

 Eskom	Template	Group IT
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Document Control Information

Effective from	Amendment	Version Number	Modified By
12 February	First draft	0.1	Shaun Goodbrand
21 February	Feedback from Keiso	0.2	Shaun Goodbrand

Approval

This document was reviewed and approved in terms of accuracy and completeness by the following stakeholders:

Divisional / Business Representatives	Date	Sections to Review	Signature
Keiso Tsekoa		All	
Phuti Ngoetjana		All	

Glossary of Terms

Abbreviations

Abbreviation	Description
ECM	Engineering Change Management
ECN	Engineering Change Notification
ETL	Extract, Transfer and Load
FEGs	Functional Equipment Groups
FLOC	Functional Location
MBSA	Maintenance Basis Standardisation Application
MCoE	Maintenance Centre of Excellence
MES	Maintenance Execution Strategy
MS	Maintenance Strategy
PM	Preventive Maintenance

Definitions

Abbreviation	Description
Out of Scope	Components or Equipment considered not to form part of the Production Plant.
Critical	Equipment considered necessary for power production or safe shut unit. Although equipment may be categorized as Critical, not all its components need to be categorized as Critical. Only those components upon failure, contribute to the loss of a Critical function, should be categorized as Critical. (Refer to Appendix A for determination of Criticality.)
Functional Equipment Groups	Equipment or Components associated with a system or major piece of equipment which can be logically grouped together and collectively removed from service (clearance boundary). Establishing FEGs allows efficient bundling of maintenance activities based on Operations Clearance requirement. FEGs are useful when Phasing maintenance activities. For example, grouping a condensate pump and its associated breaker in the same FEG allows maintenance activities to be done on both components simultaneously thereby minimizing unavailability time.

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Non-Critical	A classification of equipment between Critical and Run-to-Failure for which cost effective PM makes sense. Failures of Non-Critical equipment, while undesirable, are less consequential than failures of Critical equipment. Non-Critical does not mean Run-to-Failure. However, due to the cost benefit of some PM's, a limited number of failures may be tolerated for non-critical components.
PM Templates	A PM Template is a pre-defined maintenance approach for a particular component type (or family of components) that lists significant failure modes, failure causes and recommended PM tasks and task intervals. PM Templates provide the foundation of the preventive maintenance programme by supporting the PM Strategy.
Pre-selected Nulls	Groups of components classified as not requiring Condition Monitoring, Time Directed, or Failure Finding or Surveillance tasks. Examples of Pre-selected Nulls may be described within specific PM Templates (e.g. manual valves smaller than a prescribed diameter). All components within a group designated as a Pre-selected Null are classified as Run-to-Failure.
Run-to-Failure	A Run-to-Failure component is a component for which the risks and consequences of failure are acceptable without any predictive or repetitive maintenance being performed and there is not a simple cost-effective method to extend the useful life of the component. The component should be run until corrective maintenance is required.

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1 Introduction

The Functional Specification clearly defines what the functionality of the requested change will be by providing all the information that is necessary to design the requested change. The functional specification should describe the business requirements, the input, processing and output required to meet these User Requirement Specifications.

1.1 DOCUMENT SCOPE/PURPOSE

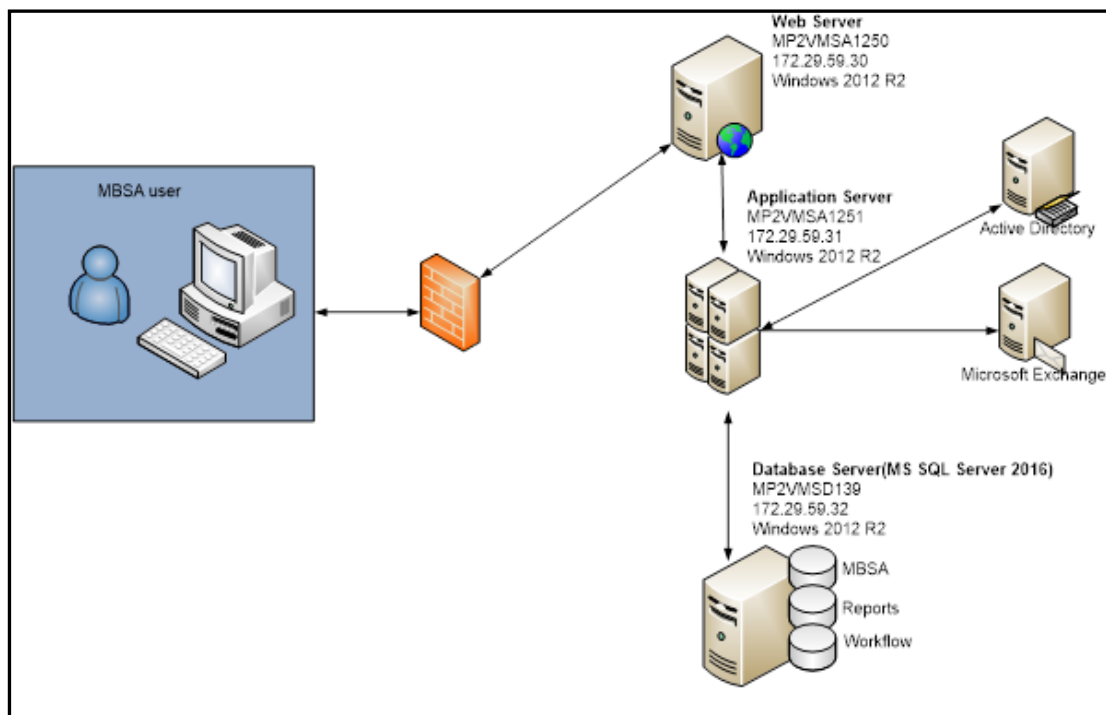
The purpose of this document is to document the design of how the workflow reviewer(s)/approver(s) assigned to a user can be updated/changed at any time irrespective of the user having active ECNs in workflow being updated/changed. The active ECNs, for any user(s) affected by the update/change of workflow reviewer(s)/approver(s), must be allocated to new workflow reviewer(s)/approver(s) without having to go into the work flow module and allocate each and every active ECN.

This is defect: 504 – Workflow – Reset (delete) Station, Engineer

2 Business Requirements

- Developers to confirm that K2 does or can redirect the managers / approvers in the workflow beyond just updating the [MAPPEROLES] table on the [MBSAWORKFLOW] database when the Replace Manager function is use in Admin – Workflow Users.
- The two use cases are:
 - when one user leaves Eskom or moves to another power station and another user takes over the work i.e. workflow on any active ECN
 - when the station needs to overhaul the entire allocation of users in workflow i.e. a bulk update of the previous use case.

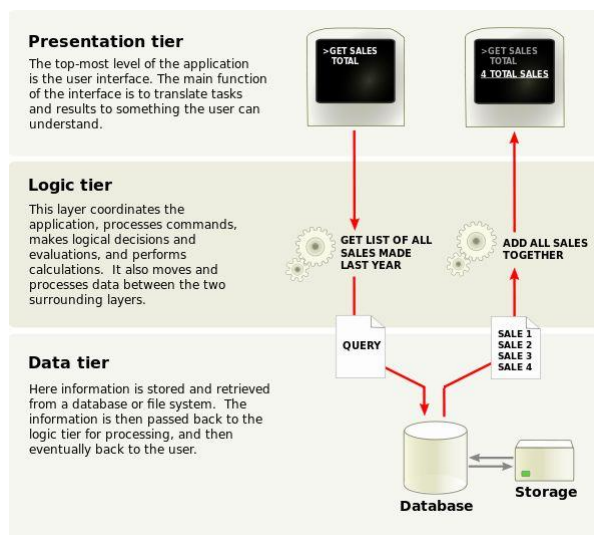
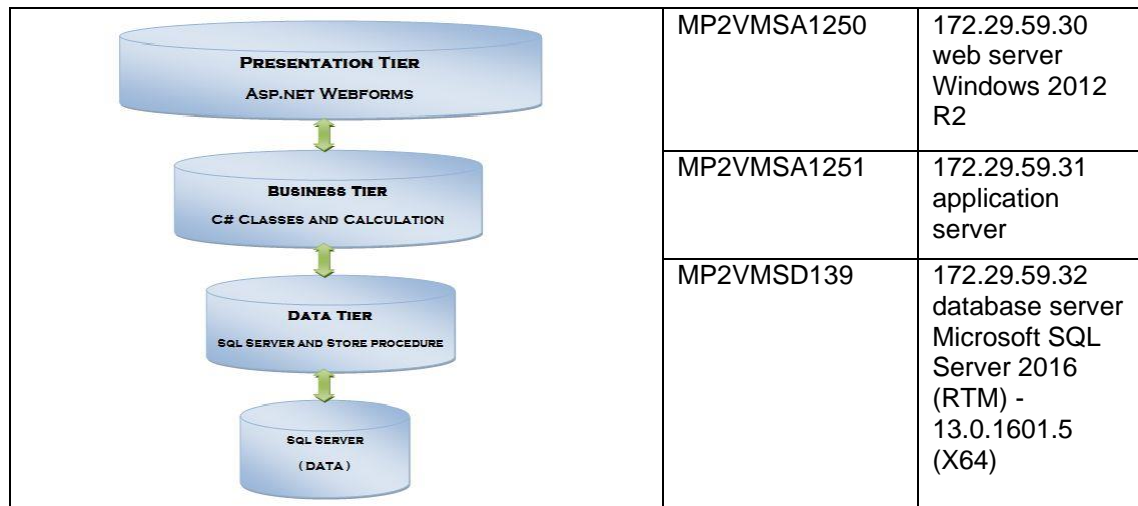
3 High-Level Design



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<https://www.c-sharpcorner.com/UploadFile/4d9083/create-and-implement-3-tier-architecture-in-Asp-Net/>

4 Data Architecture

4.1 Source System

4.1.1 Artefacts

4.1.1.1 MBSA SQL Server database

- USERS, POWERSTATIONS and MAPPEROLES (MBSAWOKFLOW) database) tables

4.1.1.2 K2 Blackpearl DLLs

- Required instructions to redirect the workflows that are still current.

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4.1.1.3 Station Workflow Upload Template

Below is an example for Arnot. This is the format of a “bulk” input for the Replace Manager functionality.

USER	EMP	MANAGER_RO	MANAGER	POWER_STATION	FULLNAME	EMAIL	DATECREATE	DATE
	1226102	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		
	1226102	REVIEWER	1204652	3200	Lebo Mabunda	MotsoeKS@eskom.co.za		
	1226102	APPROVER	0204093	3200	Gert Brink	BrinkGN@eskom.co.za		
	1226102	APPROVER	0933056	3200	Simon Khumalo	KhumalSI@eskom.co.za		
	3911444	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		
	3911444	REVIEWER	1204652	3200	Lebo Mabunda	MotsoeKS@eskom.co.za		
	3911444	APPROVER	0204093	3200	Gert Brink	BrinkGN@eskom.co.za		
	3911444	APPROVER	0933056	3200	Simon Khumalo	KhumalSI@eskom.co.za		
	4329925	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		
	4329925	REVIEWER	1204652	3200	Lebo Mabunda	MotsoeKS@eskom.co.za		
	4329925	APPROVER	4101172	3200	Gcobisa Mabona	MabonaG@eskom.co.za		
	4329925	APPROVER	4031167	3200	Nkosinathi Malinga	MalingNS@eskom.co.za		
	1064595	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		
	1064595	REVIEWER	1204652	3200	Lebo Mabunda	MotsoeKS@eskom.co.za		
	1064595	APPROVER	4101172	3200	Gcobisa Mabona	MabonaG@eskom.co.za		
	1064595	APPROVER	4031167	3200	Nkosinathi Malinga	MalingNS@eskom.co.za		
	4206763	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		
	4206763	REVIEWER	1204652	3200	Lebo Mabunda	MotsoeKS@eskom.co.za		
	4206763	APPROVER	4101172	3200	Gcobisa Mabona	MabonaG@eskom.co.za		
	4206763	APPROVER	4031167	3200	Nkosinathi Malinga	MalingNS@eskom.co.za		
	1204652	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		
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	1204652	APPROVER	4101172	3200	Gcobisa Mabona	MabonaG@eskom.co.za		
	1204652	APPROVER	4031167	3200	Nkosinathi Malinga	MalingNS@eskom.co.za		
	4293361	REVIEWER	4035411	3200	Nomathemba Mhlongo	MhlongNC@eskom.co.za		

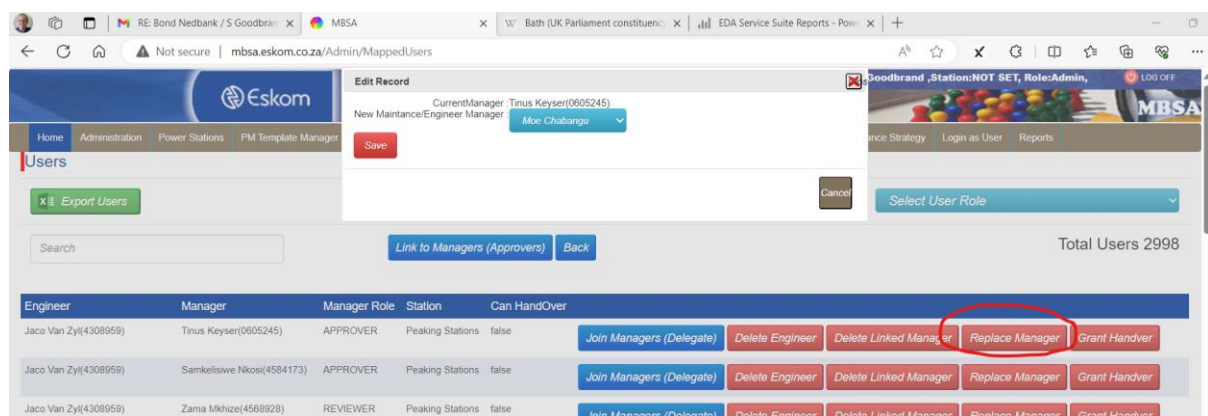
5 Functional Requirements

The function decomposition view provides a representation of the functions of the IS or application in scope for the application architecture. The functions imply a partial or full automation of the business process they intend to support.

5.1 List of functions

5.2 User Interfaces

1. Single user
 - a. Confirm Replace Manager functionality in Admin – Workflow Users tab
 - b. Restricted to Admin and Super Users
 - c. Select a Power Station, on the list of users returned, existing *Replace Manager* button to run the redirection of all workflows to another user is displayed against each user.



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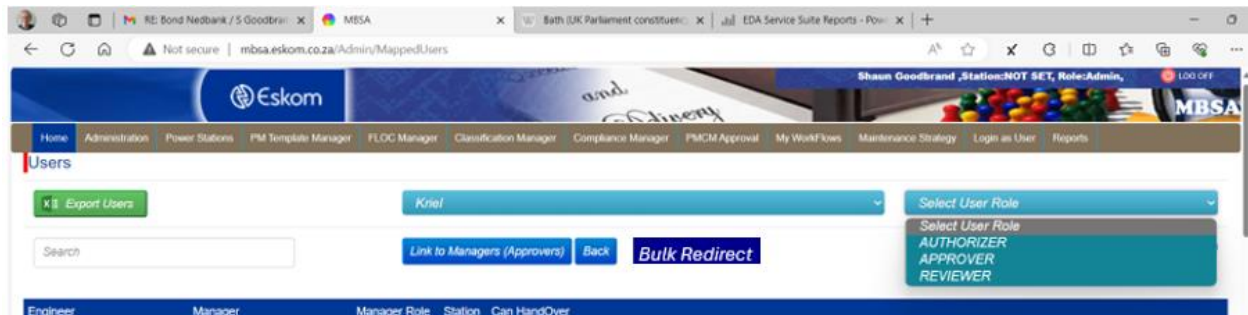
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- d. A pop up listing the user to which the workflow is to be redirected is displayed (see above). **The *Select User* choice must not be provided** as the workflow cannot be provided with blank names for the relevant fields e.g. reviewer and approver.
- e. Emails that inform that a workflow (EC) has been redirected to the new selected user should be the same as any current email sent when a user is assigned to a workflow.

2. Bulk user

- a. Add the *Bulk Redirect* button to same page to display only when a station is selected



- b. Prompt for the file containing the whole station's workflow allocation
- c. Once uploaded read and treat each line the same way as the *Replace Manager* function will now operate. The fields needed are with examples below:

EMP_ID	MANAGER_ROLE	MANAGER_ID	POWER_STATION_ID
1226102	REVIEWER	4035411	3200

- d. This will replace all current allocations in the whole stations, so the work flow and the records that stores these allocations must be deleted and the new values from the spreadsheet must be inserted.

6 Non-Functional Requirements

6.1 Transaction Volume

Transaction volume will remain the same as current MBSA system as no new functionality will be introduced during the project.

6.2 Performance Requirements

Will remain the same though it must be noted that performance issues have been reported by users on the current system.

6.3 Security Requirements

- No additional requirements. Existing application and database security measures will be leveraged.
- The system authenticates via Active Directory.

6.4 History Requirements

Every merging of CM and PM template tasks need to be backed up in a backup table.

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6.5 Archiving Requirements

Disaster Recovery to be provided with all new tables.

6.6 Frequency

Daily.

6.7 Dependencies

The interface with SAP will not be affected.

6.8 Access Rights (Roles and Profiles)

Role	Define different types of access and what permissions that role has
Admin & Super Users	Existing Admin users only may have access to the Redirect functionality in Admin – Workflow Users module.

7 Other Requirements

8 Functional Design Considerations

N/A

9 Interface Requirements

9.1 INFORMATION / DATA REQUIREMENTS

- No changes. The work flow developer needs to confirm how the functionality can be applied.

9.2 User Interfaces

Please see Section 5 above.

9.3 Integration Interface Map

Change will not change any of the existing Integration functionality

9.4 Software Interfaces

See Section 5.

9.5 Communications Interfaces

New emails to be included in the Review Tasks option in PM Templates Manager and the modified Add New Task function in Compliance Manager

9.6 Module Interfaces

No changes

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10 Configuration Changes

10.1.1 Infrastructure

No changes

10.1.2 Application server

No changes

10.1.3 Database Server

No changes

10.1.4 Web Server

No changes

Integration Server

No changes

11 Documents to be updated

All documents required from the software development life-cycle will be created or updated. These are (not limited to):

- Test cases on HP ALM

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12 Testing Requirements

12.1 Test Scenarios

Need to do negative tests:

- If a workflow is completed. The redirection should not be done on those records.
- If the user who is going to be redirected i.e. the one being replaced has no current workflows.
- Compare running an upload with one employee change to a *Replace Manager* action

13 Documents to be updated

Business to advise

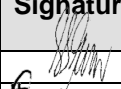
14 References

14.1 Reference Documentation (include reference to test pack)

Name	Location

15 Functional Specification Signoff

This document was reviewed and approved in terms of accuracy and completeness by the following stakeholders:

Role	Name	Signature	Date
Specialist	Shaun Goodbrand		7 March 2024
Functional / Cell Lead	Kwena Seaka		2024/03/11
Requester	Keiso Tsekoa		07 March 2024