Bentley
Advancing Infrastructure

OpenGround

Lot 2 – Cloud Software

Services Definition

Prepared for UK Government G-Cloud 13

18 May 2022

OpenGround Lot 2 – Cloud Software Services Definition

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EXECUTIVE SUMMARY

OpenGround is a secure, cloud-based, collaboration platform for geotechnical data management. The multi-project environment allows your team to collaborate whether they are collecting data in the field, reporting, scheduling, or integrating data with their design software. The platform has several connected apps that provide team members with the tools they need in a modern and intuitive-to-use environment.

Increase Collaboration with Federated Data Access

OpenGround maintains a single federated data repository for all your ground investigation projects and allows team members to access it using customisable role-based permissions. The application ensures that everyone has the correct access rights to the most up-to-date version of your data. You will no longer have to keep local copies or need to email data to teams.

Advance Dynamic Geotechnical Data across Applications

A live connection between Microsoft Excel and OpenGround ensures that any data analysis can be presented using standard Excel tools and techniques. Connections with BIM, CAD, and Bentley Open applications allows you to automate the updating of drawings and models as soon as new data becomes available in OpenGround.

Access Your Data Quicker

Making your data accessible to your project team immediately is possible with OpenGround. Data can be synchronised with the OpenGround Data Collector on your tablet in the field or entered using the fully customisable data entry profiles in OpenGround Data Entry in the office or remote location. For existing data, OpenGround has flexible import options available for your internal team and supply chain, so you won't have to type your data more than once. OpenGround helps your IT team extend the use of the system throughout your organisation by making roll outs and upgrades easy to do.

Standardise Your Data and Reporting

By centralising and standardising your geotechnical data model you can enforce data collection standardisation across your team while also allowing project managers to add customisation for individual projects. OpenGround can be set up to work with multiple standards by extending the core data model allowing your team to have the most appropriate configuration for their current project. You can also standardise logs and sections with fixed or dynamic content using your standardised templates and dynamic data strips. This standardisation process ensures corporate standards are met while giving project managers the flexibility to change what is reported when required.

Share Knowledge with Your Whole Team

Realise the value of your historic project data by importing local files hidden in project folders into OpenGround Cloud. The bulk importing capabilities enable you to build a spatial archive within days. Combine your current OpenGround project knowledge with your historical data and make it accessible to your team and watch your team's combined knowledge grow.

An Extensible Cloud Platform

By utilising the powerful OpenGround web services, organisations have the freedom to build applications on top of the core platform, or take advantage of powerful third-party apps and services, empowering developers to create innovative data capture, analysis and visualisation tools, interface with existing systems, and streamline enterprise workflows.

1 SOLUTION OVERVIEW

OpenGround is a secure enterprise cloud collaboration platform for geotechnical data management, to enable teams with access to current and historical project data in a dynamic cloud-based environment. OpenGround provides secure and restricted access to federated data, across any connected application, on any device, for improved reliability and project efficiency.

OpenGround offers a complete solution for planning and desk studies, onsite data collection, borehole log production, test scheduling, reporting, visualisation and more. Improve collaboration for better, data-informed decisions among all contractors, sub-contractors and clients on a project and significantly increase the value of your geotechnical data.

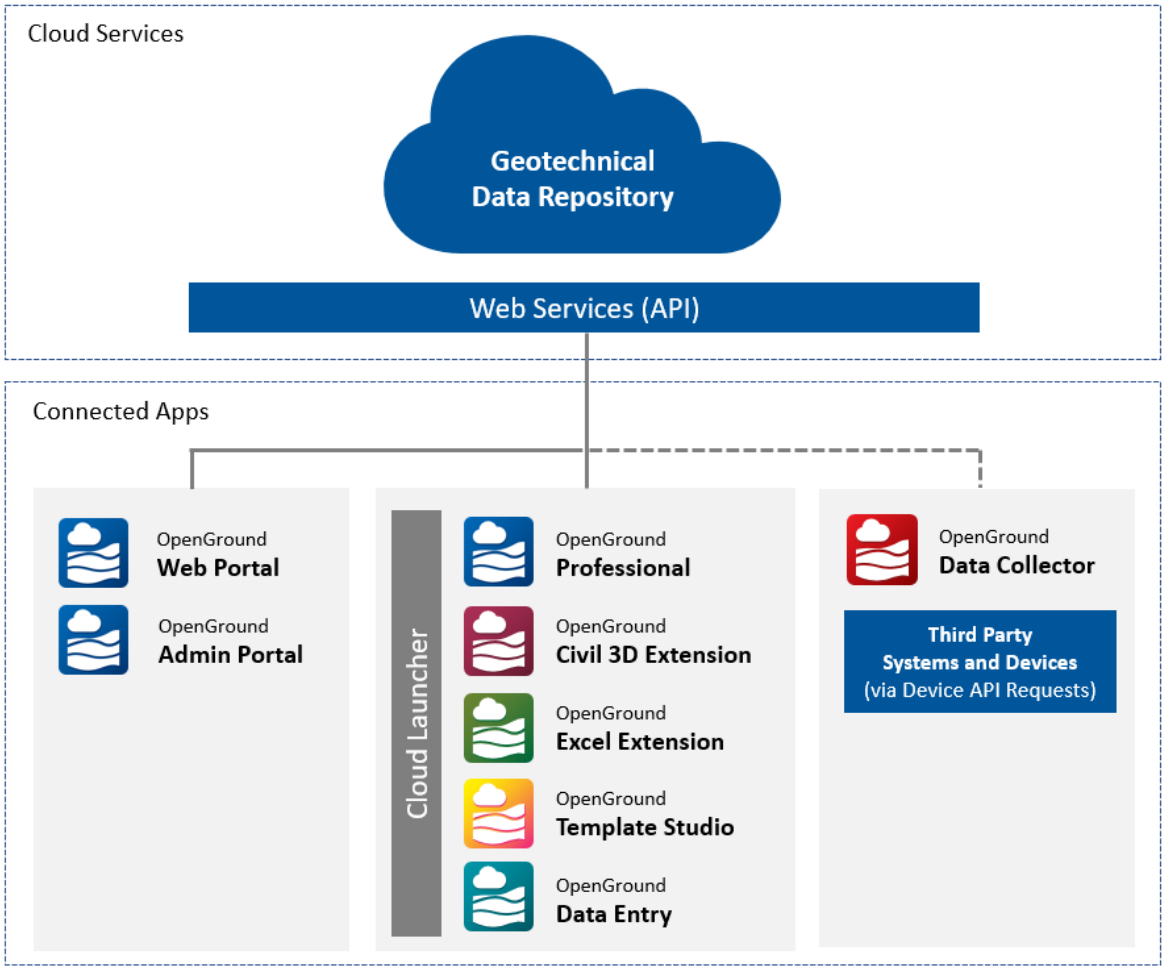

Figure 1 Overview of the OpenGround Platform: Cloud services and connected apps.

1.1 OpenGround – Cloud Services

OpenGround Cloud Services enables secure storage of your site investigation project archive in a centralised, fully managed, spatially aware, geotechnical data repository. OpenGround integrates directly with cloud connected apps including Microsoft Excel and AutoCAD Civil 3D.

The OpenGround platform provides enhanced collaboration for your supply chain, allowing your building information modeling (BIM) team, suppliers, partners, and clients access to project data.

Powerful web services enable the integration of geotechnical data into existing workflows and third-party applications including tools for analysis, visualisation, reporting, and data streaming from remote monitoring devices.

1.2 OpenGround – Connected Apps

The OpenGround Launcher provides access to a powerful suite of connected apps so that you always have the latest tools in geotechnical data management at your disposal. The launcher will automatically notify users when there is a new version of an app available, enabling them to download and install new features with a single click. Notifications will let users know ahead of time when any service upgrades will occur to ensure an optimal experience. OpenGround apps include:

- OpenGround Professional – helps users stay in control of their geotechnical data and streamline reporting throughout every stage of a site investigation. OpenGround Professional allows you to produce logs, data, and reports quickly and efficiently. Its multiple import formats and customisable data entry profiles allows your team to enter the data only once – whether onsite or in the office – and store it within one secure location. OpenGround Professional also includes Integrated GIS, Sections, and Data Triggers.
- OpenGround Civil 3D Extension – enables the integration of geotechnical data within BIM processes and CAD drawings. Visualising and sharing your data in a 3D BIM environment greatly enhances your understanding of your site and increases the quality of your engineering output. Production of drawings, models, and annotations are much faster with the dynamic cloud connection, allowing users to automate the updating of drawings and models as soon as new data becomes available.
- OpenGround Excel Extension – enables dynamic data analysis from inside Microsoft Excel. Integrating your spreadsheets directly into OpenGround allows for extended and automated analysis and reporting in an environment engineers are familiar with. The dynamic cloud connection ensures that any data reported is always the latest version and can be presented in a customised format that you are happy with using standard Excel tools.
- OpenGround Template Studio – enables your organisation to build standardised report templates for use with OpenGround. The intuitive interface can be used to visually create and standardise the presentation of boring logs, cross sections, site plans, and Civil 3D profiles.
- OpenGround Data Entry – enables your organisation to simplify and integrate your data entry process using fully customisable data entry profiles. Data entered and edited via OpenGround Data Entry is immediately accessible to all other users of OpenGround.
- OpenGround Web Portal – allows you to securely share geotechnical data with your team, selected members of your supply chain, and clients. You can also quickly access data and documents, track progress, and generate reports via a web browser. OpenGround Web Portal enables selected members of your supply chain to securely upload and validate data submissions, significantly increasing data management efficiency and quality.

- OpenGround Data Collector – a tablet optimised field-based data capture tool that utilises configurable Mobile Data Entry Profiles. Data can be captured offline and quickly synchronised with the cloud when an internet/mobile connection is available.
- OpenGround Admin Portal – provides system administrators with a powerful web interface for managing key aspects of your cloud configuration.

1.3 OpenGround – Connectors

The following connectors are included as part of the Cloud Services within each OpenGround Instance

- Leapfrog Works – allows users to log in to the OpenGround and pull data to a geological model within Leapfrog Works.

The following connectors count towards the API consumption on your OpenGround tier. There is no additional Bentley licencing required for these connectors.

- Power BI – allows users to log in to the OpenGround and pull data to a Power BI Dashboard.
- Custom Connectors – allows users to connect OpenGround to other applications using the API calls.

APPENDICES

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APPENDIX 1 – SLA

Service Level Agreement

The following Service Level Agreement (SLA) supplements the SELECT Program Agreement, including Exhibit F Bentley Cloud Offerings. In the event there is a conflict between this SLA and the SELECT Program Agreement, this SLA shall prevail. This SLA shall apply to specific Bentley Cloud Offerings only when attached to or incorporated by reference to an applicable commercial offering document, such as a quotation, proposal, or order form. If a commercial offering document does not include this SLA as an attachment or by reference, it shall not apply to that Cloud Offering.

Availability Commitment

Bentley shall provide System Availability per Table 1 below.

Table 1 - Availability

Availability Commitment	System Availability Period
99.9%	24x7

Bentley shall measure performance against the Availability Commitment during a calendar month based on the following calculation:

$$\text{Availability \%} = \frac{\text{Available Minutes} - \text{Unscheduled Downtime Minutes}}{\text{Available Minutes}}$$

Users will be given notice of Maintenance Windows which will be used to apply required patches to the IT infrastructure to ensure the continued security, availability, and performance of the system. Wherever practical, Maintenance Windows will occur outside of Subscriber's core business hours.

- The Availability Commitment excludes downtime due to Scheduled Maintenance.
- Unscheduled Downtime is calculated from the minute it is clearly reported by the Subscriber to Bentley, until Bentley reports it fixed or mitigated. Bentley may subtract from the calculated downtime any time waiting for a response from the Subscriber
- Only "Critical" Incidents (Table 3 below) will be considered as Unscheduled Downtime in the above Availability calculation.
- Where Bentley provides multiple production services, identified by different Universal Resource Locators (URLs), the availability will be calculated for each URL.

Remedies

Bentley shall provide Subscriber remedies for any Bentley failure to meet the Availability Commitment during any single calendar month (the "Cover Period"). Upon the first instance per URL, Bentley shall make a good faith effort to understand the cause and make reasonable repairs to prevent the failure from occurring again. Upon any subsequent instance, in addition to the remedy set forth above, Bentley shall also provide a Service Credit to Subscriber as described in Table 2. If the Monthly Subscription covers multiple Fully Qualified Domain Names (FQDNs), the remedy will be based off a part of the Monthly Subscription proportional to the usage of that FQDN.

Table 2 – Remedies

Availability	Service Credit
98 % -- 99.8%	2% of Monthly Subscription for affected Service
95 % -- 97.9%	4% of Monthly Subscription for affected Service
Below 95%	5% of Monthly Subscription for affected Service

Bentley will apply any Service Credits only against future amounts due from Subscriber for Hosting Fees. Service Credits will not entitle Subscriber to any refund or payment from Bentley. Unless claimed within ninety (90) Days following the end of the Cover Period to which they correspond, all Service Credits are waived with respect to that period of service. Subscriber agrees that the Service Credits set forth herein are Subscriber's sole and exclusive remedy, and Bentley shall have no further liability, for any failure by Bentley to meet the Availability Commitment or System Availability Period.

In respect of all other claims, losses, or damages, whether arising from tort (including negligence), breach of contract, or otherwise under or in connection with this SLA, shall in no event exceed the applicable monthly subscription fees during which the event giving rise to the liability occurs.

Support Objectives

Bentley will, in consultation with the Subscriber, be responsible for classifying each reported, verifiable and reproducible incident per Table 3 and will use commercially reasonable efforts to resolve such incidents in accordance with the targets specified in Table 4.

Table 3 – Priority Classification

Name	Classification	Description	Example
Priority 1 (P1)	Critical	System Down A complete loss of cloud service – no user can interact with the service	Users at multiple sites cannot access the system and no workaround exists.
Priority 2 (P2)	High	Incident which impairs the users' ability to maintain business operation causing a severe degradation of service or resulting in some important functionality being unavailable. Operations can continue in a restricted fashion.	Users can access system however there is material degradation of functionality or performance
Priority 3 (P3)	Medium	Incident which causes a loss of some important functionality.	A service is not available causing inconvenience, however, business operations can continue without major disruption
Priority 4 (P4)	Low	Incident which has little or no significant impact on the business. Low impact & low urgency.	The behaviour varies from user expectations, but normal business operations can continue.

The provision of a workaround or temporary fix will lower the Priority of an incident to reflect the residual impact.

Table 4 – Incident Response and Resolution Targets

Priority	Response Target	Resolution Target	Update Interval
P1 - Critical	1 Hour	See below*	1 Hour
P2 - High	2 Hours	1 Business Day	1 Business Day
P3 - Medium	4 Hours	10 Business Days	5 Business Days
P4 - Low	8 Hours	Mutually Agreed	Mutually Agreed

*Critical incidents will be forwarded immediately and worked continuously by qualified team members until it is resolved, or an acceptable workaround is delivered to reduce the priority.

Response, Resolution and Update target levels are indicators and serve as benchmarks for the Bentley Support teams.

"Response Times" and Resolution Times" commence from the point in time accurate and complete information regarding the incident or interruption is correctly entered in Bentley's Incident Tracking system.

If the resolution of any P2, P3 or P4 issue requires an update, fix or patch to the relevant Bentley commercial software product resulting in a modification of standard COTS or customised code, then additional development, testing and release tasks will be required to ensure the quality of the product release. Bentley's support obligations in these instances, including response times, shall not be governed by this SLA, but rather the SELECT Program Agreement or other relevant governing agreement executed by Subscriber and Bentley shall apply.

"Business Day" for support of P2 though P4 incidents is defined as Monday through Friday inclusive excepting Public Holidays in the location where support is provided.

Bentley has designed the systems to meet the recovery time and point objectives described in Table 5 and shall use commercially reasonable efforts meet them in the event of a system failure.

Table 5 – System Disaster Recovery Objectives

Recovery Time Objective (RTO)	Recovery Point Objective (RPO)
8 Hours	1 Hour

Limitations

This SLA and any applicable Service Levels do not apply to any performance or availability issues:

1. Due to factors outside our reasonable control (for example, natural disaster, war, acts of terrorism, riots, government action, or a network or device failure external to our data centers, including at Subscriber's site or between Subscriber's site and Bentley's data center);
2. That result from the use of services, hardware, or software provided by Subscriber, including, but not limited to, issues resulting from inadequate bandwidth or related to third-party software or services;
3. Caused by Subscriber's use of a Service after instruction from Bentley to modify use of the Service;
4. During or with respect to preview, pre-release, beta or trial versions of a Service, feature or software (as determined by Bentley);
5. That result from Subscriber's unauthorised action or lack of action when required, or from Subscriber's employees, agents, contractors, or vendors, or anyone gaining access to Bentley network by means of Subscriber's passwords or equipment, or otherwise resulting from Subscriber's failure to follow appropriate security practices;
6. That result from faulty input, instructions, or arguments (for example, requests to access files that do not exist);
7. That result from use of sandbox, proof of concept, development, QA, or other non-production systems unless explicitly included by Bentley Systems.

Service Termination and Subscriber's Data

Upon termination of the Service, Bentley will deactivate any remaining Subscriber accounts and upon written request provide an export of Subscriber's data in a standard, generally accepted electronic form within ten (10) business days, and places no restrictions on its use by the Subscriber. Unless otherwise requested, Bentley will delete all copies of Subscriber's data from its servers within two (2) weeks of being notified that the Subscriber has successfully read the files, or within four (4) weeks of the data being provided if no confirmation or associated Service Request is received.

Note: it may take up to an additional 30 days for back-ups of that data to expire.

About Bentley Systems

Bentley Systems (Nasdaq: BSY) is the infrastructure engineering software company. We provide innovative software to advance the world's infrastructure – sustaining both the global economy and environment. Our industry-leading software solutions are used by professionals, and organisations of every size, for the design, construction, and operations of roads and bridges, rail and transit, water and wastewater, public works and utilities, buildings and campuses, mining, and industrial facilities. Our offerings include MicroStation-based applications for modeling and simulation, ProjectWise for project delivery, AssetWise for asset and network performance, Seequent's leading geoprofessional software portfolio, and the iTwin platform for infrastructure digital twins. Bentley Systems employs more than 4,500 colleagues and generates annual revenues of approximately $1 billion in 186 countries.

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