KPA Name(s)	Asset Utilisation / Increasing Volumes
Project Name	Dashboard
Project Sponsor:	Dirk Nieuwoudt
Version:	3.0
Document Title:	On Time Arrivals – Minutes late per train_V1
Creation Date:	03 March 2009

Transnet Freight Rail Dashboard Functional Specification

Revision Date:	
Document Reference:	
Primary Author(s):	Andre J. Ferreira (Monkey)
Co-Author(s):	

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BUSINESS SPECIFICATIONS FOR TRAINS ARRIVING LATE / DEPOT DASHBOARD AUTOMATION

1. Business Context

- Measurement of trains arriving late by providing minutes late arrived at any location.
- Linked to the *Capacity Management, Improve / Optimise, Monitoring & Control, Production Planning, Order Execution and Customer Interaction* (from value chain and L1 level)

2. Project Context

- Name: Business Specifications – KPI / Depot Dashboard Automation
- Purpose: Automate dashboards in use in yards/depots - this is to provide management a view of trains arriving late.

3. KPI Definition

3.1 On Time Arrivals - Minutes late per train (All trains that arrived late)

- Trains that will be acted upon are those that arrive late. This measurement is the actual arrival time of the train measured against the scheduled arrival time.
- These trains can arrive at any location which is according to the scheduled arrival location, i.e. Yards, Stations and private sidings
- This KPI measure the actual number of trains arrived late with the minutes that they are late.

4. Measure Context

- Feed to / feed from:

  This measurement stands on its own i.e. it does not use another measure in its calculation nor is it used to calculate a higher level measure. It is however aggregated on various levels per location.

Trains that arrive late are currently available on Real time Monitoring System and Decision Support (MIS)

5. Data Description

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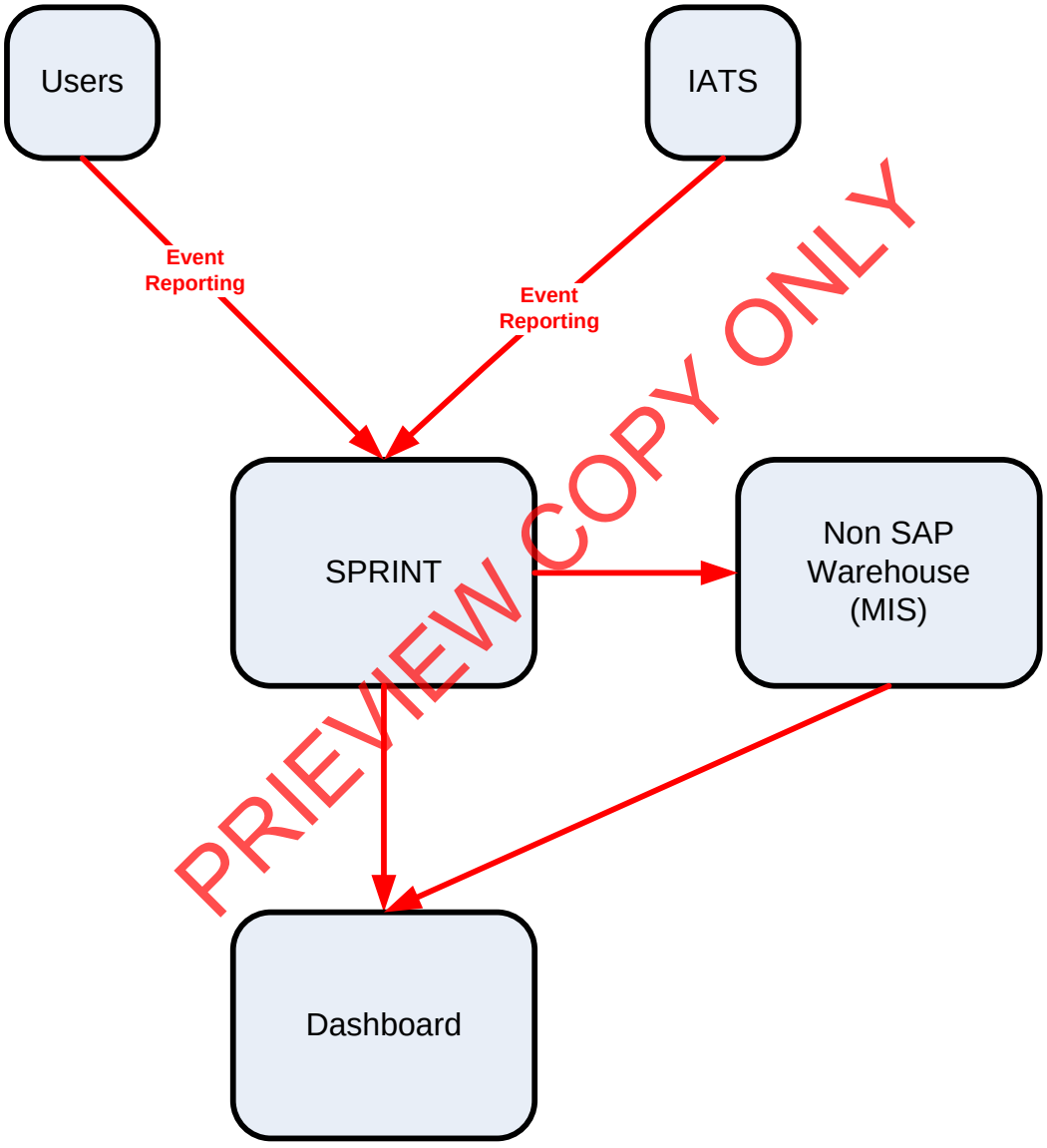
- Source systems
  - Capture onto the Sprint and IATS systems
- Data flows model



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- Components of the calculation required: N/A

6. Solution Requirements

- Minimum requirements:
  - Dimensions / parameters:

  - Operational structure; starting on location level and aggregated to Yard, Area, Cluster, Region and TFR level
  - Primary requirement is to track trains arrive late.
- TFR yards, locations should be easily extracted from a location perspective.
- Reporting periods: Daily,
- Graphics: Printable bar graphs and tables in PDF-format – rolling 30 days.
- Ability to navigate between levels.
- Linked to other measures in the "Depot Dashboard".

- Additional requirements to optimise this solution:

  - Dimensions / parameters: More detail re. Locations, Areas, Regions, etc. (sortable per criteria).

7. Solution Proposal

- Solution detail:

To obtain the KPIs, a link **"Train and Rolling Stock Performance Indicators"** will be published on the portal. When the user clicks on this link, a list of resources under which the different summarised list of KPI's will be displayed i.e. Trains, Locomotives and Wagons.

Trains
Locomotives
Wagons

The user would then be able to drill down on each of these summarised lists. In this case, they would select **"Trains"**

Trains
On Time Arrivals - Minutes late per train
On Time Departures - Minutes late per train
Run more trains - Trains run per day
Run trains with all possible wagons - Wagons per train
Staged loads
Locomotives
Locos standing longer than a selected number of hours
Wagons
Wagons standing longer than a selected number of hours

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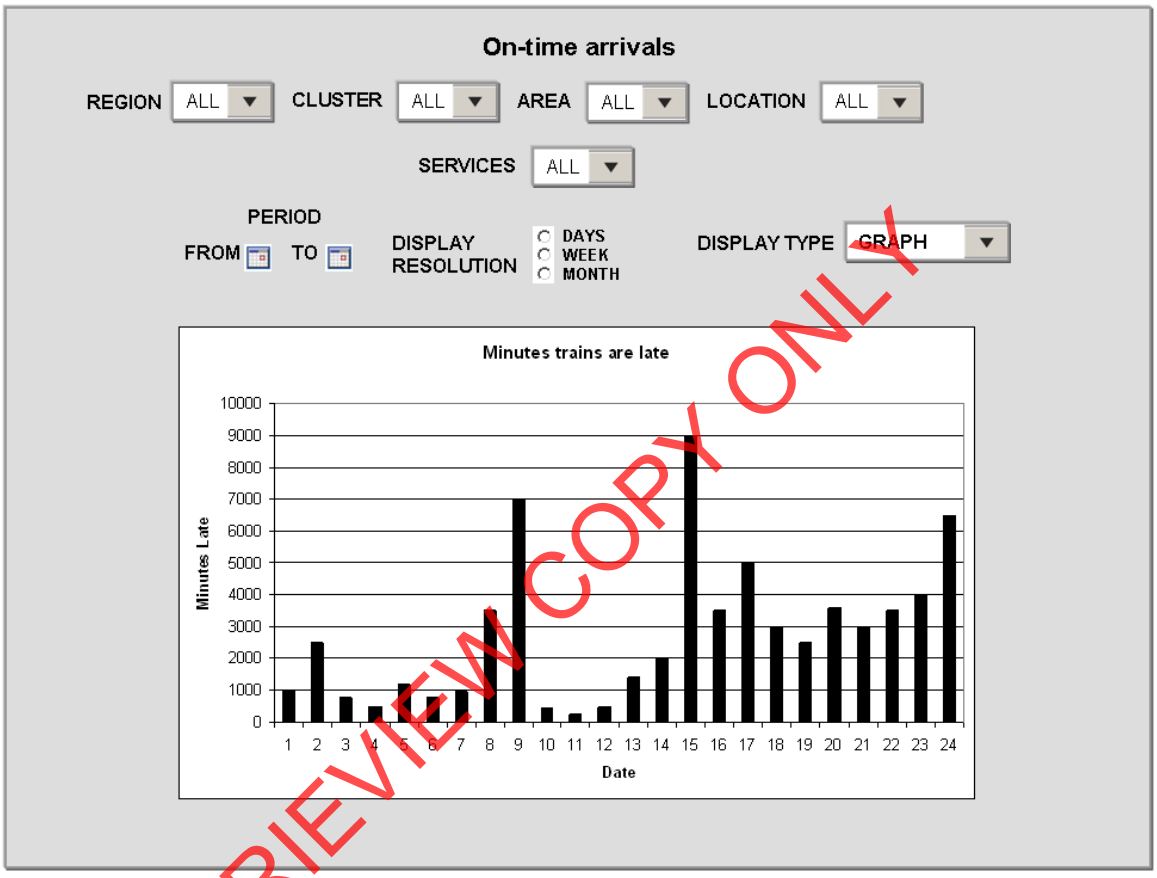
When the user clicks on a specific KPI, e.g. **"On time arrivals – Minutes late per train"**, the screen with the selection parameters will be displayed for that KPI **(See diagram below).** The "DISPLAY TYPE" will default to "GRAPH"

The following dropdowns should be available



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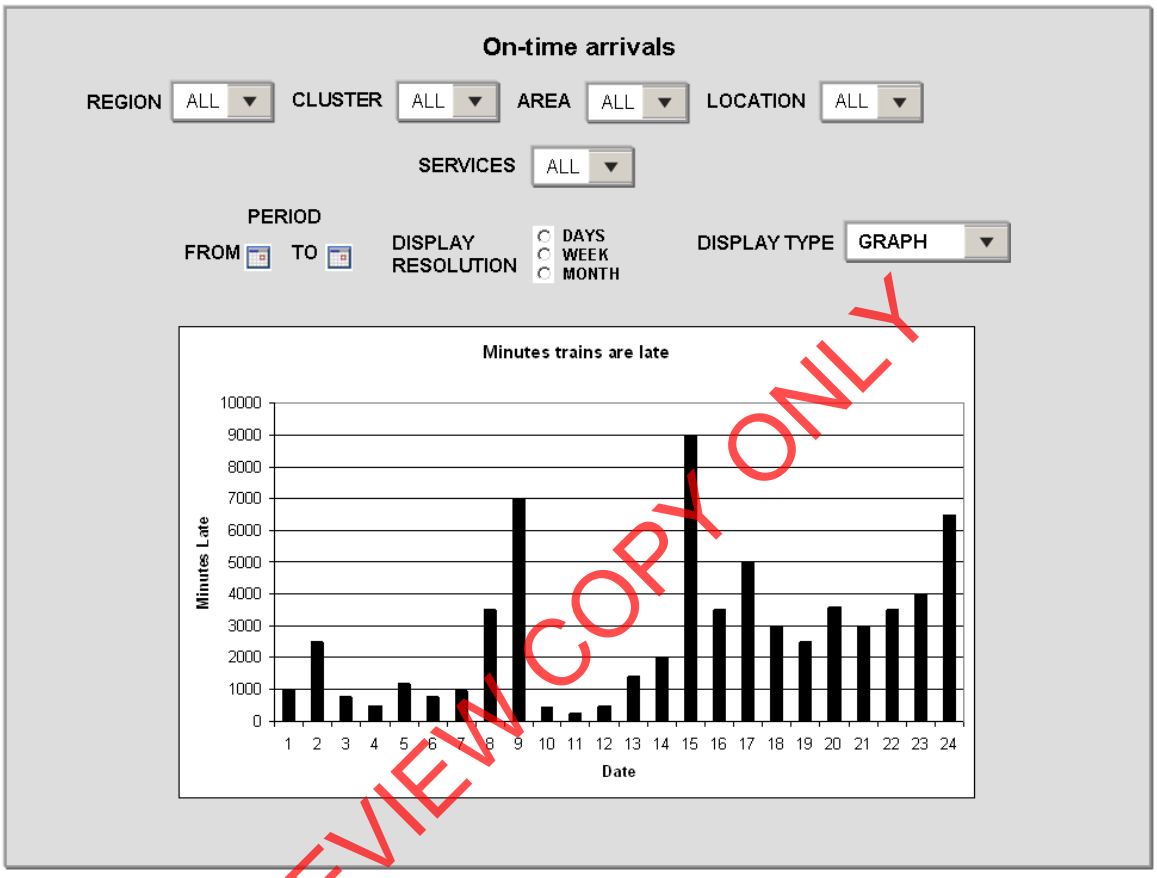
Region:	Drop down with the following: All, Central, Eastern, and Western.
Cluster:	Drop down related to region selected, if no region selected all clusters.
Area:	Drop down related to region selected, if no region selected all areas.
Location:	Drop down related to region and/or area selected as specific yard/depot can be selected.
Services:	As used in the ITP (as found in MIS).
Period (from/to)	User can select with calendars the From – To dates.
Display resolution	This can be selected to provide information per Day (Max 31), Week (Max 52), Month (Max 24)
Display type:	The output can be either in Graph or Detail format

After completing the above screen, the execution of the report to generate information will automatically be performed displaying a bar graph according to the information selected. The "DISPLAY TYPE" will default to "GRAPH"

The user can now change the different dropdown to get the desired results in either Graph of Detail view.



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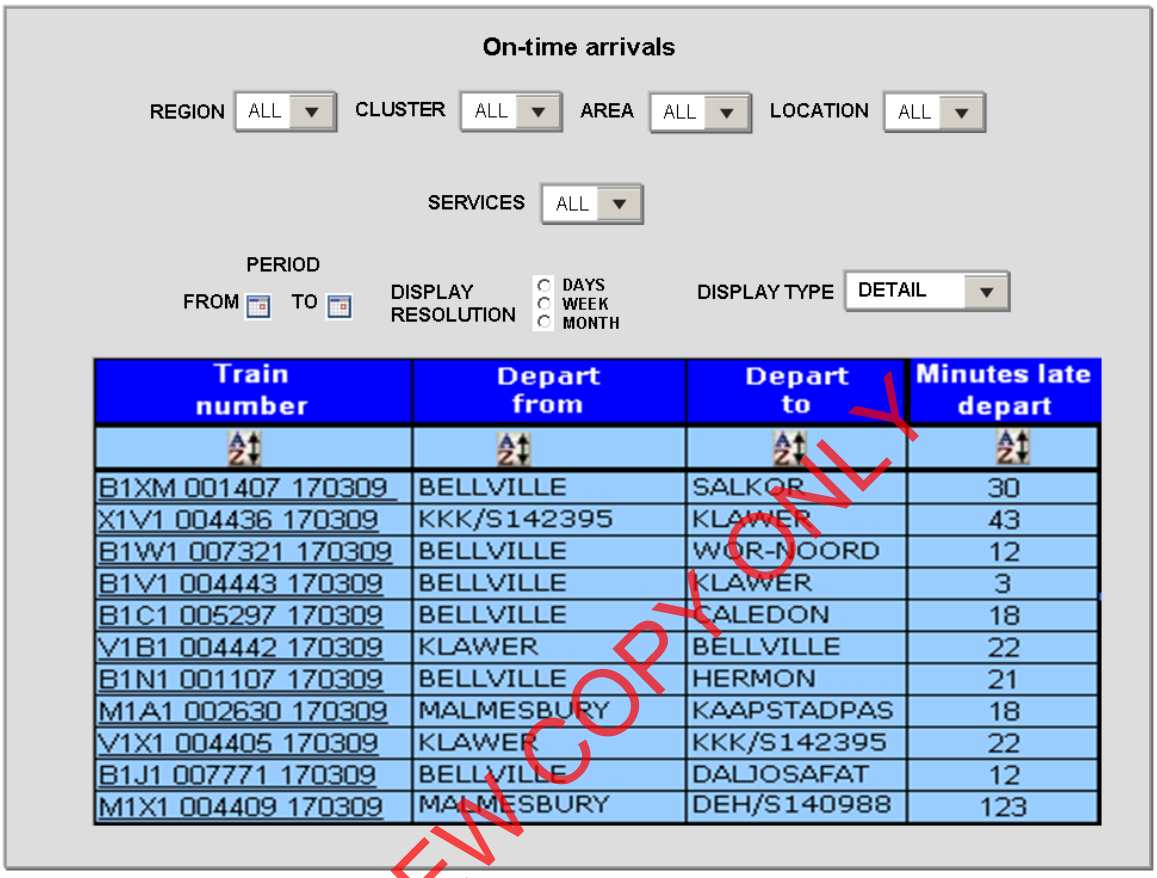
When **"Detail"** view is selected together with all the other appropriate selections the detail will be displayed at the bottom of the screen, i.e.



On-time arrivals

REGION ALL CLUSTER ALL AREA ALL LOCATION ALL

SERVICES ALL

PERIOD
FROM TO DISPLAY RESOLUTION DAYS WEEK MONTH DISPLAY TYPE DETAIL

Train number	Depart from	Depart to	Minutes late depart
B1XM 001407 170309	BELLVILLE	SALKOR	30
X1V1 004436 170309	KKK/S142395	KLAWER	43
B1W1 007321 170309	BELLVILLE	WOR-NOORD	12
B1V1 004443 170309	BELLVILLE	KLAWER	3
B1C1 005297 170309	BELLVILLE	CALEDON	18
V1B1 004442 170309	KLAWER	BELLVILLE	22
B1N1 001107 170309	BELLVILLE	HERMON	21
M1A1 002630 170309	MALMESBURY	KAAPSTADPAS	18
V1X1 004405 170309	KLAWER	KKK/S142395	22
B1J1 007771 170309	BELLVILLE	DALJOSAFAT	12
M1X1 004409 170309	MALMESBURY	DEH/S140988	123

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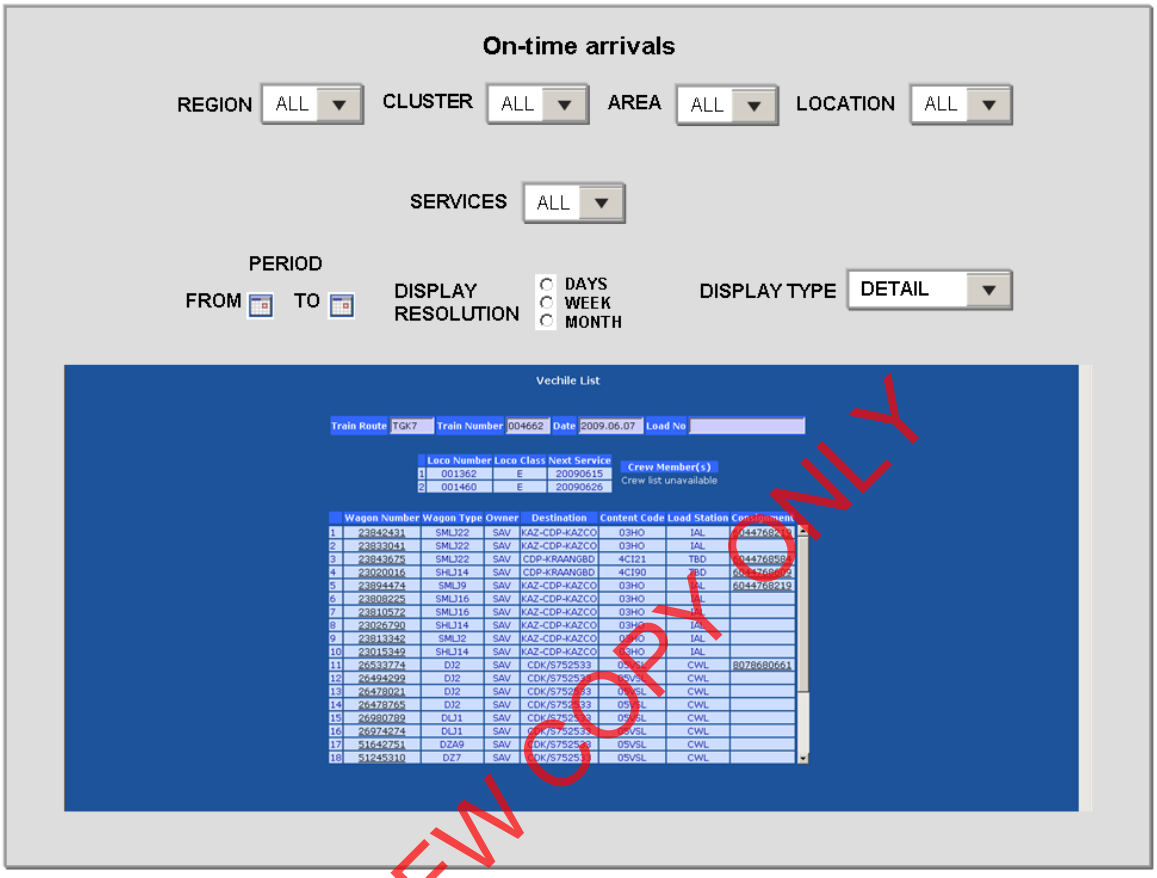
Column description

- Train number = Number of the train that arrive late
- Depart from = Location where the trains departed From
- Depart to = Location where the trains departed To
- Minutes late depart = The total number of minutes that the train arrived late

The button provides a sorting option in the column provided.

When the user clicks on the underlined train number, the following screen will be displayed



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Column description

- ❖ (--First column--) = Wagon sequence number
- ❖ Wagon number = The wagons number on the train list.
- ❖ Wagon type = The type of the wagons in the previous column
- ❖ Owner = The owner of the wagons in column 2
- ❖ Contents code = The handling code of the specific wagon.
- ❖ Load station = The loading location code.
- ❖ Consignment = The consignment number of the wagons

- Proposed approach (best way to solve current needs/issues)\

  - To be decided and implemented.

Note: All above displays are illustrative. Final displays will be dependent on system functionality and dashboard standardisation.

8. Business rules

- **Region**
  - o It can only belong to one of the following, Central, Eastern, or Western and must exist in Locnet
- **Area**

- Can only be an area that exists in Locnet.

- **Train number**
  - Must be a valid train number extracted from the database
- **Depart from**
  - Must be a location from the database from where trains depart and must match the selection
- **Depart to**
  - Must be a location from the database where to the trains from the selection list departed to
- **Minutes late arrival**
  - This must be numeric and the difference between the scheduled and actual arrival date and times.

9. Dataset

```
************************************************************************
* DCLGEN TABLE(RAIL.TREINSHEDMON_TAB)                                  *
*        LIBRARY(GQTN1.BEDRYF.TKCOPY(TABTRN3G))                        *
*        ACTION(REPLACE)                                               *
*        LANGUAGE(COBOL)                                               *
*        QUOTE                                                         *
* ... IS THE DCLGEN COMMAND THAT MADE THE FOLLOWING STATEMENTS         *
************************************************************************
     EXEC SQL DECLARE TREINSHEDMON_TAB TABLE
     ( TRAINFRM3G                     CHAR(20) NOT NULL,
       TRAINTOO3G                     CHAR(20) NOT NULL,
       DEPSHDDT3G                     CHAR(08) NOT NULL,
       DEPSHDTM3G                     CHAR(04) NOT NULL,
       ARRSHDDT3G                     CHAR(08) NOT NULL,
       ARRSHDTM3G                     CHAR(04) NOT NULL,
       DEPENDES3G                     CHAR(20) NOT NULL,
       ORIGINST3G                     CHAR(20) NOT NULL,
       DEPARTDT3G                     CHAR(08) NOT NULL,
       DEPARTTM3G                     CHAR(04) NOT NULL,
       ARRLDATE3G                     CHAR(08) NOT NULL,
       ARRLTIME3G                     CHAR(04) NOT NULL,
       DEPREPDT3G                     CHAR(08) NOT NULL,
       DEPREPTM3G                     CHAR(04) NOT NULL,
       ARRREPDT3G                     CHAR(08) NOT NULL,
       ARRREPTM3G                     CHAR(04) NOT NULL,
       TOTTRUCK3G                     CHAR(05) NOT NULL,
       TOTLOADE3G                     CHAR(05) NOT NULL,
       TOTEMPTY3G                     CHAR(05) NOT NULL,
       TOTRESRV3G                     CHAR(05) NOT NULL,
       TOTUNRES3G                     CHAR(05) NOT NULL,
       RESNOTON3G                     CHAR(05) NOT NULL,
       DEPTRNST3G                     CHAR(20) NOT NULL,
       DEPTRNNO3G                     CHAR(16) NOT NULL,
       DEPTRNTP3G                     CHAR(13) NOT NULL,
       TREINVOR3G                     CHAR(16) NOT NULL,
       TIPESHED3G                     CHAR(01) NOT NULL,
       TOTWRRES3G                     CHAR(05) NOT NULL,
       DEPTMDEV3G                     CHAR(05) NOT NULL,
       ARRTMDEV3G                     CHAR(05) NOT NULL,
       FROMAREA3G                     CHAR(14) NOT NULL,
       ARRVAREA3G                     CHAR(14) NOT NULL,
       DEPTSIGN3G                     CHAR(10) NOT NULL,
       DEPTTERM3G                     CHAR(08) NOT NULL
     ) END-EXEC.
************************************************************************
* COBOL DECLARATION FOR TABLE RAIL.TREINSHEDMON_TAB                    *
************************************************************************
 01  DCLTREINSHEDMON-TAB.
     03 TRAINFRM3G                   PIC X(20).
* FROM TRAIN STATION
```

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```
     03 TRAINTOO3G                    PIC X(20).
* TO TRAIN STATION
     03 DEPSHDDT3G                    PIC X(08).
* TRAIN SCHEDULED DEPART DATE (PK)
     03 DEPSHDTM3G                    PIC X(04).
* TRAIN SCHEDULED DEPART TIME (PK)
     03 ARRSHDDT3G                    PIC X(08).
* TRAIN SCHEDULED ARRIVAL DATE (PK)
     03 ARRSHDTM3G                    PIC X(04).
* TRAIN SCHEDULED ARRIVAL TIME (PK)
     03 DEPENDES3G                    PIC X(20).
* TRAIN LOAD DESTINATION
     03 ORIGINST3G                    PIC X(20).
* TRAIN ORIGIN STATION
     03 DEPARTDT3G                    PIC X(08).
* TRAIN DEPART DATE
     03 DEPARTTM3G                    PIC X(04).
* TRAIN DEPART TIME
     03 ARRLDATE3G                    PIC X(08).
* TRAIN ARRIVAL DATE
     03 ARRLTIME3G                    PIC X(04).
* TRAIN ARRIVAL TIME
     03 DEPREPDT3G                    PIC X(08).
* TRAIN DEPART REPORT DATE
     03 DEPREPTM3G                    PIC X(04).
* TRAIN DEPART REPORT TIME
     03 ARRREPDT3G                    PIC X(08).
* TRAIN ARRIVAL REPORT DATE
     03 ARRREPTM3G                    PIC X(04).
* TRAIN ARRIVAL REPORT TIME
     03 TOTTRUCK3G                    PIC X(05).
* TOTAL WAGONS ON TRAIN
     03 TOTLOADE3G                    PIC X(05).
* TOTAL LOADED WAGONS ON TRAIN
     03 TOTEMPTY3G                    PIC X(05).
* TOTAL EMPTY WAGONS ON TRAIN
     03 TOTRESRV3G                    PIC X(05).
* TOTAL RESEVED WAGONS ON TRAIN
     03 TOTUNRES3G                    PIC X(05).
* TOTAL UNRESEVED WAGONS ON TRAIN
     03 RESNOTON3G                    PIC X(05).
* TOTAL RESEVED WAGONS NOT ON TRAIN
     03 DEPTRNST3G                    PIC X(20).
* TRAIN DEPARTURE STATUS
     03 DEPTRNNO3G                    PIC X(16).
* TRAIN NUMBER
     03 DEPTRNTP3G                    PIC X(13).
* TRAIN TYPE
     03 TREINVOR3G                    PIC X(16).
* PREVIOUS TRAIN NUMBER
     03 TIPESHED3G                    PIC X(01).
* TYPE OF SCHEDULE 1, 2, 3, ' '
     03 TOTWRRES3G                    PIC X(05).
* NUMBER OF RESERVED TRUCKS ON THIS TRAIN RESERVED FOR A
* DIFFERENT TRAIN
     03 DEPTMDEV3G                    PIC X(05).
* DIFFERENCE IN MINUTES BETWEEN RESERVED AN ACTUAL DEPART TIMES
     03 ARRTMDEV3G                    PIC X(05).
* DIFFERENCE IN MINUTES BETWEEN RESERVED AN ACTUAL ARRIVAL TIMES
     03 FROMAREA3G                    PIC X(14).
* FROM TRAIN STATION AREACODE
     03 ARRVAREA3G                    PIC X(14).
* TO TRAIN STATION AREACODE
     03 DEPTSIGN3G                    PIC X(10).
* DEPART OR ARRIVAL TREIN SIGNON
     03 DEPTTERM3G                    PIC X(08).
* DEPART OR ARRIVAL TREIN TERMINAL
******************************************************************
* THE NUMBER OF COLUMNS DESCRIBED BY THIS DECLARATION IS 1       *
******************************************************************
```

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10. Technical SQL

Detail of trains arriving late according to the schedule can be extracted from the RAIL.TREINSHEDMON_TAB (BTQ4) which is available on the MIS environment using the following SQL:-

Please ensure that, in the where clause, the ARRLDATE3G = the previous day's date at time of enquiry.

```
SELECT
A.DEPTRNNO3G||A.TIPESHED3G AS TRAINNOSHED,B.FONKOREK01 AS
TRNFRM,C.FONKO
REK01 AS TRNTOO,A.TOTTRUCK3G||' '||A.TOTLOADE3G||' '||A.TOTEMPTY3G AS
TO
TLODEMP,A.ARRLDATE3G||' '||A.ARRLTIME3G AS ARRIVAL,A.ARRSHDDT3G||'
'||A.
ARRSHDTM3G AS
SHEDARR,SUBSTR(D.ZONEDESC99,1,8)||SUBSTR(D.GROUPNME99,5,2)
 AS REGIONAREA
FROM RAIL.TREINSHEDMON_TAB A,RAIL.STASIEDETAIL_TAB
B,RAIL.STASIEDETAIL_T
AB C,RAIL.AREAGROUP_TAB D
WHERE A.ARRVAREA3G = D.AREACODE99
  AND SUBSTR(A.ARRVAREA3G,1,2) ^= '00' AND A.ARRLDATE3G = '20090104'
  AND A.ARRLTIME3G > '0000'          AND A.TRAINFRM3G = B.KEYFONET01
  AND A.TRAINTOO3G = C.KEYFONET01
WITH UR
```

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Ideal Sequence?	Role	Accountability (I hereby declare that I have reviewed this document and it …)
1	ICTM – Programme Management	… is within the scope of the project / programme as defined
2	Process Owner	… correctly defines the business context and measure … references the correct business processes … correctly describes related available data and source systems … identified the current utilisation of the measure
3	Functional MIS representative (where available)	co-sign with process owner and … designed the display such that it will fit with other dashboards
4	Performance Enablement	… the KPI definition is correct / have been added to the list of definitions … designed the display such that it will fit with other dashboards
5	ICTM – Portfolio Management	… complies with the standard and contains all the required and relevant content
6	ICTM – Technical / Information Architecture	… provides sufficient information to develop the technical specifications from
7	Sponsor	… addresses the business need as defined

5. Sign

Project name	TBI Stream C		
Signatories		**Signature**	**Date**
Dirk Nieuwoudt	Project sponsor		28/07/09
Solomon Rampheng	Process Owner		28.07.09
Mark Snyders	Portfolio Management		
	Programme Management		
Kesegan Nair	ICTM – Technical / Information Architecture		

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KPA Name(s)	Asset Utilisation / Increasing Volumes
Project Name	Dashboard
Project Sponsor:	Dirk Nieuwoudt
Version:	3.0
Document Title:	On Time Departures - Minutes late per train_V1
Creation Date:	03 March 2009

Transnet Freight Rail Dashboard Functional Specification

Revision Date:	
Document Reference:	
Primary Author(s):	Andre J. Ferreira (Monkey)
Co-Author(s):	

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BUSINESS SPECIFICATIONS FOR TRAINS DEPARTING LATE / DEPOT DASHBOARD AUTOMATION

1. Business Context

- Measurement of trains departing late by providing minutes late departed at any location.
- Linked to the *Capacity Management, Improve / Optimise, Monitoring & Control, Production Planning, Order Execution and Customer Interaction* (from value chain and L1 level)

2. Project Context

- Name: Business Specifications – KPI / Depot Dashboard Automation
- Purpose: Automate dashboards in use in yards/depots - this is to provide management a view of trains departing late.

3. KPI Definition

3.1 On Time Departures - Minutes late per train (All trains that departed late)

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- These trains can depart from any location which is according to the scheduled departure location, i.e. Yards, Stations and private sidings
- This KPI measure the actual number of trains departed late with the minutes that they are late.

4. Measure Context

- Feed to / feed from:

  This measurement stands on its own i.e. it does not use another measure in its calculation nor is it used to calculate a higher level measure. It is however aggregated on various levels per location.

Trains that departs late are currently available on Real time Monitoring System and Decision Support (MIS)

5. Data Description

- Source systems

  - Capture onto the Sprint and IATS systems

- Data flows model

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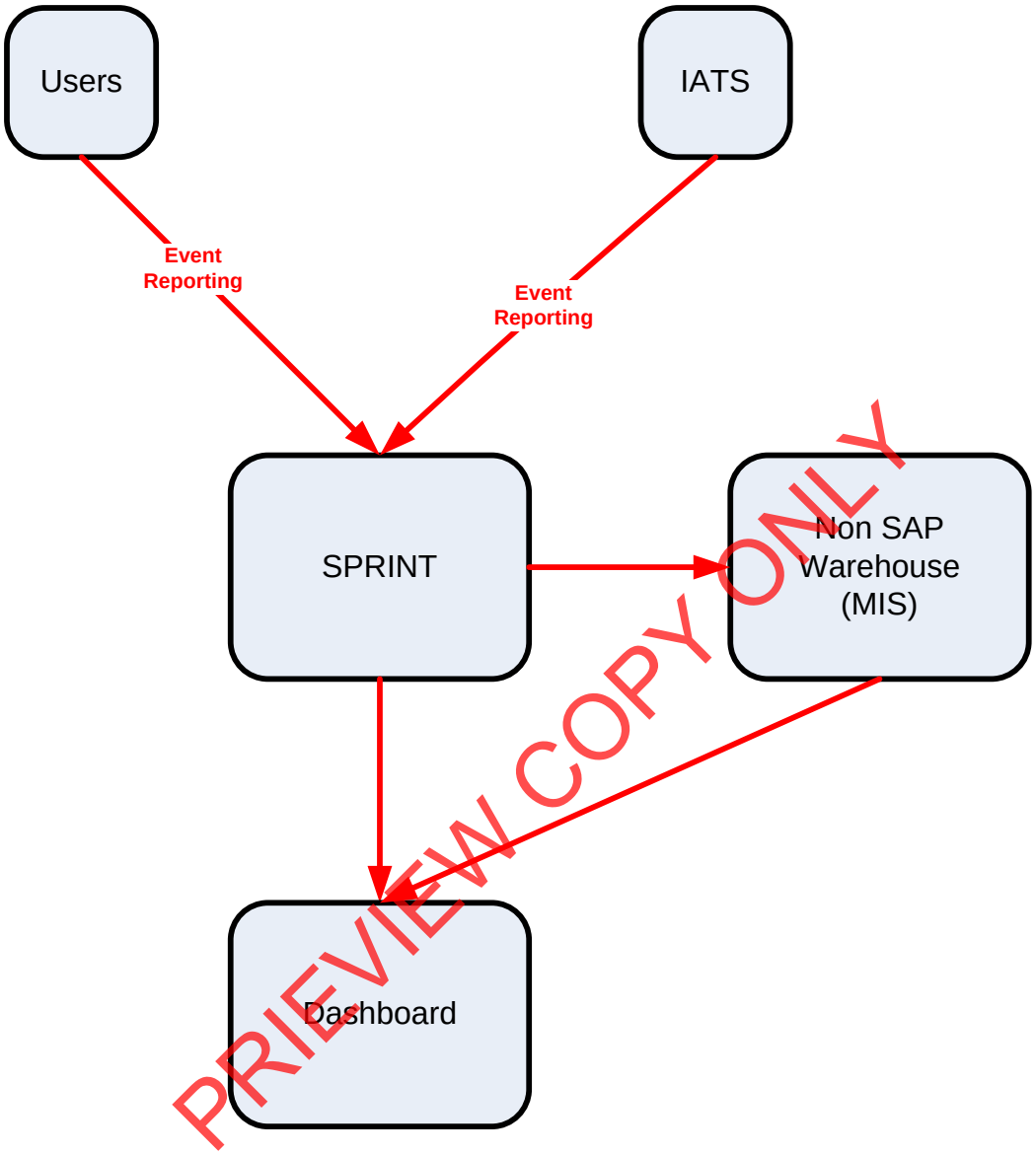

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- Components of the calculation required: N/A

6. Solution Requirements

- Minimum requirements:

  - Dimensions / parameters:
    - Operational structure; starting on location level and aggregated to Yard, Area, Cluster, Region and TFR level
    - Primary requirement is to track trains arrive late.
  - TFR yards, locations should be easily extracted from a location perspective.
  - Reporting periods: Daily,

- Graphics: Printable bar graphs and tables in PDF-format – rolling 30 days
- Ability to navigate between levels
- Linked to other measures in the “Depot Dashboard”

- Additional requirements to optimise this solution:

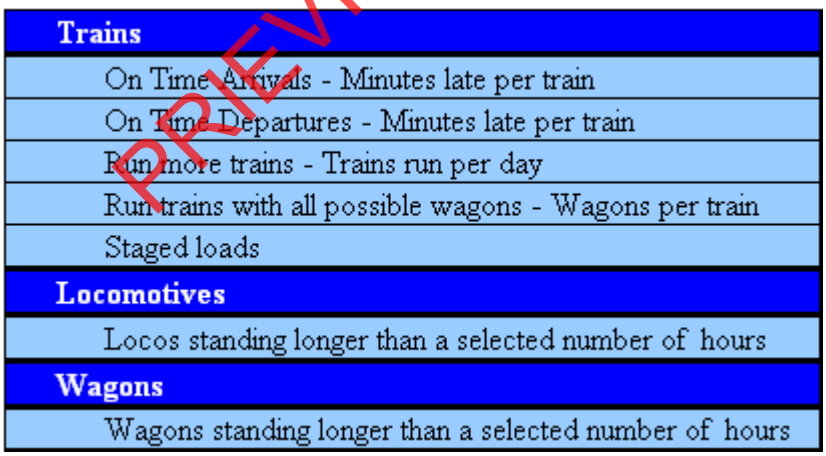
  - Dimensions / parameters: More detail re. Locations, Areas, Regions, etc. (sortable per criteria).

7. Solution Proposal

- Solution detail:

To obtain the KPIs, a link **“Train and Rolling Stock Performance Indicators”** will be published on the portal. When the user clicks on this link, a list of resources under which the different summarised list of KPI’s will be displayed i.e. Trains, Locomotives and Wagons.

The user would then be able to drill down on each of these summarised lists. In this case, they would select **“Trains”**



When the user clicks on a specific KPI, e.g. **“On time departures – Minutes late per train”**, the screen with the selection parameters will be displayed for that KPI **(See diagram below).** The “DISPLAY TYPE” will default to “GRAPH”

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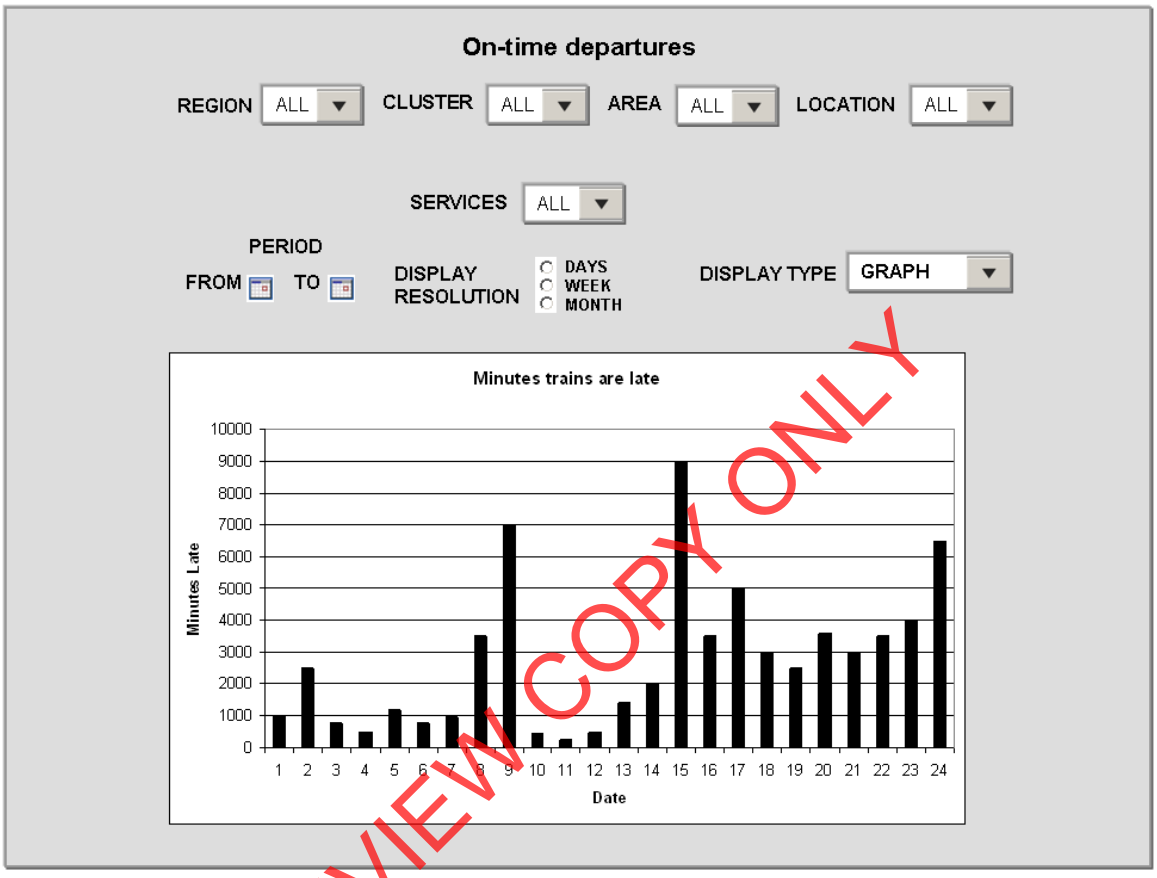
The following dropdowns will be made available.



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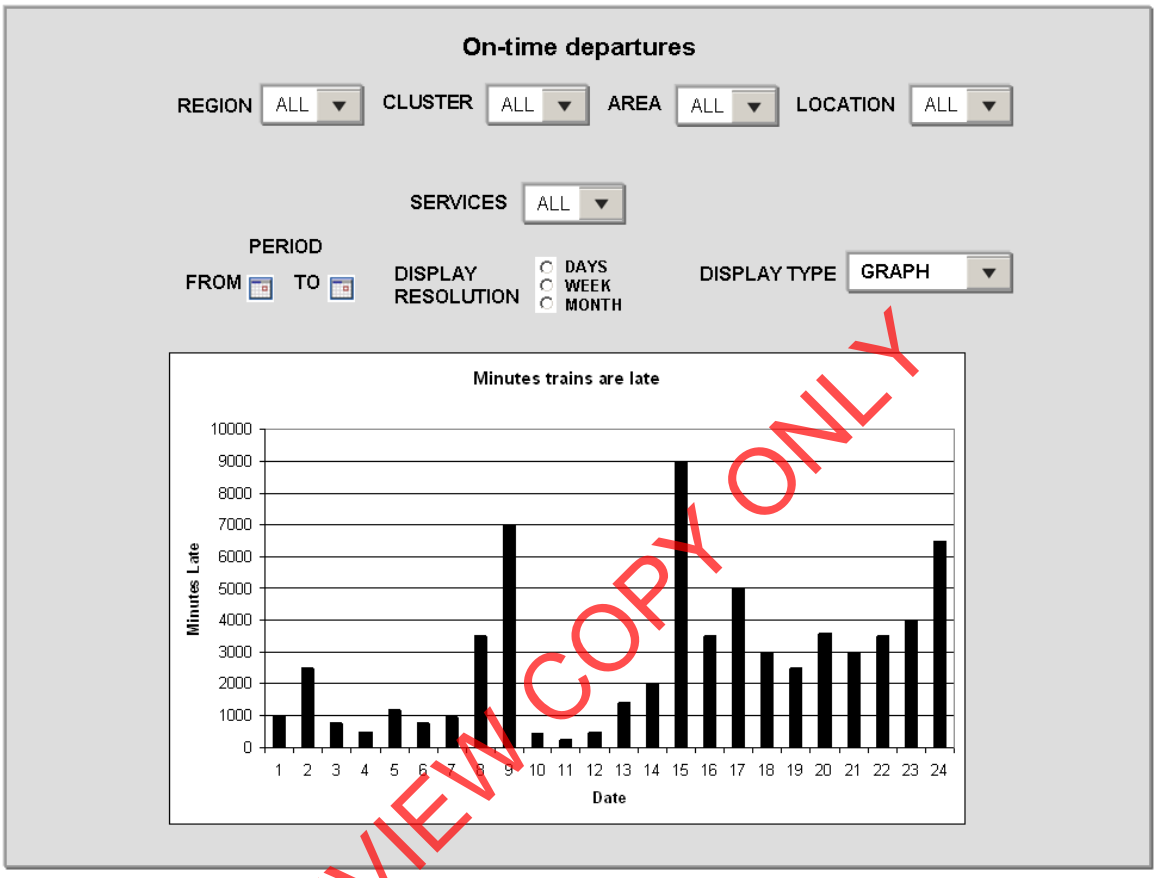
Region:	Drop down with the following: All, Central, Eastern, and Western.
Cluster:	Drop down related to region selected, if no region selected all clusters.
Area:	Drop down related to region selected, if no region selected all areas.
Location:	Drop down related to region and/or area selected as specific yard/depot can be selected.
Services:	As used in the ITP (as found in MIS).
Period (from/to)	User can select with calendars the From – To dates.
Display resolution	This can be selected to provide information per Day (Max 31), Week (Max 52), Month (Max 24)
Display type:	The output can be either in Graph or Detail format

After completing the above screen the execution of the report to generate information will automatically be performed displaying a bar graph according to the information selected.

The user can now change the different dropdown to get the desired results in either Graph or Detail view.



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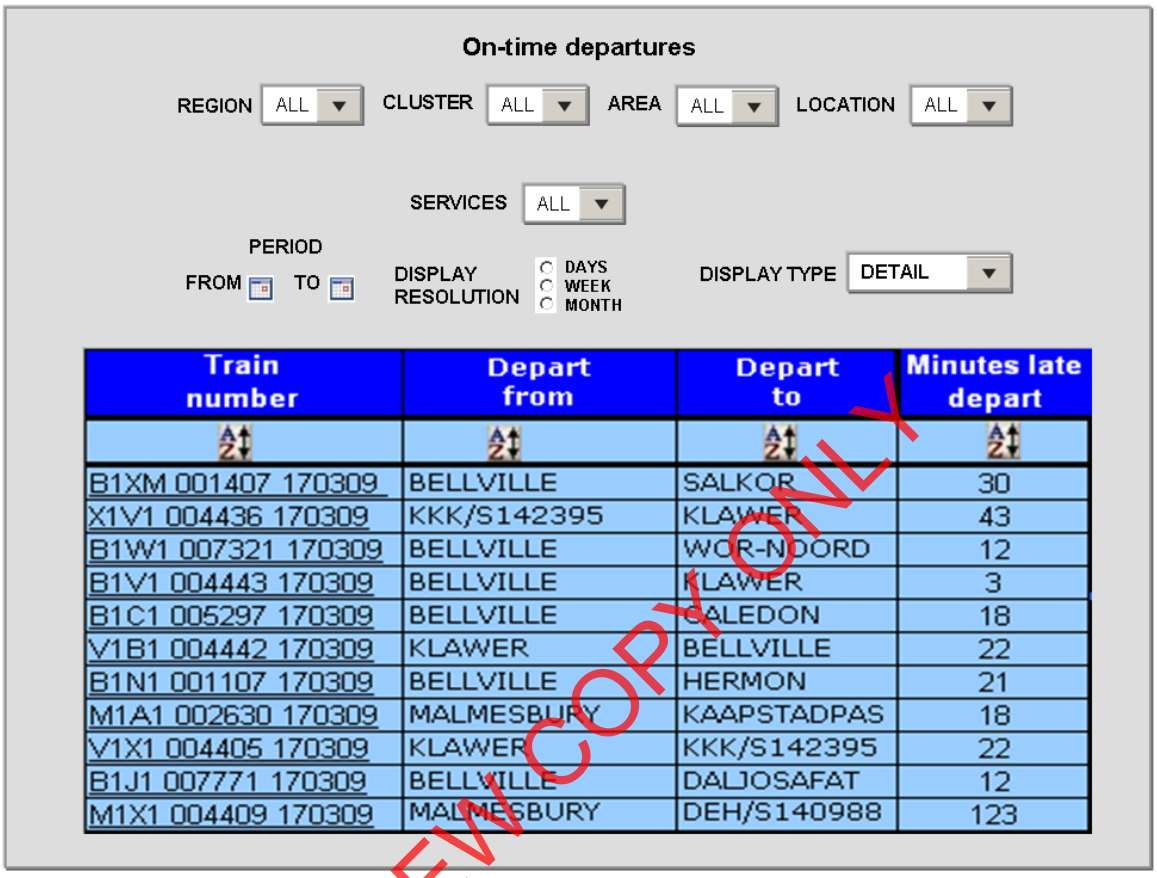
When **"Detail"** view is selected together with all the other appropriate selections the detail of all trains that departed late will be displayed at the bottom of the screen, ie.



Train number	Depart from	Depart to	Minutes late depart
B1XM 001407 170309	BELLVILLE	SALKOR	30
X1V1 004436 170309	KKK/S142395	KLAWER	43
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B1V1 004443 170309	BELLVILLE	KLAWER	3
B1C1 005297 170309	BELLVILLE	CALEDON	18
V1B1 004442 170309	KLAWER	BELLVILLE	22
B1N1 001107 170309	BELLVILLE	HERMON	21
M1A1 002630 170309	MALMESBURY	KAAPSTADPAS	18
V1X1 004405 170309	KLAWER	KKK/S142395	22
B1J1 007771 170309	BELLVILLE	DALJOSAFAT	12
M1X1 004409 170309	MALMESBURY	DEH/S140988	123

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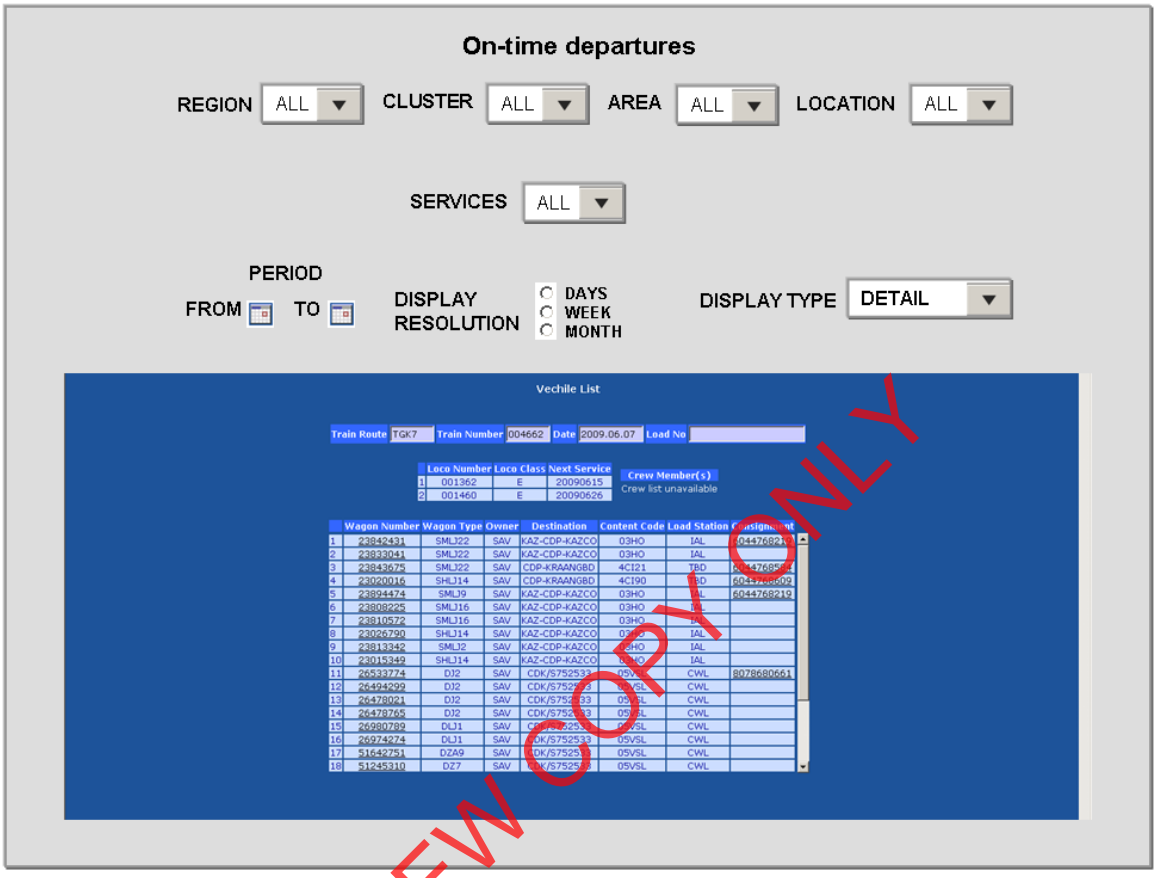
Column description

- Train number = Number of the train that arrive late
- Depart from = Location where the trains departed From
- Depart to = Location where the trains departed To
- Minutes late depart = The total number of minutes that the train arrived late

The button provides a sorting option in the column provided.

When the user clicks on the underlined train number, the following screen will be displayed



PREVIEW COPY ONLY

Column description

- ❖ (--First column--) = Wagon sequence number
- ❖ Wagon number = The wagons number on the train list.
- ❖ Wagon type = The type of the wagons in the previous column
- ❖ Wagon Owner = The owner of the wagons in column 2
- ❖ Contents code = The handling code of the specific wagon.
- ❖ Load station = The loading location code.
- ❖ Consignment = The consignment number of the wagons when loaded

- Proposed approach (best way to solve current needs/issues)\

  - To be decided and implemented.

Note: All above displays are illustrative. Final displays will be dependent on system functionality and dashboard standardisation.

8. Business rules

- **Region**
  - o It can only belong to one of the following, Central, Eastern, or Western and must exist in Locnet

- **Area**
  - Can only be an area that exists in Locnet.
- **Train number**
  - Must be a valid train number extracted from the database
- **Depart from**
  - Must be a location from the database from where trains depart and must match the selection
- **Depart to**
  - Must be a location from the database where to the trains from the selection list departed to
- **Minutes late departed**
  - This must be numeric and the difference between the scheduled and actual departure date and times.

9. Dataset

```
************************************************************************
* DCLGEN TABLE(RAIL.TREINSHEDMON_TAB)                                  *
*        LIBRARY(GQTN1.BEDRYF.TKCOPY(TABTRN3G))                        *
*        ACTION(REPLACE)                                               *
*        LANGUAGE(COBOL)                                               *
*        QUOTE                                                         *
* ... IS THE DCLGEN COMMAND THAT MADE THE FOLLOWING STATEMENTS         *
************************************************************************
     EXEC SQL DECLARE TREINSHEDMON_TAB TABLE
     ( TRAINFRM3G                     CHAR(20) NOT NULL,
       TRAINTOO3G                     CHAR(20) NOT NULL,
       DEPSHDDT3G                     CHAR(08) NOT NULL,
       DEPSHDTM3G                     CHAR(04) NOT NULL,
       ARRSHDDT3G                     CHAR(08) NOT NULL,
       ARRSHDTM3G                     CHAR(04) NOT NULL,
       DEPENDES3G                     CHAR(20) NOT NULL,
       ORIGINST3G                     CHAR(20) NOT NULL,
       DEPARTDT3G                     CHAR(08) NOT NULL,
       DEPARTTM3G                     CHAR(04) NOT NULL,
       ARRLDATE3G                     CHAR(08) NOT NULL,
       ARRLTIME3G                     CHAR(04) NOT NULL,
       DEPREPDT3G                     CHAR(08) NOT NULL,
       DEPREPTM3G                     CHAR(04) NOT NULL,
       ARRREPDT3G                     CHAR(08) NOT NULL,
       ARRREPTM3G                     CHAR(04) NOT NULL,
       TOTTRUCK3G                     CHAR(05) NOT NULL,
       TOTLOADE3G                     CHAR(05) NOT NULL,
       TOTEMPTY3G                     CHAR(05) NOT NULL,
       TOTRESRV3G                     CHAR(05) NOT NULL,
       TOTUNRES3G                     CHAR(05) NOT NULL,
       RESNOTON3G                     CHAR(05) NOT NULL,
       DEPTRNST3G                     CHAR(20) NOT NULL,
       DEPTRNNO3G                     CHAR(16) NOT NULL,
       DEPTRNTP3G                     CHAR(13) NOT NULL,
       TREINVOR3G                     CHAR(16) NOT NULL,
       TIPESHED3G                     CHAR(01) NOT NULL,
       TOTWRRES3G                     CHAR(05) NOT NULL,
       DEPTMDEV3G                     CHAR(05) NOT NULL,
       ARRTMDEV3G                     CHAR(05) NOT NULL,
       FROMAREA3G                     CHAR(14) NOT NULL,
       ARRVAREA3G                     CHAR(14) NOT NULL,
       DEPTSIGN3G                     CHAR(10) NOT NULL,
       DEPTTERM3G                     CHAR(08) NOT NULL
     ) END-EXEC.
************************************************************************
* COBOL DECLARATION FOR TABLE RAIL.TREINSHEDMON_TAB                    *
************************************************************************
 01  DCLTREINSHEDMON-TAB.
     03 TRAINFRM3G                   PIC X(20).
```

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```
* FROM TRAIN STATION
     03 TRAINTOO3G                    PIC X(20).
* TO TRAIN STATION
     03 DEPSHDDT3G                    PIC X(08).
* TRAIN SCHEDULED DEPART DATE (PK)
     03 DEPSHDTM3G                    PIC X(04).
* TRAIN SCHEDULED DEPART TIME (PK)
     03 ARRSHDDT3G                    PIC X(08).
* TRAIN SCHEDULED ARRIVAL DATE (PK)
     03 ARRSHDTM3G                    PIC X(04).
* TRAIN SCHEDULED ARRIVAL TIME (PK)
     03 DEPENDES3G                    PIC X(20).
* TRAIN LOAD DESTINATION
     03 ORIGINST3G                    PIC X(20).
* TRAIN ORIGIN STATION
     03 DEPARTDT3G                    PIC X(08).
* TRAIN DEPART DATE
     03 DEPARTTM3G                    PIC X(04).
* TRAIN DEPART TIME
     03 ARRLDATE3G                    PIC X(08).
* TRAIN ARRIVAL DATE
     03 ARRLTIME3G                    PIC X(04).
* TRAIN ARRIVAL TIME
     03 DEPREPDT3G                    PIC X(08).
* TRAIN DEPART REPORT DATE
     03 DEPREPTM3G                    PIC X(04).
* TRAIN DEPART REPORT TIME
     03 ARRREPDT3G                    PIC X(08).
* TRAIN ARRIVAL REPORT DATE
     03 ARRREPTM3G                    PIC X(04).
* TRAIN ARRIVAL REPORT TIME
     03 TOTTRUCK3G                    PIC X(05).
* TOTAL WAGONS ON TRAIN
     03 TOTLOADE3G                    PIC X(05).
* TOTAL LOADED WAGONS ON TRAIN
     03 TOTEMPTY3G                    PIC X(05).
* TOTAL EMPTY WAGONS ON TRAIN
     03 TOTRESRV3G                    PIC X(05).
* TOTAL RESEVED WAGONS ON TRAIN
     03 TOTUNRES3G                    PIC X(05).
* TOTAL UNRESEVED WAGONS ON TRAIN
     03 RESNOTON3G                    PIC X(05).
* TOTAL RESEVED WAGONS NOT ON TRAIN
     03 DEPTRNST3G                    PIC X(20).
* TRAIN DEPARTURE STATUS
     03 DEPTRNNO3G                    PIC X(16).
* TRAIN NUMBER
     03 DEPTRNTP3G                    PIC X(13).
* TRAIN TYPE
     03 TREINVOR3G                    PIC X(16).
* PREVIOUS TRAIN NUMBER
     03 TIPESHED3G                    PIC X(01).
* TYPE OF SCHEDULE 1, 2, 3, ' '
     03 TOTWRRES3G                    PIC X(05).
* NUMBER OF RESERVED TRUCKS ON THIS TRAIN RESERVED FOR A
* DIFFERENT TRAIN
     03 DEPTMDEV3G                    PIC X(05).
* DIFFERENCE IN MINUTES BETWEEN RESERVED AN ACTUAL DEPART TIMES
     03 ARRTMDEV3G                    PIC X(05).
* DIFFERENCE IN MINUTES BETWEEN RESERVED AN ACTUAL ARRIVAL TIMES
     03 FROMAREA3G                    PIC X(14).
* FROM TRAIN STATION AREACODE
     03 ARRVAREA3G                    PIC X(14).
* TO TRAIN STATION AREACODE
     03 DEPTSIGN3G                    PIC X(10).
* DEPART OR ARRIVAL TREIN SIGNON
     03 DEPTTERM3G                    PIC X(08).
* DEPART OR ARRIVAL TREIN TERMINAL
*****************************************************************
* THE NUMBER OF COLUMNS DESCRIBED BY THIS DECLARATION IS 1       *
*****************************************************************
```

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10. Technical SQL

Detail of trains departing late according to the schedule can be extracted from the RAIL.TREINSHEDMON_TAB (BTQ4) which is available on the MIS environment using the following SQL:-

Please ensure that, in the where clause, the **"DEPARTDT3G"** = the previous day's date at time of enquiry.

```
SELECT
A.DEPTRNNO3G||A.TIPESHED3G AS TRAINNOSHED,B.FONKOREK01 AS
TRNFRM,C.FONKO
REK01 AS TRNTOO,A.TOTTRUCK3G||' '||A.TOTLOADE3G||' '||A.TOTEMPTY3G AS
TO
TLODEMP,A.DEPARTDT3G||' '||A.DEPARTTM3G AS DEPART ,A.DEPSHDDT3G||'
'||A.
DEPSHDTM3G AS
SHEDDEP,SUBSTR(D.ZONEDESC99,1,8)||SUBSTR(D.GROUPNME99,5,2)
 AS REGIONAREA
FROM RAIL.TREINSHEDMON_TAB A,RAIL.STASIEDETAIL_TAB
B,RAIL.STASIEDETAIL_T
AB C,RAIL.AREAGROUP_TAB D
WHERE A.FROMAREA3G = D.AREACODE99       AND A.ARRLDATE3G = '00000000'
  AND SUBSTR(A.FROMAREA3G,1,2) ^= '00' AND A.DEPARTDT3G = '20090104'
  AND A.DEPARTTM3G > '0000'             AND A.TRAINFRM3G = B.KEYFONET01
  AND A.TRAINTOO3G = C.KEYFONET01       AND A.ARRLTIME3G = '0000'
WITH UR
```

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Ideal Sequence?	Role	Accountability (I hereby declare that I have reviewed this document and it …)
1	ICTM – Programme Management	… is within the scope of the project / programme as defined
2	Process Owner	… correctly defines the business context and measure … references the correct business processes … correctly describes related available data and source systems … identified the current utilisation of the measure
3	Functional MIS representative (where available)	co-sign with process owner and … designed the display such that it will fit with other dashboards
4	Performance Enablement	… the KPI definition is correct / have been added to the list of definitions … designed the display such that it will fit with other dashboards
5	ICTM – Portfolio Management	… complies with the standard and contains all the required and relevant content
6	ICTM – Technical / Information Architecture	… provides sufficient information to develop the technical specifications from
7	Sponsor	… addresses the business need as defined

5. Sign

Project name	TBI Stream C		
Signatories		**Signature**	**Date**
Dirk Nieuwoudt	Project sponsor		28/09/09
Solomon Rampheng	Process Owner		28.07.09
Mark Snyders	Portfolio Management		
	Programme Management		
Kesegan Nair	ICTM – Technical / Information Architecture		

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KPA Name(s)	Asset Utilisation / Increasing Volumes
Project Name	Dashboard
Project Sponsor:	Dirk Nieuwoudt
Version:	3.0
Document Title:	Staged loads at midnight
Creation Date:	03 March 2009
Revision Date:	

Transnet Freight Rail Dashboard Functional Specification

Document Reference:	
Primary Author(s):	Andre J. Ferreira (Monkey)
Co-Author(s):	

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BUSINESS SPECIFICATIONS FOR STAGED LOADS AT MIDNIGHT / DEPOT DASHBOARD AUTOMATION

1. Business Context

- Measurement of Staged loads at midnight at any location
- Linked to the *Capacity Management, Improve / Optimise, Monitoring & Control, Production Planning, Order Execution and Customer Interaction* (from value chain and L1 level)

2. Project Context

- Name: Business Specifications – KPI / Depot Dashboard Automation
- Purpose: Automate dashboards in use in yards/depots - this is to provide management a view of all staged load en-route to its final destination.

3. KPI Definition

3.1 Staged loads at midnight

- Trains that will be acted upon is those that did not reach it's final destination and would need a Plan "B" train to move it from the current location to it's final destination and which are reported as staged on Sprint
- These trains can be standing in any location, i.e. Yards, Exchange Yards, stations and holding areas
- This KPI measure the actual number of Staged loads at midnight – Detail per train is also available.

4. Measure Context

- Feed to / feed from:

  This measurement stands on its own i.e. it does not use another measure in its calculation nor is it used to calculate a higher level measure.

Staged loads at midnight are currently only available on Real time Monitoring System IATS graphical viewer.

5. Data Description

- Source systems

  - Capture onto the Sprint and IATS systems

- Data flows model

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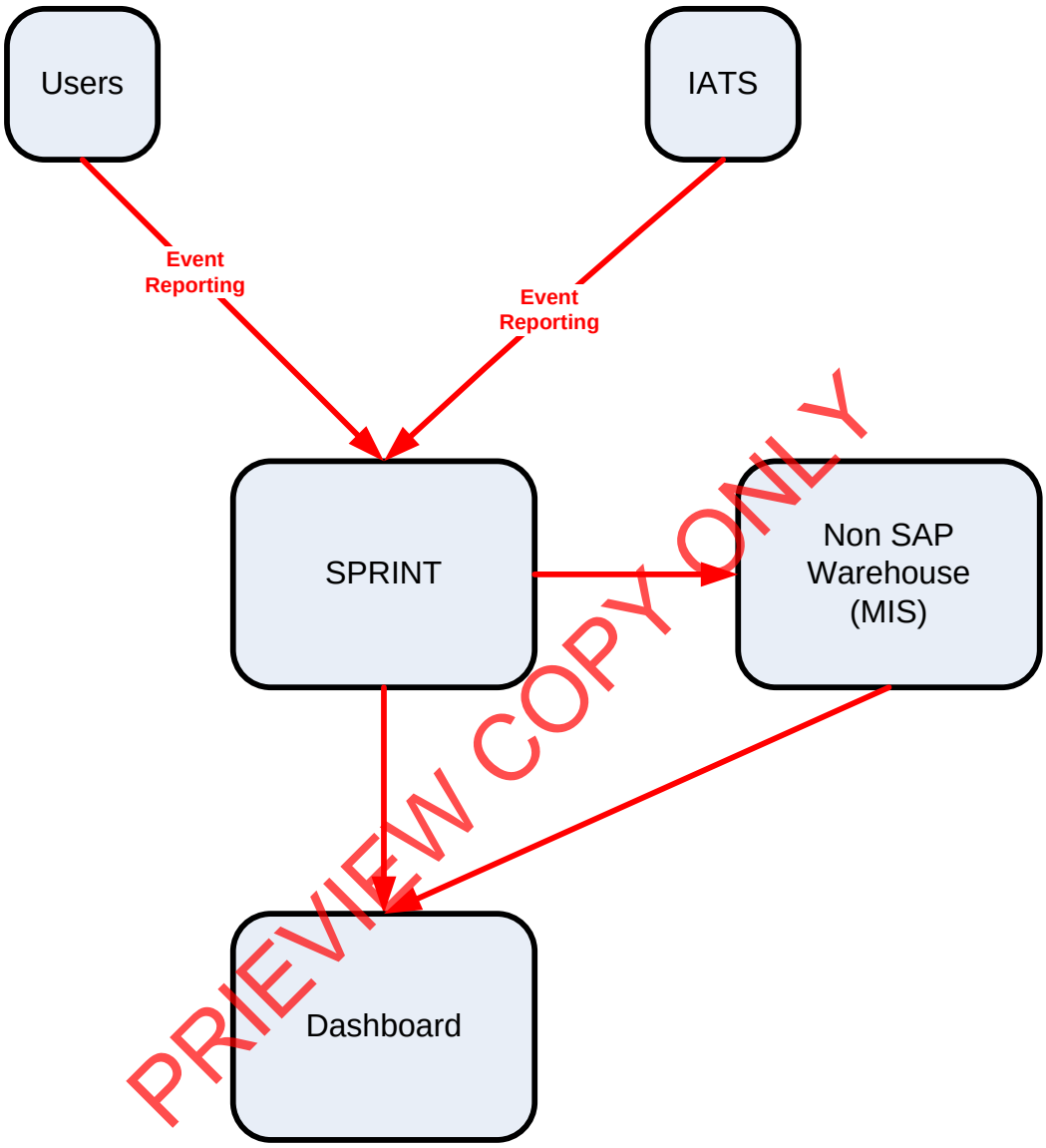

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- Components of the calculation required: N/A

6. Solution Requirements

- Minimum requirements:

  - Dimensions / parameters:
    - Operational structure; starting on location level and aggregated to Yard, Area, Cluster, Region and TFR level
    - Primary requirement is to track trains that are staged.
  - TFR yards, locations should be easily extracted from a location perspective.
  - Reporting periods: Daily,

- Graphics: Printable bar graphs and tables in PDF-format – rolling 30 days
- Ability to navigate between levels
- Linked to other measures in the “Depot Dashboard”

- Additional requirements to optimise this solution:

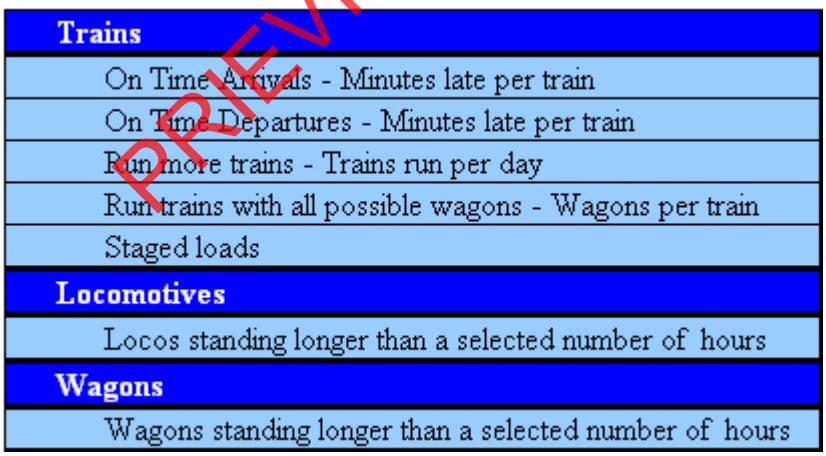
  - Dimensions / parameters: More detail re. Locations, Areas, Regions, etc

7. Solution Proposal

- Solution detail:

To obtain the KPIs, a link **“Train and Rolling Stock Performance Indicators”** will be published on the portal. When the user clicks on this link, a list of resources under which the different summarised list of KPI’s will be displayed i.e. Trains, Locomotives and Wagons.

The user would then be able to drill down on each of these summarised lists. In this case, they would select **“Trains”**



When the user clicks on a specific KPI, e.g. “Staged trains”, the screen with the selection parameters will be displayed for that KPI **(See diagram below).** The “DISPLAY TYPE” will default to “GRAPH”

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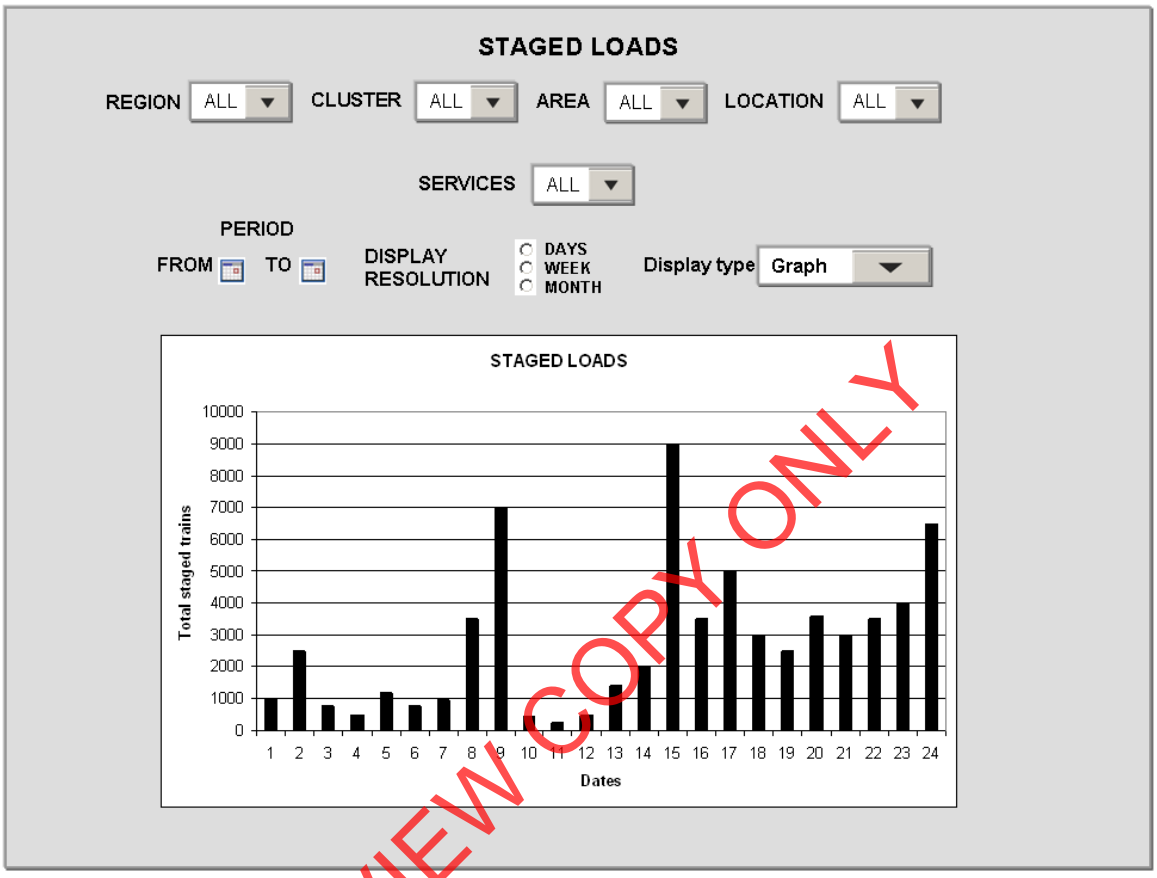
The following screen with dropdowns will be made available.



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Region: Drop down with the following: All, Central, Eastern, and Western.

Cluster: Drop down related to region selected, if no region selected all clusters.

Area: Drop down related to region selected, if no region selected all areas.

Location: Drop down related to region and/or area selected as specific yard/depot can be selected.

Services: As used in the ITP (as found in MIS).

Period (from/to) User can select with calendars the From – To dates.

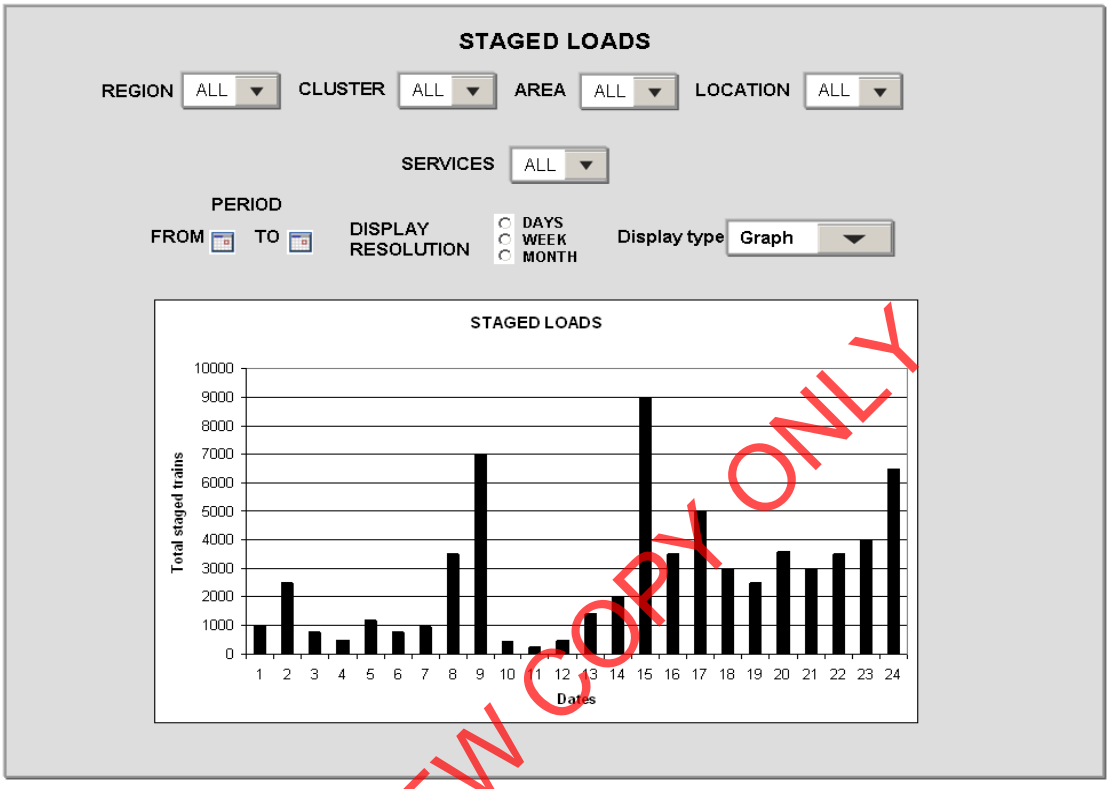
Display resolution This can be selected to provide information per Day, Week, Month

Display type: The output can be either in Graph or Detail format

After completing the above screen the execution of the report to generate information will automatically be performed displaying a bar graph according to the information selected. The “DISPLAY TYPE” will default to “GRAPH”

The user can now change the different dropdown to get the desired results in either Graph of Detail view.

When Graph view is selected together with all the other appropriate selections the graph will be displayed at the bottom of the screen i.e.



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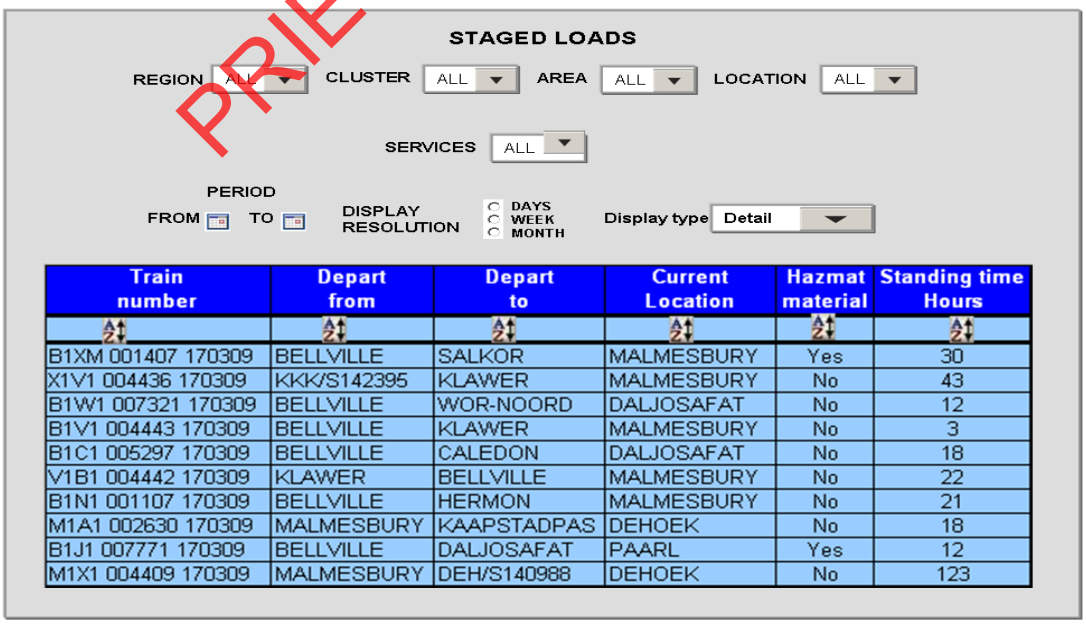
If the user selects **"Detail"** view in **"Display type"** the following view will be made available



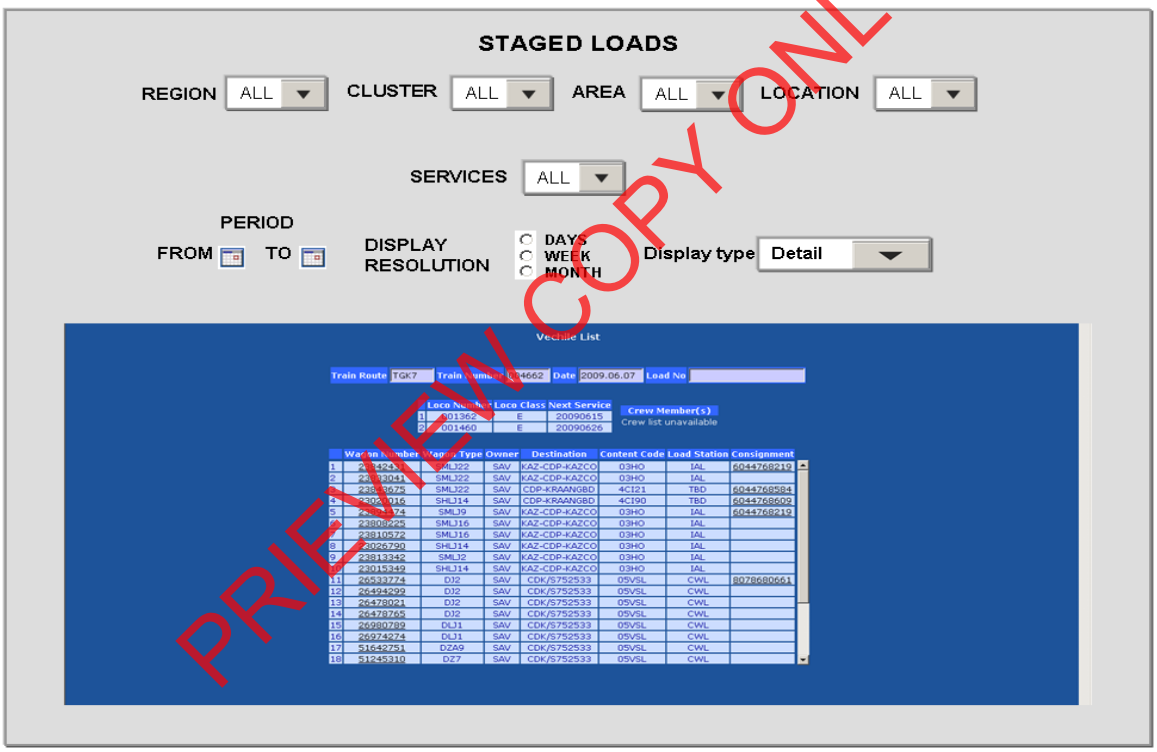
Train number	Depart from	Depart to	Current Location	Hazmat material	Standing time Hours
B1XM 001407 170309	BELLVILLE	SALKOR	MALMESBURY	Yes	30
X1V1 004436 170309	KKK/S142395	KLAWER	MALMESBURY	No	43
B1W1 007321 170309	BELLVILLE	WOR-NOORD	DALJOSAFAT	No	12
B1V1 004443 170309	BELLVILLE	KLAWER	MALMESBURY	No	3
B1C1 005297 170309	BELLVILLE	CALEDON	DALJOSAFAT	No	18
V1B1 004442 170309	KLAWER	BELLVILLE	MALMESBURY	No	22
B1N1 001107 170309	BELLVILLE	HERMON	MALMESBURY	No	21
M1A1 002630 170309	MALMESBURY	KAAPSTADPAS	DEHOEK	No	18
B1J1 007771 170309	BELLVILLE	DALJOSAFAT	PAARL	Yes	12
M1X1 004409 170309	MALMESBURY	DEH/S140988	DEHOEK	No	123

Description of columns on detail screen

- ❖ Train number = Train
- ❖ number that was reported to be staged
- ❖ Depart Form = Location where trains departed from
- ❖ Depart to = Location where trains departed to
- ❖ Current Location = Where the train is staged
- ❖ HAZMAT material = Whether hazardous material is on the train.
- ❖ Standing time (hours) = Total standing time in hours

The button provides a sorting option in the column where provided.

When the user clicks on the underlined train number, the following screen will be displayed



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Column description

- ❖ (--First column--) = Wagon sequence number
- ❖ Wagon number = The wagons number on the train list.
- ❖ Wagon type = The type of the wagons in the previous column
- ❖ Owner = The owner of the wagons in column 2
- ❖ Contents code = The handling code of the specific wagon.
- ❖ Load station = The loading location code.
- ❖ Consignment = The consignment number of the wagons

- Proposed approach (best way to solve current needs/issues)\

  - To be decided and implemented.

Note: All above displays are illustrative. Final displays will be dependent on system functionality and dashboard standardisation.

8. Business rules

- **Region**
  - It can only belong to one of the following, Central, Eastern, or Western and must exist in Locnet
- **Area**
  - Can only be an area that exists in Locnet.
- **Train number**
  - Must be a valid train number extracted from the database
- **Depart from**
  - Must be a location from the database from where trains depart and must match the selection
- **Depart to**
  - Must be a location from the database where to the trains from the selection list departed to

9. Dataset

```
************************************************************************
* DCLGEN TABLE(RAIL.TREIN_TAB)                                         *
*        LIBRARY(GQ.BEDRYF.TKCOPY(TRAINS4A))                           *
*        ACTION(REPLACE)                                               *
*        QUOTE                                                         *
* ... IS THE DCLGEN COMMAND THAT MADE THE FOLLOWING STATEMENTS         *
************************************************************************
     EXEC SQL DECLARE TREIN_TAB TABLE
     ( TREINRTE4A                     CHAR(4) NOT NULL,
       TREINNUM4A                     CHAR(6) NOT NULL,
       TREINDAG4A                     CHAR(2) NOT NULL,
       TREINMND4A                     CHAR(2) NOT NULL,
       TREINJAR4A                     CHAR(2) NOT NULL,
       TREINVAN4A                     CHAR(3) NOT NULL,
       AREANAIX4A                     CHAR(14) NOT NULL,
       AREAVAIX4A                     CHAR(14) NOT NULL,
       VRGBESIX4A                     CHAR(14) NOT NULL,
       TRNNORIX4A                     CHAR(16) NOT NULL,
       CURAREIX4A                     CHAR(14) NOT NULL,
       TRKVOORL4A                     DECIMAL(3, 0) NOT NULL,
       TRKAFHAK4A                     DECIMAL(3, 0) NOT NULL,
       TRKBYHIS4A                     CHAR(1) NOT NULL,
       TREINSTA4A                     CHAR(2) NOT NULL,
       TKLAASTE4A                     CHAR(12) NOT NULL,
       TKLASSEQ4A                     CHAR(9) NOT NULL,
       TREINVOR4A                     CHAR(16) NOT NULL,
       TREINVOL4A                     CHAR(16) NOT NULL,
       TREINOOR4A                     CHAR(16) NOT NULL,
       VRAGBEST4A                     CHAR(20) NOT NULL,
       VRAGAREA4A                     CHAR(14) NOT NULL,
       VERTSTAT4A                     CHAR(2) NOT NULL,
       VANSTASP4A                     CHAR(20) NOT NULL,
       VANAFDEL4A                     CHAR(2) NOT NULL,
       VANTERRN4A                     CHAR(3) NOT NULL,
       VANGEBIE4A                     CHAR(3) NOT NULL,
       VANSYLYN4A                     CHAR(6) NOT NULL,
       PADVANAF4A                     DECIMAL(3, 0) NOT NULL,
       ROETESTA4A                     CHAR(3) NOT NULL,
       ROETEARE4A                     CHAR(14) NOT NULL,
       VERTLOCO4A                     DECIMAL(3, 0) NOT NULL,
       TRNRIGTN4A                     CHAR(1) NOT NULL,
       VERTRKDT4A                     DECIMAL(9, 0) NOT NULL,
       VERTRKTD4A                     DECIMAL(5, 0) NOT NULL,
```

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```
SKDVERDT4A                      DECIMAL(9, 0) NOT NULL,
SKDVERTD4A                      DECIMAL(5, 0) NOT NULL,
ESTDEPDT4A                      DECIMAL(9, 0) NOT NULL,
ESTDEPTM4A                      DECIMAL(5, 0) NOT NULL,
DEPTTERM4A                      CHAR(8) NOT NULL,
DEPVASDT4A                      DECIMAL(9, 0) NOT NULL,
DEPVASTM4A                      DECIMAL(5, 0) NOT NULL,
AANSTATS4A                      CHAR(2) NOT NULL,
STASIENA4A                      CHAR(3) NOT NULL,
STANASPE4A                      CHAR(20) NOT NULL,
NAAAFDEL4A                      CHAR(2) NOT NULL,
NAATERRN4A                      CHAR(3) NOT NULL,
NAAGEBIE4A                      CHAR(3) NOT NULL,
NAASYLYN4A                      CHAR(6) NOT NULL,
AANLOCOS4A                      DECIMAL(3, 0) NOT NULL,
ARIVALDT4A                      DECIMAL(9, 0) NOT NULL,
ARIVALTM4A                      DECIMAL(5, 0) NOT NULL,
SCHARRDT4A                      DECIMAL(9, 0) NOT NULL,
SCHARRTM4A                      DECIMAL(5, 0) NOT NULL,
ESTARRDT4A                      DECIMAL(9, 0) NOT NULL,
ESTARRTM4A                      DECIMAL(5, 0) NOT NULL,
ARRROADS4A                      DECIMAL(3, 0) NOT NULL,
ARRSGNON4A                      CHAR(10) NOT NULL,
ARRTERML4A                      CHAR(8) NOT NULL,
ARRVASDT4A                      DECIMAL(9, 0) NOT NULL,
ARRVASTM4A                      DECIMAL(5, 0) NOT NULL,
CURRYARD4A                      CHAR(3) NOT NULL,
CURRSPEL4A                      CHAR(20) NOT NULL,
CURRAREA4A                      CHAR(14) NOT NULL,
CURTDATE4A                      DECIMAL(9, 0) NOT NULL,
CURTTIME4A                      DECIMAL(5, 0) NOT NULL,
DRYWNAAM4A                      CHAR(15) NOT NULL,
DRYWPENS4A                      CHAR(7) NOT NULL,
ASSTNAAM4A                      CHAR(15) NOT NULL,
ASSTPENS4A                      CHAR(7) NOT NULL,
KONDNAAM4A                      CHAR(15) NOT NULL,
KONDPENS4A                      CHAR(7) NOT NULL,
ANDRNAAM4A                      CHAR(15) NOT NULL,
ANDRPENS4A                      CHAR(7) NOT NULL,
TREINTIP4A                      CHAR(13) NOT NULL,
KONDJUKT4A                      CHAR(1) NOT NULL,
TIMENORM4A                      DECIMAL(3, 0) NOT NULL,
KILOMVNA4A                      DECIMAL(5, 0) NOT NULL,
VRAGNOMS4A                      CHAR(6) NOT NULL,
WORKINDC4A                      CHAR(1) NOT NULL,
HAZARDIN4A                      CHAR(1) NOT NULL,
OPMERKIN4A                      CHAR(1) NOT NULL,
RADIOIND4A                      CHAR(1) NOT NULL,
TELEMIND4A                      CHAR(1) NOT NULL,
INLOPIND4A                      CHAR(1) NOT NULL,
ONDWEGID4A                      CHAR(1) NOT NULL,
SPESOSID4A                      CHAR(1) NOT NULL,
EINDPOID4A                      CHAR(1) NOT NULL,
BEGLENGT4A                      DECIMAL(7, 0) NOT NULL,
BEGASSET4A                      DECIMAL(5, 0) NOT NULL,
BEGMASSA4A                      DECIMAL(7, 0) NOT NULL,
ENDLENGT4A                      DECIMAL(7, 0) NOT NULL,
ENDASSET4A                      DECIMAL(5, 0) NOT NULL,
ENDMASSA4A                      DECIMAL(7, 0) NOT NULL,
TOTTRUCK4A                      DECIMAL(3, 0) NOT NULL,
BLOCKCDE4A                      CHAR(6) NOT NULL,
MAGTIGKD4A                      CHAR(18) NOT NULL,
PENTBEGD4A                      DECIMAL(9, 0) NOT NULL,
PENTBEGT4A                      DECIMAL(5, 0) NOT NULL,
PENTENDD4A                      DECIMAL(9, 0) NOT NULL,
PENTENDT4A                      DECIMAL(5, 0) NOT NULL,
PENTBGVD4A                      DECIMAL(9, 0) NOT NULL,
PENTBGVT4A                      DECIMAL(5, 0) NOT NULL,
PENTEDVD4A                      DECIMAL(9, 0) NOT NULL,
PENTEDVT4A                      DECIMAL(5, 0) NOT NULL,
DIRECTIN4A                      CHAR(2) NOT NULL,
```

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```
      KOPPELDT4A                     DECIMAL(9, 0) NOT NULL,
      KOPPELTM4A                     DECIMAL(5, 0) NOT NULL,
      ONTKOPDT4A                     DECIMAL(9, 0) NOT NULL,
      ONTKOPTM4A                     DECIMAL(5, 0) NOT NULL,
      VERTAAND4A                     DECIMAL(9, 0) NOT NULL,
      VERTAANT4A                     DECIMAL(5, 0) NOT NULL,
      VERTANGD4A                     DECIMAL(9, 0) NOT NULL,
      VERTANGT4A                     DECIMAL(5, 0) NOT NULL,
      RUIMPADD4A                     DECIMAL(9, 0) NOT NULL,
      RUIMPADT4A                     DECIMAL(5, 0) NOT NULL,
      REMTOETS4A                     CHAR(12) NOT NULL,
      RIGTNGIN4A                     CHAR(2) NOT NULL,
      PLASDEUR4A                     CHAR(2) NOT NULL,
      TERUPDIN4A                     CHAR(1) NOT NULL,
      TERUPOUT4A                     CHAR(1) NOT NULL,
      ANKANGND4A                     DECIMAL(9, 0) NOT NULL,
      ANKANGNT4A                     DECIMAL(5, 0) NOT NULL,
      ANKANGBD4A                     DECIMAL(9, 0) NOT NULL,
      ANKANGBT4A                     DECIMAL(5, 0) NOT NULL,
      ANKVORBD4A                     DECIMAL(9, 0) NOT NULL,
      ANKVORBT4A                     DECIMAL(5, 0) NOT NULL,
      DEPDELAY4A                     DECIMAL(5, 0) NOT NULL,
      ARRDELAY4A                     DECIMAL(5, 0) NOT NULL,
      TRJDELAY4A                     DECIMAL(5, 0) NOT NULL,
      BRDDELAY4A                     DECIMAL(5, 0) NOT NULL,
      EINDPUNT4A                     CHAR(3) NOT NULL,
      TRANSIDC4A                     CHAR(4) NOT NULL,
      TERMADDC4A                     CHAR(8) NOT NULL,
      SIGNONSC4A                     CHAR(10) NOT NULL,
      TRANDATC4A                     DECIMAL(9, 0) NOT NULL,
      TRANTIMC4A                     DECIMAL(5, 0) NOT NULL,
      TRANSIDV4A                     CHAR(4) NOT NULL,
      TERMADDV4A                     CHAR(8) NOT NULL,
      SIGNONSV4A                     CHAR(10) NOT NULL,
      TRANDATV4A                     DECIMAL(9, 0) NOT NULL,
      TRANTIMV4A                     DECIMAL(5, 0) NOT NULL,
      BLOKSPEL4A                     CHAR(20) NOT NULL,
      BLOKAREA4A                     CHAR(14) NOT NULL,
      BLOKYARD4A                     CHAR(3) NOT NULL,
      BLOKDATE4A                     DECIMAL(9, 0) NOT NULL,
      BLOKTIME4A                     DECIMAL(5, 0) NOT NULL,
      BLOKTRAN4A                     CHAR(4) NOT NULL,
      BLOKADDR4A                     CHAR(8) NOT NULL,
      BLOKSIGN4A                     CHAR(10) NOT NULL,
      BLOKTDAT4A                     DECIMAL(9, 0) NOT NULL,
      BLOKTTYD4A                     DECIMAL(5, 0) NOT NULL,
      FRNTBACK4A                     CHAR(1) NOT NULL,
      VRAGRUIM4A                     CHAR(1) NOT NULL,
      VRAGTYPE4A                     CHAR(4) NOT NULL,
      VRAGAMNT4A                     DECIMAL(3,0) NOT NULL,
      VRAGBTRM4A                     CHAR(8) NOT NULL,
      VRAGBSGN4A                     CHAR(10) NOT NULL,
      VRAGBDTE4A                     DECIMAL(9,0) NOT NULL,
      VRAGBTYD4A                     DECIMAL(5,0) NOT NULL,
      VRAGTRNN4A                     CHAR(6) NOT NULL,
      VRAGREAD4A                     CHAR(1) NOT NULL,
      VRAGKTRM4A                     CHAR(8) NOT NULL,
      VRAGKSGN4A                     CHAR(10) NOT NULL,
      VRAGKDTE4A                     DECIMAL(9,0) NOT NULL,
      VRAGKTYD4A                     DECIMAL(5,0) NOT NULL,
      AREAOORS4A                     CHAR(14) NOT NULL,
      BLOKCODE4A                     CHAR(02) NOT NULL,
      BEGMASKG4A                     DECIMAL(9, 0) NOT NULL,
      ENDMASKG4A                     DECIMAL(9, 0) NOT NULL,
      TMASSIND4A                     CHAR(01) NOT NULL
    ) END-EXEC.
******************************************************************
* COBOL DECLARATION FOR TABLE RAIL.TREIN_TAB                     *
******************************************************************
 01  DCLTREIN-TAB.
     02 TREINNOM4A.
```

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```
        03 TREINRTE4A           PIC X(4).
**** TREINROETE WAT BESTAAN UIT:-
****            STASIE VAN SE KODE,
****            STREEK VAN SE STASIE,
****            STASIE NA SE KODE,
****            STREEK NA SE KODE,
****            VIR STREEK 10 = M,
****            VIR STREEK 11 = N.
*****************************************************************
        03 TREINNUM4A           PIC X(6).
**** TREINNOMMER - HIERIN VERSKYN OOK DIE STREEK NOMMERS
****               (VERAL PASSIERSTREINE).
****               VIR STREEK 10 = M,
****               VIR STREEK 11 = N.
*****************************************************************
        03 TREINDAG4A           PIC X(2).
**** 2 BYTES VIR DAG (DOOIE TREINE WORD VIR 27 DAE GEHOU)
*****************************************************************
        03 TREINMND4A           PIC X(2).
**** MAAND
*****************************************************************
        03 TREINJAR4A           PIC X(2).
**** JAAR
*****************************************************************
     02 TREINVAN4A           PIC X(3).
**** TREIN STASIE VAN (OM TREIN UNIEK TE HOU BY ROTBLOK).
*****************************************************************
*****************************************************************
**** NOTA:-                                                   ****
**** ~~~~~                                                    ****
**** RES VAN DIE VELDE MAG NIE MET ZEROES OF SPACES BYGEWERK  ****
**** ---------------------------------------------------------  ****
**** WORD NIE 333333333333333333333333333333333333333333333  ****
**** --------                                                 ****
*****************************************************************
     02 AREANAIX4A           PIC X(14).
**** AREA KODE VAN "NA" STASIE
*****************************************************************
     02 AREAVAIX4A           PIC X(14).
**** AREA KODE VAN "VANAF" STASIE
*****************************************************************
     02 VRGBESIX4A           PIC X(14).
**** AREA KODE VAN "VRAGBESTEMMING" STASIE
*****************************************************************
     02 TRNNORIX4A           PIC X(16).
**** TREINNOMMER - WORD GEBRUIK VIR NAVRAE
*****************************************************************
     02 CURAREIX4A           PIC X(14).
**** TERREIN/STASIE WAAR TREIN NOU IS SE AREAKODE
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE IS AANWYSERS VIR AFWYKINGS AAN TREIN     *****
*****************************************************************
     02 TRKVOORL4A           PIC S999V USAGE COMP-3.
**** AANTAL TROKKE MET MEER AS EEN VOORLOPIG
*****************************************************************
     02 TRKAFHAK4A           PIC S999V USAGE COMP-3.
**** AANTAL TROKKE WAT ONDERWEG MOET AFGEHAK WORD
**** (WORD BENODIG BY ROT)
*****************************************************************
     02 TRKBYHIS4A           PIC X(1).
**** IS DAAR TROKKE VIR TREIN BY GESKEIDENIS:- 0 = NEE
****                                           1 = JA
*****************************************************************
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE OM NAVRAE TE VERMAKLIK                   *****
*****************************************************************
     02 TREINSTA4A           PIC X(2).
```

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```
**** BEWEGING STATUS VAN TREIN: 00 = VOORLOPIG
****                           01 = ONDERWEG
****                           02 = AANKOMS
*****************************************************************
     02 TKLAASTE4A           PIC X(12).
**** LAASTE TROK OP TREIN - OM BOU VAN N VOORLOPIGE TREIN TE
****                        HERVAT
*****************************************************************
     02 TKLASSEQ4A           PIC X(9).
**** VOLGNOMMER VAN LAASTE TROK OP TREIN OM VOLGORDER VAN TROKKE
**** TE BEHOU
*****************************************************************
     02 TREINVOR4A           PIC X(16).
**** VORIGE TREINNOMMER
*****************************************************************
     02 TREINVOL4A           PIC X(16).
**** VOLGENDE TREINNOMMER
*****************************************************************
     02 TREINOOR4A           PIC X(16).
**** OORSPROKLIKE TREINNOMMER VAN VRAG.  DIE VELD WORD DEUR NAVRAE
**** GEBRUIK OM DIE EERSTE TREIN VAN DIE VRAG TE BEPAAL SODAT
**** GESKIEDENIS VANAF DIE EERSTE TOT DIE HUIDIGE TREIN WAT MET
**** DIE VRAG GEWERK HET GEDRUK KAN WORD.
*****************************************************************
     02 VRAGBEST4A           PIC X(20).
**** FINALE BESTEMMING VAN TREIN - VRAG
*****************************************************************
     02 VRAGAREA4A           PIC X(14).
**** FINALE BESTEMMING VAN TREIN SE AREAKODE
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE OM VERTREK BESONDERHEDE VAN TREIN        *****
*****************************************************************
     02 VERTSTAT4A           PIC X(2).
**** STATUS VAN TREIN BY VERTREK: 01 = VOORLOPIG
****                             02 = ROTBLOK VOORLOPIG
****                             03 = VERTREK
****                             04 = ROTBLOK VERTREK
****                             05 = HERREEL
****                             06 = RUIM (DOOD OF AFGEHAKTE
****                                       TREIN)
****                             07 = OORSPRONKLIKE TREIN WAT
****                                  HERREEL IS
*****************************************************************
     02 VANSTASP4A           PIC X(20).
**** VAN STASIE - KORREKTE SPELLING
*****************************************************************
     02 AREAVANK4A.
        03  VANARTEG4A.
            04  VANSTRKT4A.
                05 VANAFDEL4A          PIC X(2).
***************** AREA
                05 VANTERRN4A          PIC X(3).
***************** YARD
            04 VANSTRKT4A-RED REDEFINES VANSTRKT4A PIC X(5).
            04 VANGEBIE4A              PIC X(3).
************** GEBEID/POSISIE
        03 VANSYLYN4A                  PIC X(6).
*********** SYLYN
*****************************************************************
     02 PADVANAF4A           PIC S999V USAGE COMP-3.
**** PAD WAARVAN TREIN VERTREK HET
*****************************************************************
     02 ROETESTA4A           PIC X(3).
**** ROETESTASIE WAAROOR TREIN BEWEEG (STASIE KODE)
*****************************************************************
     02 ROETEARE4A           PIC X(14).
**** ROETESTASIE SE AREAKODE
*****************************************************************
     02 VERTLOCO4A           PIC S999V USAGE COMP-3.
```

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```
**** TOTALE AANTAL LOKOS BY VERTREK
*****************************************************************
     02 TRNRIGTN4A           PIC X(1).
**** RIGTING VAN TREIN: 0 = OP
****                    1 = AF
**** VANAF GEOGRAPHIES
*****************************************************************
     02 VERTRKDT4A           PIC S999999999V USAGE COMP-3.
**** TREIN VERTREK DATUM
*****************************************************************
     02 VERTRKTD4A           PIC S99999V USAGE COMP-3.
**** TREIN VERTREK TYD
*****************************************************************
     02 SKDVERDT4A           PIC S999999999V USAGE COMP-3.
**** GESKEDULEERDE VERTREK DATUM - VANAF B.T.B. LEER
*****************************************************************
     02 SKDVERTD4A           PIC S99999V USAGE COMP-3.
**** GESKEDULEERDE VERTREK TYD
*****************************************************************
     02 ESTDEPDT4A           PIC S999999999V USAGE COMP-3.
**** VERWAGTE VERTREK DATUM - VANAF B.T.B. LEER
*****************************************************************
     02 ESTDEPTM4A           PIC S99999V USAGE COMP-3.
**** VERWAGTE VERTREK TYD
*****************************************************************
     02 DEPTTERM4A           PIC X(8).
**** TERMINAAL ADRES WAT VERTREK GEDOEN HET
*****************************************************************
     02 DEPVASDT4A           PIC S999999999V USAGE COMP-3.
**** VERTREK VASLEGGINGS DATUM
*****************************************************************
     02 DEPVASTM4A           PIC S99999V USAGE COMP-3.
**** VERTREK VASLEGGINGS TYD
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE AANKOMS BESONDERHEDE VAN TREIN           *****
*****************************************************************
     02 AANSTATS4A           PIC X(2).
**** STATUS VAN TREIN BY AANKOMS:-  05 = HERREEL (AANKOMS)
****                               51 = AANKOMS ROT TREIN
****                               52 = AANKOMS ROTBLOK TREIN
****                               53 = DOOD/AFHAK VAN TREIN
*****************************************************************
     02 STASIENA4A           PIC X(3).
**** TREIN STASIE NA
*****************************************************************
     02 STANASPE4A           PIC X(20).
**** TREIN STASIE NA (KORREKTE SPELLING)
*****************************************************************
     02 AREANAKD4A.
        03  NAAARTEG4A.
            04  NAASTRKT4A.
                05 NAAAFDEL4A          PIC X(2).
***************** AREA
                05 NAATERRN4A          PIC X(3).
***************** YARD
            04 NAASTRKT4A-RED REDEFINES NAASTRKT4A PIC X(5).
            04 NAAGEBIE4A              PIC X(3).
************** GEBEID
        03 NAASYLYN4A                  PIC X(6).
********** SYLYN
*****************************************************************
     02 AANLOCOS4A           PIC S999V USAGE COMP-3.
**** TOTALE AANTAL LOKOS BY AANKOMS (SLEGS LOKOS BESKIKBAAR JA
**** VIR BEDRYF
*****************************************************************
     02 ARIVALDT4A           PIC S999999999V USAGE COMP-3.
**** AANKOMS DATUM
*****************************************************************
     02 ARIVALTM4A           PIC S99999V USAGE COMP-3.
```

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```
**** AANKOMS TYD
*****************************************************************
     02 SCHARRDT4A           PIC S9999999999V USAGE COMP-3.
**** GESKEULEERDE AANKOMS DATUM - BY VERTREK,RUIM ENS BYGEWERK
*****************************************************************
     02 SCHARRTM4A           PIC S99999V USAGE COMP-3.
**** GESKEULEERDE AANKOMS TYD - BY VERTREK,RUIM ENS BYGEWERK
*****************************************************************
     02 ESTARRDT4A           PIC S9999999999V USAGE COMP-3.
**** VERWAGTE AANKOMS DATUM - BY VERTREK,RUIM ENS BYGEWERK
*****************************************************************
     02 ESTARRTM4A           PIC S99999V USAGE COMP-3.
**** VERWAGTE AANKOMS TYD - BY VERTREK,RUIM ENS BYGEWERK
*****************************************************************
     02 ARRROADS4A           PIC S999V USAGE COMP-3.
**** PAD WAAROP TREIN INGEKOM HET
*****************************************************************
     02 ARRSGNON4A           PIC X(10).
**** SIGNON KODE WAT AANKOMS GEDOEN HET
*****************************************************************
     02 ARRTERML4A           PIC X(8).
**** TERMINAAL ADRES WAT AANKOMS GEDOEN HET
*****************************************************************
     02 ARRVASDT4A           PIC S9999999999V USAGE COMP-3.
**** AANKOMS VASLEGGINGS DATUM
*****************************************************************
     02 ARRVASTM4A           PIC S99999V USAGE COMP-3.
**** AANKOMS VASLEGGINGS TYD
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE HUIDIGE POSISIE VAN TREIN                *****
*****************************************************************
     02 CURRYARD4A           PIC X(3).
**** TERREIN/STASIE WAAR TREIN NOU IS (A.C.I.)
*****************************************************************
     02 CURRSPEL4A           PIC X(20).
**** TERREIN/STASIE WAAR TREIN NOU IS (KORREKTE SPELLING)
*****************************************************************
     02 CURRAREA4A           PIC X(14).
**** TERREIN/STASIE WAAR TREIN NOU IS SE AREA KODE
*****************************************************************
     02 CURTDATE4A           PIC S9999999999V USAGE COMP-3.
**** DATUM WAAR TREIN NOU GERAPORTEER IS (A.C.I., BLOK)
*****************************************************************
     02 CURTTIME4A           PIC S99999V USAGE COMP-3.
**** TYD WAAR TREIN NOU GERAPORTEER IS (A.C.I., BLOK)
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE ALGEMENE BESODERHEDE VAN TREIN           *****
*****************************************************************
     02 DRYWNAAM4A           PIC X(15).
**** DRYWER SE NAAM
*****************************************************************
     02 DRYWPENS4A           PIC X(7).
**** DRYWER SE PENSIOENNOMMER
*****************************************************************
     02 ASSTNAAM4A           PIC X(15).
**** ASSISTENT SE NAAM
*****************************************************************
     02 ASSTPENS4A           PIC X(7).
**** ASSISTENT SE PENSIOENNOMMER
*****************************************************************
     02 KONDNAAM4A           PIC X(15).
**** KONDUCTEUR SE NAAM
*****************************************************************
     02 KONDPENS4A           PIC X(7).
**** KONDUCTEUR SE PENSIOENNOMMER
*****************************************************************
     02 ANDRNAAM4A           PIC X(15).
```

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```
**** ANDER BEMANNING SE NAAM
*****************************************************************
     02 ANDRPENS4A           PIC X(7).
**** ANDER BEMANNING SE PENSIEONNOMMER
*****************************************************************
     02 TREINTIP4A           PIC X(13).
**** TIPE TREIN (PASSASIERS,  TREKKER,
****             STAAL,       SPOEDVRAG,
****             LUGREM,      LOSLOKO)
**** INDIEN "LOSLOKO" GEEN TROKOPTELLE
*****************************************************************
     02 KONDJUKT4A           PIC X(1).
****    1 = KODUKTEURSWA
****    2 = JUKTREIN
**** (VERTREK BERIG UPDATE)
*****************************************************************
     02 TIMENORM4A           PIC S999V USAGE COMP-3.
**** TYDNORM TUSSEN TERREINE (URE)
*****************************************************************
     02 KILOMVNA4A           PIC S99999V USAGE COMP-3.
**** AFSTAND TUSSEN VAN EN AN STASIE (KILOMETERS)
*****************************************************************
     02 VRAGNOMS4A           PIC X(6).
**** TREIN VRAGNOMMER - GESKEDULEER
*****************************************************************
     02 WORKINDC4A           PIC X(1).
**** Y/N INDIKASIE OM AAN TE DUI OF ENIGE OPTELLE OF AFHAKKE
****     GEDOEN IS
*****************************************************************
     02 HAZARDIN4A           PIC X(1).
**** Y/N INDIKASIE VIR GEVAARLIKE STOWWE
*****************************************************************
     02 OPMERKIN4A           PIC X(1).
**** Y/N INDIKASIE VIR OPMERKINGS VIR TREIN
*****************************************************************
     02 RADIOIND4A           PIC X(1).
**** Y/N INDIKASIE VIR RADIO'S OP TREIN
*****************************************************************
     02 TELEMIND4A           PIC X(1).
**** Y/N INDIKASIE VIR TELEMETERS OP TREIN
*****************************************************************
     02 INLOPIND4A           PIC X(1).
**** Y/N INDIKASIE VIR INLOOP ONDERSOEKE
*****************************************************************
     02 ONDWEGID4A           PIC X(1).
**** Y/N INDIKASIE VIR ONDERWEG ONDERSOEKE
*****************************************************************
     02 SPESOSID4A           PIC X(1).
**** Y/N INDIKASIE VIR SPESIFIKE ONDERSOEKE
*****************************************************************
     02 EINDPOID4A           PIC X(1).
**** Y/N INDIKASIE VIR EINDEPUNT ONDERSOEKE
*****************************************************************
     02 BEGLENGT4A           PIC S9999999V USAGE COMP-3.
**** TOTALE LENGTE VAN TREIN
**** (AKTIEWE LOKO'S UITGESLUIT - BEGIN TOTAAL)
*****************************************************************
     02 BEGASSET4A           PIC S99999V USAGE COMP-3.
**** TOTALE ASSE VAN TREIN
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT - BEGIN TOTAAL)
*****************************************************************
     02 BEGMASSA4A           PIC S9999999V USAGE COMP-3.
**** TOTALE TONNE VAN TREIN
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT - BEGIN TOTAAL)
*****************************************************************
     02 ENDLENGT4A           PIC S9999999V USAGE COMP-3.
**** TOTALE LENGTE VAN TREIN
**** (AKTIEWE LOKO'S UITGESLUIT - EIND TOTAAL)
*****************************************************************
     02 ENDASSET4A           PIC S99999V USAGE COMP-3.
**** TOTALE ASSE VAN TREIN
```

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```
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT - EIND TOTAAL)
*****************************************************************
     02 ENDMASSA4A           PIC S9999999V USAGE COMP-3.
**** TOTALE TONNE VAN TREIN
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT - EIND TOTAAL)
*****************************************************************
     02 TOTTRUCK4A           PIC S999V USAGE COMP-3.
**** TOTALE TROKKE OP TREIN
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT)
*****************************************************************
     02 BLOCKCDE4A           PIC X(6).
**** BLOKVRAGKODE
*****************************************************************
     02 MAGTIGKD4A           PIC X(18).
**** TREIN SE MAGTIGINGSKODE
*****************************************************************
     02 PENTBEGD4A           PIC S9999999999V USAGE COMP-3.
**** DATUM P EN T ONDERSOEK BEGIN (AANKOMS)
*****************************************************************
     02 PENTBEGT4A           PIC S99999V USAGE COMP-3.
**** TYD P EN T ONDERSOEK BEGIN (AANKOMS)
*****************************************************************
     02 PENTENDD4A           PIC S9999999999V USAGE COMP-3.
**** DATUM P EN T ONDERSOEK BEEINDIG (AANKOMS)
*****************************************************************
     02 PENTENDT4A           PIC S99999V USAGE COMP-3.
**** TYD P EN T ONDERSOEK BEEINDIG (AANKOMS)
*****************************************************************
     02 PENTBGVD4A           PIC S9999999999V USAGE COMP-3.
**** DATUM P EN T ONDERSOEK BEGIN (VERTREK)
*****************************************************************
     02 PENTBGVT4A           PIC S99999V USAGE COMP-3.
**** TYD P EN T ONDERSOEK BEGIN (VERTREK)
*****************************************************************
     02 PENTEDVD4A           PIC S9999999999V USAGE COMP-3.
**** DATUM P EN T ONDERSOEK BEEINDIG (VERTREK)
*****************************************************************
     02 PENTEDVT4A           PIC S99999V USAGE COMP-3.
**** TYD P EN T ONDERSOEK BEEINDIG (VERTREK)
*****************************************************************
**** NOTA:-                                                   *****
**** ~~~~~                                                    *****
**** VOLGENDE VELDE BENODIG VIR TERREIN REGISTER              *****
*****************************************************************
     02 DIRECTIN4A           PIC X(2).
**** RIGTING WAARIN TREIN RY
*****************************************************************
     02 KOPPELDT4A           PIC S9999999999V USAGE COMP-3.
**** KOPPEL DATUM
*****************************************************************
     02 KOPPELTM4A           PIC S99999V USAGE COMP-3.
**** KOPPEL TYD
*****************************************************************
     02 ONTKOPDT4A           PIC S9999999999V USAGE COMP-3.
**** ONTKOPPEL DATUM
*****************************************************************
     02 ONTKOPTM4A           PIC S99999V USAGE COMP-3.
**** ONTKOPPEL TYD
*****************************************************************
     02 VERTAAND4A           PIC S9999999999V USAGE COMP-3.
**** VERTREK AANGEBEID DATUM
*****************************************************************
     02 VERTAANT4A           PIC S99999V USAGE COMP-3.
**** VERTREK AANGEBEID TYD
*****************************************************************
     02 VERTANGD4A           PIC S9999999999V USAGE COMP-3.
**** VERTREK AANGENEEM DATUM
*****************************************************************
     02 VERTANGT4A           PIC S99999V USAGE COMP-3.
**** VERTREK AANGENEEM TYD
*****************************************************************
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```
     02 RUIMPADD4A           PIC S999999999V USAGE COMP-3.
**** DATUM WAT PAD GERUIM IS (R25 UPDATE)
*****************************************************************
     02 RUIMPADT4A           PIC S99999V USAGE COMP-3.
**** TYD WAT PAD GERUIM IS (R25 UPDATE)
*****************************************************************
     02 REMTOETS4A           PIC X(12).
**** TIPE REMTOETS GEDOEN  (R26 UPDATE)
****      ******** NET 4 BYTES WORD GEBRUIK ********
*****************************************************************
     02 RIGTNGIN4A           PIC X(2).
**** RIGTING IN BY NA STASIE
*****************************************************************
     02 PLASDEUR4A           PIC X(2).
**** PLAASLIK OF DEUR TREIN:  01 = PLAASLIK
****                          02 = DEUR
*****************************************************************
     02 TERUPDIN4A           PIC X(1).
**** AANWYSER OM AAN TE DUI OF TERREIN REGISTER (INKOMENDE TREINE)
**** BYGEWERK IS:  0 = NIE BYGEWERK
****               1 = BYGEWERK
*****************************************************************
     02 TERUPOUT4A           PIC X(1).
**** AANWYSER OM AAN TE DUI OF TERREIN REGISTER (UITGAANDE TREINE)
**** BYGEWERK IS:  0 = NIE BYGEWERK
****               1 = BYGEWERK
*****************************************************************
     02 ANKANGND4A           PIC S999999999V USAGE COMP-3.
**** AANKOMS AANGENEEM DATUM
*****************************************************************
     02 ANKANGNT4A           PIC S99999V USAGE COMP-3.
**** AANKOMS AANGENEEM TYD
*****************************************************************
     02 ANKANGBD4A           PIC S999999999V USAGE COMP-3.
**** AANKOMS AANGEBEID DATUM
*****************************************************************
     02 ANKANGBT4A           PIC S99999V USAGE COMP-3.
**** AANKOMS AANGEBEID TYD
*****************************************************************
     02 ANKVORBD4A           PIC S999999999V USAGE COMP-3.
**** AANKOMS VOORBORD DATUM
*****************************************************************
     02 ANKVORBT4A           PIC S99999V USAGE COMP-3.
**** AANKOMS VOORBORD TYD
*****************************************************************
     02 DEPDELAY4A           PIC S99999V USAGE COMP-3.
**** TOTALE VERTRAGINGS TYD BY VERTREK (MINUTE)
*****************************************************************
     02 ARRDELAY4A           PIC S99999V USAGE COMP-3.
**** TOTALE VERTRAGINGS TYD BY AANKOMS.  TYDSVERLOOP TUSSEN DIE
**** VOLGENDE TWEE STELLE TYE BYMEKAAR GETEL:
****          TUSSEN AANGEBEID END AANGENEEM TYE
****          TUSSEN VOORBORD END AANGEKOM TYE
*****************************************************************
     02 TRJDELAY4A           PIC S99999V USAGE COMP-3.
**** TOTALE TRAJEK VERTRAGINGS BY AANKOMS
**** TYDSVERLOOP TUSSEN AANGEBEID EN AANGENEEM TYE
*****************************************************************
     02 BRDDELAY4A           PIC S99999V USAGE COMP-3.
**** TOTALE BORD VERTRAGING BY AANKOMS
*****************************************************************
     02 EINDPUNT4A           PIC X(3).
**** STASIE WAAR EINDPUNT ONDERSOEK GEDOEN WORD
*****************************************************************
**** NOTA:-                                                  *****
**** ~~~~~                                                   *****
**** VOLGENDE VELDE AANTEKENINGS BESONDERHEDE VAN TRANSAKSIE *****
**** BYWERKING                                               *****
*****************************************************************
     02 TRANSIDC4A           PIC X(4).
**** LAASTE TRANSAKSIE KODE WAT BYGEWERK HET
```

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```
*****************************************************************
     02 TERMADDC4A           PIC X(8).
**** TERMINAAL ADRES
*****************************************************************
     02 SIGNONSC4A           PIC X(10).
**** AANTEKENINGSKODE
*****************************************************************
     02 TRANDATC4A           PIC S999999999V USAGE COMP-3.
**** DATUM BYWERKING GEDOEN
*****************************************************************
     02 TRANTIMC4A           PIC S99999V USAGE COMP-3.
**** TYD BYWERKING GEDOEN
*****************************************************************
     02 TRANSIDV4A           PIC X(4).
**** VOORLAASTE TRANSAKSIE KODE WAT BYGEWERK HET
*****************************************************************
     02 TERMADDV4A           PIC X(8).
**** VOORLAASTE TERMINAAL ADRES
*****************************************************************
     02 SIGNONSV4A           PIC X(10).
**** VOORLAASTE AANTEKENINGSKODE
*****************************************************************
     02 TRANDATV4A           PIC S999999999V USAGE COMP-3.
**** DATUM VOORLAASTE BYWERKING GEDOEN
*****************************************************************
     02 TRANTIMV4A           PIC S99999V USAGE COMP-3.
**** TYD VOORLAASTE BYWERKING GEDOEN
*****************************************************************
     02 BLOKSPEL4A           PIC X(20).
**** SPELLING PLEK GEBLOK - WORDBYGEWERK MET "BTC6"
*****************************************************************
     02 BLOKAREA4A           PIC X(14).
**** AREAKODE VAN PLEK GEBLOK
*****************************************************************
     02 BLOKYARD4A           PIC X(3).
**** STANDARD STASIE KODE VAN PLEK GEBLOK
*****************************************************************
     02 BLOKDATE4A           PIC S999999999V USAGE COMP-3.
**** BLOK DATUM
*****************************************************************
     02 BLOKTIME4A           PIC S99999V USAGE COMP-3.
**** BLOK TYD
*****************************************************************
     02 BLOKTRAN4A           PIC X(4).
**** TRANSAKSIE VAN LAASTE BLOK BYWERKING
*****************************************************************
     02 BLOKADDR4A           PIC X(8).
**** TERMINAAL ADRES VAN PERSOON WAT BLOK BERIG GEDOEN HET
*****************************************************************
     02 BLOKSIGN4A           PIC X(10).
**** AANTEKENSKODE VAN PERSOON WAT BLOK BERIG GEDOEN HET
*****************************************************************
     02 BLOKTDAT4A           PIC S999999999V USAGE COMP-3.
**** BLOK TRANSAKSIE DATUM
*****************************************************************
     02 BLOKTTYD4A           PIC S99999V USAGE COMP-3.
**** BLOK TRANSAKSIE TYD
*****************************************************************
     02 FRNTBACK4A           PIC X(01).
**** AANWYSER OM AAN TE DUI VAN WATTER KANT DIE TREIN GEBOU WORD:
****          0 = VOOR NA AGTER
****          1 = AGTER NA VOOR
*****************************************************************
     02  VRAGRUIM4A                  PIC X(1).
**** AANWYSER OM AAN TE DUI OF RUIMING GEDOEN IS : 0=NEE,1=JA
*****************************************************************
     02  VRAGTYPE4A                  PIC X(4).
**** TIPE TREKKRAG WAT GEBRUIK GAAN WORD BV. 5E,33D
*****************************************************************
     02  VRAGAMNT4A                PIC S9(03) COMP-3.
**** HOEVEELHEID TREKKRAG WAT GEBRUIK GAAN WORD.
```

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```
*****************************************************************
     02  VRAGBTRM4A                  PIC X(8).
**** TERMINAAL ADRES VAN DIE BEPLANNER.
*****************************************************************
     02  VRAGBSGN4A                  PIC X(10).
**** SIGNON ID VAN DIE BEPLANNER.
*****************************************************************
     02  VRAGBDTE4A                  PIC S9(09) COMP-3.
**** DATUM INGEVOER - BEPLANNER.
*****************************************************************
     02  VRAGBTYD4A                  PIC S9(05) COMP-3.
**** TYD INGEVOER - BEPLANNER.
*****************************************************************
     02  VRAGTRNN4A                  PIC X(06).
**** TREINNOMMER TOEGEKEN AAN TREIN
*****************************************************************
     02  VRAGREAD4A                  PIC X(01).
**** AANWYSER OM AAN TE DUI OF VRAG BESKIKBAAR IS : 0=NEE,1=JA
*****************************************************************
     02  VRAGKTRM4A                  PIC X(08).
**** TERMINAAL ADRES VAN KLERK
*****************************************************************
     02  VRAGKSGN4A                  PIC X(10).
**** SIGNON ID VAN KLERK
*****************************************************************
     02  VRAGKDTE4A                  PIC S9(09) COMP-3.
**** DATUM INGEVOER - KLERK
*****************************************************************
     02  VRAGKTYD4A                  PIC S9(05) COMP-3.
**** TYD INGEVOER - KLERK
*****************************************************************
     02  AREAOORS4A                  PIC X(14).
**** OORSPRONKLIKE AREA WAAR VANDAN DIE OORSPRONKLIKE TREIN GERY
**** HET
*****************************************************************
     02  BLOKCODE4A                  PIC X(02).
**** WERKLIKE BLOKVRAGKODE WAARMEE TREIN RY - BLOCKCDE4A SONDER
**** DIE KILOMETER AFSTAND
*****************************************************************
     02 BEGMASKG4A                  PIC S999999999V USAGE COMP-3.
**** TOTALE KILOGRAMME VAN TREIN
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT - BEGIN TOTAAL)
*****************************************************************
     02 ENDMASKG4A                  PIC S999999999V USAGE COMP-3.
**** TOTALE KILOGRAMME VAN TREIN
**** (LOKO'S UITGESLUIT, DOOIE LOKOS INGESLUIT - EIND TOTAAL)
*****************************************************************
     02 TMASSIND4A                  PIC X(01).
**** TRAIN MASS INDICATOR
**** (IF TMASSIND4A = 'Y' THEN THE TRAIN MASS IS CORRECT)
*****************************************************************
*****************************************************************
* THE NUMBER OF COLUMNS DESCRIBED BY THIS DECLARATION IS 152     *
*            INDEX - DGQTX4AA - TREINRTE4A                       *
*                            - TREINNUM4A                       *
*                            - TREINDAG4A                       *
*                            - TREINMND4A                       *
*                            - TREINJAR4A                       *
*                            - TREINVAN4A                       *
*                  - DGQTX4AB - AREANAIX4A                      *
*                  - DGQTX4AC - AREAVAIX4A                      *
*                  - DGQTX4AD - VRGBESIX4A                      *
*                  - DGQTX4AE - TRNNORIX4A                      *
*                  - DGQTX4AF - CURAREIX4A                      *
*                  - DGQTX4AH - AREAOORS4A                      *
*                  - DGQTX4AI - VANAFDEL4A                      *
*****************************************************************
```

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10. Technical SQL

Staged loads information can be extracted from the DB2 tables as a snapshot using the following SQL:-

Please ensure that, in the where clause, that the TREINJAR4A and TREINMND4A = the Year and Month in which the SQL is used

```
SELECT
  DISTINCT
  TREINRTE4A||TREINNUM4A||TREINDAG4A||TREINMND4A||TREINJAR4A||'
'||INHOUDC
  D2A  AS TRAINCNTS,CURRSPEL4A,SUBSTR(GROUPNME99,1,8) AS GROUPNME99,
  ZONEDESC99,COUNT(*) AS COUNT
  FROM RAIL.TREIN_TAB, RAIL.TROKOPR_TAB, RAIL.AREAGROUP_TAB
  WHERE AANSTATS4A = '53'
    AND TREINJAR4A = '08'
    AND TREINMND4A = '12'
    AND TREINRTE4A||TREINNUM4A||TREINDAG4A||TREINMND4A||TREINJAR4A
  = TRNNORIX4A
    AND TNBEWEEG2A = TRNNORIX4A
    AND CURRAREA4A = AREACODE99
  GROUP BY
  TREINRTE4A,TREINNUM4A,TREINDAG4A,TREINMND4A,TREINJAR4A,INHOUDCD2A,
  CURRSPEL4A,GROUPNME99,ZONEDESC99
  ORDER BY 1
  WITH UR
```

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Ideal Sequence?	Role	Accountability (I hereby declare that I have reviewed this document and it …)
1	ICTM – Programme Management	… is within the scope of the project / programme as defined
2	Process Owner	… correctly defines the business context and measure … references the correct business processes … correctly describes related available data and source systems … identified the current utilisation of the measure
3	Functional MIS representative (where available)	co-sign with process owner and … designed the display such that it will fit with other dashboards
4	Performance Enablement	… the KPI definition is correct / have been added to the list of definitions … designed the display such that it will fit with other dashboards
5	ICTM – Portfolio Management	… complies with the standard and contains all the required and relevant content
6	ICTM – Technical / Information Architecture	… provides sufficient information to develop the technical specifications from
7	Sponsor	… addresses the business need as defined

5. Sign

Project name TBI Stream C			
Signatories		**Signature**	**Date**
Dirk Nieuwoudt	Project sponsor		28/07/09
Solomon Rampheng	Process Owner		28.07.09
Mark Snyders	Portfolio Management		
	Programme Management		
Kesegan Nair	ICTM – Technical / Information Architecture		

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