glider

powering a data driven future

gliderbim

CDE Service Definition

(Subject to Contract)

May 2022, v1.0

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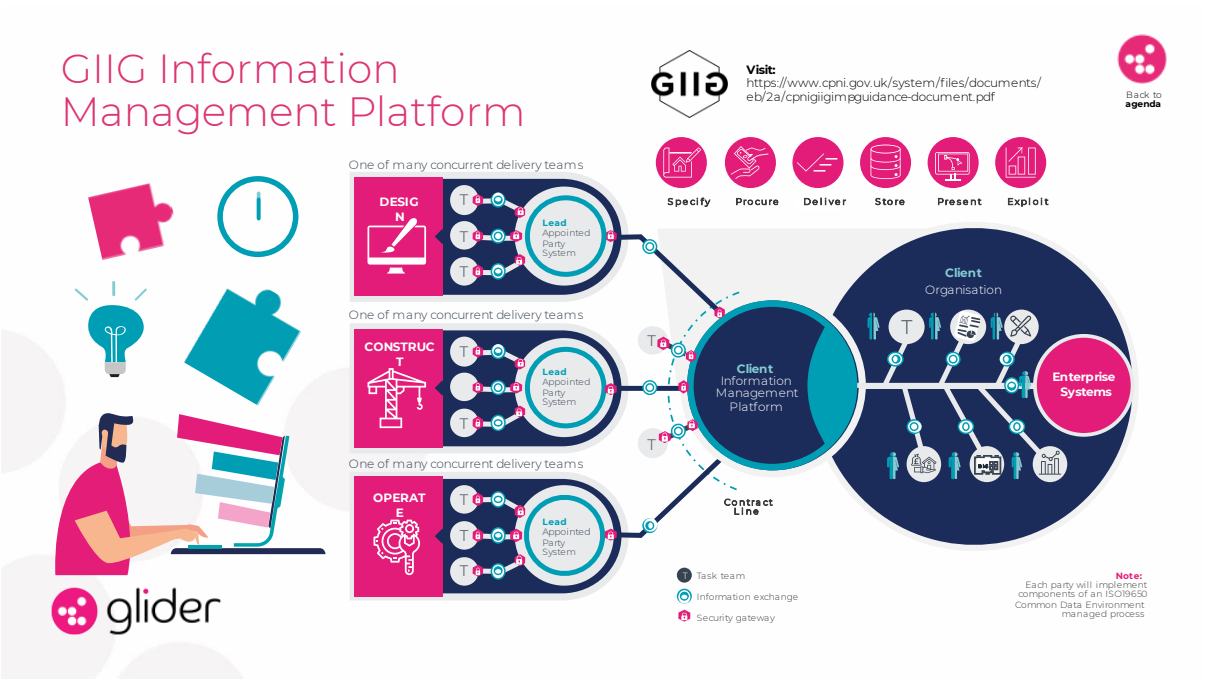
1. Introduction

Glider Technology Limited (Glider) was established in April 2016 as a digital solutions provider and BIM consultancy for the built environment. Glider was formed as a response to a growing industry need for trusted, structured data to support the digitisation of the industry and provide better value for our clients.

Glider's mission is to revolutionise how asset information is managed throughout design, construction and operation of a built asset. Glider designed and developed a ground-breaking, data-driven, Common Data Environment (CDE) for full lifecycle asset information management called Gliderbim®.
The Government Industry Interoperability Group define the requirements for an **Client Information Management Platform** (as illustrated below). This consists of a federated data architecture of client owned systems that manages the verification of project information at interim exchange points up to handover, where accurate as built records (documents, data and spatial information) are maintained in asset workspaces and connected with other operational systems to provide rich insights and a single view of truth from which to search and retrieve information at point of need.

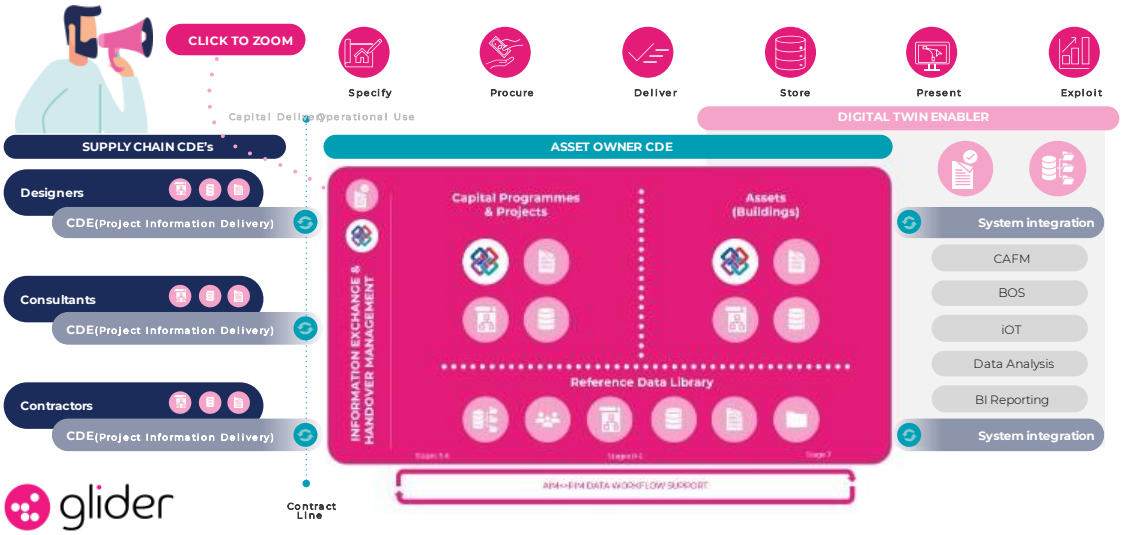


Gliderbim® is a groundbreaking, data-driven software solution, providing the following:

- CDE compliant with ISO 19650 standards;
- centralised, secure repository for integrating BIM models, structured asset data, and documents;

- enterprise-wide search of information stored in IFC models, COBie data, documents, and other supported data schemas;
- 3D model visualisation platform built on open BIM standards;
- enriched asset data analysis, data enrichment and data extraction tools;
- automated verification of structured data within 3D models and other 2D document formats containing structured data in accordance with international standards and the employer's requirements;
- federation of data-rich models from multiple data sources and formats, including: 3D models, spreadsheets, product data sheets and structured data from third-party software applications leveraging open source standard formats such as IFC;
- management of industry-standard and/or bespoke asset data requirements to suit the customer's needs;
- export of asset data-rich 3D models combining data from multiple sources;
- progress reporting on the completeness and validity of required information for BIM Level 2 delivery at agreed information exchange points;
- comprehensive workflow management system;
- restful API to integrate with third-party software applications such as CAFM, BEMS, iBMS, document management systems, and financial systems; and
- automated version control and an immutable audit trail.

gliderbim® Common Data Environment



Gliderbim® also provides best-in-class, document management capabilities to manage information throughout the design, construction and operational phases of a facility's lifecycle, including but not limited to:

- Design information: BIM models, specifications, 2D drawings, reports, structural calculations, etc.

- Construction information: BIM models, technical submittals, 2D as built drawings, inspection reports, test reports, programmes, RFIs, etc.
- Handover documentation: Asset Information Models, Health & Safety Files, Operation & Maintenance Manuals, Testing & commissioning records, As-built/record drawings, Asset Registers, and FM-related records, etc.

Gliderbim® has a comprehensive Application Programming Interface (API) that allows for deep integrations with other software systems, such as CAFM, BEMS, IoT networks & devices, Geographic Information Systems (GIS), financial systems, BIM object libraries, BIM authoring software, and document management systems. The purpose of such system integration is to provide a simple means of navigating asset information that is stored and managed across multiple systems, and to ensure data integrity across multiple platforms without the need of replacing existing asset management and FM systems, providing instant, secure access critical information and building performance data within a single, integrated platform.

2. Background

2.1 The Asset Information Management Challenge

One of the many challenges facing AEC professionals is how to manage the production of accurate, detailed information models containing huge amounts of technical data from many different sources. This information must be collected in a standardised, structured format then verified and approved prior to each information exchange.

Managing the production, approval and delivery of accurate and compliant asset information can be challenging and costly. A skilled management resource and a sophisticated software applications are needed to:

1. Automate some of the labour intensive and time-consuming data entry and validation processes;
2. Share information easily and securely;
3. Plan and monitor the modelling and data collection tasks from consultants and the supply chain;
4. Communicate tasks and issues to the team;
5. Provide an audit trail of all model and data changes;
6. Provide a mechanism for validating and approving asset information;
7. Provide status reports, and performance monitoring of contributors to the process;
8. Provide fully compliant, correctly formatted building models and asset information at the required stages.

2.2 openBIM

Gliderbim® fully supports the openBIM initiative, which ensures interoperability of models and their data by using open standards and workflows. This means that models and their data can be exchanged easily between proprietary and/or open source software applications.

2.3 IFC – Industry Foundation Class

Industry Foundation Class (IFC) is an industry-recognised file format for models and their data. The specification for the IFC file format is freely available and open source, which means software vendors can develop software applications to visualise, interpret and manage IFC model files and their data.

Unlike most Common Data Environments (CDEs), Gliderbim® is not just an online file sharing platform. Gliderbim® handles IFC models and data to new levels; replacing time-consuming, resource-heavy, BIM workflows with completely automated processes. Gliderbim® provides much more in-depth analysis of models and their data.

2.4 COBie – Structured Asset Data

COBie stands for construction operation building information exchange. COBie is a structured data file format for sharing information about a facility. A COBie

dataset can be contained in a spreadsheet document format. The spreadsheet contains information about the facility, floors, spaces, systems, components and other information required to effectively and safely operate and maintain the facility. At handover, the COBie deliverable provides all of the information required to effectively operate and maintain the facility in a standardized, structured format.

Managing hundreds of spreadsheets containing asset data for large scale projects can be a daunting, difficult, and error-prone task. Gliderbim® manages the asset data in the Cloud providing:

- intelligent search capabilities;
- full version control and audit trail for all asset data fields;
- secure storage and sharing;
- automated export to XLSX, CSV, XML, and other formats;
- automated checking of the COBie data schema; and
- exception reports for missing or incomplete asset data.

2.5 Information Exchange

ISO 19650-2 requires the exchange of asset information at various stages of the design, construction and handover process. Gliderbim® facilitates each information exchange to meet the Exchange Information Requirements using openBIM standards.

3. Gliderbim® – Lifecycle Asset Information Management

3.1 Overview

Gliderbim® is a secure Common Data Environment platform that allows teams to manage asset information throughout the entire lifecycle of a built asset. Gliderbim® can be integrated with CAFM, BEMS, and other Smart Building systems to provide a Digital Twin of a physical asset.

Gliderbim® allow teams to management information to comply with the following standards for Building Information Modelling (BIM):

- **BS EN ISO 196500-1:2018** *Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) -- Information management using building information modelling -- Part 1: Concepts and principles*
- **BS EN ISO 19650-2:2018** *Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) -- Information management using building information modelling -- Part 2: Delivery phase of the assets*
- **PAS 1192-3:2014** *Specification for information management for the operational phase of assets using building information modelling (BIM)*
- **BS 1192-4:2014** *Collaborative production of information. Fulfilling employer's information exchange requirements using COBie. Code of practice*
- **PAS 1192-5:2015** *Specification for security-minded building information modelling, digital built environments and smart asset management*

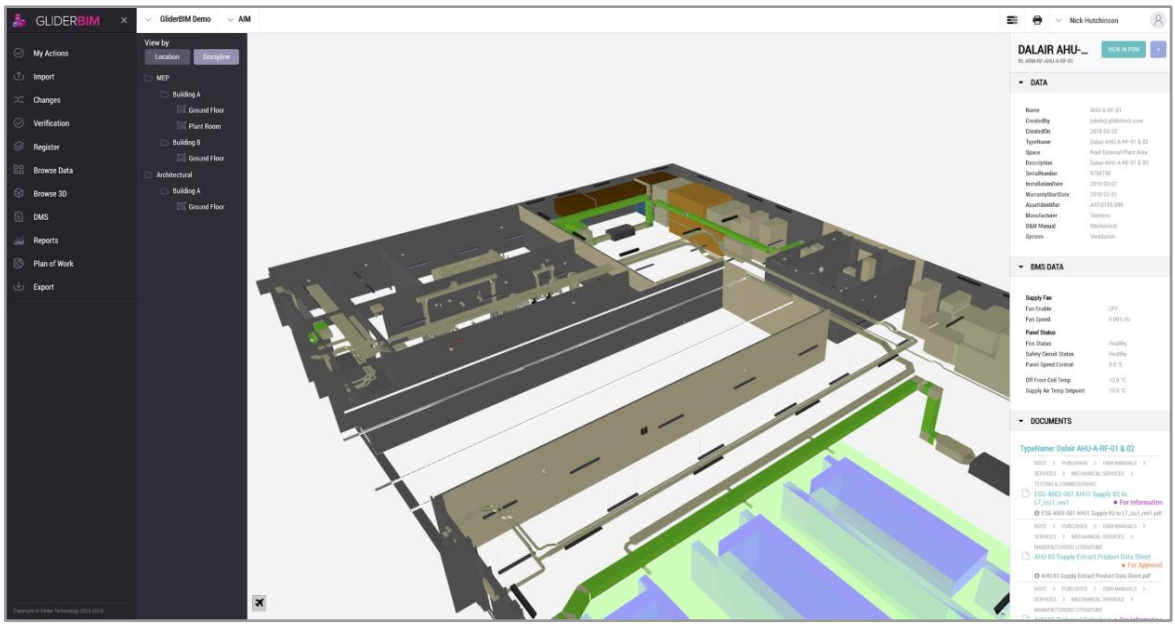


Figure 2 - Connecting geometric models with structured data and documents

3.2 Estate Asset Information Management

The Gliderbim® CDE software can contain an unlimited number of Workspaces for a customer's estate.

Workspaces can be used for managing design and construction projects or managing the operation and maintenance of existing built assets.

Workspaces are organised in a customisable hierarchy to suit the customers organisational structure and estate landscape.

3.3 Workspace Features

Each Workspace is comprised of the following modular features:

- The BIM Module:
    - Plan of Work
    - Data Import
    - Data Verification
    - Dashboard Reporting
    - Gliderscape: 3D Model Visualisation
    - Asset Database Engine
    - COBie Workbook Manager
    - Data Export
- Document Management System (DMS):
    - DMS Settings:
        - Document Naming Conventions
        - Document Status & Metadata
        - User Groups
        - Workflows
    - Virtual Folder Structure
    - Document Register
    - Search
    - Document Workflows
    - Audit Trail
    - Upload
    - Notifications
    - Export
    - Security & Permissions
    - Transmittals
- Workflow Management System
- GliderBIM API for third-party application integration

3.4 Structured Asset Data (COBie)

Managing hundreds of geometric models and spreadsheets containing asset data for large scale construction projects can be a daunting, difficult, and error-prone task. Gliderbim® manages the data in a distributed, secure and collaborative environment, providing:

- intelligent search capabilities;
- full version control and audit trail for all asset data properties;
- secure storage and sharing;
- automated export to XLSX, CSV, XML, and other formats;
- automated verification of asset data; and
- exception reports for missing or incomplete asset data.

3.5 Plan of Work

The Plan of Work module provides a database of customisable asset information requirements. The Plan of Work includes:

- A schedule of information to be provided and model elements to be authored (the deliverables);
- the level of information (LOI) required for each deliverable at each stage of the project; and
- the organisation responsible for the production of the deliverable at each stage of the project.

GliderBIM utilises The Plan of Work requirements to automatically report on the completeness and validity of asset data and model authoring tasks at any stage of the project.

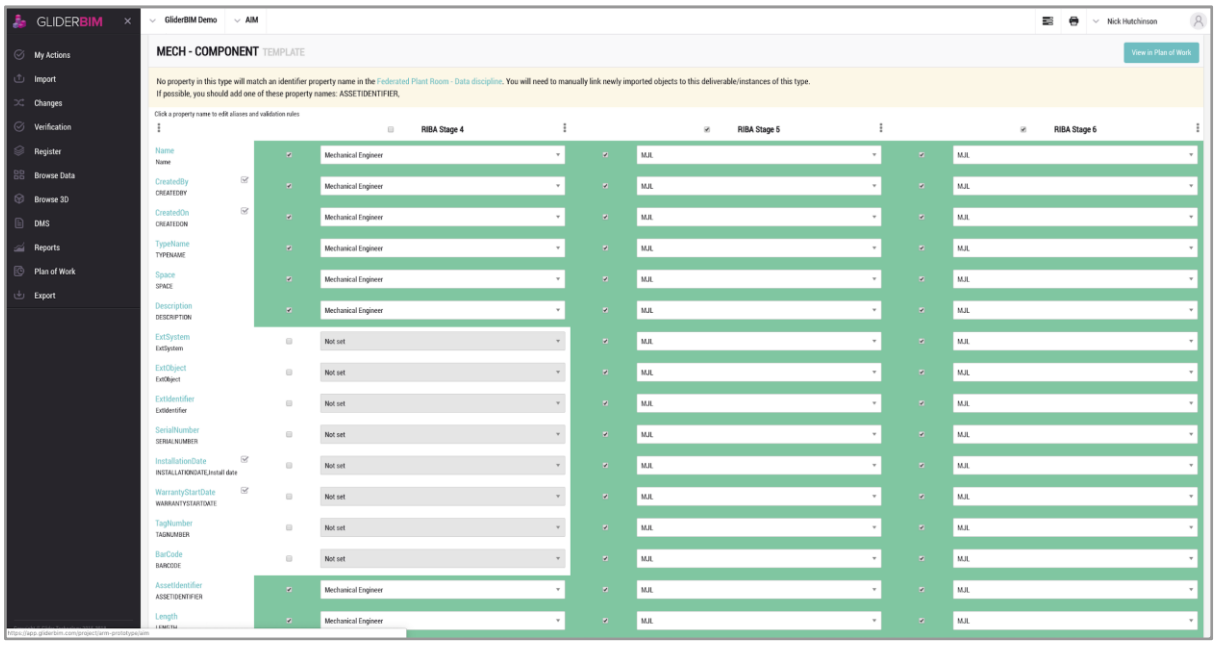


Figure 3 - Plan of Work Module

3.5 Data Import & Change Management

Data can be imported into Gliderbim® in the following formats:

- IFC
- Spreadsheet formats (.xlsx, .csv)

In addition to imported models and schedules, users can upload documents of any other permitted file type (the project administrator sets permitted file types

for each project).

Gliderbim® automatically tracks the data changes between document versions, providing unrivalled handling of structured data. Visual 'Changeset' reports illustrate to the user what specific data has changed, been added or deleted since the last file import.

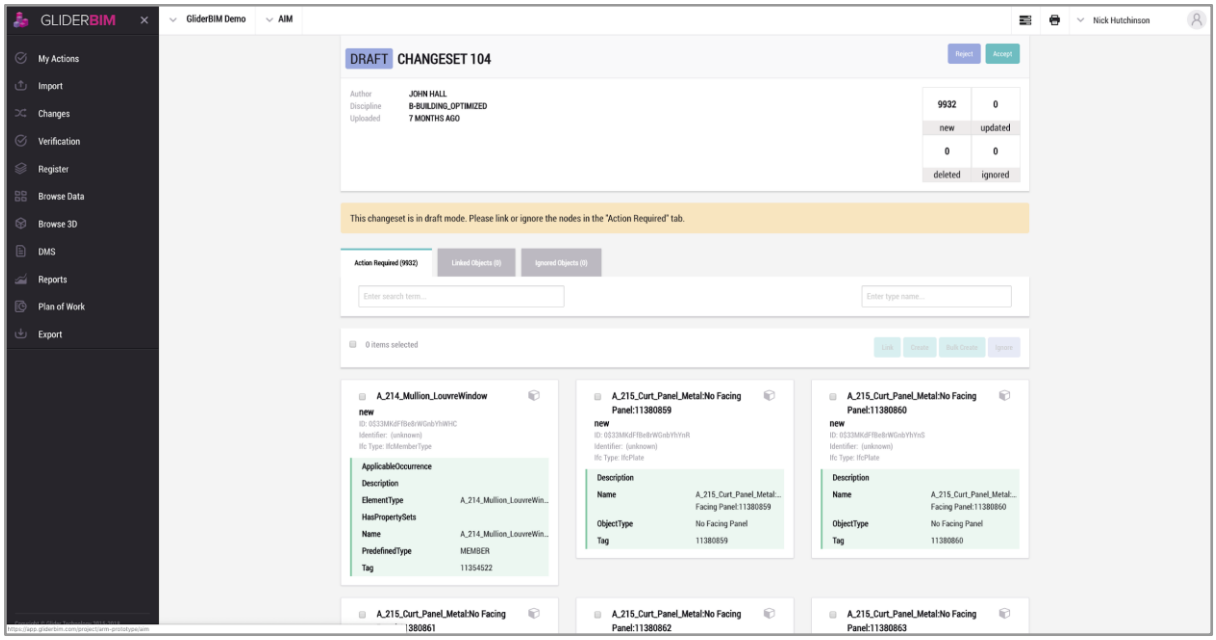


Figure 4 - Data Changeset Screen

3.6 Automated Rule-Based Data Verification

The Verification Report module automatically reports the completeness of the asset data for the facility. Imported data is checked against user-configurable validation rules. The report federates data from many data sources and reports the overall status. The report can be filtered by model discipline, responsibility and phase. The report includes full text search capabilities to instantly find and report on specific deliverables.

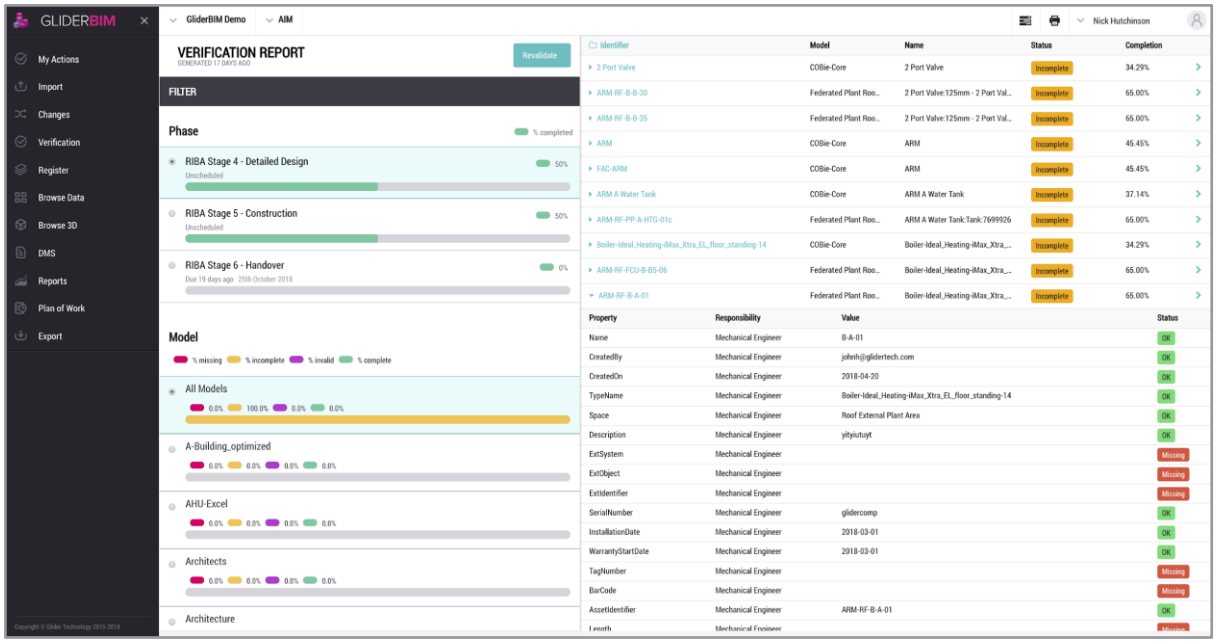


Figure 5 - Automated Data Verification

3.7 3D Model Viewer, Embedded Data and Linked Documents

Gliderbim® includes an interactive viewer for 3D model files. It allows the user to pan, zoom and navigate the model and to select objects within the model to reveal asset data associated with the object. Model objects are also automatically linked to all associated documentation, including but not limited to: manufacturers literature, testing & commissioning certification, planned preventative maintenance regimes, system descriptions, drawings & schematic, health & safety information, etc.

BIM model objects can be automatically linked to data from third party sources, e.g. BEMS live data or CAFM maintenance records.

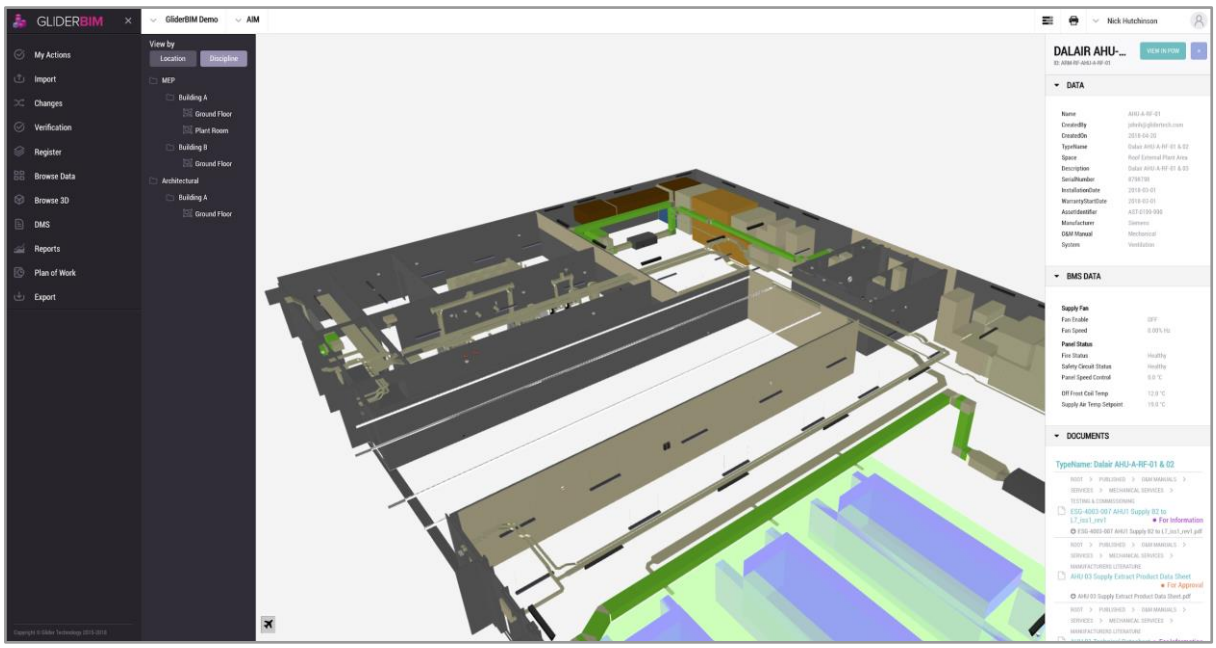


Figure 6 - IFC Model Viewer

3.8 Intelligent Asset Registers

The Asset Register Database can manage information of any data schema. Powerful search capabilities provide instant access to all asset data and O&M information. The asset data can be exported to Excel at any time for populating the Client's CAFM software of choice. Authorised users can update the asset database, which automatically updates data in associated models. Asset data is automatically federated from 3D models, spreadsheets and third party software applications into a simple Asset Register view. 3D models are automatically asset tagged to link associated data.

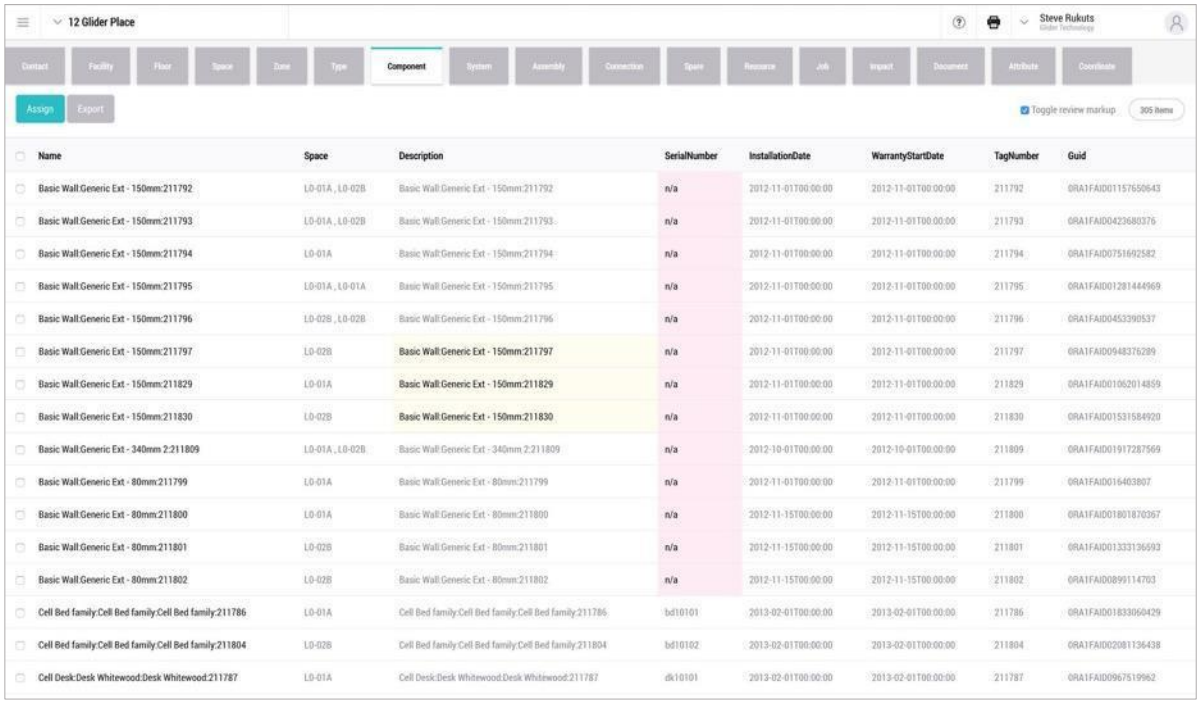


Figure 7 - COBie Workbook View

3.9 Data Export

The Export module allows the user to download the latest IFC model files and/or asset datasets for individual model disciplines or federated at any stage of the project. The GliderBIM software provides the functionality to 'backload' data collated outside of the model back to the model. The is an automated process for IFC model files.

3.10 IFC – Open Standard File Format for Models

GliderBIM fully supports the OpenBIM™ initiative, which ensures interoperability of models and asset data by using open standards and workflows. This means that models and asset data can be exchanged and utilised without the need for proprietary, third-party software.

3.11 Document Management System (DMS)

The Gliderbim® DMS can store an unlimited number of documents of any format and size. Files are stored in document containers and these containers are stored in a virtual folder hierarchy. The DMS can be configured to store any number of metadata fields against containers and folders. The DMS provides powerful search capabilities to instantly retrieve documents matching search criteria and keywords.

From this base virtual file system, we have also implemented a flexible review workflow and transmittal system along with BS:1192 compliant features such as

naming convention validation. Folders and containers in the DMS can be automatically linked to BIM objects in 3D models and other structured data sources stored within the BIM module, which provides bi-directional navigation between the 3D models, asset registers and associated documents.

The system is backed by the Gliderbim® API which can be used to integrate the application with other systems and for automatic administration purposes.

Document Naming Conventions

The purpose of the document naming convention is to enable project information to be found easily via the Search feature, and also ensures that:

- The purpose of the document can be understood without opening it.
- The party who produced the document can be understood by those involved in the project, and can be rediscovered afterwards by checking the project directory.
- The project a document belongs to is immediately obvious.
- Simple searches, such as 'find all structural models from all projects' can be implemented.

A formal specification commonly used in the construction industry is BS:1192, but some companies and projects use different standards, and we can support these too. There is flexibility within the standard to allow shorter file names for simpler purposes, or to include classification codes, such as Uniclass to allow more complex searching ability. Figure 8 below shows the Document Naming Convention user interface. Documents uploaded to Gliderbim® that do not conform to the naming conventions defined are either automatically disallowed for upload or a warning is flagged to the user, depending on what the customer requires.

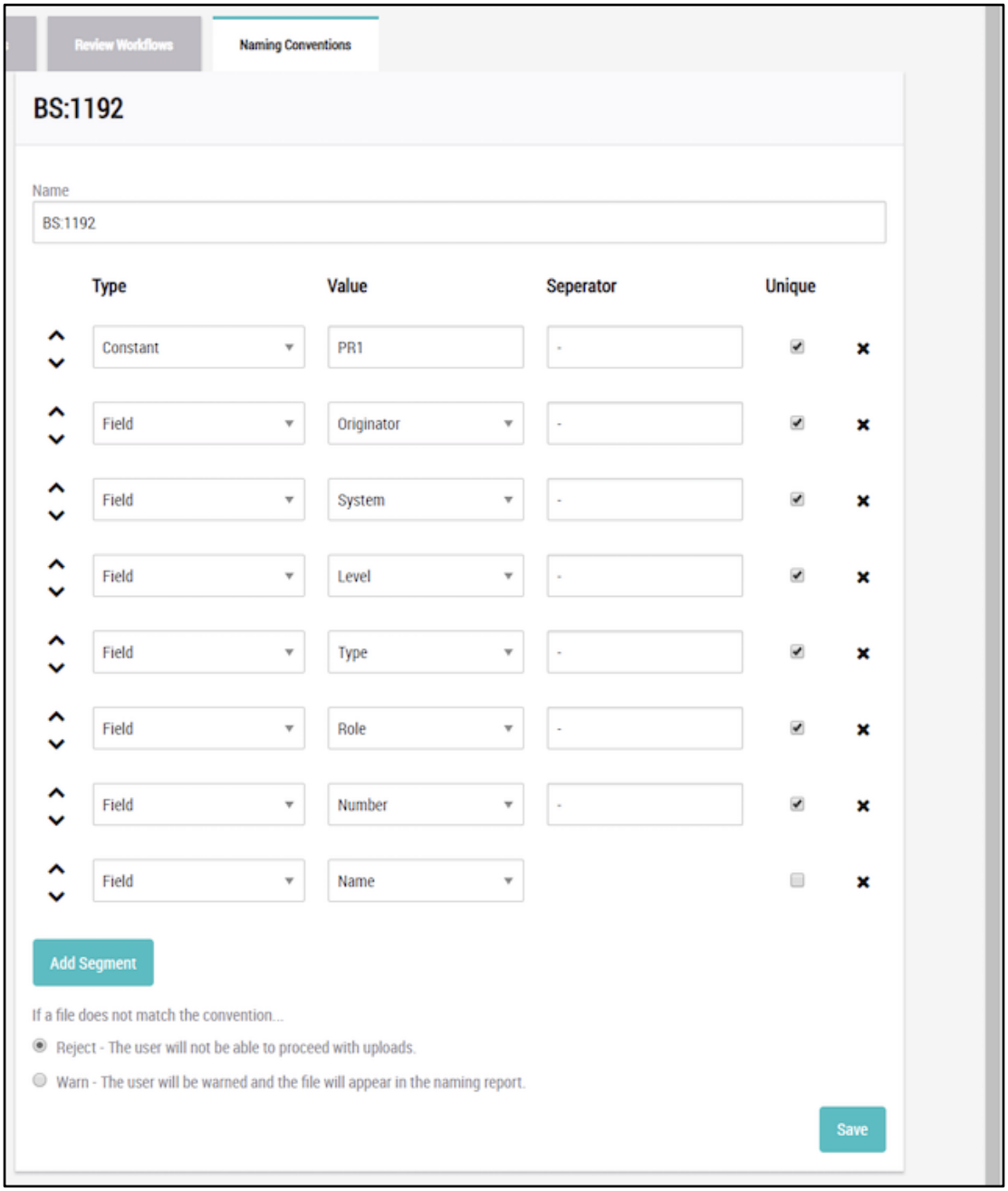


Figure 8 - Document Naming Conventions

Document Status & Metadata

Any number of Document Statuses and Metadata fields can be configured for the DMS. Document Statuses are used within Workflows to assign a status to a given document. Metadata fields provide ease of search, reporting and dynamically link documents to asset datasets, e.g. a document and an object within a 3D model which share the same metadata values are automatically linked. This mechanism provides bi-directional navigation between 3D models and associated documentation. Metadata can be associated at the folder and document level.

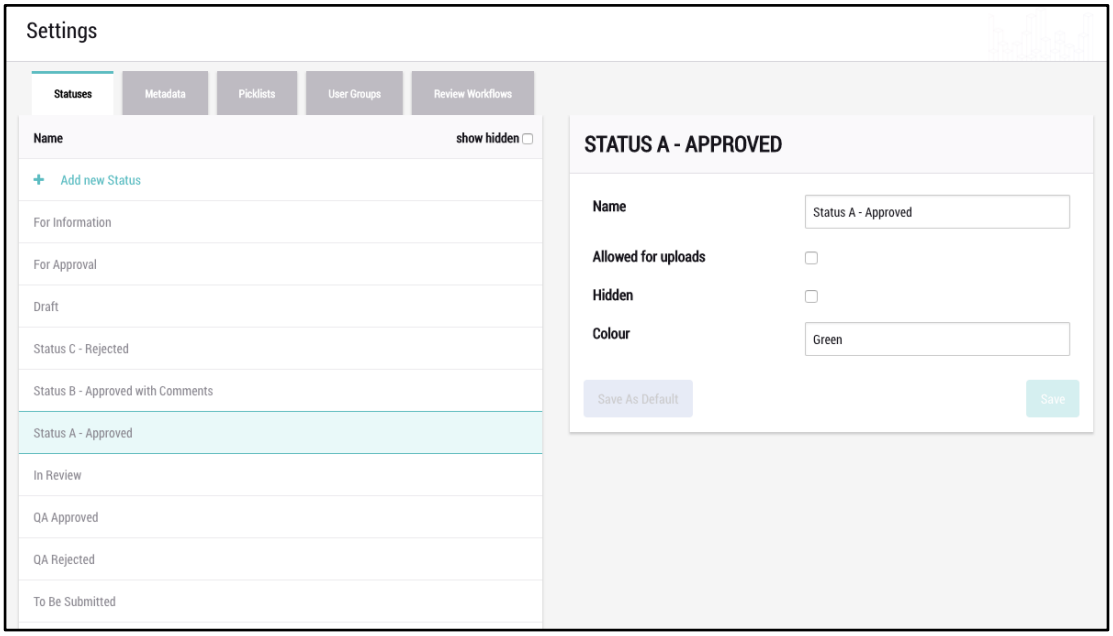


Figure 9 - DMS Settings - Document Statuses & Metadata

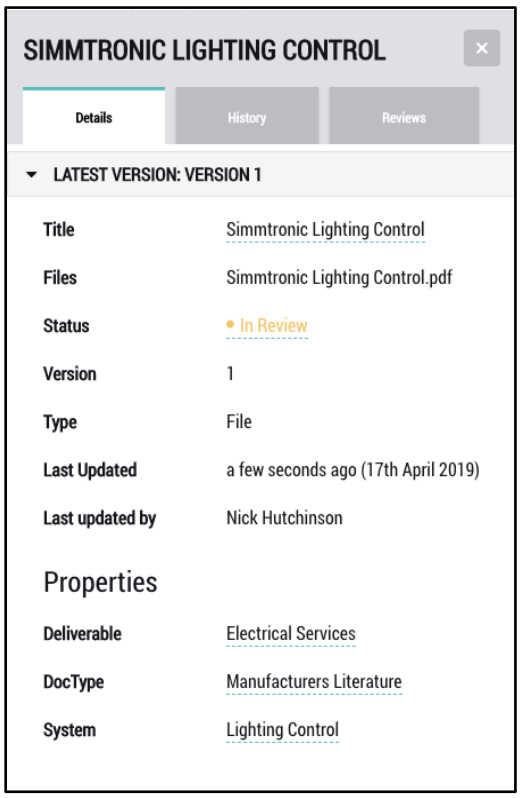


Figure 10 - Document Metadata

User Groups

User Groups are used within the DMS to assign security permissions, workflows, notifications, and transmittals to a group of users. Individual Users can be added to and removed from many User Groups. This simplifies administration of the DMS and provides a generic means to manage the many functions of the DMS.

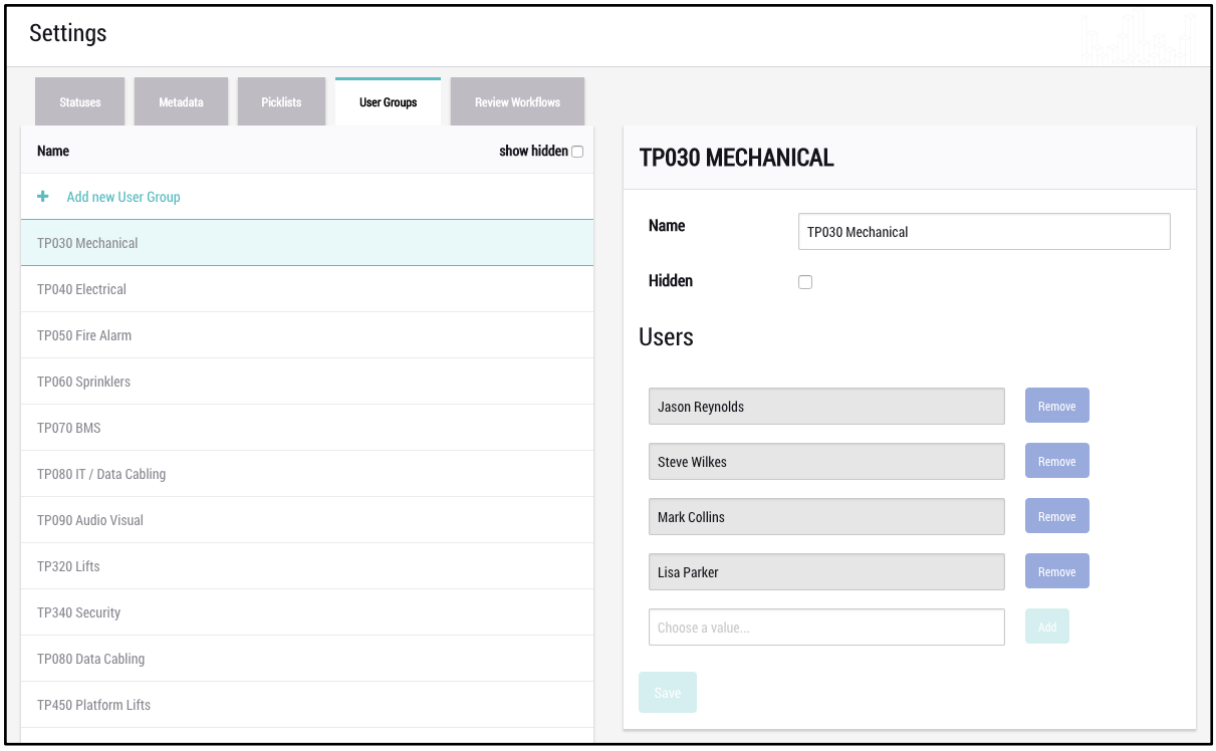


Figure 11 - DMS Settings - User Groups

Workflows

Document distribution and approval workflows and email notifications can be configured by the user to notify other users of system events. Reviews and comments can be captured and recorded in the system. Figure 11 below illustrates an example two-stage Workflow. Workflows can have any number of stages. The Administrator decides what Document Statuses can be assigned at each Stage, the time allowed for Stages to be completed, and the User Groups that will be assigned Workflow tasks at each Stage. Workflows can be cloned for ease of administration when creating new workflows.

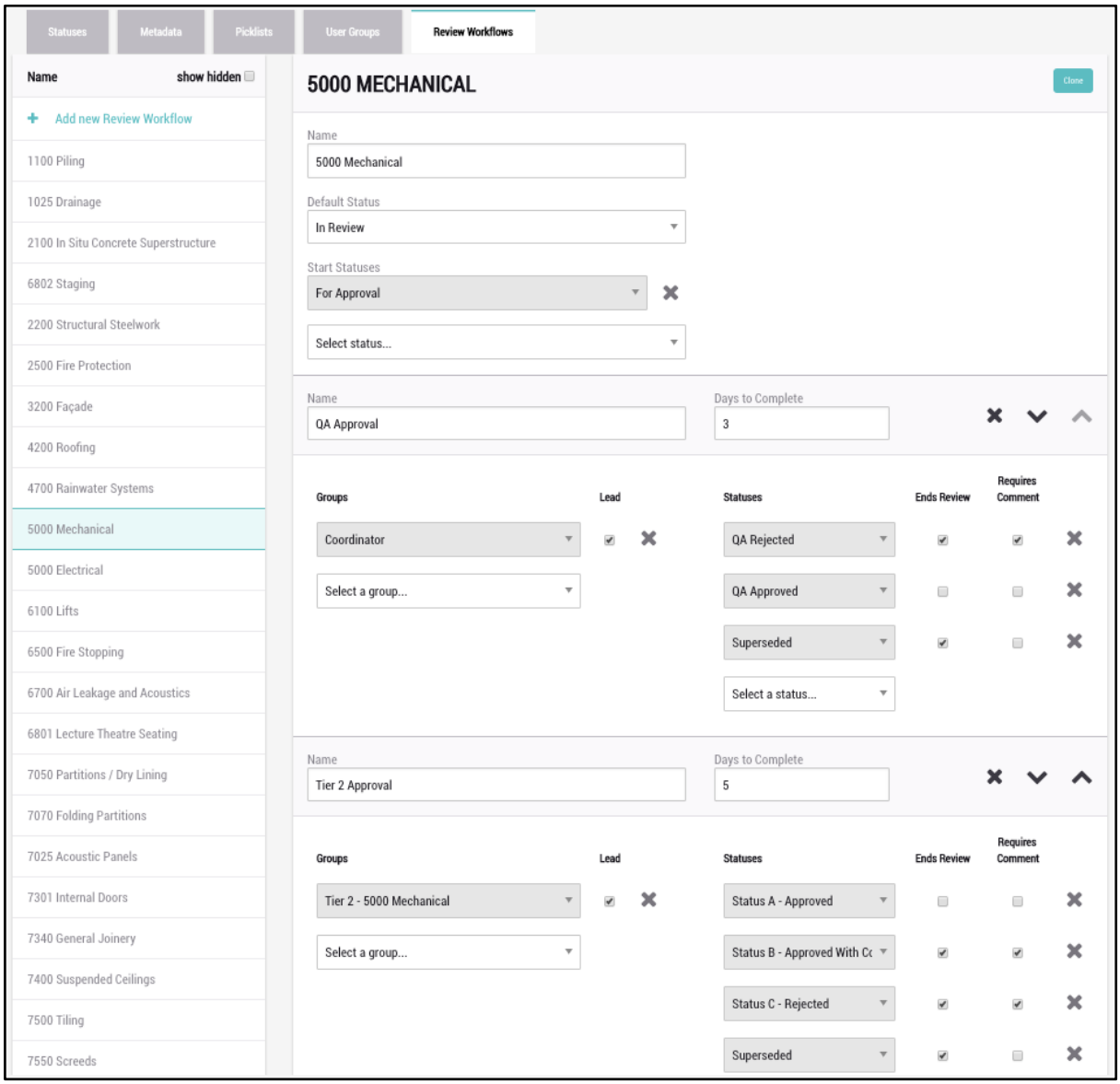


Figure 11 - DMS Settings - Workflows

Virtual Folder Structure

The DMS provides a customisable, virtual folder structure that can have an unlimited number of levels. Folders can be easily moved, renamed and archived by privileged users. Search results return both document and folder records. Users can bulk add folder structures from spreadsheet input.

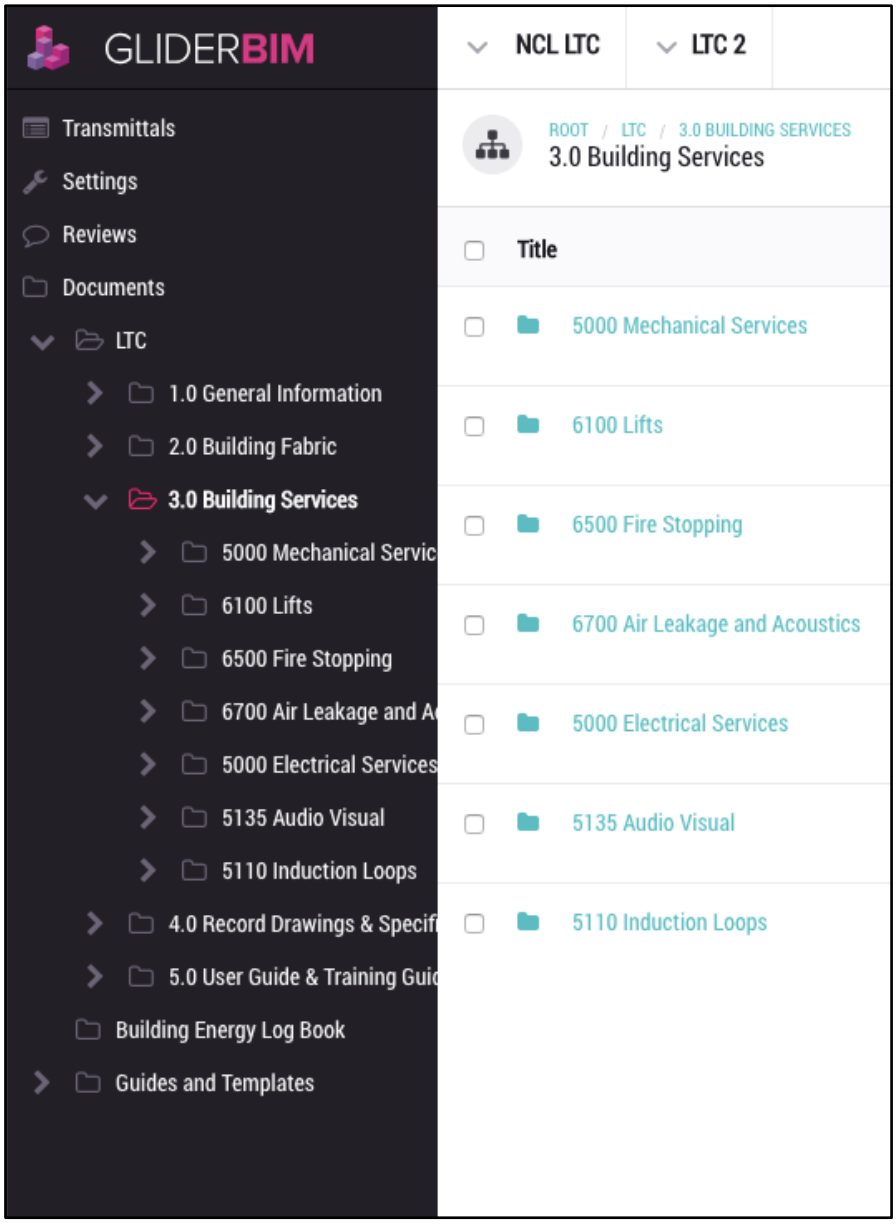


Figure 12 - DMS Virtual Folder Structure

Document Register

The Document Register view provides a simple schedule of folders and documents contained within a particular location of the DMS. The Document Register shows the status, version, workflow stage, last update date, last updated by, file size and another other metadata field configured in the DMS Settings. The Document Register also provides a quick search field and action buttons for bulk upload, bulk download, and folder details/history/permissions. All documents within a specific register can be bulk downloaded to the user's local file system as a zipped archive file.

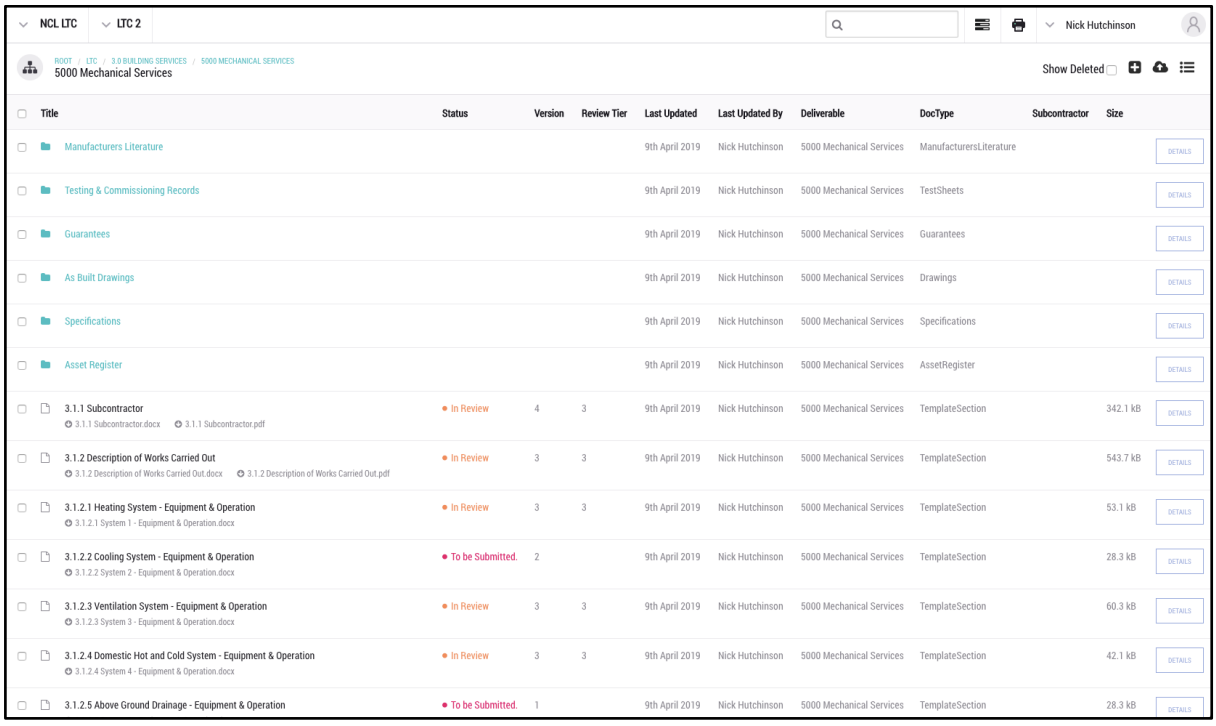


Figure 13 - DMS Document Register

Search

The DMS provides a powerful Search service. All documents, folders, metadata and structured data within 3D models is indexed for the entire enterprise. The search syntax allows you to find all documents, folders and 3D model data relating to any metadata field value or search keyword/phrase.

The DMS dynamically generates search results for all related information. For example, you may search the DMS for documents relating to the Ventilation system. The Search service will return all documents with system metadata 'Ventilation' and will then automatically return all 3D model objects that also share the same metadata. This provides an extremely powerful and simple means of finding what you are looking for. The DMS Search API can also connect to third party data repositories to execute remote searches.

Document Review & Mark-Up

The Reviews module provides each review team member with a simple interface for managing their document review and approval tasks. Document Reviews can be filtered by Workflow, Review Stage and Folder, as well as ordered by due date. Documents can be marked up online to eliminate the need for sharing documents outside of the CDE for review and mark-up.

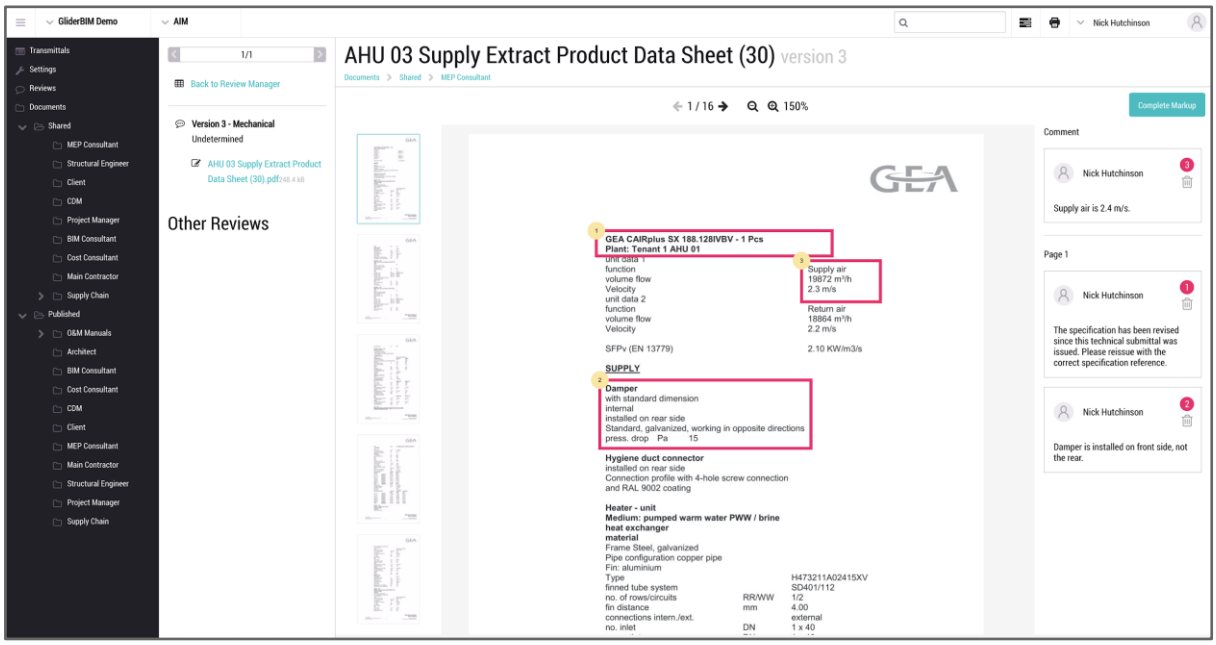


Figure 14 - Document Review & Mark-Up

Review Teams can assign their recommended approval status, review comments, document attachments and mark-ups to each Review task. Email notifications are automatically generated by the system to inform Review Teams of their actions and document authors are notified of the outcome of each Review task.

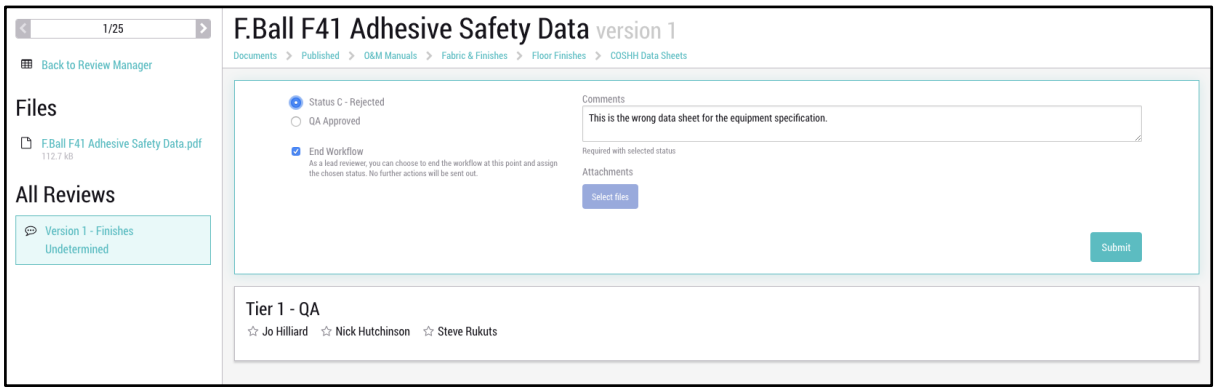


Figure 15 - Document Review Task

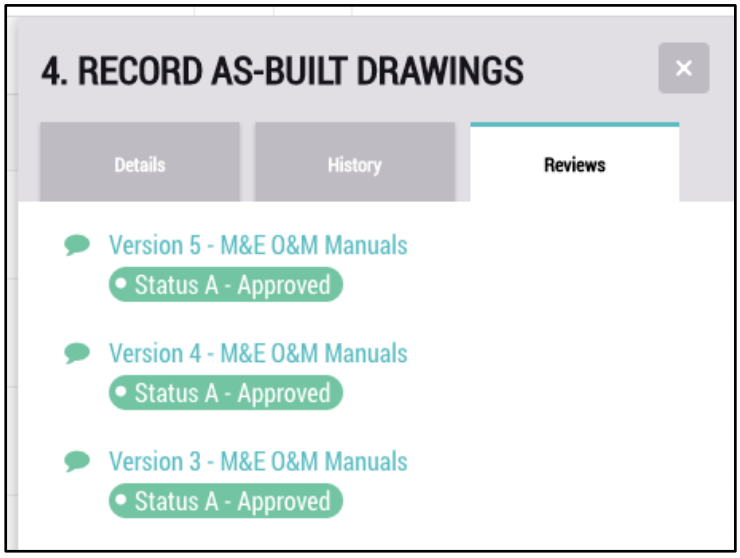


Figure 16 - Document Review History

Audit Trail

Document version and status history is recorded automatically, and all previous versions of documents are kept forever as an immutable record.

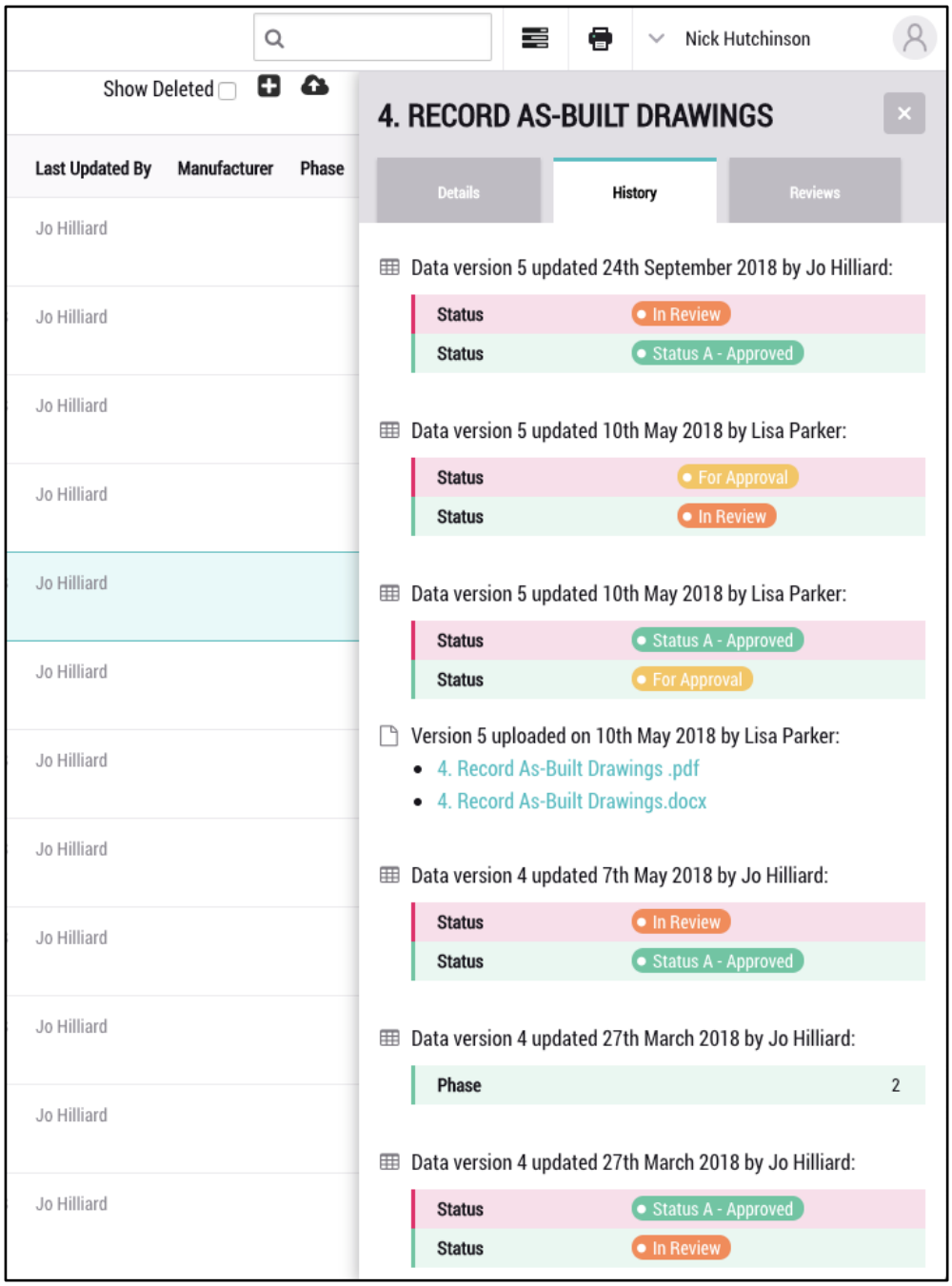


Figure 17 - Document History

Upload

The DMS Upload facility provides an efficient, intuitive method for bulk uploading documents. Document metadata can be assigned to documents in bulk. There is no limit of file sizes and the upload process runs in the background queue. Document Workflows can be automatically triggered by setting specific Document Status values on upload. Any file type can be uploaded to the DMS.

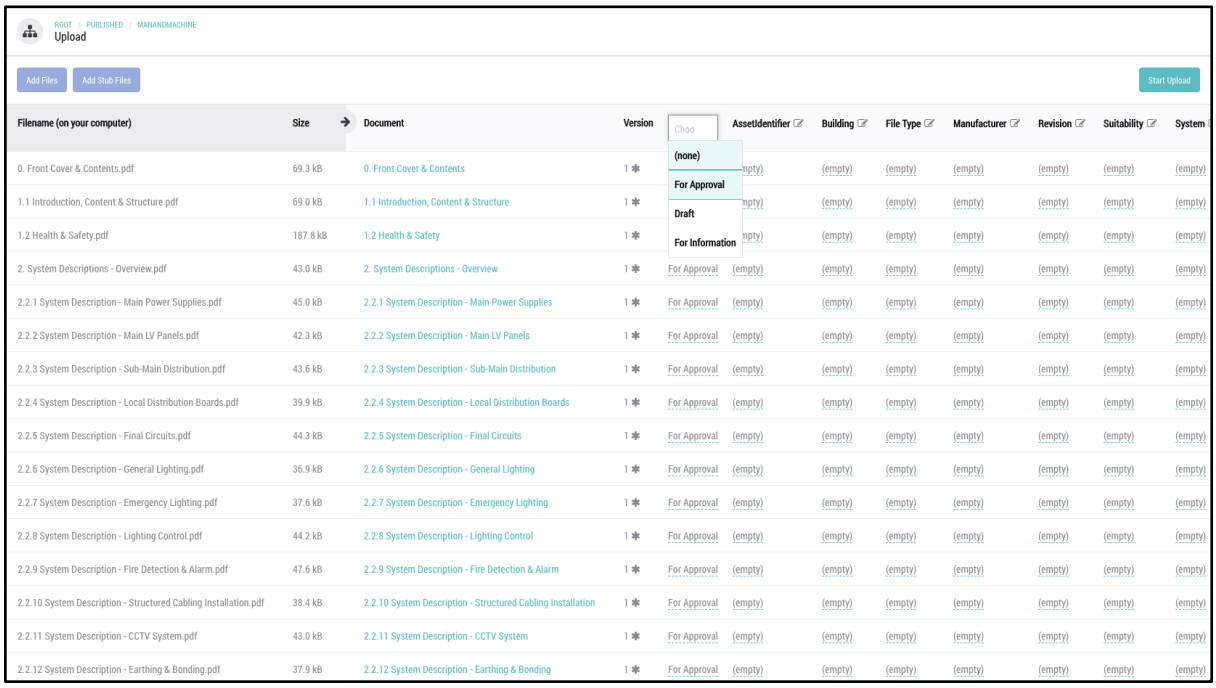


Figure 18 - Bulk Upload

Export

The DMS Export function enables privileged users to bulk download the entire contents of the DMS document repository as a compressed archive file.

Security & Permissions

User access to documents are governed by Permissions. A Permission record is a combination of User Group, Access (Read/Write), and Cascade rule. Any number of Permission records can be created for a Document and/or Folder. User Groups can contain and number of Users. Users can belong to many User Groups. This provides a very granular security model for access to information stored in the DMS.

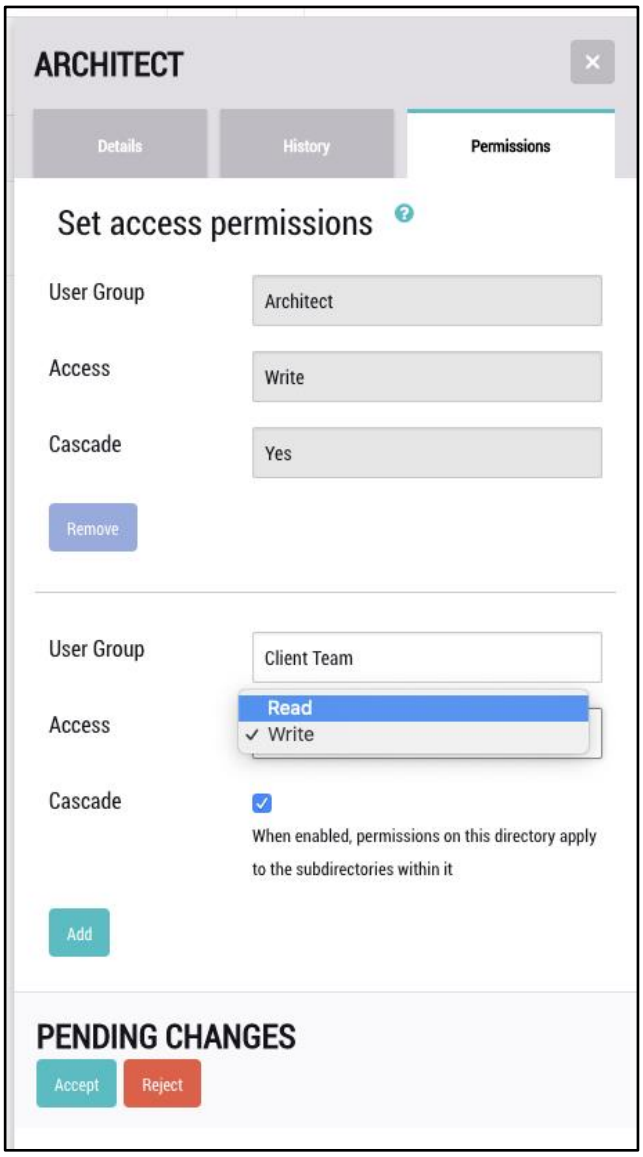


Figure 19 - Document Security & Permissions

Transmittals

The Transmittals module allows for secure and recorded delivery of documents in bulk to other users of the system. The Transmittal History provides a full audit trail of each Transmittal; the documents and versions transmitted, to whom, when and what was viewed and downloaded.

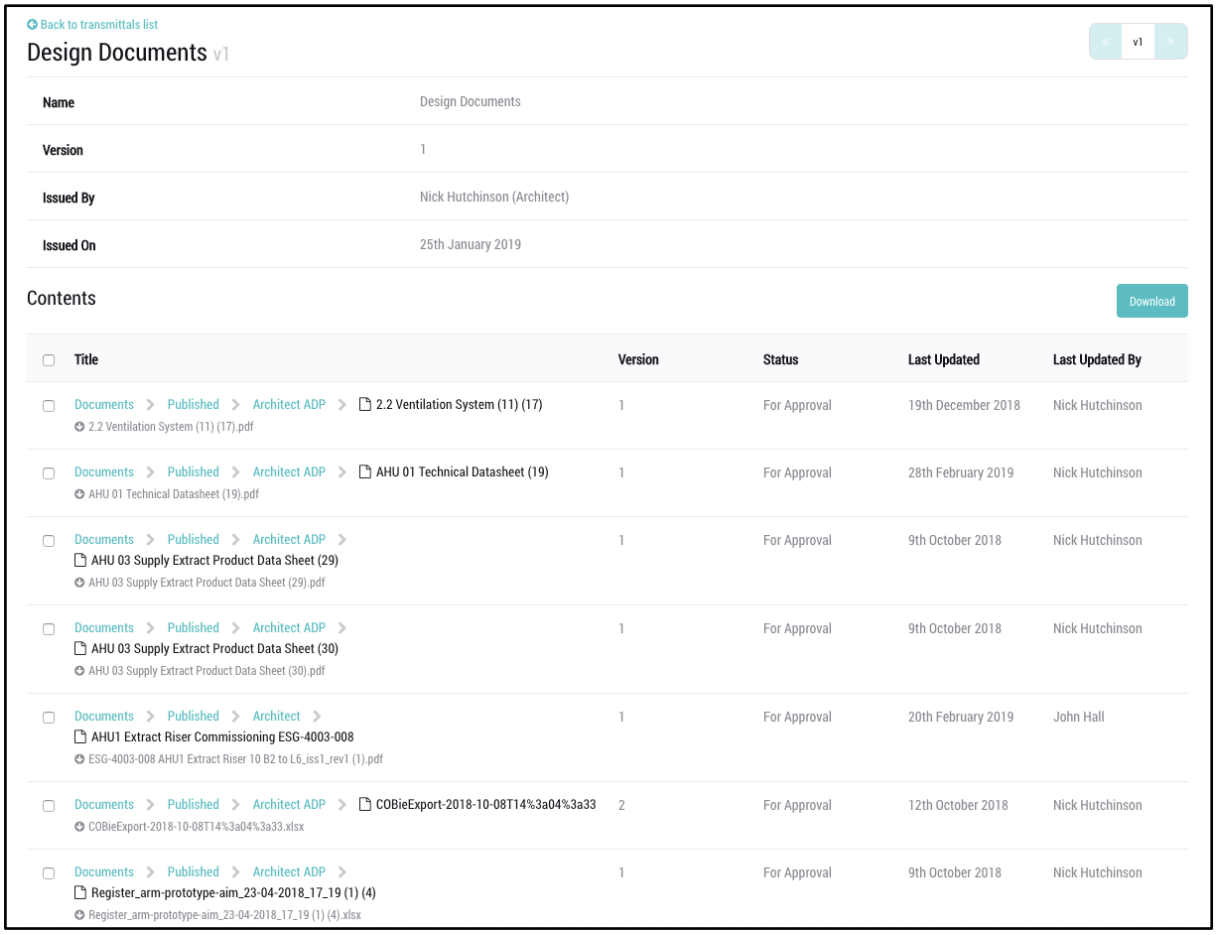
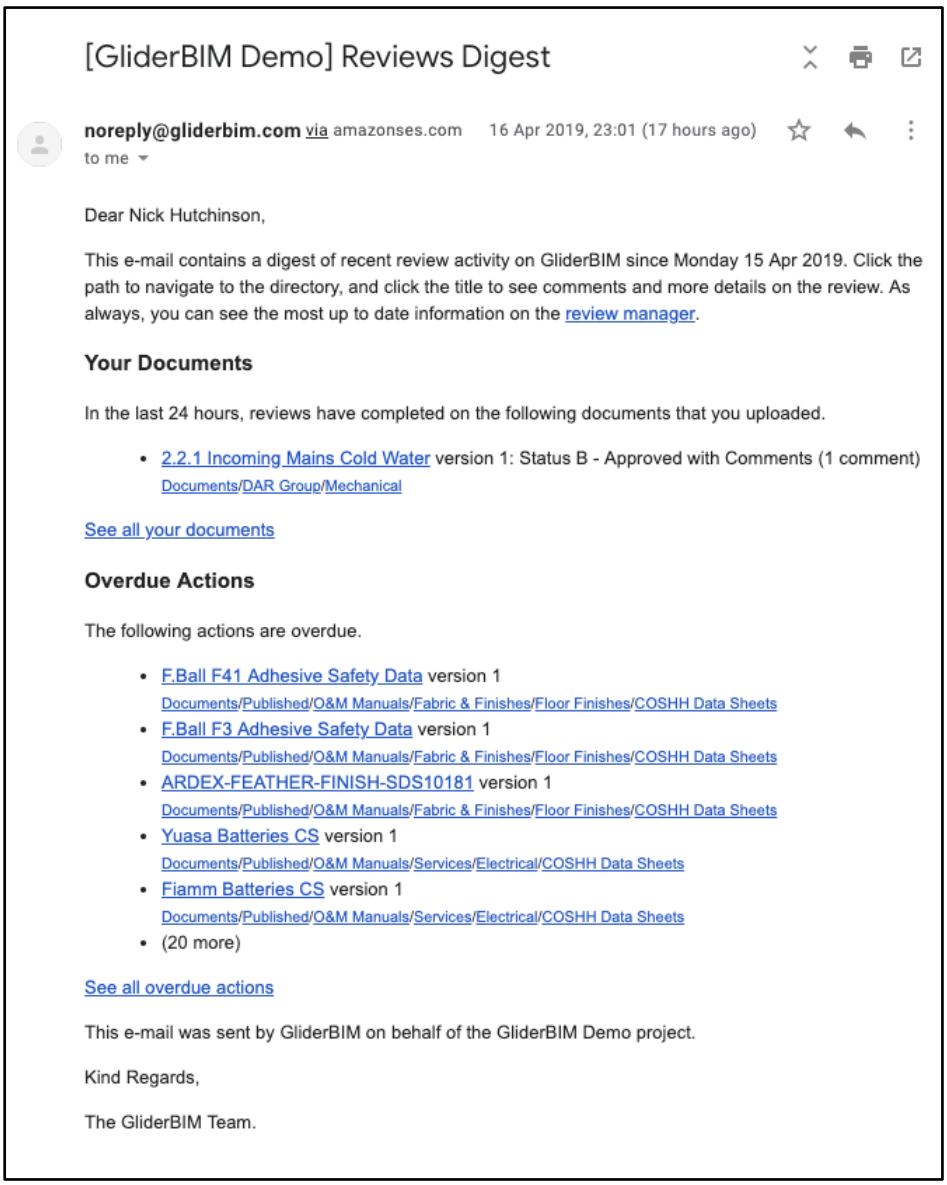


Figure 20 - Transmittals

Notifications

Notifications are automatically generated by the DMS to ensure all users are made aware of system events. Notifications are configurable to be sent as a digest per day or for each and every notification.



[GliderBIM Demo] Reviews Digest

noreply@gliderbim.com via amazonses.com 16 Apr 2019, 23:01 (17 hours ago)
to me

Dear Nick Hutchinson,

This e-mail contains a digest of recent review activity on GliderBIM since Monday 15 Apr 2019. Click the path to navigate to the directory, and click the title to see comments and more details on the review. As always, you can see the most up to date information on the review manager.

Your Documents

In the last 24 hours, reviews have completed on the following documents that you uploaded.

- 2.2.1 Incoming Mains Cold Water version 1: Status B - Approved with Comments (1 comment)
  Documents/DAR Group/Mechanical

See all your documents

Overdue Actions

The following actions are overdue.

- F.Ball F41 Adhesive Safety Data version 1
  Documents/Published/O&M Manuals/Fabric & Finishes/Floor Finishes/COSHH Data Sheets
- F.Ball F3 Adhesive Safety Data version 1
  Documents/Published/O&M Manuals/Fabric & Finishes/Floor Finishes/COSHH Data Sheets
- ARDEX-FEATHER-FINISH-SDS10181 version 1
  Documents/Published/O&M Manuals/Fabric & Finishes/Floor Finishes/COSHH Data Sheets
- Yuasa Batteries CS version 1
  Documents/Published/O&M Manuals/Services/Electrical/COSHH Data Sheets
- Fiamm Batteries CS version 1
  Documents/Published/O&M Manuals/Services/Electrical/COSHH Data Sheets
- (20 more)

See all overdue actions

This e-mail was sent by GliderBIM on behalf of the GliderBIM Demo project.

Kind Regards,

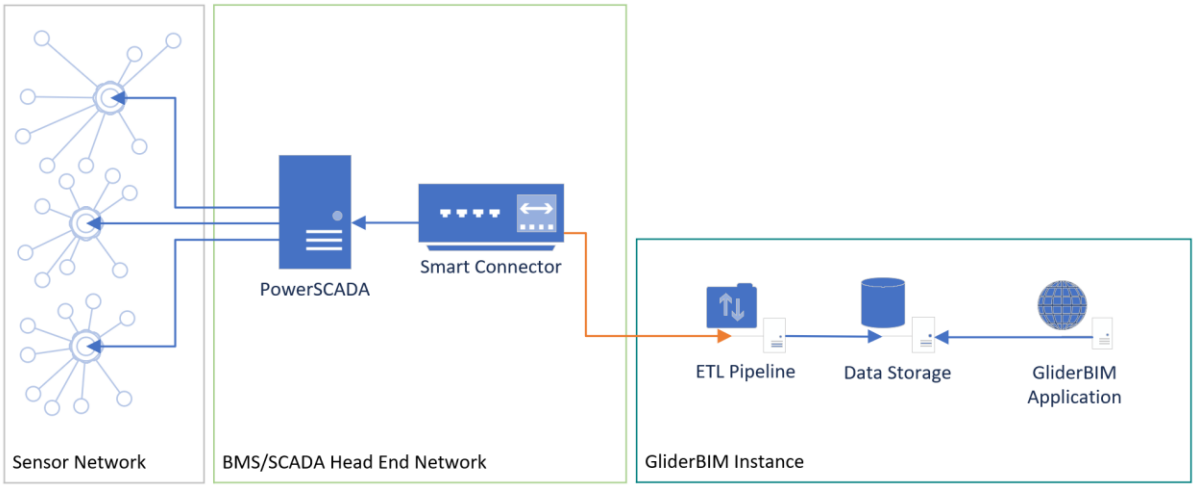
The GliderBIM Team.

Figure 21 - Example Email Notification

Third Party Software System Integration

GliderBIM has been designed to integrate easily with third-party apps, providing deep integration with CAFM, BEMS, IoT networks & devices, geographic information systems, financial systems, BIM object libraries, BIM authoring software, document management systems, and any other application with an accessible API. Authorised third-party systems can be integrated with GliderBIM to instantly locate assets in the model viewer and find asset data and building information more easily.

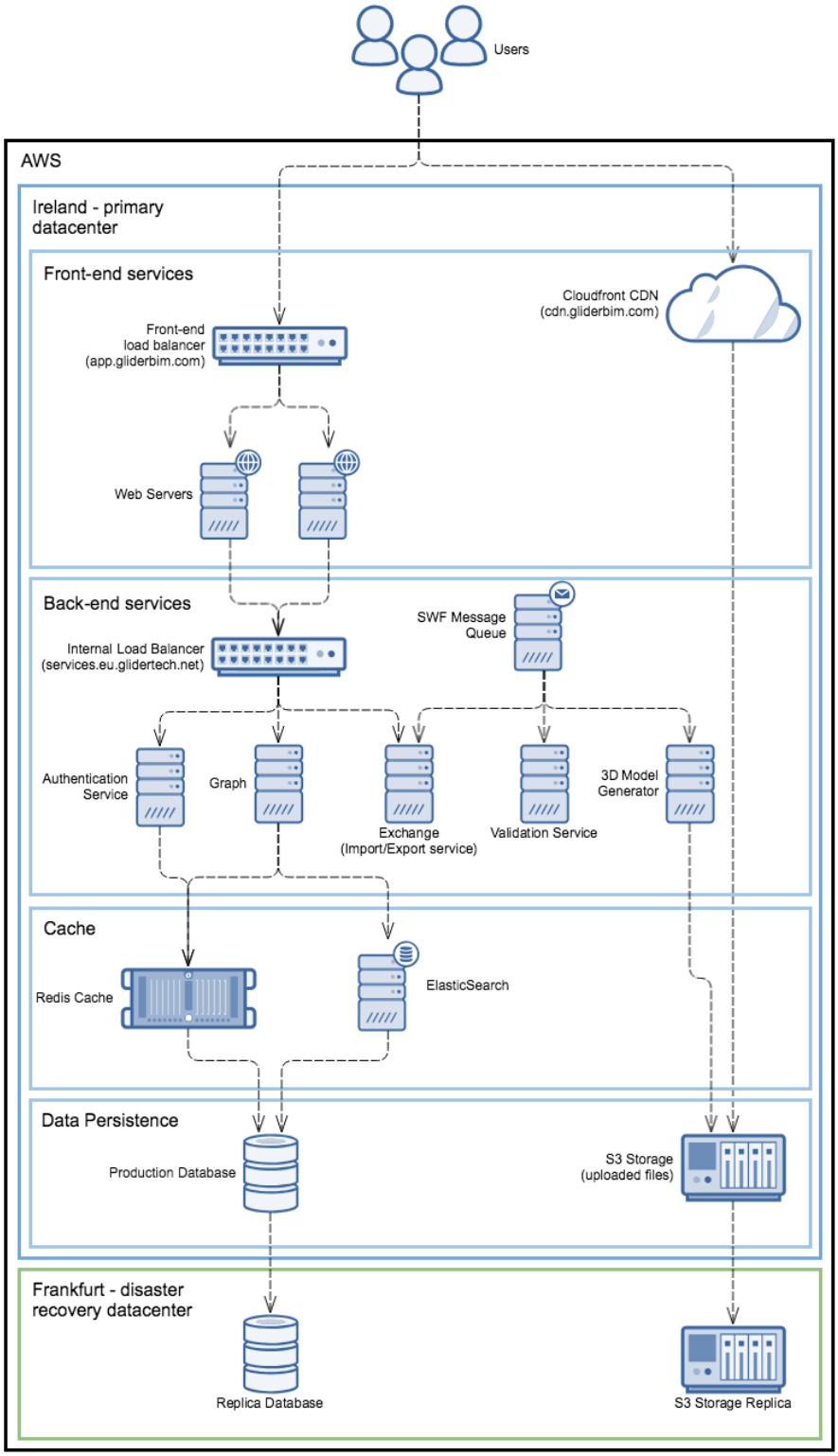
The model viewer also supports viewing 3D models using mobile web browsers to allow FM teams to access the model and all associated asset data using smartphones or tablet devices.



BMS Integration - GliderBIM as a Data Warehouse

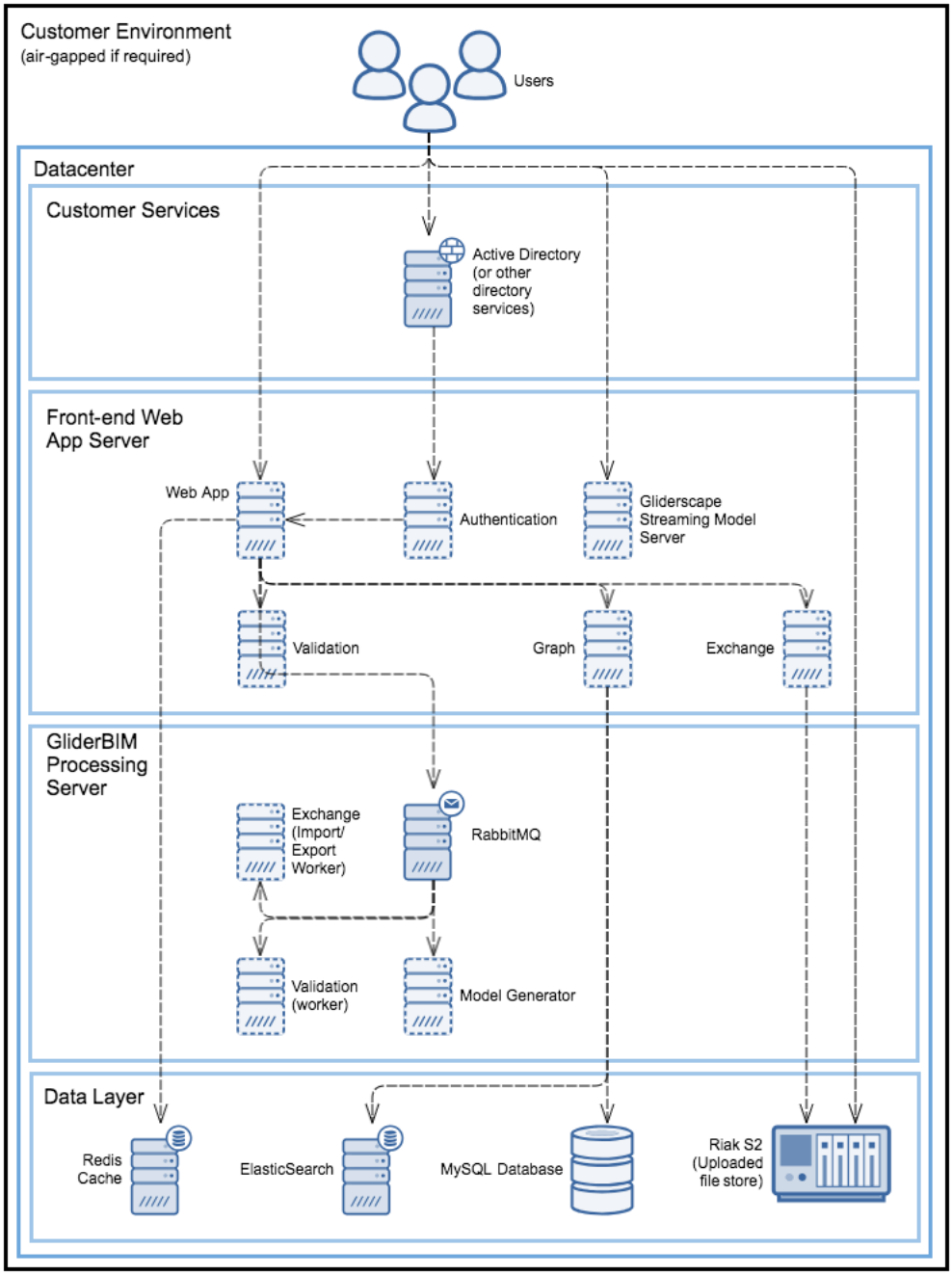
4. Application Architecture

The diagram below shows the Gliderbim® Software-as-a-Service application architecture:

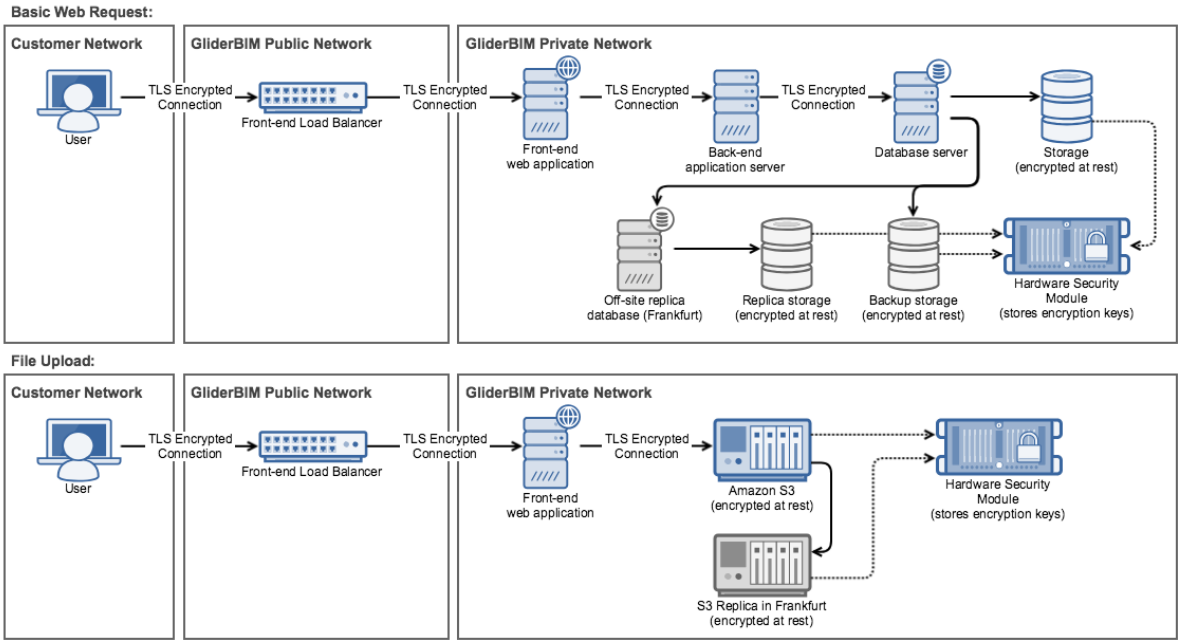


The diagram below shows the proposed application architecture for a client-

hosted Gliderbim® instance:



The diagram below provides an overview of the application security architecture:


Basic Web Request:
Customer Network
User
TLS Encrypted Connection
GliderBIM Public Network
Front-end Load Balancer
TLS Encrypted Connection
GliderBIM Private Network
Front-end web application
TLS Encrypted Connection
Back-end application server
TLS Encrypted Connection
Database server
Storage (encrypted at rest)
Off-site replica database (Frankfurt)
Replica storage (encrypted at rest)
Backup storage (encrypted at rest)
Hardware Security Module (stores encryption keys)

File Upload:
Customer Network
User
TLS Encrypted Connection
GliderBIM Public Network
Front-end Load Balancer
TLS Encrypted Connection
GliderBIM Private Network
Front-end web application
TLS Encrypted Connection
Amazon S3 (encrypted at rest)
Hardware Security Module (stores encryption keys)
S3 Replica in Frankfurt (encrypted at rest)

5. Non-Functional Service Overview

The Gliderbim® software-as-a-service includes secure, robust, hosting offering performance, capacity, and scalability appropriate for the customer's project portfolio. This service includes as standard:

- A service level agreement providing a minimum of 99.95% availability
- Disaster Recovery
- Full replication to a secondary data centre environment
- SSL encryption of communication between client and server
- Data backup every five minutes
- Technical support
- Software maintenance & upgrades

6. Cloud Hosting, Data Backup/Restore & Disaster Recovery

6.1 Cloud Hosting Environment

Our cloud environment is hosted in the Ireland region of Amazon Web Services (AWS). Amazon is the world's largest provider of cloud computing services and we have significant experience in bringing AWS powered solutions to market. We have our own area of their data center known as a Virtual Private Cloud, which we do not share with other customers.

Amazon's data centers comply with the strictest security standards such as ISO 27001 (Security Management Standard), ISO 27018 (Personal Data Protection) and PCI-DSS 3.2 (Payment Card Standards). Amazon is currently the only cloud provider that fully complies with PCI-DSS 3.2. For more information on this, please see https://aws.amazon.com/compliance/.

6.2 Data Residency

All customer data hosted by Gliderbim® resides in the Ireland AWS region and backed up to the Frankfurt AWS region for disaster recovery purposes.

6.3 Database Server Backup

Our core database servers are automatically backed up by Amazon's Relational Database Service. This service takes a transactional backup every 5 minutes, and a full backup every 24 hours. In the event of a disaster or a serious mistake being made, we can rollback the database to within a window of five minutes.

The database also replicates automatically to Amazon's Frankfurt region. This means that any change made in the Ireland region is automatically sent to the Frankfurt region, meaning that we have a full copy of the database, up to the second. In the event of a disaster, we would update our application configurations to point at this database.

6.4 File Storage Backup

Files uploaded to Gliderbim®, such as IFC files, are stored on Amazon's S3 service. This is a highly available file storage system which boasts a 99.999999999% durability of data stored in it. This corresponds to an expected loss of one file out of 10,000 every ten million years. The system is designed to withstand the loss of two concurrent datacentres. This durability level corresponds to an average annual expected loss of 0.000000001% of objects.

Data uploaded to S3 is automatically versioned, so if a file were to be accidentally overwritten or deleted, we would be able to recover it. We also automatically replicate all uploaded files to the Frankfurt region, so if the Ireland region were to be unavailable, we would update our application configuration to serve data from Frankfurt.

6.5 Disaster Recovery

We have a hot-failover environment in the AWS region in Frankfurt. If there was to be an incident that caused the Ireland region to fail completely, we would resume services in Frankfurt. However, it is worth noting that (at the time of writing) this event has not happened in the history of the region.

6.6 Application Security

Our application is secure by design. No communication leaves our environment without being encrypted end to end to the customer. All files stored in S3 are encrypted at rest, and our database replication channel is similarly strongly encrypted.

Access to our environment is strictly regulated; our developers do not have access to production machines unless strictly necessary to do their work. We use state of the art firewalls; anyone who wants to access the environment requires at least three different security tokens, including a two-factor authentication token.

For further information please refer to the Gliderbim® white paper titled 'Gliderbim® CDE Security'.

6.7 Cyber Essentials, Cyber Essentials Plus & ISO 27001 Certified

Glider Technology is an ISO 27001 certified company. In addition we are Cyber Essentials AND Cyber Essentials Plus certified (a pre-requisite for many Government contracts). Your data is safe with us. Our team has decades of experience building fault-tolerant and secure systems, both inside the cloud and out. To prove our commitment to security and resiliency, we commissioned the British Assessment Bureau to audit our procedures and processes as part of our ISO 27001 accreditation.

7. Service Levels, Maintenance & Support

7.1 System Availability

Glider provides a service level agreement with system availability of 99.95% of each calendar month (24 hours a day, 365 days a year), excluding planned down time for system maintenance & updates.

7.2 Support Request Prioritisation

The Gliderbim® support team will assign one of the priorities below to each support request:

- **Priority 1**: a business-critical feature of the Software Service is unavailable to all users, and consequently users are unable to continue with their normal course of business.
- **Priority 2**: an important feature of the Software Service is unavailable to all users, which is a significant inconvenience, however does not prevent users from continuing with their normal course of business.
- **Priority 3**: a feature of the Software Service is unavailable to one or more users.
- **Priority 4**: a feature of the Software Service is either unavailable or not performing as it should, but is causing minimal business impact.

The support request shall be escalated in the event that the customer does not agree with the prioritisation of the support request assigned by the support team.

7.3 Support Response and Resolution Times

All support requests are automatically assigned to a Support Engineer when logged. Glider's target response and resolution times are listed below:

Priority	Response	Resolution
Priority 1	1 hour	4 hours
Priority 2	1 hour	8 hours
Priority 3	2 hours	48 hours
Priority 4	4 hours	5 days

All durations listed above are based on normal working hours of the Support Team. Glider shall use all commercially reasonable endeavours to meet the Response and Resolution times illustrated above. In the event that Glider cannot meet these timescales due to the severity of the technical issue, Glider shall advise the Customer of a revised plan to provide a resolution for the support request.

7.4 Software-as-a-Service Maintenance

Software patches and upgrades are provided free of charge and carried out by Glider during planned maintenance windows. The majority of maintenance activities shall not affect the availability of the Service, however, in the event that

scheduled maintenance will incur an interruption to the Service, then Customers shall be notified in advance and an agreed date for maintenance scheduled.

Scheduled maintenance windows are between 8pm and midnight.

7.5 Error Logging

Gliderbim® has a completely automated error logging system. All errors are logged and Support Engineers are notified by email. Errors are logged, prioritised, and resolved accordingly.

7.6 Service Status Monitoring & Reporting

Automated alerts notify Senior Support Engineers of server issues. All issues are logged and tracked to resolution.

At a frequency to be agreed with the Customer and subject to contract, Glider shall provide a Service Report including:

- Performance against SLA
- Unplanned server downtime occurrences
- Use of Gliderbim® Support Services
- Disk usage

7.7 Software Customisation

No two customers are the same. As a result, Gliderbim® has been designed to be highly configurable. The Plan of Work module allows for any asset data schema to be configured to suit project requirements. Any number of model disciplines can be also configured. This design should minimise the amount of custom development requested by Customers.

However, Glider provides full design, development and implementation services for bespoke customisation requests for software enhancements, third party app integration, and completely separate Customer projects.

8. Data Archiving

Upon termination of the Software-as-a-Service subscription, the following option is available for archiving of data (subject to contract):

- All model files, documents and structured data can be exported from Gliderbim® and provided to the Customer via an external hard drive compatible with Windows or OSX operating systems. The hard drive can be encrypted as an option.

Without specific archiving instructions, customer data will be retained for a period of twelve calendar months after the subscription termination date before being destroyed.

9. System Requirements

Gliderbim® is a web application accessed via the Internet using a web browser. Gliderbim® is built using the latest web technologies, therefore a modern web browser must be used for optimal performance.

9.1 Supported Web Browsers

Below is a list of supported web browsers and versions:

- Google Chrome version 66 or newer
- Microsoft Internet Explorer 11
- Microsoft Edge version 42 or newer
- Mozilla Firefox version 60 or newer

9.2 Add-ins

There are currently no add-ins required to utilise the Gliderbim® software.

10. User Training

Training courses are usually carried out at the Customer's project office. We also provide user training via web conference calls. We offer training courses to suit the Customer's needs, including but not limited to: general user training, expert user training, and administrator user training.