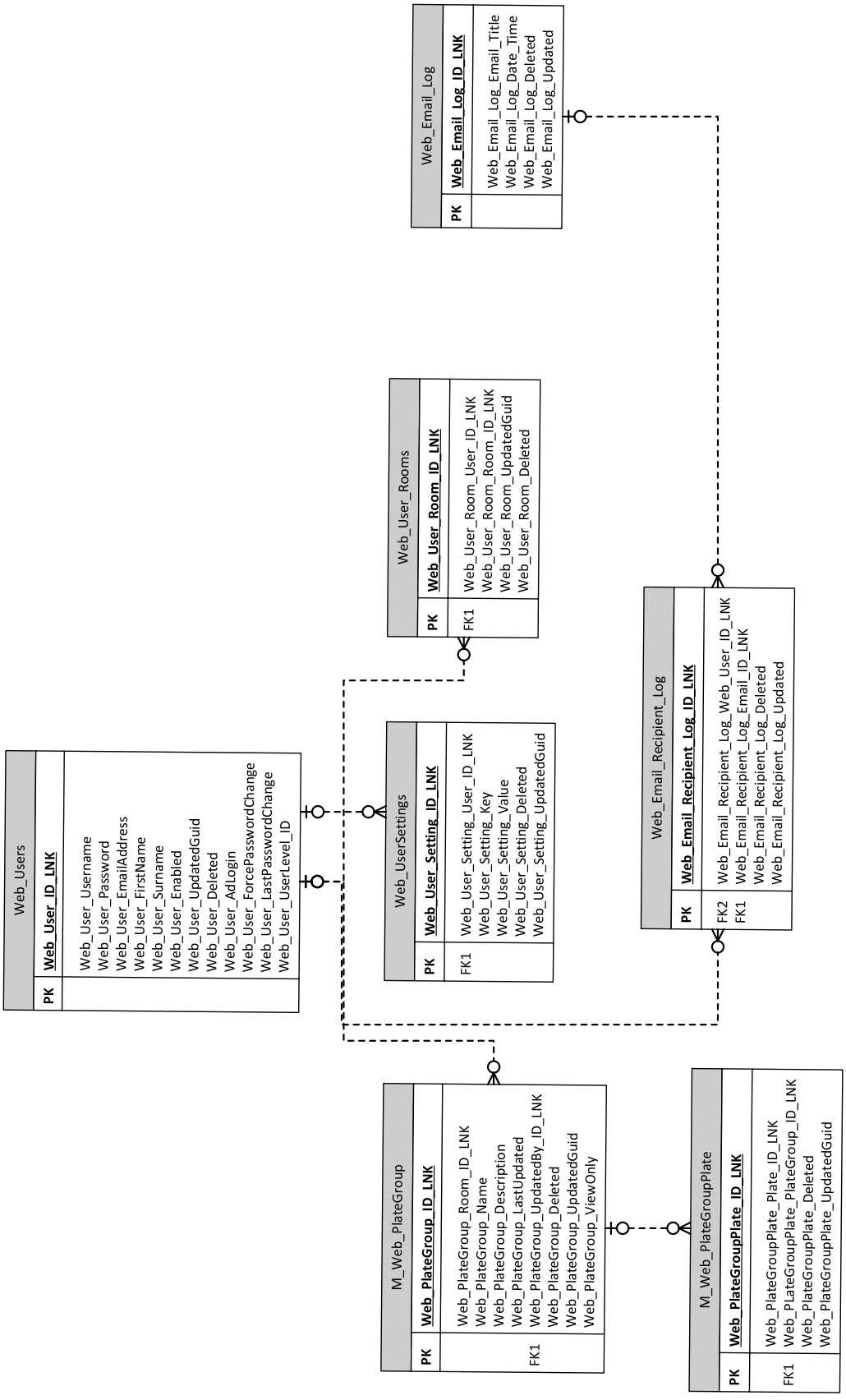
N_TemplateNotes	
PK	**TemplateNote_ID_LNK**
	TemplateNote_Code TemplateNote TemplateNote_Type TemplateNote_Deleted TemplateNote_UpdatedGuid

N_Notes	
PK	**Note_ID_LNK**
	Note Note_Hidden Note_Attachment_ID_LNK Note_User_ID_LNK Note_DateTime Note_Type_ID Note_Object_ID **Note_Deleted** Note_UpdatedGuid

7.2.4 MRS 3 Files DB

Files	
PK	**File_ID_LNK**
	File File_StorageName File_StorageFolder File_Name File_Object_Type File_Object_ID_LNK File_Deleted File_UpdatedGuid

7.2.5 MRS 3 Web DB



7.2.6 MRS 3 AF DB