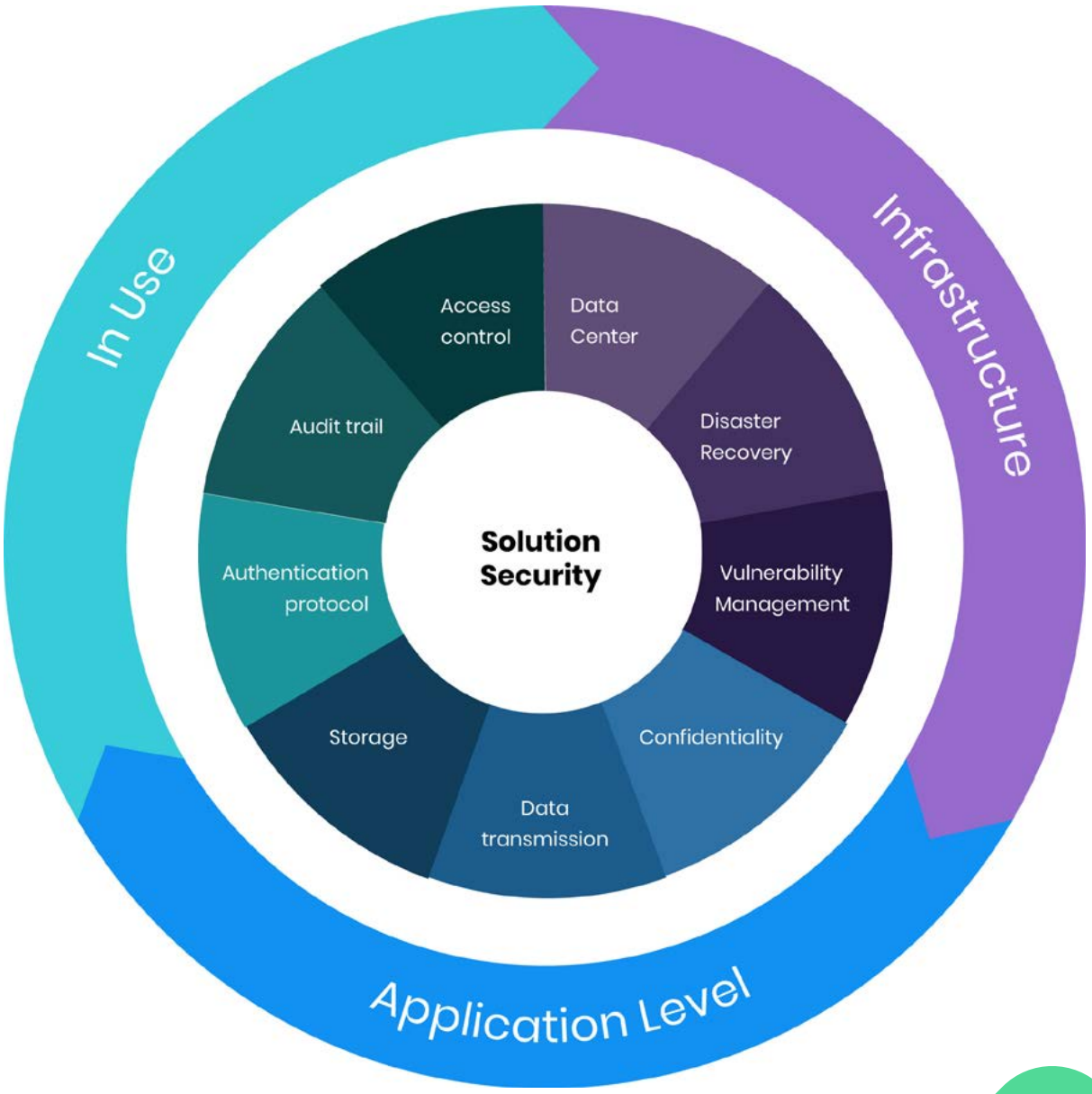
BOREALIS

# Security Infokit

Borealis integrates industry-standard security practices in its software and extends them to data storage in a hardened hosting infrastructure. Security has been integrated into the architecture, policies, and procedures of the Borealis application.

This paper focuses on some of these measures, including:

- Confidentiality Security in operations Data security
- Application-level security
- Organizational security and change management processes
- Security certification and accreditation
- Data center security implementation
- Privacy



## Borealis Platform Security Overview

The Borealis application is designed to organize functional and security aspects into well-defined multi-tenants layers; presentation, configuration, platform, and database.

At Borealis, confidentiality begins with contractual agreements, which all our employees and consultants must adhere to, followed by our Security Awareness Program, which is conducted on a yearly basis.

To ensure confidentiality is implemented as defined, we only grant access on a need-to-know basis for information entrusted to us.

## Confidentiality

We treat all client information with the utmost level of confidentiality and by default, we classify all client information and data as confidential. In that perspective, we encrypt client data, ensure that access is limited to a need-to-know basis. The encryption methods we use are kept up to date. Our Risk Assessment methodology ensures that controls are in place and work appropriately to protect client data.

### Risks Assessments

Through our risk assessments and vulnerability detection and prevention mechanisms, we respond to security events and incidents that could impact our infrastructure. This function involves the overarching networking and physical environment including the monitoring of internal networks and employee access customer environments.

### Configuration Hardening and Monitoring

Hardening is part of our server build books. Through proactively monitoring changes to the environment, deviations are identified in real-time and are reviewed for change legitimacy. Any change identified as not legitimate triggers investigation and appropriate actions are taken. We assign security configuration profiles to hosts based on accepted standards and best practices.

## Security in operations

### Patch Monitoring

We constantly monitor, verify and take appropriate actions to address threats that are applicable to our environment, including which Common Vulnerabilities and Exposures (CVE) are present.

### User Monitoring

We monitor and document user host access, authentication level and login times to demonstrate compliance to access controls.

### Logs and Events Monitoring

We use a SIEM (Security information and event management) solution to aggregate the logs of our servers and to correlate events. Alerts are configured in the tool to notify our security team in real time if a problem is detected.

### File Integrity Management

We detect, report, and document changes to files in alignment with security and compliance requirements.

### Security Incident Management

If and when security incidents occur, we conduct a timely and thorough investigation to identify the nature of the incident and the impacted clients. We work closely with all relevant parties to resolve the issue, then document the lessons learned. As part of our security management process, we review our policy and planning functions and make any recommended changes to ensure that our practices continually improve.

## Data Security

The data is logically separated in instance, and each instance is an individual physical entity. Connection to the data store is restricted through access credentials configured and stored within the platform layer. The platform is built over a multi-tenant architecture enabling multiple footprint scenarios, from corporate wide deployments involving partners and contractors to project sites deployments.

### Multi-Tenant

All business units are installed on one installation, but do not share a common database. Share a same version of the Borealis application but may be configured independently of each other.

### Multi-Instance

A tenant may have multiple instances, assigned for example to different environments. Each instance may be configured differently.

### Data Segregation with Row Level Security

Within an instance, data segregation may be enforced to hide or show information according to user permissions. Groups are defined and associated to users to control access on records. The Borealis application supports a hierarchy of control to build a complex data segregation between teams, business units, contractors, and partners.

# Application-Level Security

The Borealis application provides a range of application-level security mechanisms that allow to fine-tune the implementation to meet specific requirements. Software architectural patterns are strategically selected around data confidentiality, integrity and availability. These patterns include row level security data segregation, roles-based access control list, audit trail, and log management.

## Authentication

The Borealis application supports multiple authentication providers and complex password policies. The SAML services can be integrated for enterprise authentication.

## Administration

Security and privacy are enforced at the instance level. An instance contains a data store and its users. Users in an instance can never see into other instances. The application contains a self-service administration console, super users can manage their own users: add users, deactivate users, assign user profiles, access login stats, access audit trail, change preferred language, etc.

## User roles and groups permissions

Each granular action can be controlled by configurable permission. Permissions are assembled in user profiles defined by roles and groups.

## Communication

All Borealis application data in transit is encrypted using TLS 1.2/1.3, a protocol designed to provide secure communication over the Internet. Encryption keys are securely stored. Individual user sessions are identified and re-verified with each transaction, using a unique token created at login.

## Encryption

The data on our servers is encrypted at rest using AES-256 (XTS-AES-128 w/256 bit key) and key management is performed by our security team.

## Organizational Security and Change Management Processes

On the Borealis application, secure operations extend beyond putting the right systems and technologies in place. Our effective security infrastructure is also embedded within our organizational culture and everyday business processes.

Change management also is a critical aspect of Borealis' security. From development to operation stages, our processes integrate security best practices in the full product lifecycle during requirements, version control, continuous integration testing, packaging, deployment, and quality control. We also proactively monitor for security vulnerabilities and incidents.

### People Access and Global Support

The Borealis operations and support team monitors our infrastructure 24/7. Access control is enforced with policies to control user registration, grant the correct level of access privilege, control password use, password change and password removal, review of access rights, and control network service access.

Our support team maintains an account on all hosted applications for the purposes of maintenance and support. Applications and data are accessed only for health monitoring of application purposes, to perform system or application maintenance, and upon customer request via our support system. Only security qualified and authorized Borealis employees have access to system using 2-factor authentication. Customers are responsible for maintaining the security of their own login information. A global verification of all accesses is done at least twice a year. Accesses are also reviewed each time an employee is hired/left and when there is a change in position.

### Monitoring and Vulnerability management

Borealis uses third-party security specialists and enterprise-class security solutions (like Qualys) to find & help us fix vulnerabilities in the IT infrastructure and the web application. Reports of latest third-party intrusion tests as well Qualys reports are available upon request.

Borealis uses vulnerability management systems to continuously secure the IT infrastructure against the latest Internet threats. A web application scanning system automatically identifies OWASP top 10 risks including SQL injection, cross-site scripting (XSS), cross-site request forgery (CSRF), and URL redirection.

All web applications, networks, and hardware are constantly monitored by both Borealis and the managed Infrastructure-as-a-Service (IaaS) providers.

Each line of code modified in our repositories is checked by a second developer. An automated test suite of several thousand tests will then be executed. Code checks will also be done with Eslint as well as a vulnerability check of our external libraries with Yarn audit.

## Technologies

The Borealis Application uses recent technologies and constantly evolves with them. The latest features available for these technologies are also available for the app, which ensures a high level of security for our backend. For example, security issues are quickly rectified. Plus, new versions are released on a regular basis.

Here are some of the technologies we built into our app:

- Apache2
- Docker
- Elasticsearch
- Node.js
- NginX
- MongoDB
- OpenSSL
- PostgreSQL
- React

## Privacy

Borealis understands the importance of ensuring the privacy of your information. For more information, please see our Master Subscription Agreement:

**https://www.boreal-is.com/terms-of-use/**

# Borealis Security Certification and Accreditation

Borealis offers solutions designed and used by many large organisations. We adhere to the highest industry standards for enterprise security to maintain confidentiality, integrity, and availability of our customers' information.

## Borealis Security

To ensure Borealis security requirements and sustainability policy, our service is collocated in dedicated spaces at a top-tier data center that maintains industry standard certifications. A penetration test conducted by a third-party firm is performed on our platform every year. Additionally, we reinforce internal security with various policies and processes to protect access to data.

## Tier 3 certified design and SSAE 16 compliant data center

Borealis hosting services are deployed in a Tier 3 certified design data center. Amazon AWS is certified ISO 27001:2005 for providing and operating dedicated cloud computing infrastructures. Amazon AWS is based on the ISO 27002 and ISO 27005 security management and risk assessment norms and associated processes. Amazon AWS has obtained SOC 1 and 2 type II certifications.

For more details about Amazon AWS certifications:

**https://aws.amazon.com/compliance/soc-faqs/**

**https://aws.amazon.com/compliance/iso-certified/**

# Data Center Security Implementation

Borealis' hosting services are built on top of the enterprise-ready Amazon AWS. A scalable, distributed computing infrastructure is used to host and manage the Borealis application. To ensure it has control over its capacities, Borealis chooses where client data is hosted: should a client require a specific production data center or data center replication location, some fees apply.

## Data Center Security

Borealis production servers are hosted in Tier 3 certified design data centers (Uptime Institute rating). The facilities are ISO 27001: 2005, SOC 1 type II (SSAE 16 and ISAE 3402) and SOC 2 type II compliant. The data centers are equipped with robust physical security including biometrics and smartcard access and logical security including firewall, intrusion detection, video surveillance and prevention, and denial of service attack protection. Redundant and diverse power, cooling and networks are built to a minimum of N+1 redundancy. The Cloud Security Alliance STAR self-assessment are available: **https://cloudsecurityalliance.org/registry/amazon/**

## Data Center Efficiency

Amazon Web Services (AWS) is committed to running in the most environmentally friendly way possible and achieving 100% renewable energy usage for global infrastructure.

A study by 451 Research shows that AWS's infrastructure is 3.6 times more energy efficient than the median of the surveyed U.S. enterprise data centers. More than two-thirds of this advantage is attributable to the combination of a more energy efficient server population and much higher server utilization.

AWS has multiple initiatives to improve water use efficiency and reduce the use of potable water for cooling data centers. AWS develops water use strategy by evaluating climate patterns for each AWS Region, local water management and availability, and the opportunity to conserve drinking water sources.

## Amazon AWS Data Centers

For more information on data centers, see **https://aws.amazon.com/**

## Physical Infrastructure

Borealis infrastructure, including network switches, firewalls, servers, and shared storage devices, is managed and configured by the Borealis team. Amazon AWS is a top provider of managed services and has achieved a high standard regarding its security certifications. All Borealis services are configured for high availability to keep downtime to a minimum.

## Backups

Complete virtual server backups are made daily. Backups are retained with the following policy: keep the last 7 days, the last 8 weeks, and the last 12 months.

## Disaster Recovery

Borealis uses multiple data centers to host its application and data, providing essential redundancy. All data centers employ physical security, strict access policies and secure vaults and cages. Each server is replicated in real time to a second availability zone in the same AWS region. Borealis service performs near real-time data replication between the production data center and the disaster recovery center. Hot-site disaster recovery tests are performed daily, and complete disaster recovery diagnostic is done quarterly to verify our projected recovery times and the integrity of the customer data.

## Network security

The Borealis network is protected by enterprise-grade firewall and Intrusion Prevention and Detection System (IPS/IDS) to monitor network traffic and block a wide range of known vulnerability exploits. The Amazon AWS network is protected against DoS/DDoS attack. For more details: https://aws.amazon.com/shield/ddos-attack-protection/

## Transmission

By using the Amazon AWS network, multiple Internet backbone connections provide routing redundancy and high-performance connectivity.

## Human Resources Security

When hiring employees, we perform criminal background checks. These are repeated every 5 years.

## Asset Management

We use a tool to make an inventory automatically for all our hardware and software in our IT infrastructure.

## Logical Access Management

Each user has a nominative account and minimum permissions are assigned to them. All actions performed by them are recorded and monitored by our SIEM tool.

### Software Development Security

Our production environment is completely isolated from the development network on a network that is only accessible via VPN which has a 2-factor authentication. The production data is never used for testing and QA.

### Systems and Software Updates

All the workstations (laptops & desktops) of our users have an antivirus installed and it is always up to date using auto-update feature. Operating system updates are managed by GPOs and are automatically updated on their computers.

## Privacy

We place a very high value on the protection of privacy. Every day, businesses are at risk from a security or data breach which can come from anywhere in the world. There's so much at stake, from the sensitive data that gives you industry insights to the trust you've built with your customers - trust that can be hard to regain and breaches that can force many companies into bankruptcy following negative advertisement resulting from such breaches.

Unlike other organizations, we integrate privacy 'by design' into all stages of our software development lifecycle. For more details about our software development lifecycle: **https://media.boreal-is.com/borealis-software-lifecycle.pdf**

Addressing privacy, compliance and security after the fact, results in increased costs to implement risk mitigation. We at Borealis, address these from the design phase and constantly review our solutions to ensure adherence to these privacy principles.

Privacy requirements are backed into our solution to ensure that data hosting facilities meet Privacy requirements.

When required specifically by a client and in order to meet their specific privacy and regulatory requirements, we will work with the client and through contractual agreements to host their data in a data center of their choice, with the client's formal approval of the country where their data will be hosted.

For the full Privacy Policy, please go to:
**https://www.borealis.com/privacy-policy/**

# Ready to simplify your operations?

## WE ARE READY TO HELP.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