

# TECHNOLOGY OVERVIEW



## **TECHNOLOGY OVERVIEW**

Gain high-level insight into FactSet's systems, software, network, security, and deployment best practices. Learn how to deliver FactSet's real-time market data and advanced analytics on any platform simply, quickly, and securely.

This document is designed to provide information on FactSet's deployment and installation processes, infrastructure, connectivity, and support. Here's what you can expect to find:

About FactSet	3	Firewalls, Routers, Rules, and Proxies	9
FactSet Everywhere	4	Capacity Planning	10
Software Packaging and Deployment	5	Business Continuity Planning	11
Portfolio Integration	6	Security Overview	12
Data Delivery and Web Services	7	Data Security	13
Application and Technology Support	8	Mobile Apps	15

## About FactSet

### Our Business

Our mission is to provide financial professionals with everything they need to do their jobs effectively and efficiently. Without the tools and applications we develop, clients just have raw data. We make it easy for them to convert this raw data into powerful information they can use in their analysis or reporting.

Our business is based on the idea that FactSet is here to help our clients in any way possible, from helping to build financial models to getting to the bottom of why a certain data point is being pulled.

### Our Clients

Our client retention rate has remained an astounding 90% for more than 15 years, a testament to the high degree of service and quality for which we've become known.

FactSet's mission is to deliver superior content, analytics, and flexible technology to our 133,000 users. Our clients — money managers, research analysts, portfolio managers, and investment bankers — access FactSet's information 24 hours a day, 7 days a week.

From downloading data on thousands of companies into a spreadsheet model to customizing returns analysis on portfolio holdings data, we help our clients become more productive.

### Our Global Presence

In addition to our 60 global office locations, FactSet provides services using an array of data center locations and public cloud implementations across the Americas, EMEA and APAC.

## FactSet Everywhere

### Elegant Workflow

Financial professionals in investment management, investment research, banking, private equity, capital markets, trading, publishing and investor relations all leverage a single, unified FactSet application to enhance their workflow.

FactSet combines equity and fixed income analytics and content along with streaming real-time (RT) data in a single platform. FactSet integrates hundreds of commercial content sets with a firm's proprietary data, including holdings, rankings, estimates and research. The integration is so seamless that users can combine commercial and proprietary data into visually stunning and effective workspaces that exactly meet their workflow.

### FactSet Everywhere

FactSet is designed to be seamlessly deployed on any fixed or mobile platform. FactSet is available to be used anytime and everywhere. FactSet stores all workspaces, preferences, ticker lists, portfolios, formulas, screens, groupings, and searches – absolutely everything – securely in our data centers. Entitlements are defined and controlled centrally, meaning that each individual's workspace and workflow is available at the office or on the road, without any special setup.

There are three main pillars supporting FactSet that are used everywhere by financial professionals:

- FactSet Workstation
- FactSet Web
- FactSet Mobile Apps

### Software as a Service (SaaS)

Since all commercial, proprietary, and real-time streaming data lives at FactSet's data centers – the financial professional is free to use FactSet anywhere and anytime.

FactSet Mobile Apps allow the financial professional to gain access to news, quotes, portfolios, research, and fundamental data from any iPhone, iPad, or Android device.

Each financial professional is given a factset.net login, which links together all access, entitlements, and content across the Workstation, Web, and Mobile Apps.

## FactSet Install

The third pillar of the FactSet suite is the FactSet Workstation. Though FactSet is often used while traveling, commuting, or at home – most financial professionals still have a primary desk with multiple monitors where most of their work is performed.

FactSet uses a single MSI to install to any Windows machine, Terminal Server, or Virtual Machine such as Citrix XenApp, Citrix XenDesktop, or VMware. Administrative rights are required for the initial install but are not required to use the application. FactSet supports all re-packaging and IT environments.

With an installation of the FactSet Workstation, add-ins installed for Microsoft Office (2016, 2019, 2021, 365) including Excel, Word, PowerPoint, OneNote, and Outlook. Features such as DealMaven, =FDS codes, ExcelConnect, ActivePublishing, and VB API access are all installed automatically. Office integration for model creation and analysis, pitch books, presentations, and automation is a vital part of investment banking and research workflows.

FactSet OnlineComponents ensures that all users are running an up-to-date release of the client-side install which means that IT administrators only need to update the MSI package once per year. In environments where users have administrative rights to their PCs, FactSet's AutoUpdate technology will prompt to install the latest FactSet framework when it is available.

## Entitlements

Application, content, and real-time exchange entitlements are all stored and controlled centrally at FactSet. Combined with all user data being stored at FactSet, this gives each user of FactSet a seamless experience across their local workstation, and hand-held Mobile Apps. It also eliminates the need for any client-side backup of FactSet configuration and user data.

Professionals can be given real-time, delayed, or no access to each of hundreds of global exchanges, news sources, fundamental content sets, as well as other entity and security data sources. All applications within the platform, such as Portfolio Analysis, Alpha Testing, and Universal Screening can be enabled or disabled on the fly at the individual user level.

Designated individuals at firms can be given self-service rights to add and remove entitlements to individual users within their firm or department.

## Software Packaging and Deployment

### Simple Deployment

FactSet's suite of software is flexible enough to be easily installed by a single user or transformed, packaged, and distributed to thousands of desktops. Choose to install FactSet as individual Workstations or as part of a corporate thin-client or streaming application farm. Since nearly all of the content and functionality of FactSet software resides in FactSet's data centers, it is not necessary to put a complicated or large package on each user's desktop.

### Flexibility

FactSet can be installed on office workstations or on laptops. In addition, all FactSet software fully supports Citrix / Terminal Server or Virtual Machine environments. FactSet Technology Solutions Engineers can assist in deploying the FactSet suite of applications within your environment.

### Easy Multi-User Installations

Installing into a XenApp/Citrix or Terminal Server environment is straightforward. FactSet applications have been extensively tested in multi-user environments. Contact your salesperson or consultant for detailed instructions and case scenarios.

### Support for Locked-Down Environment

FactSet supports locked-down (minimal privilege) workstations provided that the initial installation occurs with administrator rights. Enhanced rights are needed during the installation process to register Microsoft Office add-ins and DLLs.

### Options for Repackaging

The main installer for FactSet is MSI-based and allows for easy transformation and repackaging. MSIs can be pushed out to desktops using Active Directory group policies or a variety of commercial products, including SCCM.

### Intuitive Configuration

The FactSet installers are simple and comprehensive. They auto-detect the installed versions of Microsoft Windows and Microsoft Office, configuring themselves automatically.

## Upgrades

AutoUpdate functionality alerts users when a new release of software is available to be installed. FactSet OnlineComponents automatically keeps all users seamlessly up to date and running the best release of FactSet, without requiring administrative privileges, using FactSet Virtual Module technology. FactSet supports all software released in the previous twelve months. The most recent software is always available at [www.factset.com/download](http://www.factset.com/download).

## Secure Client Data

All workspaces, portfolio holdings, returns, models, screens, and formulas are stored in FactSet's secure hybrid cloud. User data is synchronized automatically between the FactSet Workstation, Web, and mobile applications.

## Microsoft Office Integration

The FactSet install seamlessly integrates with Microsoft Office, adding extensive functionality to Excel, Word, PowerPoint, OneNote, and Outlook.

## Recommended PC Specs

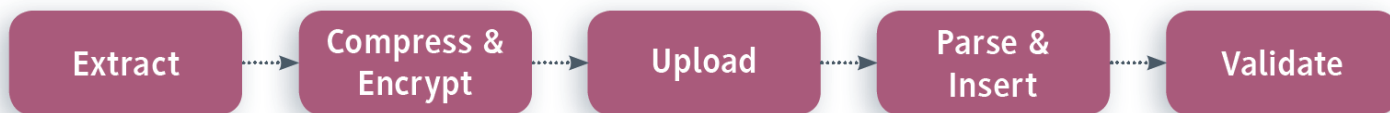
CPU	Dual-Core + processor or 2 vCPU*
Memory	16 GB +
Local Disk	5 GB free space
Windows	Windows 11 64-bit or Server 2022 64-bit
Office Versions	365 (Semi-Annual) both 32-bit or 64-bit
Adobe Reader	DC 32-bit

\*RISC (e.g. ARM64) based processors are not supported by the FactSet Workstation

For software compatibility, installation instructions, and user guides, please visit [www.factset.com/download](http://www.factset.com/download).

## Portfolio Integration

FactSet's Client Data Integration team works with clients' IT staff to extract holdings data from portfolio accounting and order management systems to ensure a daily update of positions.



Once holdings are on our system, users can launch FactSet's Portfolio Analysis to begin analyzing performance, fundamental characteristics, composition, and risk across portfolios and time. In addition, FactSet's real-time data lets analysts and asset managers compare up-to-date holdings with benchmarks in real time.

Once a single automated integration process is in place, users can enjoy the benefits of access to an unlimited number of portfolios on FactSet. FactSet is experienced with portfolio accounting software as well as order management systems, and has holdings delivery arrangements with many custodians, prime brokers, and third-party accounting systems.

The automated integration process includes these steps:

### 1. Extract Data

FactSet works with you to establish a customized extraction and parsing process that converts security-level data from your portfolio accounting and order management systems. FactSet has worked with most commercial accounting systems and will walk through simple steps to extract and normalize data from specific systems or multiple systems. Cash positions are consolidated and futures/options are adjusted through processing on the accounting system.

Data fields will be extracted into a text file based on your particular FactSet entitlements and personal preferences. If a custodian or prime broker is involved, FactSet will work directly with that firm to add your holdings to their feed.

### 2. Compress and Encrypt Files

The text files generated by the one or more accounting systems are bundled together and prepared for transfer to FactSet's mainframes. The files should be zipped to reduce size. FactSet recommends the use of SFTP to transfer data over the Internet or FactSet Managed Infrastructure. FTP transfers, with or without PGP encryptions, are also supported.

### 3. Upload Data

Using Windows Scheduler (or Unix cron), the bundled and optionally encrypted files are sent via your chosen file transfer mechanism to FactSet. Clients with FactSet Managed Infrastructure (WAN) circuits send these files over that private network; others opt to send these files over the public Internet. Once the files are received, FactSet's Cornerstone utility automatically triggers the reconciliation and parsing processes.

A complete guide to Portfolio and Client Data Integration is available at [www.factset.com/download](http://www.factset.com/download). This guide provides more details on the FactSet File Transfer System (FTS) and offers insight into how FactSet helps you extract, transmit, and parse proprietary data in a secure, reliable fashion.

### 4. Parse and Insert Holdings

FactSet creates a parser definition that specifies the layout and contents of your holdings text file. Parsers are triggered automatically upon receipt of the holdings files to our system. The parser then loads and inserts your data into FactSet's uniform database structure, called Open FactSet Database (OFDB). Files are immediately available for use within FactSet's analytical engines and real-time displays.

### 5. Validate Information

FactSet's portfolio reconciliation utility validates and confirms any major or unexpected valuation or holdings changes and warns on various other common cash, security, returns, and trade conditions. You can set your own thresholds and tolerances and customize a delivery method for alerts. FactSet also monitors parser logs and status to verify that the parsing process completed successfully, whether we receive holdings directly from you or through a third party. FactSet supports these and other accounting systems:

- Advent Axys™, APX™, Geneva™
- SS&C Portia™
- Checkfree® APL™
- MacGregor
- Eagle Pace
- Charles River
- Princeton Financial PAM®
- EzeCastle
- INDATA IMS

## Data Delivery and Web Services

FactSet offers a range of web service, batch production, and content delivery mechanisms that do not rely on the installation of client software and offer flexible transports and formats to bring your applications to life with content.

Access, format, and retrieve diverse commercial and proprietary datasets through a choice of symbology and customized business logic. You can access raw and calculated data, ranging from real-time quotes to extensive history, in a format that another application can consume. The following products encompass the power of FactSet’s content integration without using the FactSet Workstation.

### Cornerstone

Cornerstone is a powerful, production-class scheduling and calculation engine that lets you define recurring production (batch) data delivery jobs. These jobs create custom datasets that can be delivered via (S)FTP, with flexible scheduling options designed to ensure data arrives in a timely and accurate manner. You can use a secure web browser to create, schedule, and view all inbound and outbound jobs.

### Real-Time Exchange Datafeeds

Receive streaming financial exchange data, tick-by-tick data, and tick history data via FactSet’s proprietary API. FactSet provides all the elements necessary to build complete market-data feeds into internal systems. All TCP/IP, failover, and connectivity is performed within the API. Efficient zlib stream compression is applied to maximize the amount of data that can be sent over limited bandwidth.

### OnDemand Datafeeds

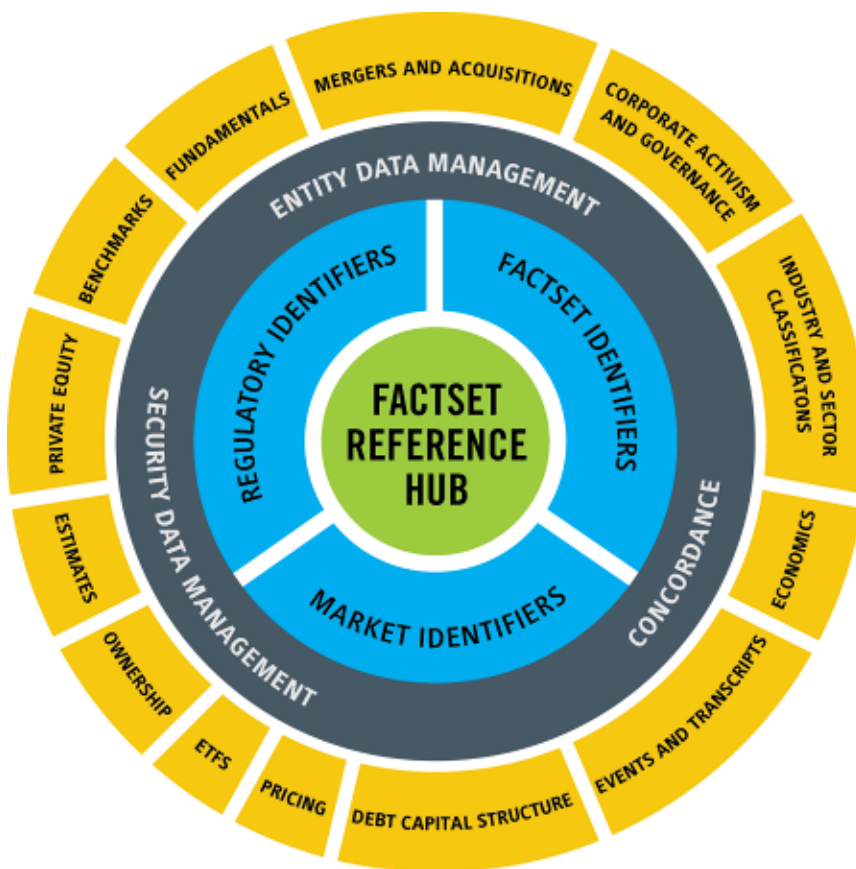
OnDemand is an interactive request/response method for pulling data from FactSet. This authenticated, enterprise-class, platform independent web service allows secure HTTPS calls for data ranging from single data items to complex aggregate calculations. Websites and internal applications can request data in formats ranging from XML to fully formatted HTML tables, as well as fully rendered and formatted charts. All requests are made to a single secure web address in a unified syntax.

**Graphic Formats:** jpg, gif, pdf

**Text Formats:** xml, csv, html, pipe

DataDirect is used to supply back-office, front-office, and quantitative applications with data for display and analysis. It offers the flexibility to populate public websites with simple quotes and graphs and to power complex quant applications with aggregate data for sophisticated decision-making.

Authentication options include both basic authentication and a more secure rotating-key authentication mechanism for transfer of sensitive or proprietary data. The only requirements are a web browser or a web service call from languages/ frameworks such as Visual Basic, Java, C# (.NET), or C++ code. Sample code is available by request.



## Application and Technology Support

Service is the foundation of FactSet's business. FactSet offers unlimited phone and in-app IM support and onsite training for users, plus network, application, and security support.

### Unlimited Phone and in-app IM Support

You have unlimited access to FactSet client service, product specialists, and technical support. Agents are available 24 hours a day, 7 days a week. From a quick question to step-by-step guidance through a complex task, specialists will help you find answers and maximize the value of FactSet. Each firm is assigned a consultant who becomes intimately familiar with client needs and processes. This knowledge enables the consultant to suggest and build innovative, personal solutions. Client service and product specialists are available to train users, assist with projects, and keep you informed of the latest enhancements to FactSet.

If necessary, issues will be quickly escalated to appropriate technical specialists, or engineers. FactSet's corporate disaster recovery strategy includes a global call center with a distributed follow-the-sun model for phone support services. FactSet also mitigates the risk of single office disruption with reliable, secure VPN capabilities for employees. Find your local FactSet support number at [www.factset.com/support-numbers](http://www.factset.com/support-numbers).

### Software Quality

To create software of the highest quality, engineering teams continually strive to produce and refine products to meet our clients' needs. Software enhancements receive a rigorous set of quality assurance tests prior to installation. Changes are then automatically tested to minimize unforeseen problems. Teams regularly review and improve processes to better streamline the development of new software, improve the handling of unforeseen production situations, and most importantly, prevent such events from occurring.

### Incident Tracking

FactSet's optimized incident handling system automatically routes thousands of requests per week to appropriate teams. Every request we receive is tracked through to completion with full audit trails and accountability.

### Tailored Training

Each year, FactSet hosts dozens of free training seminars in cities around the world. You can also find regularly scheduled workshops in our New York, Boston, Chicago, London, France, and Tokyo training centers. If you need custom training, your consultant can arrange personalized training sessions at your office.

### Remote Assistance

FactSet specialists and engineers have access to FactSet Remote Assistance – a technology which allows FactSet personnel to view the web application or desktop environment. FactSet Remote Assistance enables efficient troubleshooting and quicker resolution of complex issues, since it allows FactSet personnel to see exactly what users are seeing.

### Online Help

FactSet Online Assistant is an advanced information network that provides comprehensive documentation for all of FactSet's applications and databases, including detailed instructions, formulas, examples, and multimedia tutorials.

+1.877.FACTSET

24/7 Global Intelligent Call Routing

[www.factset.com/support-numbers](http://www.factset.com/support-numbers)



## Firewalls, Routers, Rules, and Proxies

FactSet software uses outbound-initiated, unicast TCP/IP to communicate with FactSet's servers and mainframes.

Two primary TCP connections are initiated by FactSet. All processing, calculation, and storage occurs in FactSet's secure hybrid cloud environment. FactSet's real-time component will initiate a streaming connection on TCP 6672. Data aggregation caching servers, either privately located on site or in POPs (points of presence) around the Internet, are the endpoints that the real-time platform will seek.

HTML content within FactSet will always traverse your Internet connection using HTTPS. This content will take advantage of any HTTP Internet proxies defined within Windows manually or via a proxy.pac file. It is recommended that you whitelist the URLs listed in the "Whitelists" section.

## Internet

FactSet supports full connectivity over the Internet. This method allows for connections while users are out of the office, on public wireless, or at home. Using the Internet can be a cost-effective solution for business continuity and disaster recovery from alternate locations and to provide connectivity to remote or satellite offices. All ports are outbound initiated only.

### Portfolio Uploads

64.209.89.0  
192.234.235.0

### TCP 6671

(255.255.255.0)  
(255.255.255.0)

### Real-Time

164.55.224.0

### TCP 6672

(255.255.224.0)

## Application Proxies

The FactSet TCP 6672 stream is a proprietary binary protocol and cannot be intercepted or proxied by any HTTP or application proxy (SQUID).

For more information, see the FactSet Installation Guide at [www.factset.com/download](http://www.factset.com/download).

## Whitelists

Any HTTPS inspection points such as Firewalls, Web Proxies, or Content Filters should add the following URLs to their exception list. Traffic to these addresses should not be scanned or blocked.

### FactSet URL

[https://\\*.factset.com](https://*.factset.com)

### OCSP & CRL URLs

<http://crl3.digicert.com>  
<http://crl4.digicert.com>  
<http://ocsp.digicert.com>  
[http://\\*.thawte.com](http://*.thawte.com)  
<http://ctldl.windowsupdate.com>

DigiCert recommends using wildcards for their CRL and OCSP URLs. Please note that these URLs are outside of FactSet's control and as such can and will change without notice. Please contact [techsupport@factset.com](mailto:techsupport@factset.com) for further information.

FactSet recommends that the FactSet folders and files are added to the allow list on all endpoint security protection and user virtualization solutions for optimal performance and to avoid FactSet folders, processes, or traffic from being hook injected, decrypted, scanned, denied, quarantined, or deleted. Further information on FactSet's connectivity and folder/file access requirements can be found at <https://support.factset.com/allowlist/>.

## Capacity Planning

FactSet baselines, monitors, and provides alerts on all devices on our network. This system encompasses everything in FactSet’s secure hybrid cloud environment, including redundant ticker plants, mainframe clusters, and hundreds of terabytes of replicated SAN storage.

In addition to our core network capacities, FactSet closely monitors the physical and application health of every managed circuit and server. FactSet can inform your network staff of where users are running FactSet and how much bandwidth they consume throughout the day, reported by city.

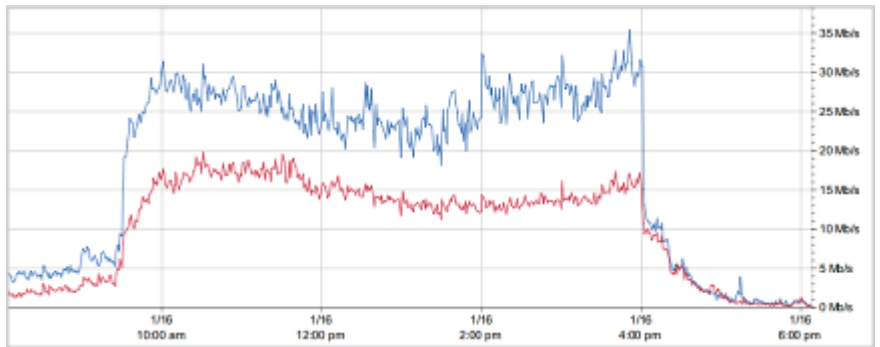
FactSet possesses connection intelligence that automatically determines the best server during startup. As a result, load on the network and on the servers is automatically and efficiently distributed. If a particular branch office experiences degraded performance, FactSet can tell your network engineers exactly how much bandwidth our applications are consuming. If a business unit is planning to add new users, our internal profiling tools can assist in accurately forecasting how much bandwidth will be required.

As market volatility and trading volumes continue to rise, FactSet offers unparalleled insight into the capacities of internal Frame Relay, MPLS, GRE/IPsec, Internet, DWDM/SONET, and Metro Ethernet links that are critical to serving the data needs of financial professionals.

FactSet engineers will work with your technical staff to plan the infrastructure impact on networks, firewalls, routers, workstations, and circuits. Capacity planning includes a 12 to 18-month time horizon and will also consider the impact of upcoming FactSet content additions and user count growth on your system.



Global deployment usage analytics



Bandwidth monitoring

City	State	Serial Count	Username Count	Tickers	Bandwidth
Birmingham	Alabama	1	1	96	3872
Charlotte	North Carolina	14	1	3680	57408
Greensboro	North Carolina	1	1	85	2880
Greenville	South Carolina	1	1	220	3200
Greenwich	Connecticut	1	1	328	3888
Jacksonville	Florida	7	1	2322	29304
Lancaster	Pennsylvania	1	1	168	2840
McLean	Virginia	1	1	91	3064
Miami	Florida	2	1	393	7752
Morristown	New Jersey	1	1	120	3144
Palm Beach	Florida	1	1	937	5880
Palm Beach Gardens	Florida	1	1	33	2472
Philadelphia	Pennsylvania	6	1	697	19664
Richmond	Virginia	2	1	518	8240
Sarasota	Florida	1	1	313	3704

Per city analytics



Real-time ticker plant monitoring

## Business Continuity Planning

FactSet works closely with you to ensure that the deployment of software, and disaster recovery plans meet mandated business continuity policies.

### Application Failover

No configuration is necessary on an individual workstation on a status quo or emergency basis. FactSet is intelligent and will find the best available connection. In the case of a severe network failure at a client site, the FactSet Workstation will make use of any DR Internet policy or proxy server configured in a client's environment. The FactSet Workstation's Real Time connection will automatically failover in the event of a FactSet RT endpoint being unavailable.

### Internet Connections

SSL AES encryption is used to secure the transport of all proprietary data between FactSet and our data centers. This method permits connections from home machines and laptops living on untrusted networks without sacrificing security. All FactSet products support Internet connectivity on cable modems, DSL lines, cellular/wireless access points, and public Internet hotspots. FactSet provides client security administrators with access to Control Center where trusted source IP ranges may be specified to restrict FactSet Web and Workstation connections to trusted networks.

### Central Data Storage

Since all data on FactSet's platforms is stored centrally within FactSet's data centers or partnered cloud providers, the loss of any office building or individual workstation will not affect access to critical proprietary FactSet data.

### Data Recovery

All client data at FactSet is backed up multiple times daily, with a comprehensive retention policy. An automated process to restore deleted files, formulas, screens, and content can be initiated at your request.

### Hybrid Cloud Redundancy

FactSet uses multiple geographically separate private and public cloud data centers. Client data is replicated in real time across multiple locations. Should a major event temporarily disable a location, clients are seamlessly re-routed to other locations, where all services and data remain accessible.

## Thin-Client Computing

Thin-client computing options range from XenApp/Citrix, to on-demand software provisioning, to VMware/Xen virtual machines. FactSet is compatible with all of these and others. FactSet software can be pre-deployed to farms of such machines and held in standby at business continuity locations so that in the event of a major issue, clients receive uninterrupted local or remote access to FactSet services.

## Compliance

Federal regulations, such as Section 404 of the U.S. Sarbanes-Oxley Act, address corporate application and data processes. As FactSet is a critical part of many organizations' financial and reporting workflows, we encourage proper planning to ensure FactSet can assist in attaining compliance with various financial regulations.

### Definition: Business Continuity Planning

Planning efforts to determine the processes and procedures an organization needs to put in place to ensure that essential business functions can continue during and after a disaster. Business continuity planning seeks to prevent interruption of mission-critical business services, and to re-establish full functionality as swiftly and smoothly as possible. FactSet's ability to encrypt traffic allows for flexibility in a firm's disaster recovery planning in the event of transportation strikes, pandemics, office space restrictions, or natural disasters.

### Pandemic Plan

FactSet's pandemic plan encompasses mitigation strategies that would ensure our ability to provide products and services to our clients, and safeguard our employee's safety and well-being. FactSet provides employees with remote access, via company issued computers with encrypted VPN, for continued access to corporate resources, interoperability or workload shifting arrangement with other locations to support and augment operational requirements, and flexible work schedule for employees are all in place and can be effected in the event of a pandemic or other business affecting events. Immediate and necessary measures from a health and safety perspective of our employees are to be undertaken, including but not limited to travel restrictions, regular disinfection and sanitation of our office facilities, deployment and provisioning of personal protective equipment and regular dissemination of medical bulletin updates. FactSet's Incident Management Plan in conjunction with the Business Continuity Plans likewise provides for a proactive framework and specific steps in addressing and managing such situations to mitigate potential impact to our business interests and that of our valued clients.

## Security Overview

FactSet's comprehensive security awareness program guides employees through identifying risks and implementing protective measures to provide services securely. This program includes policies and procedures for managing client data, application development lifecycles, system administration, and incidents.

## Incident Handling

Security information is correlated from intrusion detection systems, firewalls, routers, switches, and servers for intelligent monitoring and alerting to response teams. Our incident response plan empowers and prepares teams to handle security events in an organized and controlled manner. Central to the plan is appropriate communication and coordination with FactSet's security, legal, and senior management groups throughout the identification, response, post mortem, and steady state phases of the plan.

## Communications

SSL encryption is used to secure the transport of sensitive data between FactSet data centers and clients for the following environments:

- Web-based content and applications using port TCP 443 (HTTPS)
- SFTP for file transfers
- STARTTLS for email

This system provides secure, end-to-end data transmission from client computers on any public or private network. For additional file transfer information, refer to the Portfolio Integration and Data Delivery sections of this document. FactSet continually evaluates engineering efforts to improve the security of file transfer protocols and integrates advances into our existing, proven, and reliable processes. Firewalling, access control lists, IDS, syslog, and other network controls create additional layers in our defense-in-depth approach to securing the infrastructure.

## Physical Security

Facilities hosting FactSet's hybrid cloud employ the following controls:

- Video surveillance and recording
- Electronic keycard provisioning for authorized personnel
- Visitor management procedures
- Fire/smoke detection and suppression
- Redundant and diverse communications, utility power, UPS, and generators
- Monitoring and alarms

## Access Control

FactSet authentication components are made up as follows:

- **Username:** unique for each group within a firm
- **Serial Number:** identifies a unique individual with access to FactSet
- **Token:** a dynamically updated hash

This flexible approach enables deployment options that can be tailored to fit your security and distribution policies.

Lockout protections for invalid login attempts include a self-service reset mechanism via our automated one-time passkey email system, AutoValidate. Each client organization manages and maintains an approved list of email domains.

Authorization for authenticated workstations can be provisioned in the following ways:

- Through your FactSet Account Team
- Through the Control Center Procurement portal by your authorized purchaser

## Control Center - Procurement

With the Control Center - Procurement portal, administrators are empowered to purchase and cancel FactSet Workstations and authorize the purchase of real-time exchanges and news feeds. They can also view subscription reports and manage users' contact information (e.g. name, support contacts, email addresses, and more).

## File Manager

Access to content that your firm has chosen to upload can be controlled using File Manager. Administrators can manage users, user groups, and categories of files. They can grant access to specific files or category of file and enable data protection approaches like barriers between business units.

Because File Manager allows control over all the files your firm stores on FactSet, it also provides the Audit Trail feature to track which files have been moved or deleted.

Client data is stored in logistically isolated databases on FactSet's hybrid cloud, providing reliable separation.

## Access Audit

FactSet employees may need to access your data for support purposes. Employees are required to specify a business reason for each request that is logged. Client security teams can view Access Audit reports 24/7 within Control Center.

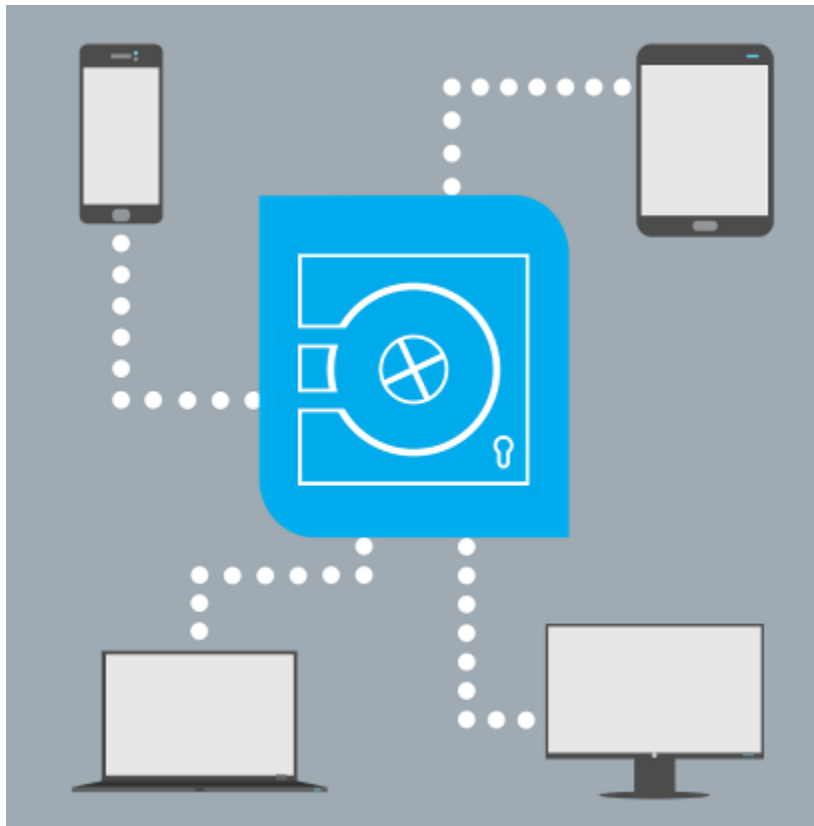
## Data Security

Integration of holdings, transactions, returns, internal research notes, rankings, formulas, and models drives the fundamental usefulness of the FactSet application. Process, policy, and technology combine to protect the security of your data at FactSet.

FactSet regards client proprietary data as the most sensitive data on our system. The layers of control, policy, and process serve as a foundation to protect our clients' data while residing at FactSet or in transit. FactSet's hybrid cloud is fully managed by FactSet employees responsible for the governance and security of client data.

### Secure Data in Transit

FactSet's File Transfer System is a hardened platform which allows the secure transfer of data between clients and our data centers. All clients are encouraged to use key-based SFTP (SSH/FTP) for transit encryption with optional PGP for file-based encryption. Password and Key+Pass SFTP is also available. The interactive FactSet application uses 256-bit AES OpenSSL to encrypt the connection from the individual desktop to FactSet's data centers. All HTTPS and OpenSSL communication is secured using FactSet's certificates, employing a 2048-bit key with corresponding certificate signed by a trusted CA. For clients who may email their account team sample data or sensitive information, FactSet uses STARTTLS email encryption to ensure that SMTP communications are secured. Thus all conduits for proprietary data transfer between FactSet and our clients are encrypted.



### Extraction Standards

FactSet's Client Data Integration Technology Overview

(found [here](#)) goes into more depth on the automated extraction of data from client-side or cloud-based Accounting Systems, Order Management Systems, Data Warehouses, and Research Management systems. A dedicated data integration team, consisting of dozens of specialized engineers, have experience dealing with 2000+ buy-side clients, 120+ custodians and dozens of commercial software vendors - and have turnkey solutions for extraction of data. Our solutions do not extract personally identifiable information (PII), nor is PII necessary for proper operation of FactSet applications. Uploaded client data is strictly for that client's use only - no third parties ever have access to specific client data of any sort.

### Secure Data at Rest

Once data is decrypted, it is forwarded onto end-use systems where parsing is performed and portfolios are updated. FactSet loads and parses many millions of portfolios every day with no human intervention. Data isolation is ensured by the use of operating system level protections on the files as well as process permissions. No access can be gained for batch or interactive processes without a call to our Secure Client subsystem which tracks and grants access to properly-permissioned entities. Client data stored in SQL and NoSQL systems are keyed for access based on a unique cipher per client. These systems enforce hardened authentication, authorization, and data isolation controls that are assured for proper security by FactSet's security team.

All proprietary data is stored in FactSet's hybrid cloud. No client data is synchronized and made vulnerable on client PCs, as the FactSet software is merely a thick client used for display of market and company data as well as integration into Microsoft Office. A lost laptop would not be a vector for data leakage, from a FactSet perspective.

### Access Controls – Clients

Users are identified by their factset.net ID which maps into a unique Username and Serial on our system. In order to gain access interactively through FactSet, a two-factor authentication must occur using a time-expiring, one-time passcode sent to the email address FactSet has on record. Emails will only be sent to the corporate domains controlled by a client, non-corporate domains cannot receive email unless expressly requested by the client. The two-factor email approach is the same across all access methods - installed app, web properties, and mobile apps. Business or strategy groups can be further restricted to read/write entitlements on specific portfolios, files or directories by a designated administrator through a self-service application called File Manager - which is a live, fine-grained authorization system.

### Access Controls – Support

Personnel with specific roles, such as Consultants and support Engineers, can gain access to client workspaces and data for the purposes of assisting clients with issues. All access is timed, with a one-hour default, and logged. Daily digest summaries of all accesses can be automatically emailed to compliance, market data, or security groups. Employees are governed by Security Policy with a specific Acceptable Use Policy (AUP) and Data Governance Policy which offers a specific framework for the handling of client data and other data classes of varying sensitivities. Employees with access to client data are subject to background checks.

### Defense in Depth

FactSet takes a layered approach towards data security using principles of defense in depth, principle of least privilege, secure defaults, separation of duties, and cyclical vulnerability assessments. Internal assessment based on security best-practices such as OWASP, BSSIM, and OSSTMM are performed on a regular basis by FactSet's security team. Independent attestations are sought yearly through FactSet-sponsored third-party vulnerability assessments. Threats are identified and dealt with using a combination of network segmentation, application-layer firewalls, security intelligence and monitoring platforms, URL filtering, malware and virus prevention systems, extensive system logging, DMZ isolation, and other best practices. FactSet's security team oversees the secure architecture and design of systems and embeds itself in FactSet's core software development lifecycle (SDLC), ensuring that FactSet's products and services are designed to a secure standard. Employee's laptops are encrypted and a machine certificate-based VPN is required for off-site access.

In summary, FactSet uses best-in-class technology, a conservative security posture, integration of security engineers with software engineers, and extensive machine/process surveillance to ensure that data residing at FactSet is secure. For more information or to explore any of the above concepts, please contact your account team to schedule a call with our engineering senior management.

## Mobile Apps

FactSet offers native applications for iPhone®, iPad®, and Android® mobile devices. Access to these applications is active for FactSet users by default but can be de-activated by request.

FactSet Mobile Apps includes native applications for iPhone, iPad, and Android that are installed locally to the users' device. It is designed for simple deployment and uses minimal storage, memory, system, and network resources.



### Deployment

iPhone and iPad Deployment: FactSet for iPhone and iPad is available as a free download from the App Store.

Android Deployment: FactSet for Android is available as a free download from the Google Play Store.

### Using the App

See the following Online Assistant pages for more details on using the app:

- FactSet for iPhone and Android – page 20015
- FactSet for iPad - page 20691

### Communications – HTTPS

iPhone, iPad and Android devices communicate securely with FactSet via HTTPS. All traffic between any device and FactSet's servers is secured using HTTPS. Clients should allow communications to \*.factset.com.

## User Access

Initial iOS or Android Registration: Once the app has been installed on a user's iPhone, iPad, or Android device, a one-time registration and configuration process is required. The process is outlined on Online Assistant page 21140. Once the app has been installed on a user's device, users simply need to enter their corporate email address or factset.net account. A six-digit one-time passcode will be emailed to their corporate email address. Enter the passcode in the app and registration is complete.

Subsequent Logins: After a successful login, credentials are securely stored on the device, and the user will not need to re-enter them for subsequent logins. A 4-digit PIN can be configured for the iPhone and iPad for added security.

Simultaneous Logins: Users can log in from only one device at a time. Attempts to log in via multiple devices will invalidate the previous session. This security feature applies to the FactSet Workstation, FactSet Web, iPhone, iPad, and Android based FactSet sessions.

## Local Data Security

Data is encrypted on the iPad/iPhone using Apple's native API for Secure Data Storage. All data is stored in this secure manner. In addition, all data files are encrypted using secure 256-bit AES encryption on iPhone, iPad, and Android devices. For further details, please refer to <http://sqlcipher.net/design/>.

## Online

[www.factset.com](http://www.factset.com)

## About FactSet

FactSet is a leading provider of financial information and analytic applications to investment professionals around the globe.

## For More Information

To learn more about FactSet, contact [sales@factset.com](mailto:sales@factset.com).

## Product Overview

[www.factset.com/solutions](http://www.factset.com/solutions)

## Contact FactSet

[www.factset.com/contact-us](http://www.factset.com/contact-us)

## Client Support

[www.factset.com/support-numbers](http://www.factset.com/support-numbers)