

**MASTERS DATA ARCHIVAL**

**SYSTEM OPERATION DOCUMENT**

**MAB/GROUP IT/SOD/MASTERS DATA ARCHIVAL/1.4**

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1. - MANUAL ADMINISTRATION

# RECORD OF REVISION

| **No.** | **Description Of Changes** | **Issue No.** | **Revision No.** | **Author** | **Effective Date** |
| --- | --- | --- | --- | --- | --- |
| 1 | Original | 1 | 0 | Ayisha P | 03-Apr-16 |
| 2 | Updated SOD in new format | 1 | 1 | Ayisha P | 13-May-16 |
| 3 | Updated DCT Changes | 1 | 2 | Nirmal | 12-Apr-17 |
| 4 | Back up and Recover, description about azure recovery services vault used for Azure VM Backup. | 1 | 3 | Anoop TK | 28-Dec-17 |
| 5 | Updated AMS SDM details | 1 | 4 | RajashekarReddy Kasireddy | 27-Sep-19 |

# LIST OF EFFECTIVE PAGES

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Part** | **Page** | **Issue No.** | **Revision No.** | **Effective Date** |  | **Part** | **Page** | **Issue No.** | **Revision No.** | **Effective Date** |
| 1 | 1-1 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
|  | 1-2 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
|  | 1-2 | 1 | 3 | 27-09-19 |  |  |  |  |  |  |
|  | 1-3 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
|  | 1-4 | 1 | 3 | 27-09-19 |  |  |  |  |  |  |
|  | 1-5 | 1 | 0 | 29-04-16 |  |  |  |  |  |  |
|  | 1-6 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
| 2 | 2-1 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
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| 3 | 3-1 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
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| 4 | 4-1 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
|  | 4-2 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
|  | 4-3 | 1 | 0 | 13-05-16 |  |  |  |  |  |  |
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|  | 4-8 | 1 | 3 | 28-12-18 |  |  |  |  |  |  |
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|  | 4-11 | 1 | 3 | 27-09-19 |  |  |  |  |  |  |
|  | 4-12 | 1 | 2 | 12-04-17 |  |  |  |  |  |  |
|  | 4-13 | 1 | 3 | 28-12-18 |  |  |  |  |  |  |
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| Wan Mohd Husni Wan Hussein | AMS | AMS SDM |

Table 1

# LIST OF ABBREVIATIONS

The following are the abbreviations used for the purpose of simplification.

|  |  |
| --- | --- |
| **Abbreviation** | **Denote** |
| AMS | Application Maintenance & Support |
| MD | Managing Director |
| NRM | Network and Revenue Management |
| SOD | System Operating Document |
| AD | Active Directory |
| MAB | Malaysia Airlines Berhad |

Table 2

# CONDITION OF USE

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1. - MANUAL BACKGROUND

# INTRODUCTION

This is the MASTERS DATA Archival SOD, hereinafter referred to as “the Policy” provides comprehensive operating procedures within the scope and application herein defined in Part 2 Section 3.0 for Malaysia Airlines Berhad (MAB).

# PURPOSE

The objective of this document is to provide relevant information required to operate and support a completed project, ready for implementation and handover to IT Operations.

# SCOPE AND APPLICATION

This document covers relevant information required to operate and support the system in production environment. This covers the maintenance operation of the system, database and interfaces.

# DEFINITION OF TERMS

|  |  |  |
| --- | --- | --- |
|  | Term | **Description** |
| 1 | App | Application |
| 2 | DB | Database |
| 3 | DSL | Domain Specific Language |
| 4 | AD | Active Directory |
| 5 | OS | Operating System |

Table 3

1. – OVERVIEW OF BUSINESS PROCESS

# OVERVIEW OF BUSINESS PROCESS

Figure 1

1. - MANUAL CONTENT TITLE

# SYSTEM OVERVIEW

MASTERS is an inventory management system to manage the technical inventory to support the aircraft maintenance operation, ground equipment’s and simulators.

From 26th February 2016, all MASTERS updating transactions have been stopped as MASTERS functionality has been replaced with OPTIMIS and identified dynamic data have been migrated to OPTIMIS.

The Masters Data Archival application is come under BCD 4 and the SLA is applicable as per the policy.

Other identified static data of MASTERS are needed to be extracted and archived to an identified storage and feature need to be provided to view the critical data in UI.

The new java application developed to archive and view critical static MASTERS data is named as MASTERS – Data Archival.

**Features of MASTERS - Data Archival**

**MASTERS – Data Archival** includes the following features.

* Back end utilities to archive below MASTERS data from MASTERS database to SRAS -MASTERS Database.

* + - * 1. Part Number Data
        2. Location Info Data
        3. Type Info Data
        4. Serial Number Data
        5. Component Data
        6. Order Number Data
* Application UI with the following screens to view MASTERS static data.

1. View Part Number Info
2. View Serial Number Info
3. View Component Info
4. View Order Info

# SYSTEM CONCEPT DIAGRAM

System Architecture of MASTERS – Data Archival include the following designs.

* Architecture diagram.
* Back end job -Technical design
* Application UI screens.
* Database Table Details.

**Architecture diagram** of new application MASTERS – Data Archival is follows*.*

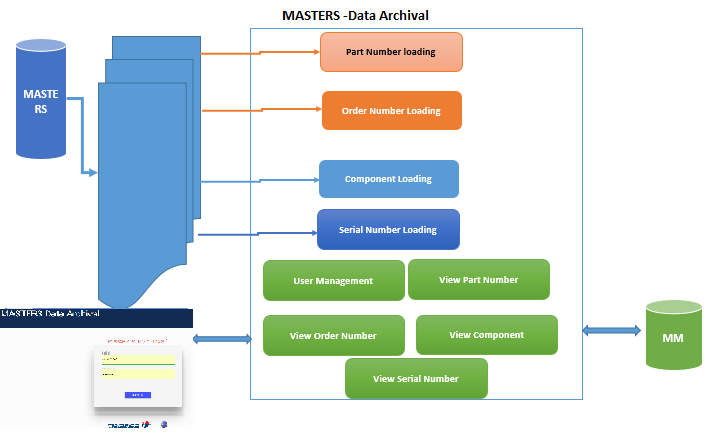


Figure 2

**Back End Utilities -Technical design**

Utilities for PART\_NUMBER, LOCATION\_INFO, TYPE\_INFO, SERIAL\_INFO and ORDER\_INFO will follow the below logic to load data from input file to DB table.

1. Read the file and process record line by line
2. For each record, split the record using delimited agreed, say '~'.
3. Fields obtained after splitting the record need to be mapped in corresponding Java object and add to list. Repeat step 2 and 3 for all records in the input file.
4. Then each java object in list will be inserted into Database table.
5. In case if any record is corrupted then the corrupted record will be put into .bad file which will be referred for further investigation
6. Steps 1-5 will be repeated for all files extracted from MASTERS database.

The following utilities will be developed to archive data from MASTERS to new MASTERS-Data Archival Application.

**Part Number Loader utility**

It reads PN\_Sec1,PN\_Sec2 and PN\_Sec3 text files and load data into corresponding tables. The file details are as mentioned below.

* PN\_Sec1 – Holds part number details
* PN\_Sec2 – Hold location details for each part number in part number Info text file
* PN\_Sec3 – Holds details about part number type’s details for each part number in part number Info text file.

**Order Loader utility**

It reads Order text file and loads data into corresponding tables.

* Order Number Text file holds Order number details for part numbers.
* It also holds order information of purchase order and repair order.

**Component Loader utility**

It reads Component text file and loads data into corresponding tables.

* Component Text file holds Component details for all part numbers in Part Number Info Text file.

# INTERFACES

### 4.3.1. User Interfaces

The following features are available in MASTERS – Data Archival application.

* Login
* View Part Number Info
* View Serial Number Info
* View Order Info
* Manage Users

### 4.3.2. System Interfaces

The application is using LDAP to authenticate user while login into application. User can login into application using MH domain credentials and it will be validated using LDAP validator.

# WARRANTY AND MAINTENANCE PERIOD

|  |  |  |
| --- | --- | --- |
| **Item** | **Start Date** | **End Date** |
| Technical cutover to production | 10 Mar 2016 | 10 Mar 2016 |
| AMS Support | 10 Mar 2016 | 30 Sep 2018 |

Table 4

# ROLES AND RESPONSIBILITIES

| **Role** | **Responsibilities** |
| --- | --- |
| Midrange Team | * Responsible for maintaining web server. * Responsible for troubleshooting infrastructure related problems. |
| DBA Team | * Responsible for maintaining database |
| Application Support  (AMS) | * Responsible for uploading application in web server * Responsible for monitoring system performance * Responsible for providing application support * Responsible for deploying application and publishing it to user. * Responsible for maintaining application second level support |
| MAB Helpdesk | * As single point of contact to coordinate when MASTERS DATA Archival problems occurred. * Responsible to coordinate problem reporting to the respective supporting team. |

Table 5

# TECHNICAL SPECIFICATIONS

### 4.6.1. Hardware Specifications

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Hostname** | **IP Address** | **Environment** | **OS Version** | **CPU** | **RAM** | **Location** | **Processor Speed** |
| MASG-1MFMIGAPP1 | 10.221.4.18 | Production | RHEL 7.2 | 2 | 4 | Azure VM  Public Cloud: Singapore | E5-2673 v3 @ 2.40GHz |
| MASG-1MFMIGDB1 | 10.221.6.10 | Production | RHEL 7.2 | 2 | 4 | Azure VM  Public Cloud: Singapore | E5-2673 v3 @ 2.40GHz |
| MASG-3MFMIGAPP-LX | 10.221.12.20 | UAT | RHEL 7.2 | 2 | 4 | Azure VM  Public Cloud: Singapore | E5-2660 0 @ 2.20GHz |
| MASG-3MFMIGDB-LX | 10.221.14.14 | UAT | RHEL 7.2 | 2 | 4 | Azure VM  Public Cloud: Singapore | E5-2660 0 @ 2.20GHz |

Table 6

### 4.6.2. Software Specifications

|  |  |  |
| --- | --- | --- |
| **Sl No.** | **Software** | **Specifications** |
| 1 | App Server | Tomcat 9.0.0.M11 & Apache- 2.4.23 |
| 2 | Monitoring application | Tivoli |
| 3 | Programming Language – UI | Java, Web services & JSP, JavaScript, JQuery |
| 4 | Programming Language – DB | MySQL |
| 5 | Front-end **(Browser Support)** | Best viewed in Chrome 18+ |
| 6 | Database | MySQL |
| 7 | Operating System | Windows/Linux |

Table 7

### 4.6.3. Communication / Network Specification

|  |  |  |
| --- | --- | --- |
| **Sl No** | **Category** | **Configuration** |
| 1 | Protocol | Server: TCP/IP  Client: TCP/IP |

Table 8

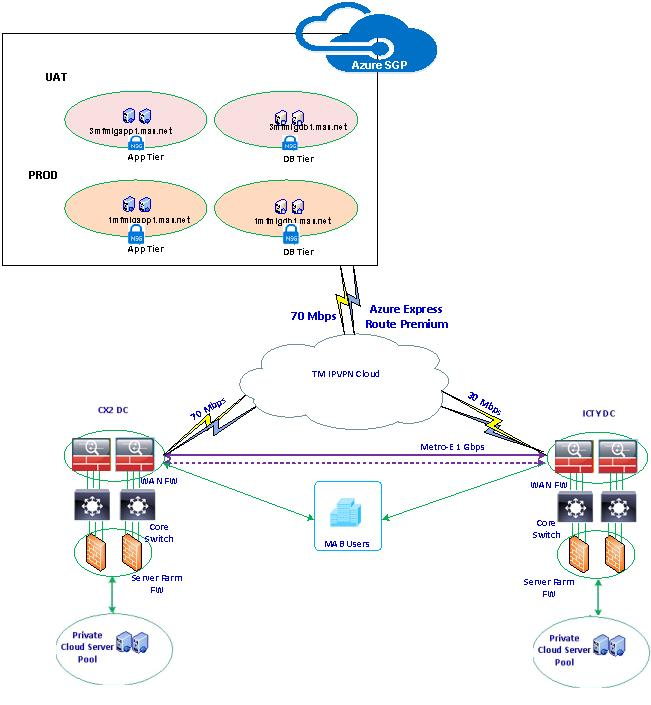


Figure 3

### 

### 4.6.4. User And Equipment Locations

Users need an appropriate browser to access the application. Supported browsers are listed in Section 4.6.2 [Front-end **(Browser Support)**].

### 4.6.5. File Management

##### 4.6.5.1. Libraries And Files

|  |  |
| --- | --- |
| Libraries and files | Location (mount point) |
| Home directory | /home/appadmin, /home/tomcatadmin |
| Tomcat application | /tomcat |
| Apache Application | /usr/local/apache |
|  | /appstorage, /archive |
| DB Backup | /mysqlbackup |
| DB2 Database | /mysql, /mysqldata, |

Table 9

##### 4.6.5.2. DBMS setup

Following are the tables used in MASTERS – Data Archival application.

|  |  |
| --- | --- |
| **Sl.No** | **Table Name** |
| 1 | [PARAM\_CONFIG](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=PARAM_CONFIG&pos=0) |
| 2 | [PART\_NUMBER\_INFO](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=PART_NUMBER_INFO&pos=0) |
| 3 | [PART\_NUMBER\_TYPE](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=PART_NUMBER_TYPE&pos=0) |
| 4 | [PART\_NUMBER\_LOC\_INFO](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=PART_NUMBER_LOC_INFO&pos=0) |
| 5 | [COMPONENT\_INFO](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=COMPONENT_INFO&pos=0) |
| 6 | [ORDER\_INFO](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=ORDER_INFO&pos=0) |
| 7 | [USER\_FEATURES](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=USER_FEATURES&pos=0) |
| 8 | [USER\_FEATURE\_IDENTITY](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=USER_FEATURE_IDENTITY&pos=0) |
| 9 | [USER\_PROFILE](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=USER_PROFILE&pos=0) |
| 10 | [USER\_ROLES](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=USER_ROLES&pos=0) |
| 11 | [USER\_ROLE\_IDENTITY](http://10.251.31.82/phpmyadmin/sql.php?db=MASTERS&token=98cfc7241e5bc58259099bfd9403bffb&goto=db_structure.php&table=USER_ROLE_IDENTITY&pos=0) |

Table 10

# TECHNICAL OPERATIONS GUIDE

### 4.7.1. Installation Procedures

* Application will be deployed in Tomcat Server in war file format by AMS Team. The below is the Tomcat Server URL.

### 4.7.2. Backup And Recovery

Application are being backed using DR server. Database will be backed up on daily basis.

**Azure VM Backup**

Azure recovery Services vault is an entity that stores all the backups and recovery points that have been created over time. The vault also contains the backup policies that will be applied to the virtual machines being backed up

When the Recovery services initiates a backup job at the scheduled time, it triggers the backup extension to take a point-in-time snapshot. The Azure Recovery service uses the VMSnapshot extension in Windows, and the VMSnapshotLinux extension in Linux. The extension is installed during the first VM backup.

Once the Azure Backup service takes the snapshot, the data is transferred to the vault. To maximize efficiency, the service identifies and transfers only the blocks of data that have changed since the previous backup.

When the data transfer is complete, the snapshot is removed and a recovery point is created

**OS Backup:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hostname** | **# of Versions** | **Frequency** | **Schedule** | **Remarks** |
|
| MASG-1MFMIGAPP1 | 6 | Every Saturday | 5.30 PM MYT | Monthly first Saturday backup retention is 3 months |
| MASG-1MFMIGDB1 | 6 | Every Saturday | 5.30 PM MYT | Monthly first Saturday backup retention is 3 months |
| MASG-3MFMIGAPP-LX | 4 | Every Saturday | 5.30 PM MYT | Monthly first Saturday backup retention is 2months |
| MASG-3MFMIGDB-LX | 4 | Every Saturday | 5.30 PM MYT | Monthly first Saturday backup retention is 2months |

Table 11

**Database Backup:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hostname** | **VERSION** | **Frequency** | **Schedule** | **Remarks** |
| MASG-1MFMIGDB1 | 5.7 | Daily | 11:00 PM MYT | FileSystem: /mysqlbackup  Backup retention is 15 days |
| MASG-3MFMIGDB | 5.7 | Daily | 12:00 PM MYT | FileSystem: /mysqlbackup  Backup retention is 15 days |

Table 12

### 4.7.3. System Startup and restart

*To start Application follow the below procedure*

 /usr/local/apache/bin/apachectl start

/tomcat/apache-tomcat-9.0.0.M11/bin/startup.sh

**PRODUCTION SERVER:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No** | **Hardware** | **Number** | **Location** | **Hostname/IP** |
| 1 | Application Server | 1 | Azure- Cloud  Public Cloud, Singapore | 10.221.4.18 |
| 2 | Database Server | 1 | Azure- Cloud:  Public Cloud, Singapore | 10.221.6.10 |

Table 13

**UAT SERVER:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No** | **Hardware** | **Number** | **Location** | **Hostname/IP** |
| 1 | Application Server | 1 | Azure- Cloud  Public Cloud, Singapore | 10.221.12.20 |
| 2 | Database Server | 1 | Azure- Cloud  Public Cloud, Singapore | 10.221.14.14 |

Table 14

##### 4.7.4. System Shutdown

*# Stop Application follow below steps*

 /usr/local/apache/bin/apachectl stop

/tomcat/apache-tomcat-9.0.0.M11/bin/shutdown.sh

Masters Data Archival servers’ availability, Apache, Tomcat and MySQL processes will be monitored by IBM Tivoli Monitoring.

Refer to TEC Events Escalation Procedure.

##### 4.7.6. Source Code Version Control

The source code is controlled by ATOS in the version control directory.

http://svn.mas.net/svn/SRAS/SRAS/IAMO/Source\_Code/trunk

##### 4.7.7. Preparation Of Production Environment

##### 4.7.7.1. Network Definitions

All user PCs are connected to the Local LAN to be able to access the MASTERS DATA Archival Application.

##### 4.7.7.2. Desktop Configuration

NA

##### 4.7.8. Baseline Performance Information

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Activity** | **Expected Response Time** |
| 1. | Average time to generate response to requests | < 10 seconds |
| 2. | Average time taken to load each page | < 5 seconds |

Table 15

Acceptable downtime during operation hours is based on BCD 4 plan minutes.

# MAINTENANCE AND SUPPORT

### 4.8.1. Problem Solving

The Help Desk personnel should ask the users:

* For a screenshot of the error/issue that they are facing
* For the steps that need to be performed to recreate the error/issue
* To check the same steps to recreate the error/issue on another machine
* To check if others are also facing the same error/issue

.

##### 4.8.1.1 Frequent Issues and Resolutions

|  |  |
| --- | --- |
| **Issue** | **Resolution** |
| Cannot load the Login Page | Check your internet connection and ensure you are connected to MAB VPN |

Table 16

##### 4.8.1.2 Finding Logs and Tracking issues

* Get the MASTERS Data Archival log file from the path /Apache-Tomcat/apache-tomcat-8.0.24/logs.
* Track the error log in the log file based on reference number.

### 4.8.2. Problem Categorization and Escalation

Helpdesk will analyze the problem and assign a ticket number and a severity level which is mutually agreed by the user. However, the severity will be revised downward based on business assessment and impact as shown below

|  |  |  |
| --- | --- | --- |
| **Severity** | **Code** | **Definition of Severity Level** |
| Critical | S1 | Total Biz Operation Disruption |
| High (Urgent) | S2 | Partial Biz Operation Disruption |
| Moderate (Minor) | S3 | No critical impact to Biz operations, Workaround is available |
| Low (Minor) | S4 | Problem that cause inconvenience |

Table 17

Any issues with MASTERS DATA Archival application, users will escalate to MAB IT HELPDESK.

Problem ticket will be created by the Level 1 MAB Helpdesk and route to the MAB second level support.

For application related problem will be assigned to AMS team, system related problem to Wintel team and database related problem to DBA team.

|  |  |  |  |
| --- | --- | --- | --- |
| **Problem Category** | **Severity Level** | **Problem Description** | **Escalation** |
| System Completely Unusable | 1 | Page not loading | MASTERS Support Team |
| Functionality Completely Unusable | 2 | Part of the applications functionality | MASTERS Support Team |
| Minor Functionality Error | 3 | The application as a whole is working but some small functionality is not working | MASTERS Support Team |
| Cosmetic UI Error | 4 | The application and the concerned functionality is working but the UX is erroneous/misleading | MASTERS Support Team |
| Issue Related to MASTERS – data loading | 1 | Application is malfunctioning due to issue with data loading. | MASTERS Support Team |

Table 18

### 4.8.2. Application / Technical Support

The following is the Problem Resolution Structure:

|  |  |  |
| --- | --- | --- |
| **2nd Level Support** | **Name** | Contact No/Memo |
| Application Support | AMS-SRAS | Group email : GD\_AMS\_SRAS@malaysiaairlines.com |
| System Support | TCS\_MIDRANGE | 1800817802 # 3 Option  [GD\_TCSMidrange@malaysiaairlines.com](mailto:GD_TCSMidrange@malaysiaairlines.com) |
| Database Support | TCS\_DATABASE | 1800817802 # 4 Option  [GD\_TCSDatabase@malaysiaairlines.com](mailto:GD_TCSDatabase@malaysiaairlines.com) |
| Network Support | TCS\_Network | 60378637155  60378637581/82  GD\_TCSNetwork@malaysiaairlines.com |

Table 19

# USER GUIDE

Refer the appendix section.

# ACCESSING THE APPLICATION

Users can access the application by visiting **<http://masters.mas.net/masters>** in their browsers. The compatible browsers are given in section 4.6.2 [Front-end **(Browser Support)]**.

# CONTRACT MANAGEMENT

|  |  |  |
| --- | --- | --- |
|  | **Contract** | **Parties** |
| 1. | Solution Delivery Contract And Maintenance & Support Services | Signed between MAB and ATOS |

Table 20

# HANDOVER ITEMS

The following documents / items will be handed over to Operations together with this System Operation Document during the Handover session.

1. User Guide

2. Detail Solution/Design Review Document

3. Test Plan

# INFORMATION SECURITY

### 4.13.1. Audit And Compliance Requirements

| **Activity** | **Frequency** | **Responsible Party** |
| --- | --- | --- |
| Perform ID review every quarter and submit result to IRS | Quarterly | ID Admin |
| Update user access matrix and submit to IRS | Yearly | System Owner |
| Install Critical Security Patches for the application and submit report to IRS | Quarterly | System Owner |
| Perform Backup restoration | Yearly | System Owner |
| Review & update security documentation and submit to IRS:   * Super/privilege IDs and access * Security Controls Setting * Audit Logs setting * System bypass * List of connections and integration * List of used ports * Data encryption setting * Application/system schematic diagram | Yearly | System Owner |

Table 21

### 4.13.2. Password And Policy Compliance

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Password Policy Requirements** | **Yes** | **No** | **Remarks** |
|  | Password length at least 8 characters (minimum) | Yes |  | Uses LDAP authentication for login |
|  | Alphanumeric | Yes |  |  |
|  | Change temporary password at first logon | Yes |  |  |
|  | Password expiry = 90 days (maximum) | Yes |  |  |
|  | Password reuse generation = 5 (minimum) | Yes |  |  |
|  | Account lock out after 3 failed login attempts | Yes |  |  |
|  | Application shall disconnect or suspend inactive sessions= 15 Minutes | Yes |  |  |
|  | Wrong password shall be recorded in an audit log | Yes |  |  |

Table 22

### 4.13.3. User Access Matrix

The following table shows the user access matrix of the application

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **USER ID/ Common ID** | **USER TYPE** | **ACCESS LEVEL** | | | |
| **Update** | **View** | **Edit** | **Delete** |
| Admin | Administrator | N.A | N.A | N.A | N.A |
|  | Normal |  | X |  |  |

Table 23

**DOCUMENTATION AND REFERENCES**

|  |  |  |
| --- | --- | --- |
|  | **Document** | **Location of source** |
| 1 | System Operation Document | [https://mabitdept.sharepoint.com/sites/MyPulse/InformationTechnology/ServiceDeliveryManagement/](https://mabitdept.sharepoint.com/sites/MyPulse/InformationTechnology/ServiceDeliveryManagement/" \t "_blank) |
| 2 | User Guide | [https://mabitdept.sharepoint.com/sites/MyPulse/InformationTechnology/ServiceDeliveryManagement/](https://mabitdept.sharepoint.com/sites/MyPulse/InformationTechnology/ServiceDeliveryManagement/" \t "_blank) |

Table 24

# APPENDIX



**PATCH MANAGEMENT REPORT**

Application : \_\_\_\_\_\_\_\_NIL\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Owner **: \_\_\_\_\_\_\_\_**NIL**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **Date** | **Patch / Service Pack Applied** |
| NIL | NIL |
|  |  |
|  |  |
|  |  |

**Prepared By: Approved By:**

**.................................................... ....................................................**

**System Admin System Owner**

**BACKUP RESTORATION REPORT**

Application : \_\_\_\_\_\_NIL\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Owner **: \_\_\_\_\_\_**NIL**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **Date** | **Status of Restoration** |
| NIL | NIL |
|  |  |
|  |  |
|  |  |

**Prepared By: Approved By:**

**.................................................... ....................................................**

**Backup Admin System Owner**

**NON COMPLIANCE REPORT**

Application : \_\_\_\_\_\_NIL\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Owner **: \_\_\_\_\_\_**NIL**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |
| --- | --- | --- |
| **Date** | **Reference Number** | **Description** |
| NIL | NIL | NIL |
|  |  |  |
|  |  |  |
|  |  |  |

**Prepared By: Approved By:**

**.................................................... ....................................................**

**System Admin System Owner**

**END OF DOCUMENT**