TEAM Software by WORKWAVE

Timegate Data Warehouse Guide

20 September 2021

COMMERCIAL STATEMENT

This document is subject to any terms as per teamsoftware.com/legal.

HELPDESK & SUPPORT

For help and support, please contact TEAM Software Technical Support:

- **Opening hours:** 8am -5pm Monday - Friday (excluding weekends and public holidays)
- **Contact telephone number:** 0370 626 0400 (then press option 1)
- **Email:** support@innovise.com

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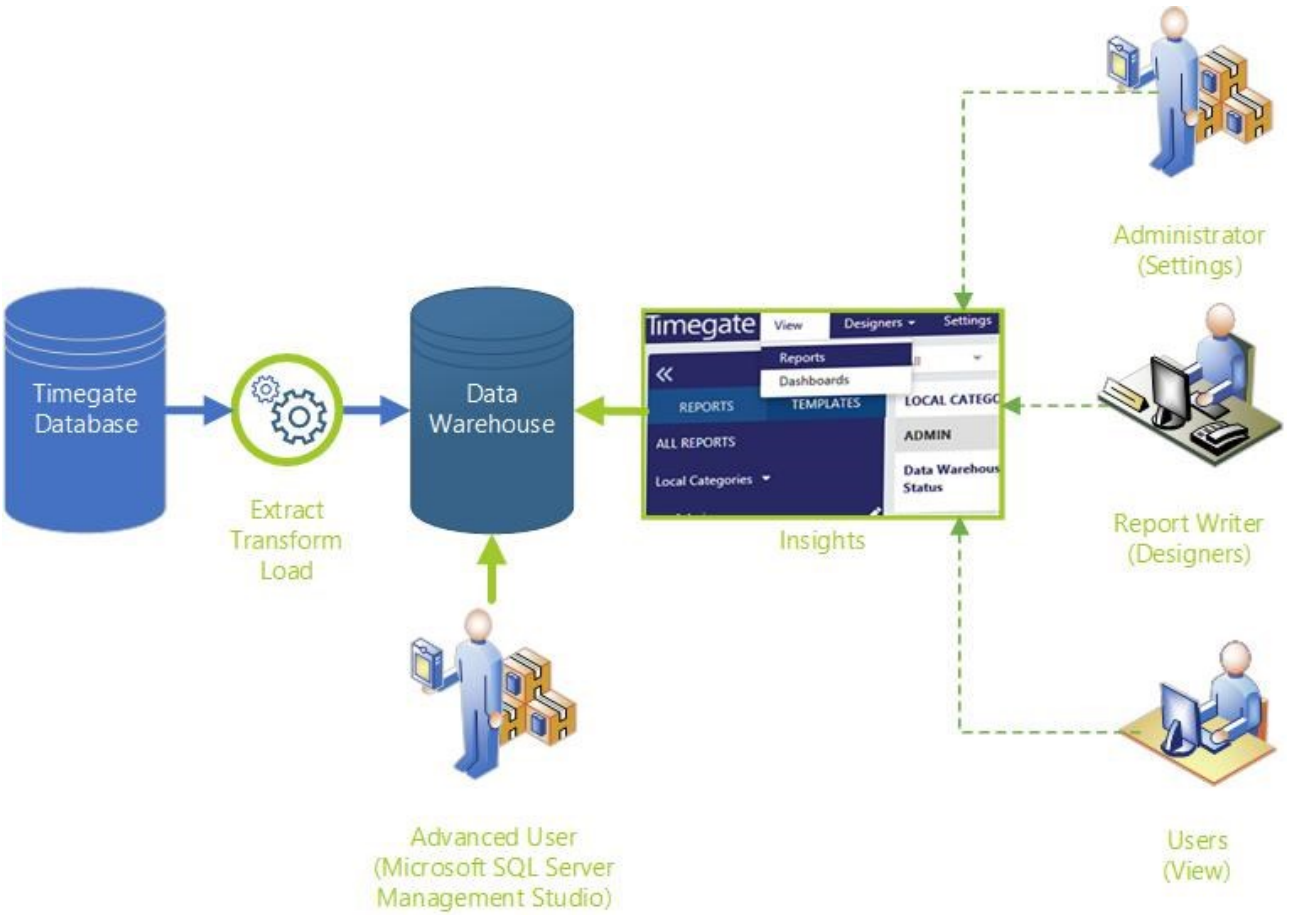
OVERVIEW OF THE DATA WAREHOUSE

The Timegate Data Warehouse and Insights Model

In its entirety, the **Timegate Data Warehouse** and **Insights Model** look as follows:



Data from the **Timegate Database** is extracted, transformed and loaded into the **Data Warehouse**. Azure is being used to store the **Data Warehouse**. The data from the **Data Warehouse** can be accessed in a variety of ways, using **Insights** or other tools, for example as shown in the diagram above, using **Microsoft's SQL Server Management Studio**.

If you are a **Data Warehouse** customer, you will additionally have been provided with credentials for connecting to the **Data Warehouse** using **Microsoft SQL Server Management Studio**.

Advanced Users, using **Microsoft SQL Server Management Studio** can add and populate their own tables within the **Data Warehouse**. These can be linked to the existing **Data Warehouse** tables through custom queries. TEAM Softwaree able to make these visible through TEAM Software too. Speak to your TEAM Software contact for more information.

As the day progresses, changes made in Timegate are logged with a date and time stamp. Regularly a BROKER SERVICE will connect to the Timegate DATABASE (for more detail about the timings of this, please see "Standard Replication Schedule" on page 9). It reviews any changes made since the last time it connected. It then will copy any changes from the **Timegate Database** to the **Data Warehouse** in **Azure**. This information will then be immediately available to query in **Insights** (or using other tools). Within **Insights**, both reports and dashboards will automatically update to show the latest information.

Data Warehouse Database

The **Data Warehouse** is a cut-down, flattened version of your **Timegate database**. The tables that are stored within it have been revised to be more user friendly, making the creation of reports and dashboards much easier. Whilst TEAM Software create the **Data Warehouse** with some standard tables, you can create your own. Upon creation, these can be loaded, using their own processes. If you do create tables, please ensure that they are not prefixed with the letters "**dw**"!

Insights

Insights is a Self Service Reporting platform that provides you with an easy to use, easy to implement Business Intelligence (BI) toolset. It enables you to analyse your company data through customisable

- **Reports** - **Reports** allow you to select data sources and build data visualizations of your data. They comprise **Report Parts** (smallest units of a report and allow you to build reports modularly with ease). Report Parts can be re-sized, moved, and edited using the Report Designer. The Report Parts comprise **Report Part Types**, which include Grids, Gauges, Maps, Forms, and Charts
- **Dashboards** - **Dashboards** give you the ability to create one central onscreen "hub" of data for users. Dashboards are made up using tiles. The tiles act as a collection of report parts combined to make one visualization. Tiles are re-sizable, movable, and editable.

Interaction with them within the Report Designer is intuitive.

Insights Roles

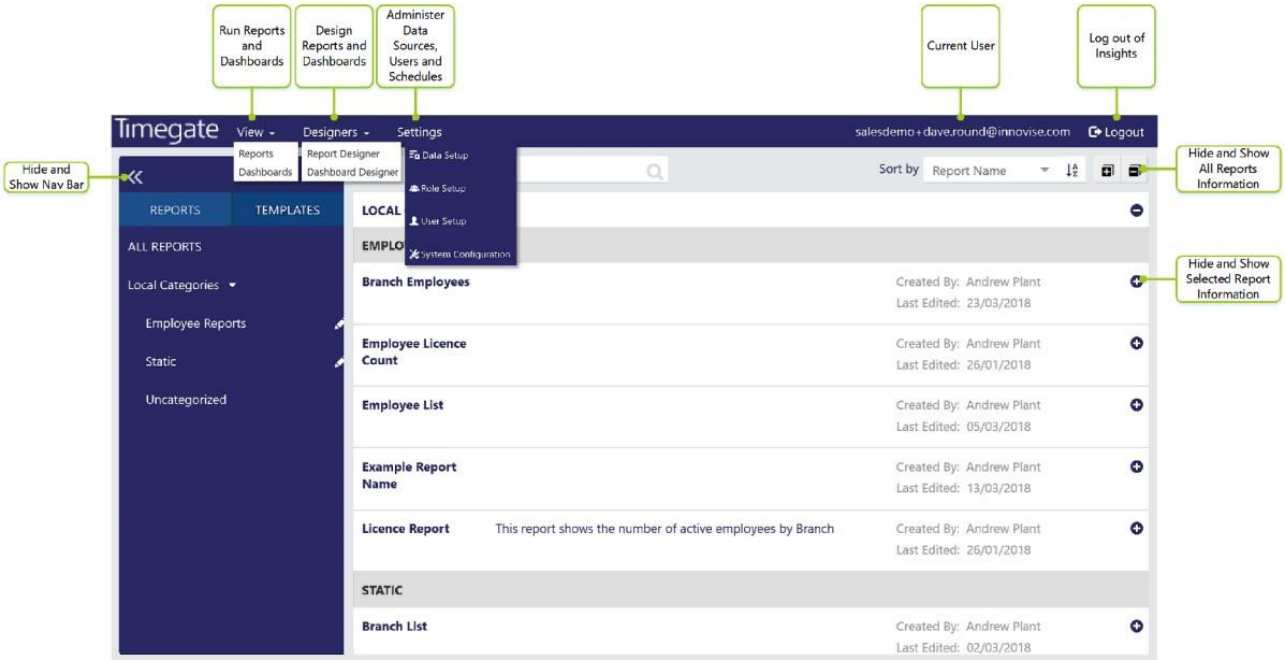
There are three main roles within Insights - each have their own different responsibilities:

There are three roles within Insights that will determine what the user can do when they access Insights:

- **Administrator Role** - Users with this role have the access rights to configure various system settings to within your business. They are able to control roles, permissions and user set up.
- **Report Writer Role** - Users with this role have the access rights to create reports and dashboards for others to view within Insights
- **User Role** - Users with this role are able to view reports and dashboards that they have been given access to (reports and dashboards have to be shared with a user or role before they can see them

Insights Functional Areas

When using Insights, three main functional areas can be shown to the user, based on the user role (that determines their Insights permissions):



- **View** - Accessed by the User to run previously created Reports and Dashboards
- **Designers** - Accessed by those with the Report Writer Role who will create Reports and Dashboards from Data Warehouse database tables for the End User
- **Settings** - Accessed by those with the Administrator Role for the setting up of Data Warehouse Tables and Views for use by Report Writers. User Security and Roles are also defined here

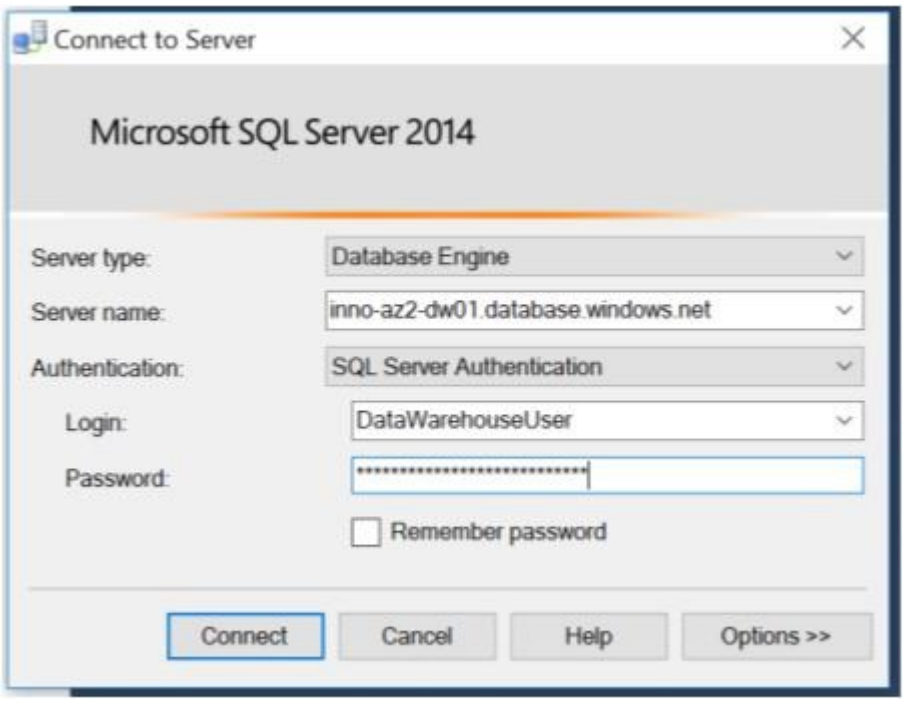
Accessing the Data Warehouse Database and Insights

Data Warehouse on Azure

As previously mentioned, the Data Warehouse is stored on Azure. To connect to it, you must use Microsoft SQL Server Management Studio. At time of publication, this can be downloaded from Microsoft's website, directly at: http://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms

Once downloaded and installed on to your machine, to connect to the database:

- Open SSMS



- Enter the **Azure Server Name**
- Enter your **Login**
- Finally, enter your **Password**
- Select **Options >>**
- Enter the **Database Name** in the **Connection Properties** tab
- Select **Connect**

If you cannot connect to the database, check that the settings are correct.

Please Note: An external IP address will need to be provided and added to the Azure Firewall to allow database access.

Insights

Insights can be used in conjunction with Timegate's Data warehouse to enable you to query all aspects of your business' T&A related data. Once configured for you by TEAM Software, Access to Insights is gained from within Timegate. Simply select **Analysis | Insights** from within the main Timegate menu as shown:

Please Note: Insights is not controlled by the Timegate Security Model. Only users that have been given access to Insights through the FM Cloud will see the option enabled.

Standard Replication Schedule

The Timegate Database data replicates to the Data Warehouse through regular synchronisation. By default these are set as follows. They can, however, be changed to meet with your requirements. All times are quoted in seconds:

Entity Name	Seconds between replication
ArbitrationProfiles	3600
Areas	3600
AutoSchedulingProfiles	3600
BillingFrequency	3600
Branches	1800
BranchesHolidays	1800
CallMonitorViews	3600
ContractManagers	3600
Counties	3600
Customers	1800
CustomersUserDefinedFieldNames	3600
DiaryEventTypes	3600
DrivingStatus	3600
Duty	60
DutyCalls	60
Employees	60
EmployeesDiaryEvents	60
EmployeesPictures	1800
EmployeeStatus	3600
EmployeesUserDefinedFieldNames	3600
EmployeeTypes	3600
EscalationGroups	3600
EthnicStatus	3600
GPSGeofenceProfiles	3600
HourTypes	3600
NoticePeriods	3600
OutboundCallProfiles	3600
PayLevels	3600
PayrollRunTypes	3600
Premiums	3600
ProbationPeriods	3600
Qualifications	3600

Entity Name	Seconds between replication
Ranks	3600
RateGenerationData	60
RevenueCodes	3600
AutoDutyCreationProfiles	3600
ServiceTypes	3600
SexualOrientations	3600
SiteCardBillRates	1800
SiteCardBudgets	1800
SiteCards	60
SiteCardsCallerID	1800
SiteCardsCheckCalls	1800
SiteCardsContractedHours	1800
SiteCardsIncidentLog	60
SiteCardsIncidents	60
SiteCardsMaps	1800
SiteCardsPremiums	1800
SiteCardsQualifications	1800
SiteCardsUserDefinedFieldNames	3600
SiteGroups	60
SiteGroupsCallMonitorViews	3600
SiteGroupsHolidays	3600
SiteGroupsHourTypeMapping	3600
SiteGroupsPostPay	1800
SiteGroupsUserDefinedFieldNames	3600
StartTypes	3600
Swipes	60
EmployeesPremiums	1800
EmployeesQualifications	1800
EmployeesSitesBanned	1800
EmployeesSitesTrained	1800
MaritalStatus	3600
Nationality	3600
Religions	3600
SiteCardsContractEffectiveDates	1800
BranchesUserDefinedFieldNames	3600
EmployeePayRates	1800
SiteCardsSlotNames	1800
ClockinHistory	60
SiteCardsZones	3600
ClockinDevices	3600
BranchesUserDefinedFieldValues	1800
CustomersUserDefinedFieldValues	1800

Entity Name	Seconds between replication
EmployeesUserDefinedFieldValues	1800
SiteGroupsUserDefinedFieldValues	1800
SiteCardsUserDefinedFieldValues	1800
UserNames	1800
AbsenceRules	3600
EmployeeAbsenceRules	1800
AuditDuty	60
HelpDeskTaskTypes	3600
HelpDeskTaskStatus	3600
HelpDeskTasks	60
EscalationGroupMembers	1800
HelpDeskTaskAudit	60
EmployeesWorkPatternDetails	60
SiteCardEmployeeTeams	60
UserSecuritySiteAccess	60
SiteRoles	60
SiteRoleData	60
SecurityRoles	60
UsersBranchesRoles	60
UsersSiteRoles	60
RateGenerationPeriods	1800
UserLoginHistory	60
AuditEmployees	1800
AuditSiteCards	1800
AuditSiteGroups	1800
AuditEmployeeDiaryEvents	1800
DutyDayTypes	3600
EmployeeShiftPatternHeader	1800
EmployeeShiftPatternWeeks	1800
EmployeePortalLoginHistory	1800
DiaryEventsPaidDays	1800
EmployeesAbsenceDailyBalancesToDate	60
DutyPremiums	60
EmployeeSitePayRates	1800
ServiceDeliveryTourLog	300
ServiceDeliveryTour	300
ServiceDeliveryIncidentLog	300
ServiceDeliveryIncident	300
ServiceDeliveryTourDefinition	300
ServiceDeliveryTourDefinitionLocation	300
ServiceDeliveryTourLocationLog	300
ServiceDeliveryIncidentTypes	300

Entity Name	Seconds between replication
ServiceDeliveryLocation	300
ServiceDeliveryFailureReasons	300
ServiceDeliveryTourLocationMediaLog	300
ServiceDeliveryStatus	300
ServiceDeliveryStatusConstants	300
EmployeesNotes	1800
InvoiceHeader	1800
InvoiceItems	300
InvoiceLine	1800
InvoiceOpenPosts	1800
MiscCode	1800
MiscItem	1800
SiteCardsContract	1800
SiteCardsContractCharge	1800
CreditNoteHeader	1800
CreditNoteLine	1800
CustomFormsForms	1800
CustomFormsPublishHistory	1800
CustomFormsFormAnswerImages	300
CustomFormsFormAnswers	300
CustomFormsQuestions	3600
CustomFormsFormsSections	3600
CustomFormsFormSectionQuestions	3600
CustomFormsAnsweredQuestions	300
ServiceDeliveryFormSubmissions	300
ServiceDeliveryIncidentTypesForms	3600
ServiceDeliveryFormSubmissionsLog	3600
SiteGroupPayLevelBillingDescription	1800
SiteGroupHourTypeBillingDescription	1800
SiteGroupPostPayBillingDescription	1800
ServiceDeliveryIncidentMediaLog	300
Events	1800
EventDutyData	1800
EventRoles	1800
EventTeams	1800
EventRoleEmployees	1800
EventRoleQualifications	1800
EventSchedulingProfiles	1800
ContractTypes	1800
EmployeesContractHistory	1800
DutyCheckFailures	1800

Running reports in Insights

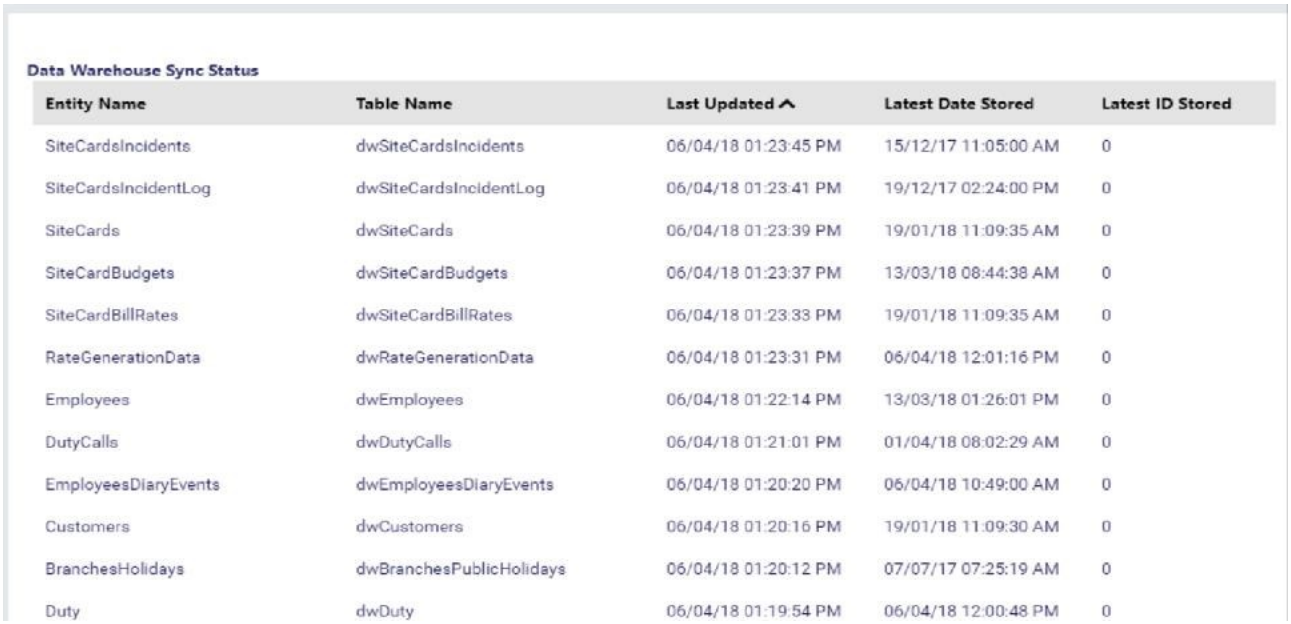
Within Timegate, you have been provided with a series of reports that are ready to run as well as ones that your company may already have provided you with. To open, run and view reports:

- Select **View** from the menu
- Scroll through the reports and their various categories until you find the one you are interested in, or select the magnifying glass to search for your report of choice
- Select the report to open it
- When a report is opened, filters are used to customise outcome. Customise the filters as required
- Run, export or print the report using the buttons in the menu at the top of the page

The following reports are provided with Insights as standard:

- Data Warehouse Import Status
- Duty Analysis
- Duty Calls - Last 12 Hours
- Today's Duty Schedule
- Active Employees
- HR Statistics (with filters)

An example of one of the reports listed above is the Data Warehouse Import Status. This indicating the status of the data saved in the Data Warehouse:

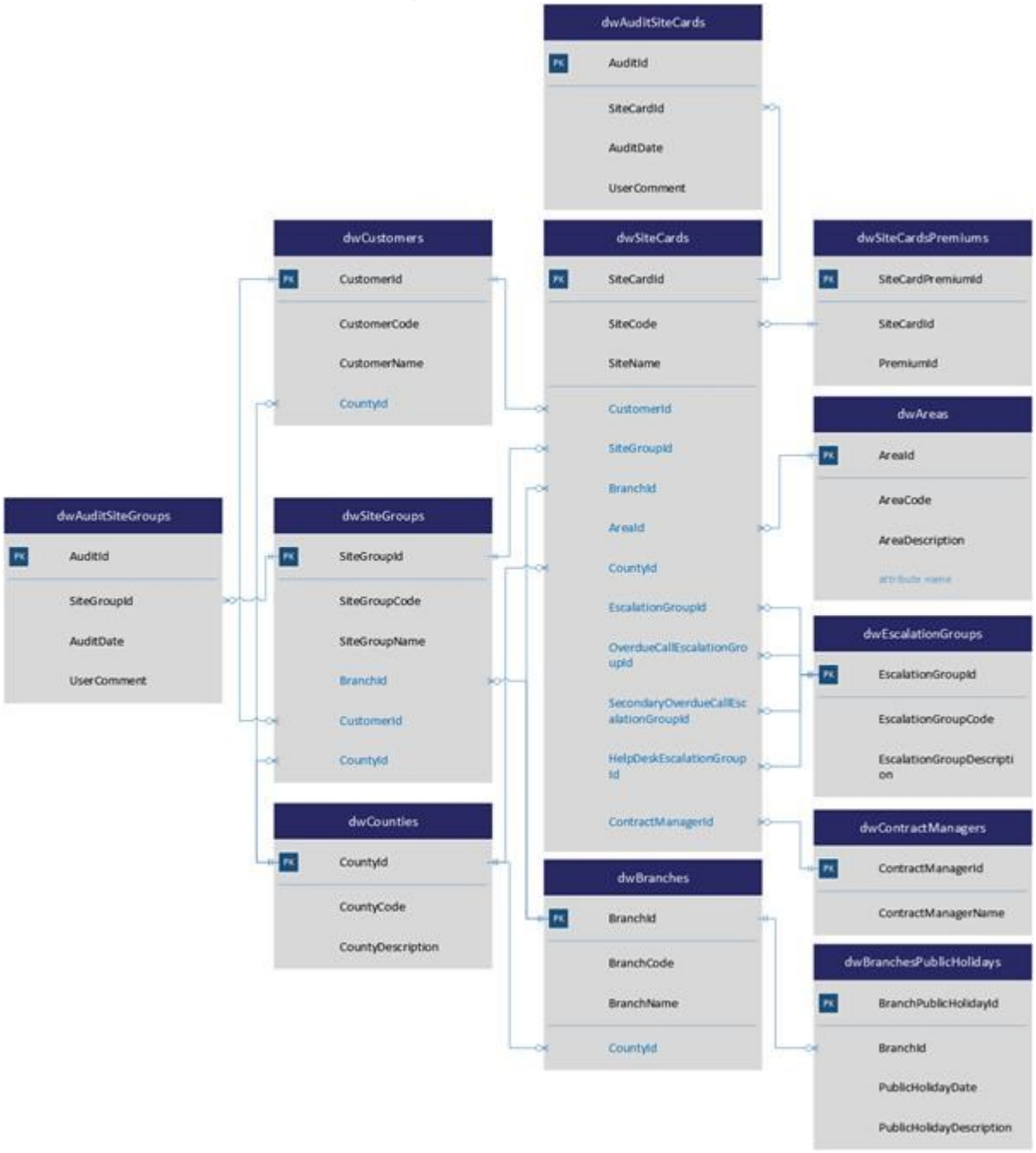


Data Warehouse Sync Status

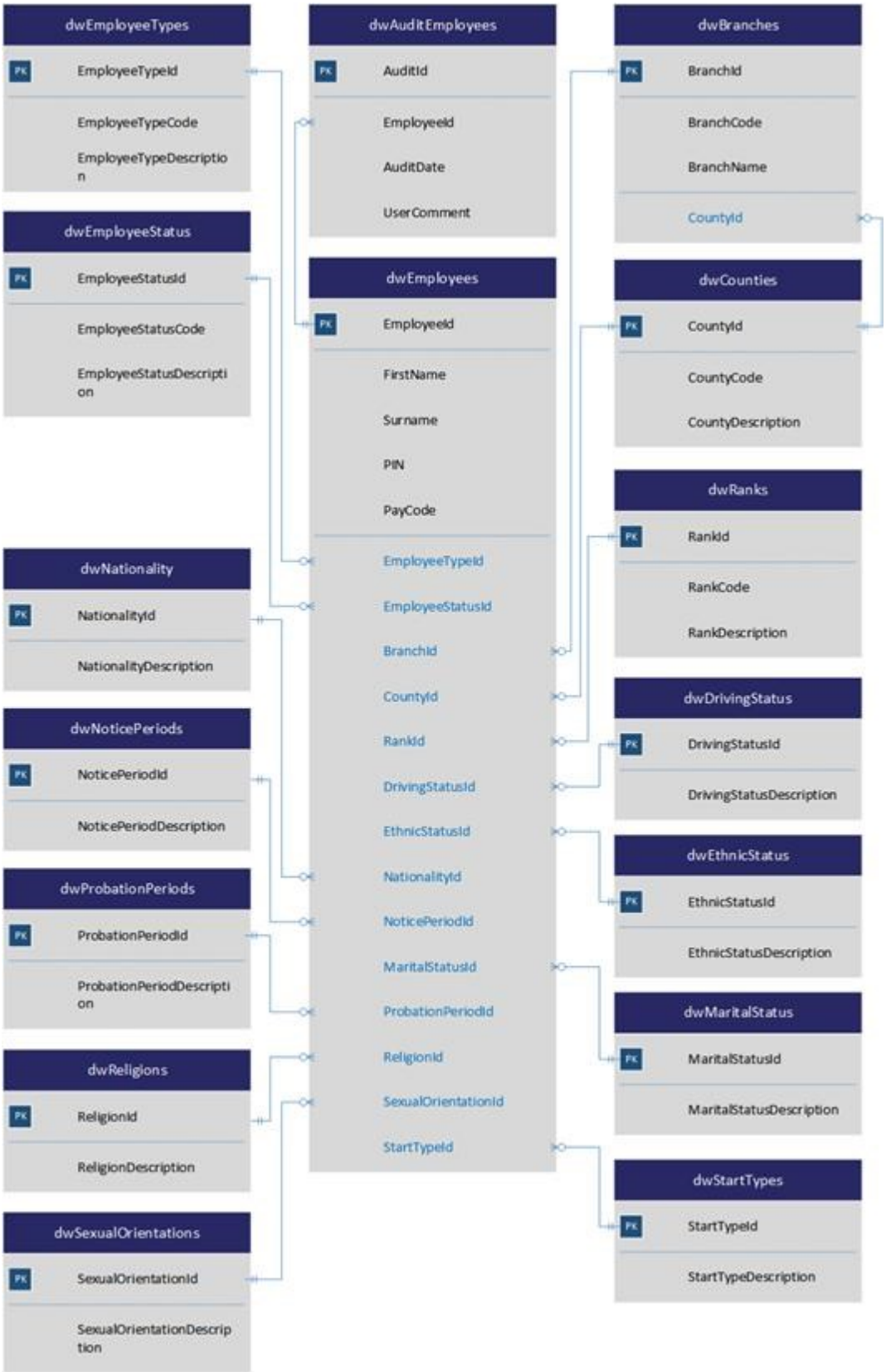
Entity Name	Table Name	Last Updated	Latest Date Stored	Latest ID Stored
SiteCardsIncidents	dwSiteCardsIncidents	06/04/18 01:23:45 PM	15/12/17 11:05:00 AM	0
SiteCardsIncidentLog	dwSiteCardsIncidentLog	06/04/18 01:23:41 PM	19/12/17 02:24:00 PM	0
SiteCards	dwSiteCards	06/04/18 01:23:39 PM	19/01/18 11:09:35 AM	0
SiteCardBudgets	dwSiteCardBudgets	06/04/18 01:23:37 PM	13/03/18 08:44:38 AM	0
SiteCardBillRates	dwSiteCardBillRates	06/04/18 01:23:33 PM	19/01/18 11:09:35 AM	0
RateGenerationData	dwRateGenerationData	06/04/18 01:23:31 PM	06/04/18 12:01:16 PM	0
Employees	dwEmployees	06/04/18 01:22:14 PM	13/03/18 01:26:01 PM	0
DutyCalls	dwDutyCalls	06/04/18 01:21:01 PM	01/04/18 08:02:29 AM	0
EmployeesDiaryEvents	dwEmployeesDiaryEvents	06/04/18 01:20:20 PM	06/04/18 10:49:00 AM	0
Customers	dwCustomers	06/04/18 01:20:16 PM	19/01/18 11:09:30 AM	0
BranchesHolidays	dwBranchesPublicHolidays	06/04/18 01:20:12 PM	07/07/17 07:25:19 AM	0
Duty	dwDuty	06/04/18 01:19:54 PM	06/04/18 12:00:48 PM	0

DATA WAREHOUSE ENTITY RELATIONSHIP DIAGRAMS

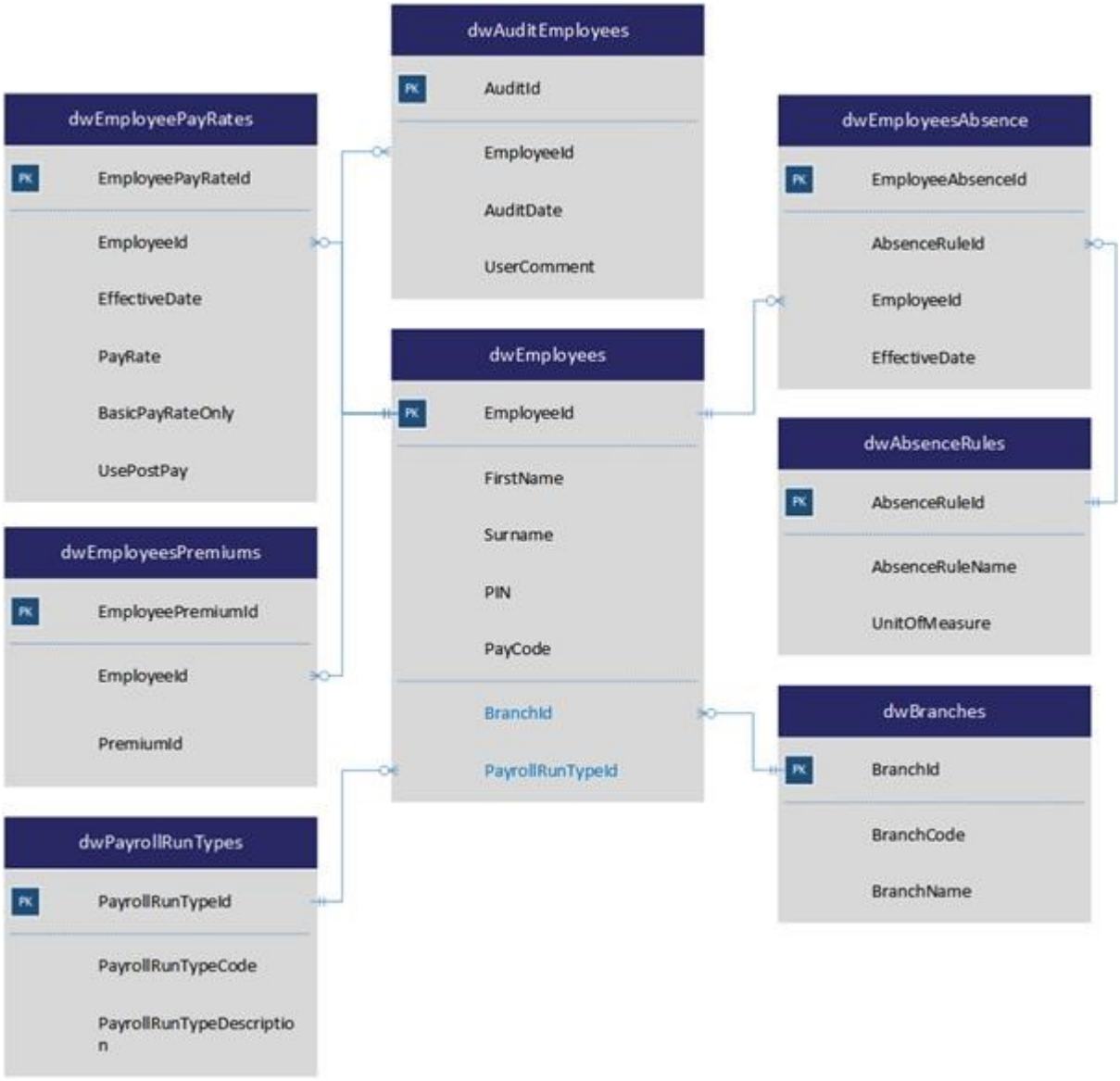
Branch, Customer, Site Groups and Site Cards



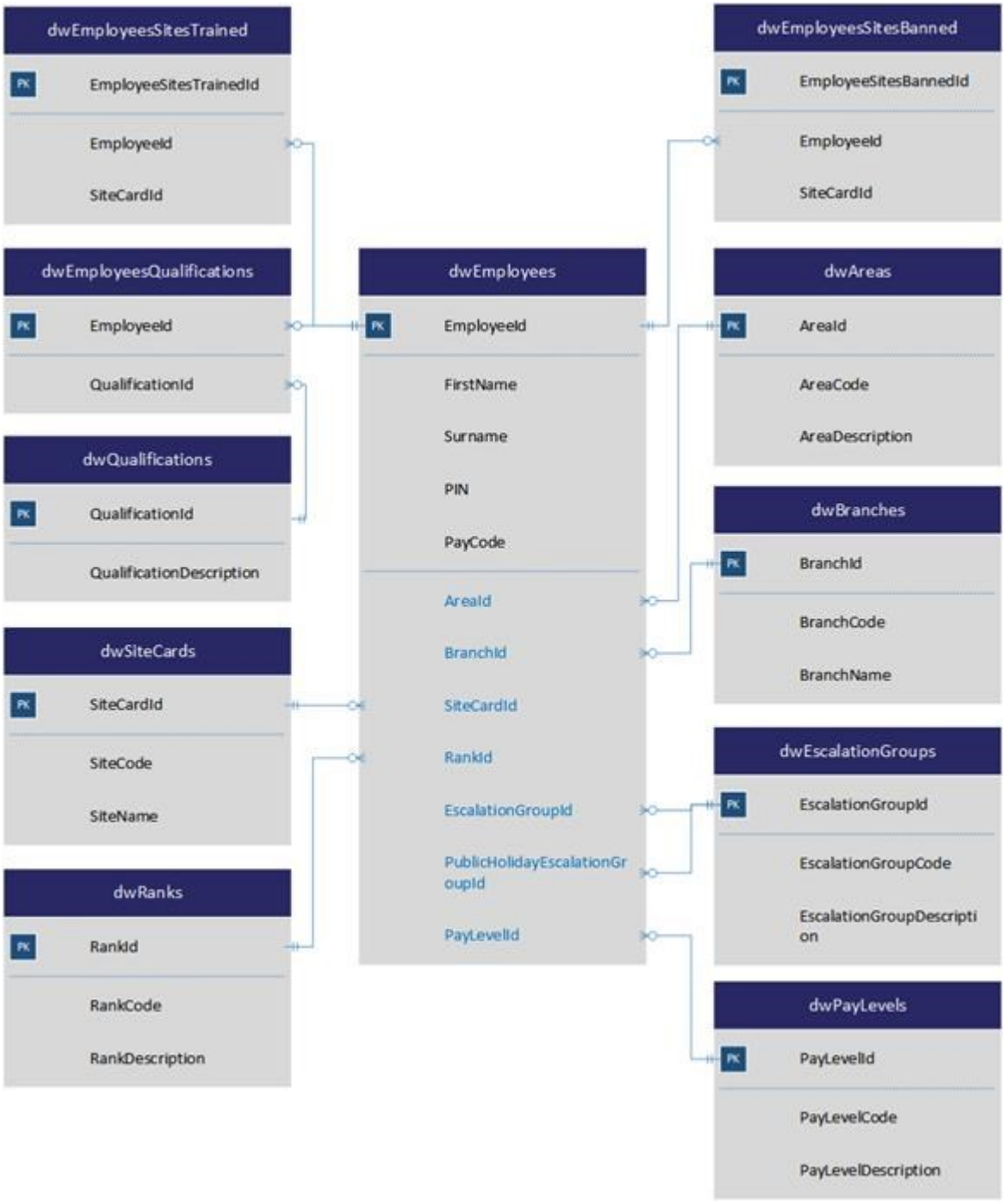
Employee HR


dwEmployeeTypes
EmployeeTypeId
EmployeeTypeCode
EmployeeTypeDescription
dwEmployeeStatus
EmployeeStatusId
EmployeeStatusCode
EmployeeStatusDescription
dwNationality
NationalityId
NationalityDescription
dwNoticePeriods
NoticePeriodId
NoticePeriodDescription
dwProbationPeriods
ProbationPeriodId
ProbationPeriodDescription
dwReligions
ReligionId
ReligionDescription
dwSexualOrientations
SexualOrientationId
SexualOrientationDescription
dwAuditEmployees
AuditId
EmployeeId
AuditDate
UserComment
dwEmployees
EmployeeId
FirstName
Surname
PIN
PayCode
EmployeeTypeId
EmployeeStatusId
BranchId
CountyId
RankId
DrivingStatusId
EthnicStatusId
NationalityId
NoticePeriodId
MaritalStatusId
ProbationPeriodId
ReligionId
SexualOrientationId
StartTypeId
dwBranches
BranchId
BranchCode
BranchName
CountyId
dwCounties
CountyId
CountyCode
CountyDescription
dwRanks
RankId
RankCode
RankDescription
dwDrivingStatus
DrivingStatusId
DrivingStatusDescription
dwEthnicStatus
EthnicStatusId
EthnicStatusDescription
dwMaritalStatus
MaritalStatusId
MaritalStatusDescription
dwStartTypes
StartTypeId
StartTypeDescription

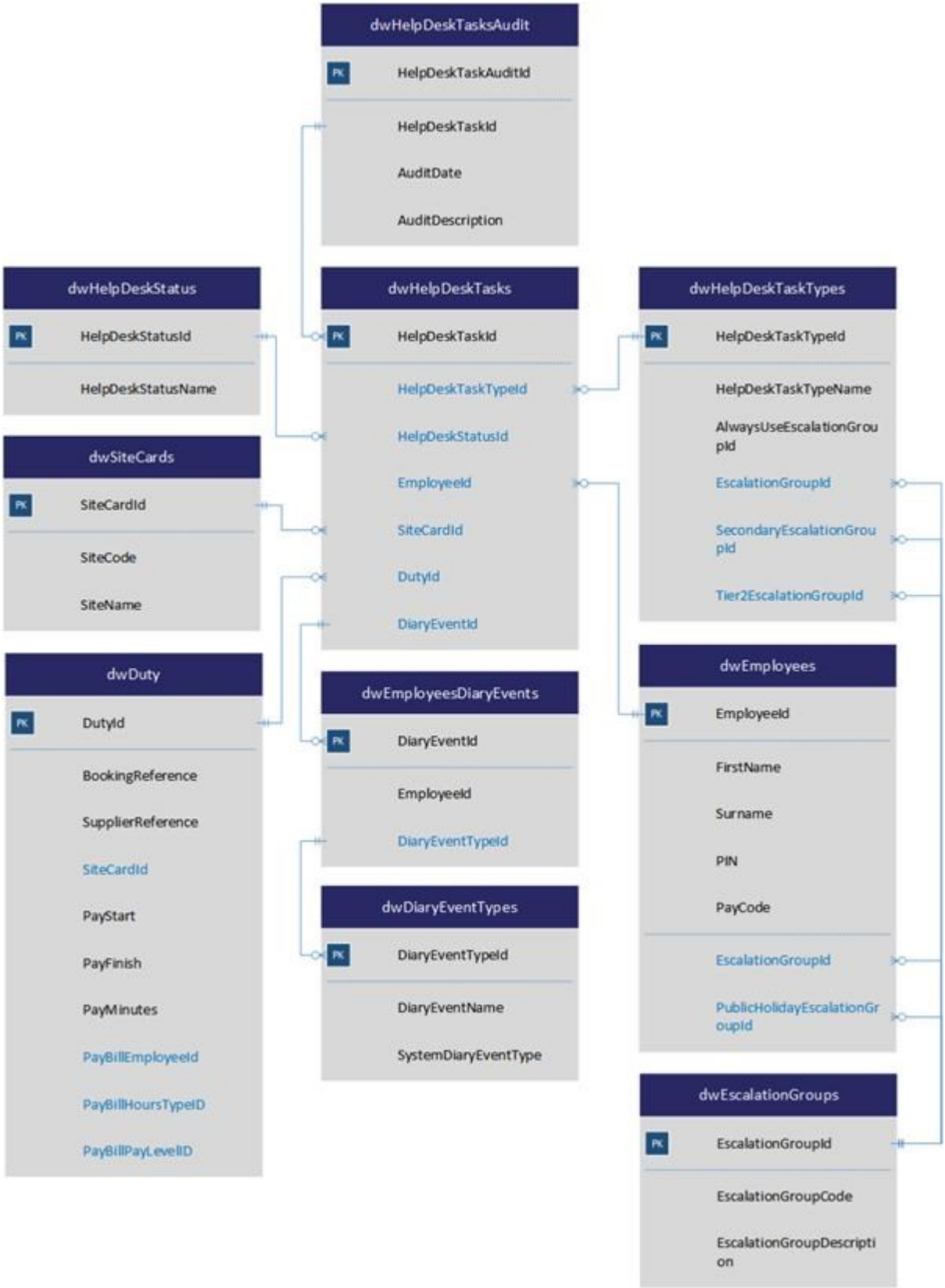
Employee Pay



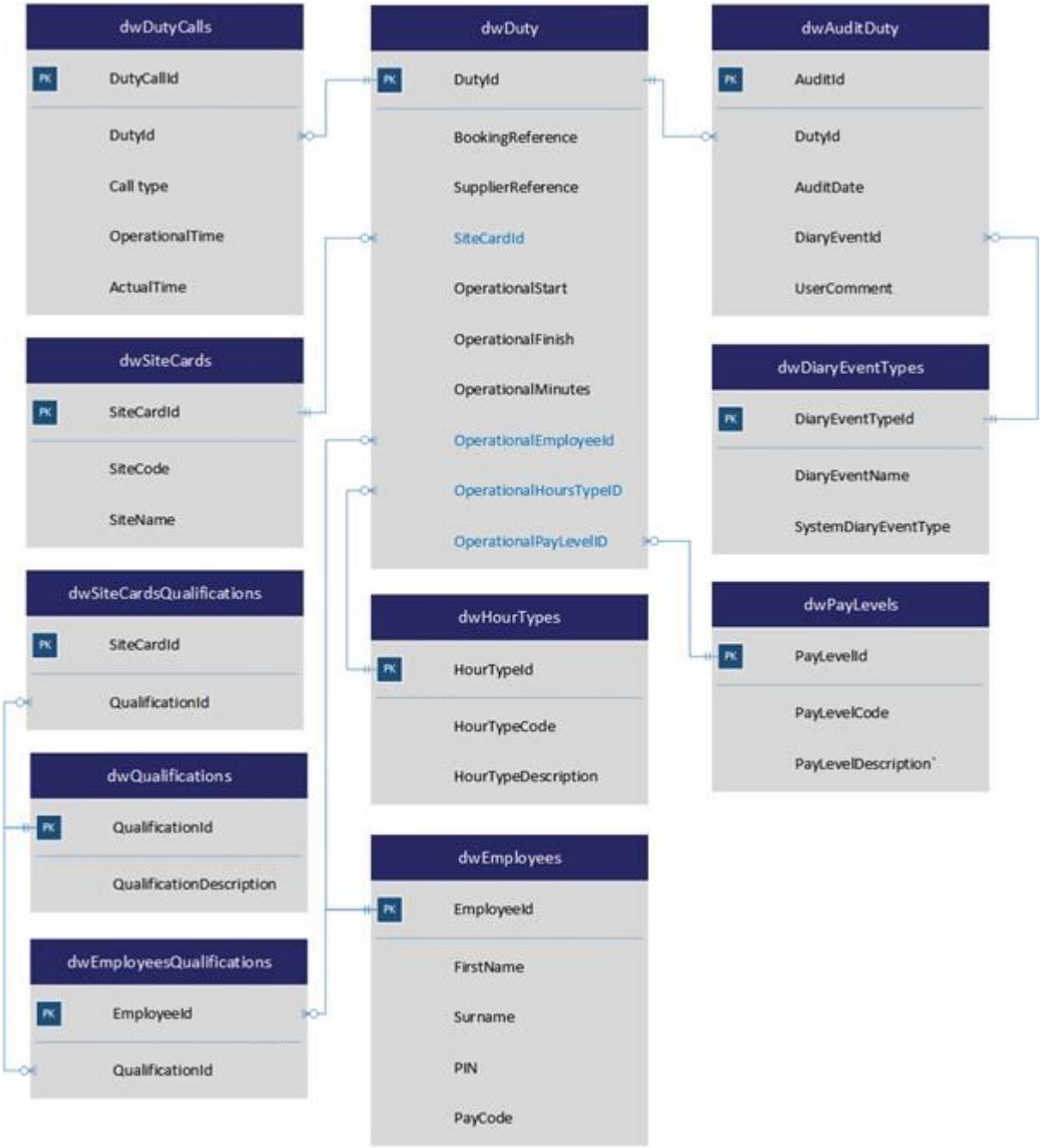
Employee Ops



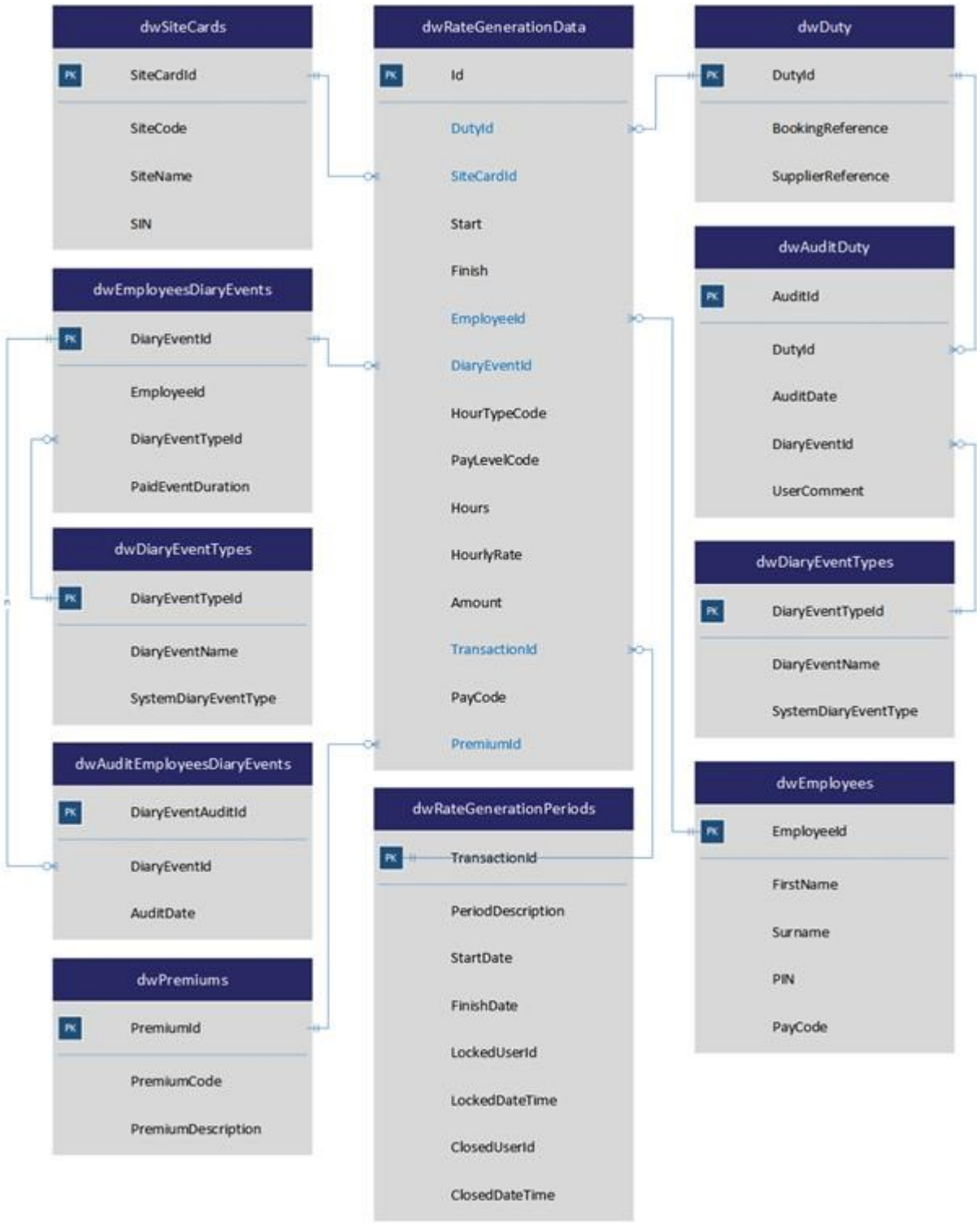
Help Desk Tasks



Scheduling


dwDutyCalls
DutyCallId
DutyId
Call type
OperationalTime
ActualTime
dwDuty
DutyId
BookingReference
SupplierReference
SiteCardId
OperationalStart
OperationalFinish
OperationalMinutes
OperationalEmployeeId
OperationalHoursTypeID
OperationalPayLevelID
dwAuditDuty
AuditId
DutyId
AuditDate
DiaryEventId
UserComment
dwSiteCards
SiteCardId
SiteCode
SiteName
dwDiaryEventTypes
DiaryEventTypeId
DiaryEventName
SystemDiaryEventType
dwSiteCardsQualifications
SiteCardId
QualificationId
dwHourTypes
HourTypeId
HourTypeCode
HourTypeDescription
dwPayLevels
PayLevelId
PayLevelCode
PayLevelDescription
dwQualifications
QualificationId
QualificationDescription
dwEmployees
EmployeeId
FirstName
Surname
PIN
PayCode
dwEmployeesQualifications
EmployeeId
QualificationId

Rate Generation



FACT TABLES

Using Fact Tables

When writing reports, ensure that you query the relevant Fact table first. It must be the primary table used. Include the required entity tables on a secondary basis, thereafter.

Validity of Table Structures

The information below relates to the latest version of the Fact tables when this document was issued (June 2020).

Stored Procedures

Each of the listed Fact tables has it's own stored procedure to build/update it. The first time a store procedure is run, it will populate it's associate Fact table. When the stored procedure is run after the initial build, the associated Fact table will already contain data, that will be updated to the latest version. This will include adding new records as needed (e.g. new employee records, new last full month of data etc.)

The stored procedure names are as follows:

- **spBuild_dwFactEmployeeByMonth**
- **spBuild_dwFactEmployee**
- **spBuild_dwFactCalendar**

A schedule will need to be configured in the queue processor so that each Fact table is populated and updated intermittently.

dwFactEmployee

Purpose

The dwFactEmployee Fact table contains up to date computed values for the employee. This is useful for querying the current state and can be used to answer questions such as:

- How many employees are currently active per branch?
- What are the average employee hours by standard location?
- What is the average employee pay rate by area?
- How many active employees per outcode?

Table Structure

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Source Table	Description
PK	EmployeeId	Int	Employee	The unique identifier of the employee
FK	BranchId (NCI)	Int	Branches	The branch the employee is associated to
FK	AreaId (NCI)	Int	Areas	The area the employee is associated to

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Source Table	Description
FK	EscalationGroupId (NCI)	int	Escalation Groups	The escalation group assigned to the employee
FK	CountyId (NCI)	int	Countries	Employees county from address
FK	SiteCardId (NCI)	int	Site Card	The Standard Location Site that the Employee is contracted to work on
FK	EmployeeStatusId (NCI)	Int	Employee Status	Employee status
FK	EmployeeTypeId (NCI)	Int	Employee Types	Employee type
FK	NationalityId (NCI)	Int	Nationality	Employee nationality
FK	EthnicStatusId (NCI)	Int	Ethnic Status	Employee ethnic origin
FK	ReligionId (NCI)	Int	Religions	Employee religion
FK	SexualOrientationId (NCI)	Int	Sexual Orientations	Employee sexual orientation
FK	MaritalStatusId (NCI)	Int	Marital Status	Employee marital status
FK	PayrollRunTypeId (NCI)	int	Payroll Run Types	Payroll Run Type
	OutCode	nvarchar(8)		UK outcode ade up of Area and District (e.g. B65, ND55). Is the employee currently active (not terminated in the past or deleted)
	IsActive	bit		
	InProbation	bit		True when the employee is within probation, otherwise false.
	JobTenureInMonths	Int		Number of months at company from joined date
	JobTenureInWeeks	Int		Number of weeks at company from joined date
	AverageWorkedHours	Decimal (9,4)		The mean average hours the employee has worked for 52 weeks. Excludes premium hours, but includes unpaid breaks
	AveragePayRate	Decimal (9,4)		The mean average pay rate the employee has was paid for the last 52 weeks. Will include the total pay (inc. premiums).
	AgeInYears	int		Employee age in years
	HasDisability	bit		True when the employee is has a disability, otherwise false.
	IsEmployeePortalActive	bit		True when the employee access to the employee portal, otherwise

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Source Table	Description
				false.
	LastEmployeePortalLoginDateTime	dateTime		Last employee portal log on as date and time
	EmployeePortalDaysSinceLastLogin	int		The number of days since an employee last logged into the employee portal
	EmployeePortalAverageLoginsPerMonth	int		Average portal logins per month for the employee
	HolidayRequestsSubmittedCount	int		The number of holiday requests submitted for the last rolling 1 year period
	WorkSearchCount	int		System help desk task type for the last 1 year period
	ShiftGiveAwayCount	int		The number of shift giveaways for the last rolling 1 year period
	ShifrSwapAwayCount	int		The number of shift swaps for the last rolling 1 year period

DwEmployeeFactByMonth

Purpose

The dwEmployeeFactByMonth Fact table contains date variations for every month of each year for a period (initially starting at five years in the past to five years in the future). The table will allow grouping fact data on familiar date periods, for example by day, week, month, week commencing days, etc.

This Fact table will be useful for looking at monthly trends, and could be used to answer the following types of questions:

- How do the number of active employees change monthly by branch?
- How many active employees fall into specific age bands by month?
- How are my new employees distributed by nationality by month?

Table Structure

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Source Table	Description
PK	EmployeeId	int	Employee	The unique identifier of the employee
PK	MonthBeginDate	date		The counts relate to this month – data will be grouped by month
FK	BranchId	int	Branches	The branch the employee is associated to
FK	AreaId	int	Areas	The area the employee is

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Source Table	Description
FK	EscalationGroupId	int	Escalation Group	The escalation group assigned to
FK	CountyId	int	Countries	Employees county from address
FK	SiteCardId	int	Site Card	The Standard Location Site that the Employee is contracted to work on
FK	StatusId	int	Employee Status	Employee status
FK	TypeId	int	Employee Types	Employee type
FK	NationalityId	int	Nationality	Employee nationality
FK	EthnicOriginId	int	Ethnic Status	Employee ethnic origin
FK	ReligionId	int	Religions	Employee religion
FK	SexualOrientationId	int	Sexual Orientations	Employee sexual orientation
FK	MaritalStatusId	int	Marital Status	Employee marital status
FK	PayrollRunTypeId	int	Payroll Run Types	Payroll Run Type
	IsJoiner	bit		The employee has joined the company already
	IsActive	bit		Is the employee currently active (not terminated in the past or deleted)
	IsLeaver	bit		The employee has left the company already
	InProbation	bit		True when the employee is within probation, otherwise false.
	JobTenureInMonths	int		Number of months at company from joined date
	JobTenureInWeeks	int		Number of weeks at company from joined date
	AverageWorkedHours	decimal(9, 4)		The mean average hours the employee has worked for 52 weeks. Excludes premium hours, but includes unpaid breaks.
	AveragePayRate	decimal(9, 4)		The mean average pay rate the employee has was paid for the last 52 weeks. Will include the total pay (inc. premiums).
	AgeInYears	int		Employee age in years
	EmployeePortalLogins	int		Used to count the employee portal log ons for the month

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Source Table	Description
	HolidayRequestsSubmittedCount	int		The number of holiday requests submitted for the last rolling 1 month period
	WorkSearchCount	int		System helpdesk task type for the last 1 month period
	ShiftGiveAwayCount	int		The number of shift giveaways for the last rolling 1 year period
	ShiftSwapAwayCount	int		The number of shift swaps for the last rolling 1 year period

dwFactCalendar

Purpose

The dwCalendar Fact table contains date variations for every day of a period (initially starting at five years in the past to five years in the future). This Calendar table allows grouping of fact data on familiar date periods, for example, day, week, month, etc.

Table Structure

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Description
PK	Date	date	Distinct Date (e.g. 2017-03-19)
	Day	nvarchar(15)	Day (e.g. Sunday)
	DayAbbr	nvarchar(3)	Day Abbreviation (e.g. Sun)
	DayNumber	int	Day of Month (e.g. 1)
	MonthName	nvarchar(15)	Month (e.g. March)
	MonthNameAbbr	nvarchar(3)	Month Abbreviation (e.g. Mar)
	MonthNumber	int	Month Number (e.g. 3)
	Year	int	Year (e.g. 2017)
	YearMonth	nvarchar(8)	Year and Month Number (e.g. 2017-03)
	MonthNameAbbr	nvarchar(3)	Month Abbreviation (e.g. Mar)
	MonthNumber	int	Month Number (e.g. 3)
	Year	int	Year (e.g. 2017)
	YearMonth	nvarchar(8)	Year and Month Number (e.g. 2017-03)
	WeekCommencingMon	date	Week Commencing Date for Mon (e.g. 2017-12-26)
	WeekCommencingTue	date	Week Commencing Date for Tue (e.g. 2017-12-27)
	WeekCommencingWed	date	Week Commencing Date for Wed (e.g. 2017-12-28)
	WeekCommencingThu	date	Week Commencing Date for Thu (e.g. 2017-12-29)

Primary or Foreign Key (PK/FK)	Column Name	Data Type	Description
	WeekCommencingFri	date	Week Commencing Date for Fri (e.g. 2017-12-30)
	WeekCommencingSat	date	Week Commencing Date for Sat (e.g. 2017-12-31)
	WeekCommencingSun	date	Week Commencing Date for Sun (e.g. 2017-01-01)