Design and Deployment Guide

HAUL-NRT

|  |
| --- |
|  |
| Document Reference |
|  |
|  |

1. Documentation change log

*Document signoffs should be included here as per document change control standards.*

***Disclaimer:***

***This document is protected by copyright, no part of this document may be reproduced or adapted without the consent of the originator/company owner, all rights are reserved. This document is “uncontrolled when printed”, refer to electronic copy for up to date version***.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Product Handover: Fortescue Insights | | Doc Ref |
| **Revision Number** | **1.1** | |  |
| **Status** | Choose an item. | |
| **Authors** | Jay Tripathy | Signature | **27/01/2020** |
| **Checked** |  | Signature | Click here to enter a date. |
| **Accepted**  **IT Applications Development** |  | Signature | Click here to enter a date. |
| **Confidentiality** | **Fortescue Staff & Contractors** | **Publish on Extranet** | ☐ Yes |
| ☐ No |
| **Review Date** | Click here to enter a date. | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Revision History *(to be completed for each version retained by Document Control)* | | | | | |
| **Author** | **Checker** | **Approver** | **Rev No.** | **Status** | **Issued Date** |
| **Jay Tripathy** | **Sourabh Tewari** | **Nageshwar Pinna** |  | Choose an item. | Click here to enter a date. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Handover Details | |  | | |
| **Attendee** | **Signature** | | **Date** |
|  |  | |  |

**TABLE OF CONTENTS**

[1. Documentation change log 2](#_Toc29306487)

[2. Document purpose 6](#_Toc29306488)

[3. Project purpose 6](#_Toc29306489)

[3.1 Requirement 7](#_Toc29306490)

[4. Project Team Contact Details 7](#_Toc29306491)

[5. Solution Design 7](#_Toc29306492)

[5.1 Solution Overview 7](#_Toc29306493)

[5.1.1 HAUL NRT Architecture 7](#_Toc29306494)

[5.1.2 HAUL NRT Environment Design Diagram 8](#_Toc29306495)

[5.1.3 Database Diagram 9](#_Toc29306496)

[6. Application Screen design and details 10](#_Toc29306497)

[6.1 Haul - NRT Screens 10](#_Toc29306500)

[6.1.1 Dashboard Page 10](#_Toc29306501)

[6.1.2 Sidebar 12](#_Toc29306502)

[6.1.3 Crusher 13](#_Toc29306503)

[6.1.4 Summary Tiles View 13](#_Toc29306504)

[6.1.5 Avg. Queue At Source 13](#_Toc29306505)

[6.1.6 Avg. Queue At Sink 14](#_Toc29306506)

[6.1.7 Estimated Time/Truck 14](#_Toc29306507)

[6.1.8 Avg. True Hang Time 14](#_Toc29306508)

[6.1.9 Avg. Speed 15](#_Toc29306509)

[6.1.10 Total Tonnes 15](#_Toc29306510)

[6.1.11 Summary Icons 16](#_Toc29306511)

[6.1.12 Engine Derate 16](#_Toc29306512)

[6.1.13 Hot Tyres 17](#_Toc29306513)

[6.1.14 Released From Maintenance 17](#_Toc29306514)

[6.1.15 No Operators 17](#_Toc29306515)

[6.1.16 In Maintenance 18](#_Toc29306516)

[6.3.17 Planned Vs Actual Destination (020 Report) 18](#_Toc29306517)

[6.3.18 Connected for Notification 19](#_Toc29306518)

[6.3.19 Asset Details 19](#_Toc29306519)

[6.3.20 Tyre Sense UI 20](#_Toc29306520)

[6.3.21 Tyre Sense UI for Individual Tyre 20](#_Toc29306521)

[6.3.22 Truck Model Details 21](#_Toc29306522)

[6.3.23 Process Health 22](#_Toc29306523)

[6.3.24 Tyre Health 22](#_Toc29306524)

[7. Deployment steps 23](#_Toc29306559)

[7.1 Fresh Deployment of the Application 23](#_Toc29306560)

[7.1.1 Pre requisites 23](#_Toc29306561)

[7.1.2 Installation steps 23](#_Toc29306562)

[7.2 Uninstallation of the Application 23](#_Toc29306563)

[7.2.1 Pre requisites 23](#_Toc29306564)

[7.2.2 Uninstall steps 23](#_Toc29306565)

[7.2.3 Post Uninstall steps 23](#_Toc29306566)

[8. Environment & CONFIGURATION detail 24](#_Toc29306567)

[8.1.1 SSO Config 24](#_Toc29306568)

[8.1.2 Publishing Application 24](#_Toc29306569)

[8.1.3 Subscribing Application 24](#_Toc29306570)

1. Document purpose

This document provides the functional and technical overview of Haul-NRT Application for Solomon, Christmas Creek and Cloudbreak sites. Objective for preparing this document is to capture comprehensive knowledge about Haul-NRT in a single place. Thus, reducing effort of readers to refer multiple documents.

1. Project purpose

Haul NRT is a near real time reporting platform (via. A dashboard) for asset information to help Mine controllers make valuable decisions in operating the automotive Trucks.

Haul NRT is a set of tools as a portal which handles the movable assets data and screens from minestar.

A number of areas within Mine control have been identified where data can be used more-timely to improve efficiency.

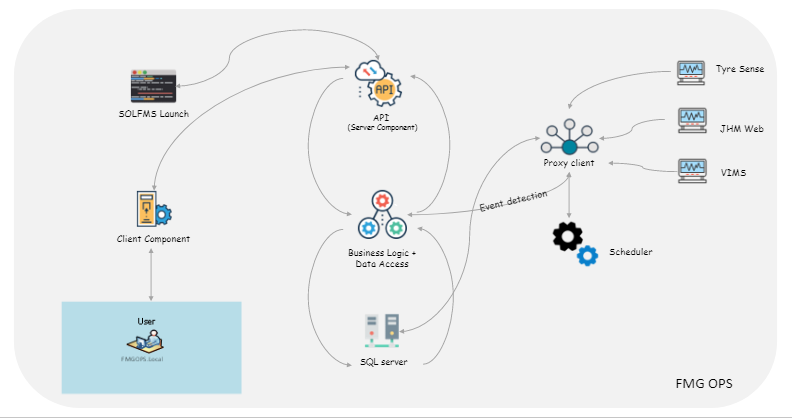
**Business Objective:**

* Increased reliability, security and supportability of data sharing, event detection and alerting for use by all sites
* Support Operational System Integration to enable automation between Mine and Processing.
* Foundational IT/OT platform connectivity, notification and persistence solution for current and future requirements.
* Develop a Haul Near-Real-Time (NRT) reporting platform to perform the following:
* Protect the trucks and network operating environment (system architecture).
* Provide decision support tools for operations teams (User Interface).
* Establish the platform for data availability and data flows for future capability in advanced analytics (analytics and integration).
* Provide decision making tools prior to an event occurring which would result in a productivity impact (Level 0 alerts).
  1. Requirement
* Increased reliability, security and supportability of data sharing, event detection and alerting for use by all sites
* Support Operational System Integration to enable automation between Mine and Processing.
* Foundational IT/OT platform connectivity, notification and persistence solution for current and future requirements.
* Develop a Haul Near-Real-Time (NRT) reporting platform to perform the following:
* Protect the trucks and network operating environment (system architecture).
* Provide decision support tools for operations teams (User Interface).
* Establish the platform for data availability and data flows for future capability in advanced analytics (analytics and integration).
* Provide decision making tools prior to an event occurring which would result in a productivity impact (Level 0 alerts).

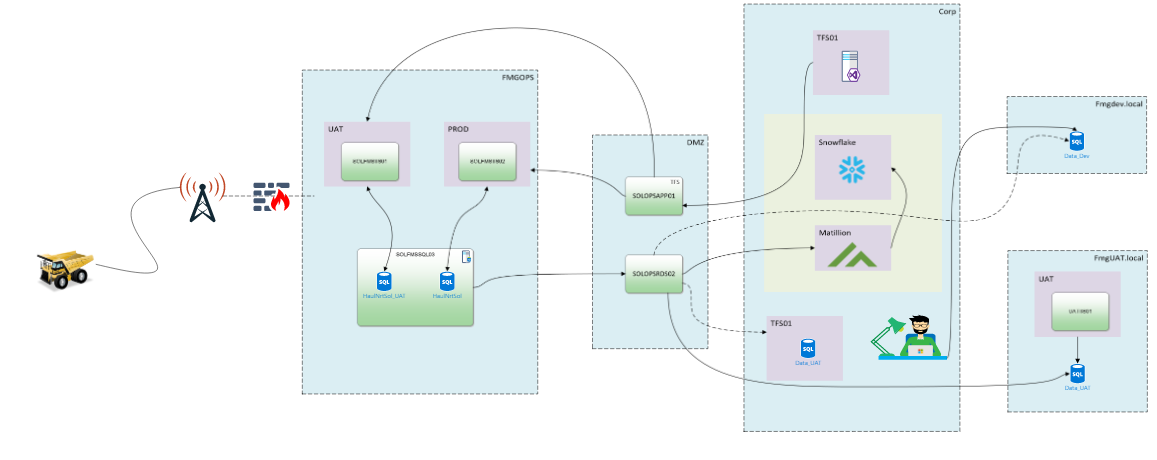
1. Project Team Contact Details

|  |  |  |
| --- | --- | --- |
| Role | Name | Contact Details |
| Product Owner |  |  |
| Key Users |  |  |
| Product Designer | Sourabh Tewari  Nageshwar Pinna | [stewari@fmgl.com.au](mailto:stewari@fmgl.com.au)  npinna@fmgl.com.au |
| Product Developers | Naren Venkobarao  Jay Tripathy | nvenkobarao@fmgl.com.au  [jtripathy@fmgl.com.au](mailto:jtripathy@fmgl.com.au) |

1. Solution Design
   1. Solution Overview
      1. HAUL NRT Architecture Diagram



* + 1. HAUL NRT Environnent Design Diagram



* + 1. Database Diagram



1. Application Screen design and details
   1. Haul NRT Solomon Screens

## Dashboard Page:

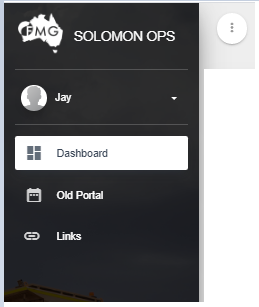
### Dashboard will show overview of assets related information.

## 

|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Sidebar | Provide menu list with currently login user information. |
| Crusher | Display information related with crusher. |
| Summary tiles view | It loads the summary data of tiles view. |
| Summary icons | Display current status of all asset summary with notification. |
| Planned Vs Actual destination report | It redirect to planned vs actual destination report. |
| Connected for notification | Plug in icon shows the connected for notification status. |
| Truck(Asset) | All truck(asset) information with status. |
| Process health | Display information about process health of Haul NRT. |
| Tyre health | Display information about tyre health of asset. |

## Sidebar :

### It shows the menu of Haul-NRT.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Sidebar icon | It is used to expand/collapse sidebar screen. |
| User Setting | User can manage account related setting. |
| Dashboard | Display dashboard page. |
| Old portal | Display old portal of Haul-NRT application. |
| Links | It redirect to specified URL. |

## 

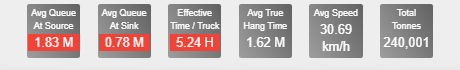
## Crusher :

### It shows the information about crusher.



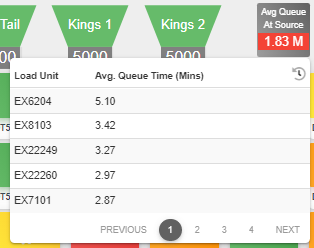
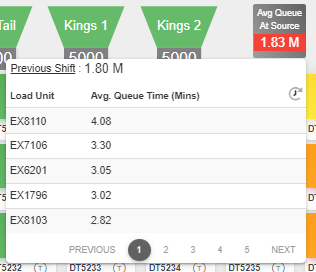
## Summary Tiles View :

### It shows the information about summary tiles view details. Also the summary avg value is highlighted with color based on threshold value.



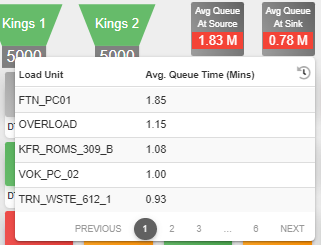
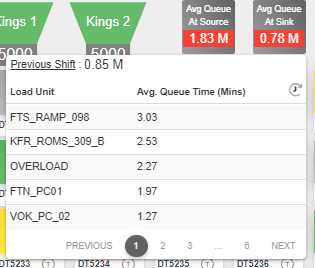
## Avg Queue at Source :

### It shows the information about avg queue at source current/previous details.

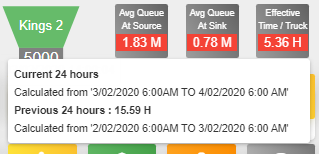
## Avg Queue at Sink :

### It shows the information about avg queue at sink current/previous details.

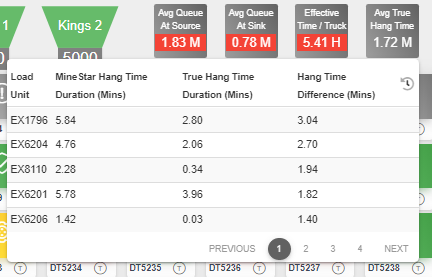
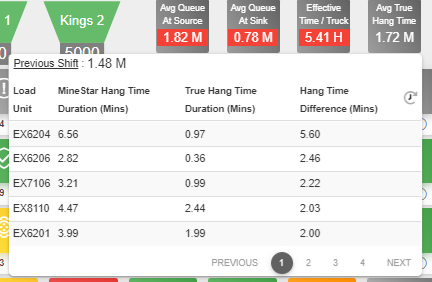
## Estimated Time/ Truck :

### It shows the information about avg estimated time/truck details.



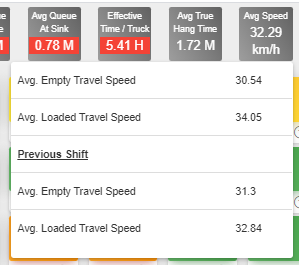
## Avg True Hang Time :

### It shows the information about avg true hang time current/previous details.

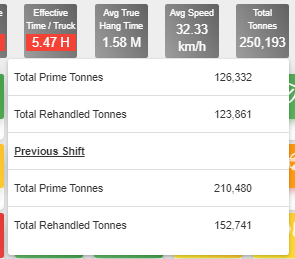
## Avg Speed :

### It shows the information about avg speed details.



## Total Tonnes :

### It shows the information about total tonnes details.



## Summary Icons :

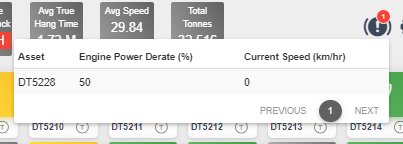
### Display current status of all asset summary with notification.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Engine Derate | Display the information about truck engine related information. |
| Hot Tyres | Display the information about truck tyres related information. |
| Released From Maintenance | Provide information about truck released from maintenance. |
| No Operator | Provide information about no operator is available for truck. |
| In Maintenance | Provide information about truck in maintenance. |
| Planned Vs Actual Destination (020 Report) | It redirect to planned vs actual destination report. |
| Connected for Notification | Plug in icon shows the connected for notification status. |

## Engine Derate :

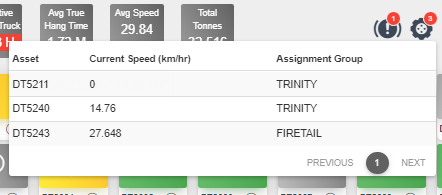
### Display current status of engine derate asset summary.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Asset | User can open tyre sense UI after click on asset name hyperlink. |

## Hot Tyres :

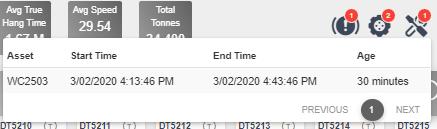
### Display current status of hot tyres asset summary.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Asset | User can open tyre sense UI after click on asset name hyperlink. |

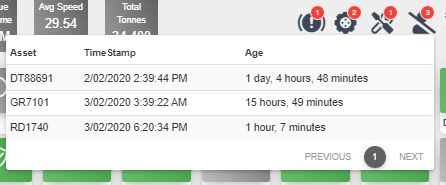
## Released From Maintenance :

### Display list of asset summary which are in released from maintenance event.



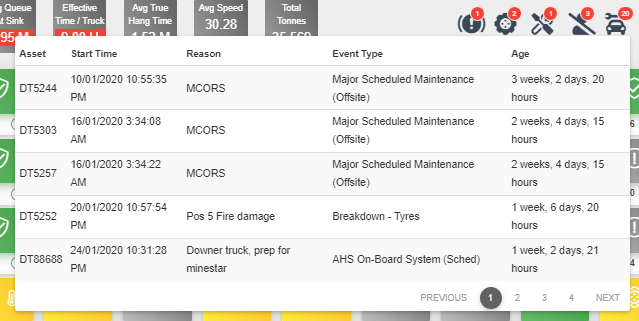
## No Operators :

### Display list of asset summary which are in no operator event.



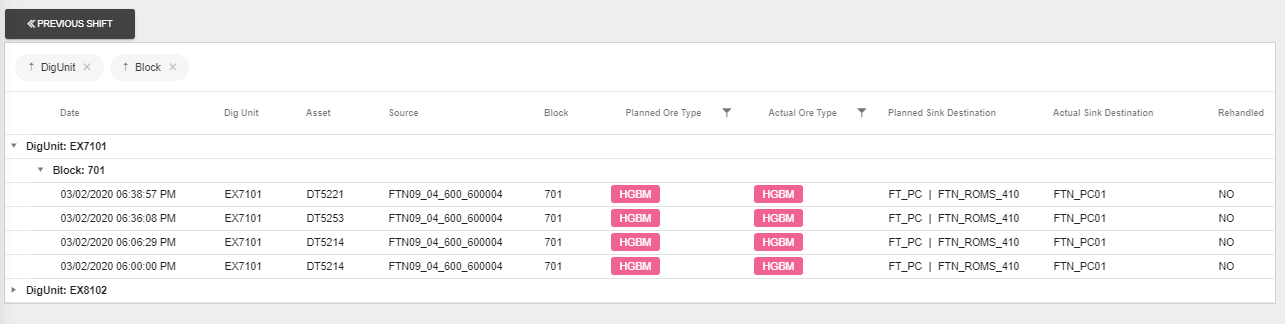
## In Maintenance :

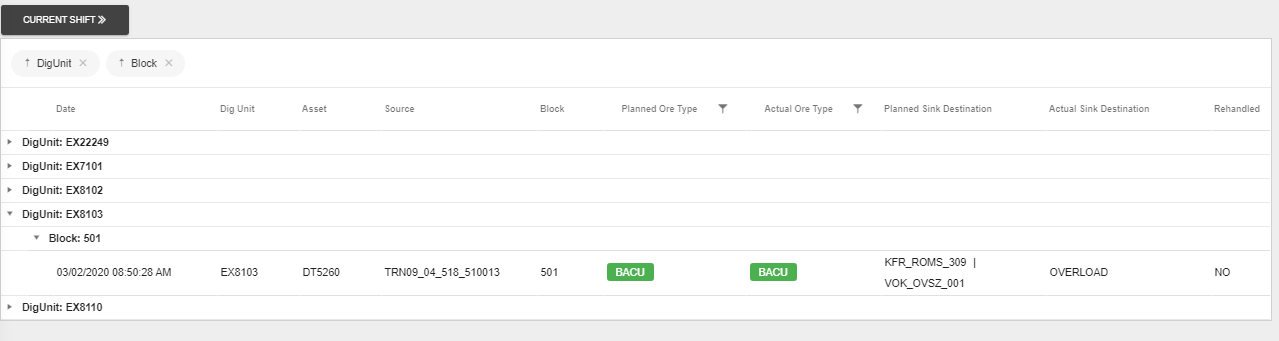
### Display list of asset summary which are in maintenance process.



## Planned Vs Actual Destination (020 Report) :

### Display report of planned vs actual destination.

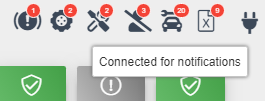




|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Toggle button | Current/Previous shift toggle button click load the report based on user requested . |

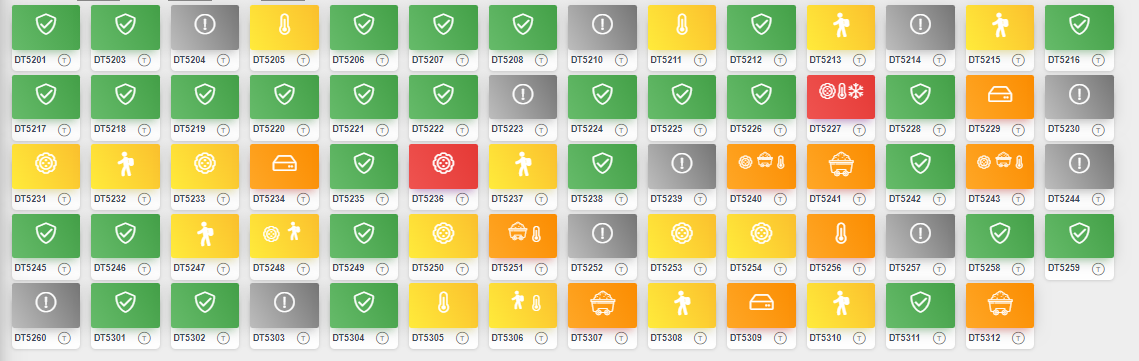
## Connected for Notification :

### Plug in icon shows connected/disconnected status for notification through SignalR.



## Asset Details :

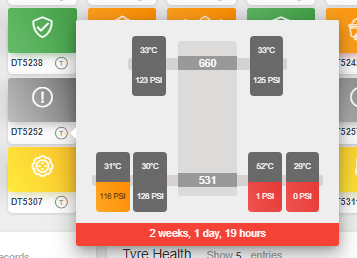
### Display all asset information with event type and severity.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Online | It shows asset online status. |
| Carryback | It shows asset carryback status. |
| TKPH | It shows asset TKPH status. |
| Overload | It shows asset overload status. |
| Data Logger | It shows asset data logger status. |
| Temperature | It shows asset temperature status. |
| Cold Pressure | It shows asset cold pressure status. |
| Common Issue | It shows asset offline status. |
| Severity | Health severity of asset can be Normal, Caution, Critical and Extreme. |

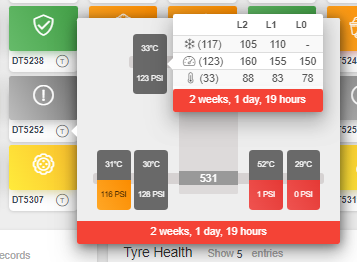
## Tyre Sense UI :

### It shows the information about truck of all wheels with age timestamp.



## Tyre Sense UI for Individual Tyre:

### It shows the information about individual tyre of truck with age timestamp.



## Truck Model Details:

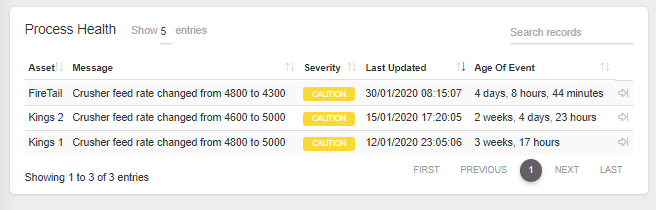
### It shows the information about truck events with statistics.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Auto-Refresh | Its refresh the truck model details after every 15 seconds interval. |
| JHM Dash/Web | Its redirect to JHM URL. |
| Close | Its close the model popup. |

## Process Health:

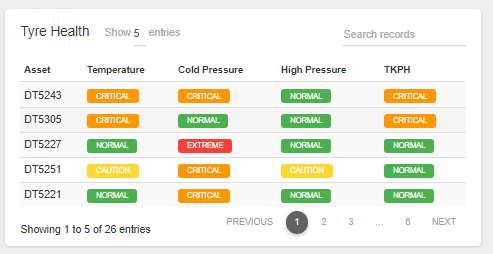
### It shows the information about process health with age of events and statistics.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Close | Its close the process health notification and update into database. |
| search | User search records from the list. |

## Tyre Health:

### It shows the information about tyre health with severity.



|  |  |
| --- | --- |
| **Actions/Buttons** | **Descriptions** |
| Asset | User can open tyre sense UI after click on asset name hyperlink. |
| Search | User search records from the list. |

1. Deployment steps
   1. Fresh Deployment of the Application
      1. Pre requisites

NA

* + 1. Installation steps

NA

* 1. Uninstallation of the Application
     1. Pre requisites
* Back Up of all the existing Application.
  + 1. Uninstall steps
* Execute the Roll Back scripts.
* Undeployed and uninstall the applications.
  + 1. Post Uninstall steps

NA

1. Environment & CONFIGURATION detail
   * 1. SSO Config

|  |  |
| --- | --- |
| **NA** | NA |
| **NA** | NA |

* + 1. Publishing Application

NA

* + 1. Subscribing Application

NA