Active > 360

Active > 360: Business overview

AB INITIO SOFTWARE LLC 201 Spring St. Lexington MA 02421 Voice +1 781.301.2000 support@abinitio.com

Intellectual Property Rights & Warranty Disclaimer

COPYRIGHTS

CONFIDENTIAL & PROPRIETARY

All provided documentation is confidential and a trade secret of Ab Initio. This documentation is furnished under a license and may be used only in accordance with the terms of that license and with the inclusion of the copyright notice set forth below.

PATENT NOTICE

Patent https://www.abinitio.com/en/legal/ip-guidelines.html

RESTRICTED RIGHTS LEGEND

If any Ab Initio software or documentation is acquired by or on behalf of the United States of America, its agencies and/or instrumentalities (the "Government"), the Government agrees that such software or documentation is provided with Restricted Rights, and is "commercial computer software" or "commercial computer software documentation." Use, duplication, or disclosure by the Government is subject to restrictions as set forth in the Rights in Technical Data and Computer Software provisions at DFARS 252.227-7013(c)(1)(ii) or the Commercial Computer Software – Restricted Rights provisions at 48 CFR 52.227-19, as applicable. Manufacturer is Ab Initio Software LLC, 201 Spring Street, Lexington, MA 02421.

WARRANTY DISCLAIMER

The information in this documentation is subject to change without notice. Ab Initio makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Ab Initio shall not be liable for errors contained herein or for incidental or consequential damage in connection with the furnishing, performance, or use of this material.

TRADEMARKS

The following are worldwide trademarks or service marks of or licensed to Ab Initio (those marked ® are registered in the US Trademark Office, and may be registered in other countries):

>®
> (stylized)®
Ab Initio®
Ab Initio (stylized)®
Abinitio.com®
Ab Initio I>0®
Acquire>It®
Active>360™
Active>Data®
BRE®
Business Rules Environment®
Conduct>It®
Continuous>Flows®
Continuous Flows®
Control>Center®
Co>Operating®
Co>Operation®
Cooperating Enterprise®
Co>Operating System®
Co>Operative®
Co>Ordinate®
Co>Relate®
Data>Catalog™
Data>Profiler®
Data Quality Assessment™
Data Quality Environment™
DQA™
Dynamic Data Mart®
Easy>Data®
EME®
Enterprise Meta>Environment®
Express>It®
From First Principles™
From the Beginning®
GDE®
Graphical Development Environment™
I>0®
INIT®
Making Things Simple Is Hard Work®
Metadata Hub®
Metadata Portal®
Query>It®
Re>Posit®
Re>Source®
Semantic Discovery™
Shop For Data®
Spec-To-Graph™
Test Data Management™
The Company Operating System®

Certain product, service, or company designations for companies other than Ab Initio are mentioned in this documentation for identification purposes only. Such designations are often claimed as trademarks or service marks. In instances where Ab Initio is aware of a claim, the designation appears in initial capital or all capital letters. However, readers should contact the appropriate companies for more complete information regarding such designations and their registration status.

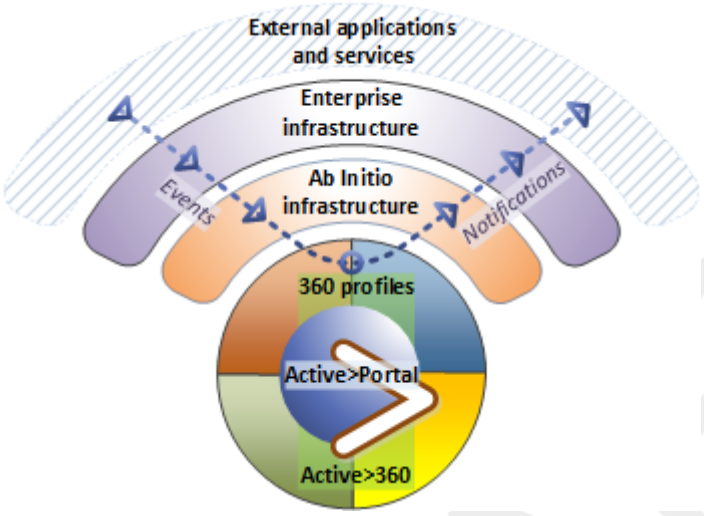
This document provides a general overview of Ab Initio Active>360 Version 4.2.1 software. The purpose of this document is to help business users and technical decision-makers learn about Active>360 features, benefits, uses cases, and components.

This document does not provide detailed Active>360 installation, configuration, usage, or development instructions. For more information about Active>360 software, contact your Ab Initio representative.

This document contains the following topics:

What is Active>360 software?

Active>360 is an enterprise software platform for performing high-volume, high-availability complex event processing in real-time. Active>360 enables nontechnical business users to generate detailed, accurate, up-to-the-second profile data (*360 profiles*) about the people, objects, or concepts that are critical to your organization.



Each 360 profile is made up of dynamic facts, calculations, and aggregates, and is fed by both real-time event streams and batch data ingested from any slower-moving data source. Business users can rapidly define, deploy, and gather data from 360 profiles in real-time — and without IT assistance — from any customer or entity that matters at any moment that matters.

Active>360 is built around the core concept of *enterprise integration*: Active>360 generates the most current high-quality customer 360 profiles possible, cutting across data silos, so that you can integrate and share customer profile data across your entire enterprise in real-time.

360 profiles can be integrated with enterprise-wide analytical, statistical, and decision-based software and machine-learning models. 360 profiles are always available to both upstream and downstream systems. When values in those systems change, the affected 360 profiles are updated in real-time. Your entire enterprise has real-time access to rich and up-to-date entity profiles, driving smarter operations in the form of digital responsiveness and better decision-making.

Goals of Active>360 software

Active>360 software is designed around the following primary goals:

Goal	Purpose
Enterprise integration	Enable businesses to integrate real-time 360 profiles with their enterprise's internal and customer-facing applications, analytical, statistical, and decision-based software, and machine-learning models.
Real-time, up-to-the-second 360 profile data	Enable nontechnical business users to create, refine, and leverage high-quality, up-to-the-second 360 Data in real-time.
Remove data silos	Provide consistent, reliable, real-time views of 360 profiles across the entire enterprise, minimizing the segregation of data into silos, making it easier to coordinate decisions across multiple business units and product groups.
Agility	Provide business users with the agility to directly configure how and when Active>360 processes their 360 profiles, and to self-deploy their profiles to production themselves, within minutes, rather than waiting hours or days for IT involvement.
Decision-making based on the most current data	Enable businesses to make decisions based on the most relevant, up-to-the-second 360 profiles rather than working from stale data.
Flexibility	Leverage data and events from any source, push or pull, synchronous or asynchronous, real-time or batch, traditional databases, cloud-based data lakes and databases, transaction processing systems, and Ab Initio technologies like Data>Catalog.
Always on performance	Perform aggregations and calculations in-memory for high performance, and maintain in-memory datastores and watched states to enable always on decision-making.

Example Active>360 use cases

Active>360 software is highly customizable, and configurations vary widely by business, products, and goals. This section describes example Active>360 use cases.

Telecommunications: Retaining prepaid mobile plan customers

Scenario

A telecommunications company provides prepaid mobile plans to mobile phone customers. In this company's market environment, customers with prepaid mobile plans are free to switch at will to plans offered by different plan providers — that is, customer mobile devices are not tied to particular telecommunications companies. A prepay customer can switch plan providers simply by swapping out a provider-specific SIM card in their mobile device. Consequently, an individual customer might have several SIM cards that they regularly swap in or out depending on which plan provider offers the best deal at *any given moment*.

Challenges

When it is time for a prepay customer to purchase a new bundle of services, the telecommunications company wants to retain that customer rather than lose the customer to another provider. This presents at least two challenges:

- To retain the customer, the company must be able to make an offer or series of offers that are attractive and relevant to the customer.
- To make attractive and relevant offers to the customer, the company must understand the customer's purchase history, usage patterns, communication preferences, and so forth.

Historical approach

Mobile plan providers have been facing these challenges for years. Historically, providers have made offers to customers based on stale data that has been generated in batch mode, and consequently might be a day or many days old. Because they are working from stale data, providers must calculate their offers in advance, which means that the offers might not be particularly relevant or attractive to the targeted customer.

Solution

Active>360 enables the plan provider to create relevant retention offers based on up-to-the-second subscriber data rather than days-old stale data. The provider can continue to use existing offer algorithms and decisioning systems, but enhance those algorithms and systems with real-time and near real-time information.

Finance: Breaking out of data silos

Scenario

A financial institution offers several tiers of consumer credit cards with different combinations of credit limits, interest rates, reward points, and fees. The financial institution has decisioning systems in place for point-of-sale credit authorizations, but their credit decisioning systems and data are entirely separate from their systems and data for generating credit card offers and related offers for other products.

Challenges

The financial institution wants to provide their sales teams with the kinds of real-time decisioning capabilities that are already in place for their credit authorization teams. More to the point, the institution wants to be able to integrate their consumer-credit authorization data and communication models with sales-oriented data and communications, but those data and models are maintained in separate silos.

For example, if a customer makes an unusually large purchase that brings their credit line close to their limit, the institution would like to combine the credit authorization action with the real-time generation of an upgrade offer specifically suited for that particular customer. Similarly, based on the customer's spending or employment histories, the institution might want to offer the customer personal-finance or investment products.

Historical approach

Financial institutions have long relied on real-time and near real-time point-of-sale credit authorization systems. By comparison, sales teams typically rely on data that is updated in daily or multiday batches, which means that those teams often make decisions and offers that are based on stale data.

Related to this, the decisioning systems for credit teams and sales teams are typically kept entirely separate, as are the mechanisms for communicating with customers.

Solution

Active>360 can consume synchronous and asynchronous data in real-time and batch modes, and uses Active>Data and Data>Catalog to enable real-time data integration across enterprise applications. The financial institution can continue to use their existing decisioning systems and communication models, but all teams can now work from the same real-time data.

Banking: Fraud detection

Scenario

A commercial bank with tens of millions of customers wants to minimize their exposure to consumer fraud and other financial risks. The bank must also comply with numerous privacy, anti-money laundering, anti-corruption, and tax compliance laws that are in force in the many jurisdictions in which the bank does business. The bank has over 100,000 bank-branded ATMs throughout the world. The bank is also part of a number of ATM networks that enable their customers to access ATM services at non-bank-branded ATMs and point-of-sale locations.

Challenges

The bank must be able to collect and act on up-to-the-second information about all their customers, and then zero in on relevant information about actions undertaken by individual customers. In terms of fraud detection and prevention, the bank must not only be able to watch for individual transactions that exceed one or more predefined thresholds, they must also be able to assess complex customer-behavior patterns, capturing potentially fraudulent behavior without generating false positives or unnecessarily inconveniencing their customers.

For example, if a customer's checking account is used to make multiple withdrawals at several different ATMs in a particular city, the bank must assess questions like the following:

- Were the withdrawals done in locations that are unusual for the customer?
- Were there other non-ATM transactions within a defined time frame in that same location?
- Were the transaction amounts at or near one or more defined thresholds?
- Were the withdrawal amounts unusually large for the customer?
- Did the withdrawals cause the customer's account to become overdrawn?
- Does the customer have a history of overdrawing their account?

Historical approach

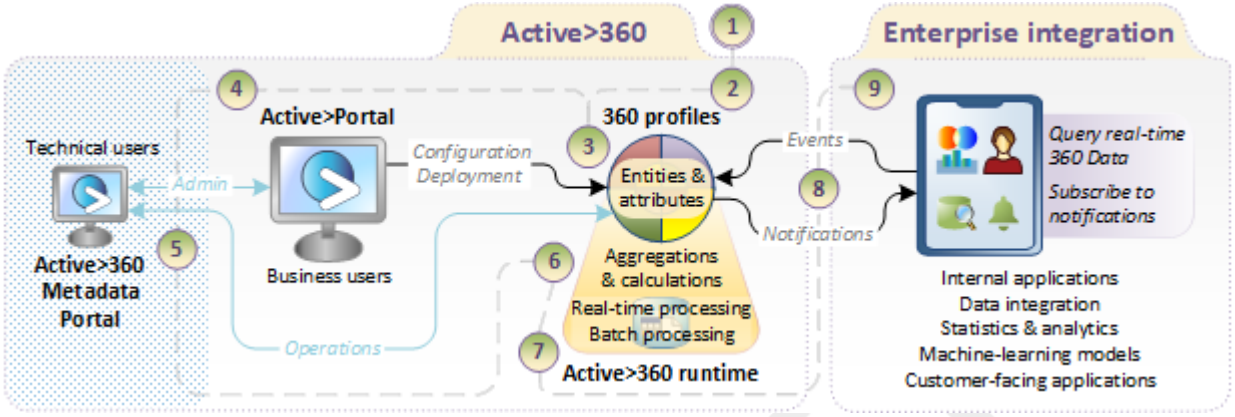
Much of the banking industry has various kinds of fraud detection systems and protocols in place. However, the effectiveness of these systems and protocols has depended on the capabilities of the bank's logic systems and machine-learning models to deal with increasingly massive volumes of rapidly changing data, and on the bank's ability to re-evaluate their systems in timely fashion as data flows and legal requirements change. Moreover, often uneven percolation of updates and re-evaluations across the enterprise has meant that different banking operations might be working from different sets of data and protocols.

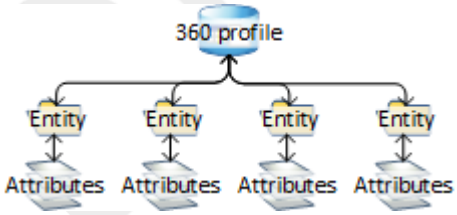
Solution

Active>360 leverages Ab Initio technology for very high-volume, high-quality, fault-tolerant data processing in real-time and near real-time. By using Active>360 for high-volume real-time data processing and real-time data sharing across multiple processing nodes and applications, the bank can feed and evolve their decisioning and machine-learning systems using the most current data possible.

Core Active>360 concepts

This section summarizes high-level concepts about how Active>360 works.



Concept		Summary
1	**Active>360**	*Active>360* is the name of both the software product as a whole and the name of the Active>360 runtime subsytem. The runtime subsystem contains the graphs, plans, transforms, and scripts that perform all Active>360 processing.
2	**360 profiles**	*360 profile* refers collectively to the profile data that Active>360 references, calculates, aggregates, and updates during processing. The main purpose of Active>360 software is to enable business users to configure, generate, and maintain 360 profiles with up-to-the-second accuracy and minimal IT involvement.
3	**Entities & attributes**	The primary data objects that make up 360 profiles are referred to as *entities*.  Entities can represent any person, object, or concept that you want to model in Active>360. For example, in a marketing context, an entity might contain information about a customer, an account, or a household. Individual entities are made up of *attributes*. Attributes define the characteristics, values, or behaviors of a particular entity. For example, if a particular entity represents a banking customer, that entity might contain attributes for things like customer name, account number, and average ATM withdrawal amount during the last 30 days.

Concept		Summary

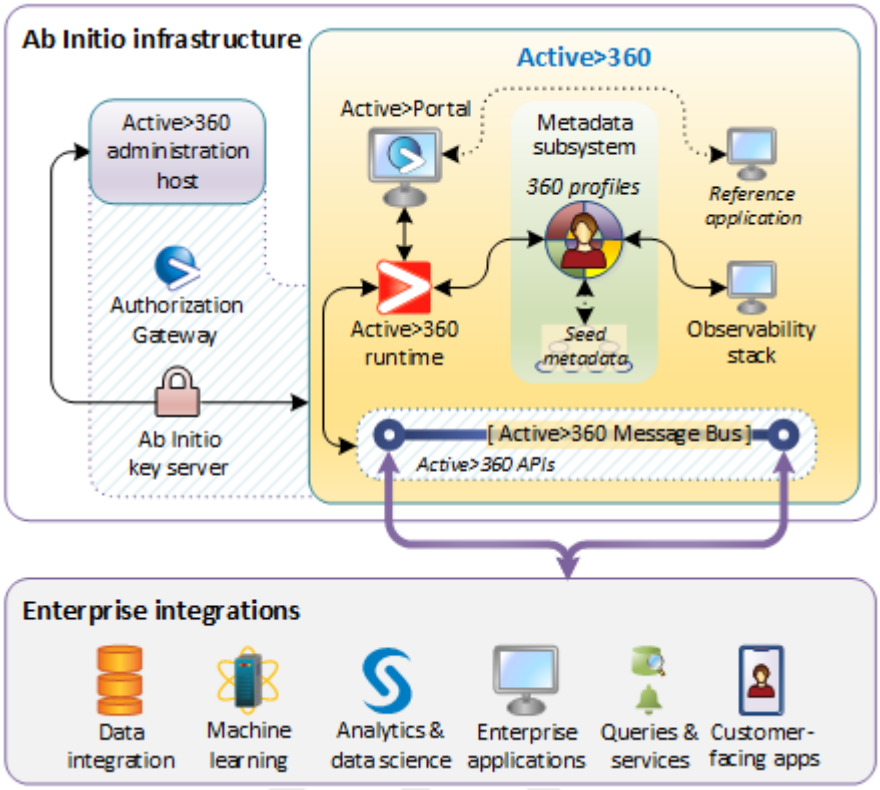
4	**Active>Portal**	The *Active>Portal* is the graphical user interface for Active>360. Business users can use the Active>Portal to do the following:
		• *Configure* Active>360 features and behaviors, including the following:
		  • **Business logic** — Defines logic that Active>360 uses to compute 360 profiles based on incoming *events* and outgoing *notifications*.
		  • **Watchers** — Trigger actions based on specific types of incoming events.
		  • **Technical triggers** — Are similar to watchers, but geared for more technical users.
		  • **Message definitions** — Define the formats for exchanging messages and data between Active>360 and other enterprise systems and applications.
		  • **Subsets** — Increase performance and produce targeted results by processing only particular subsets of 360 Data.
		• *Deploy* approved profile configurations directly to the Active>360 runtime subsystem without IT involvement or wait times.
		• *View* up-to-the-second Active>360 processing results.

5	**Active>360 internal datastore and Metadata Portal**	Active>360 entity data is maintained in an internal datastore that technical users can manage through a dedicated web application. The Active>360 internal datastore and bundled Metadata Portal are based on the full Metadata Hub product but are specifically implemented for exclusive use by Active>360.
6	**Aggregates & calculations**	*Aggregates* and *calculations* are entity attribute values that are computed by the Active>360 runtime subsystem, as follows: • **Aggregates** — Aggregates are attribute values that are accumulated over time or based on a history of events. For example, if you are tracking plan usage by a mobile plan customer, you might have aggregates for things like the average length of long-distance calls over the last 30 days, or the moment when the customer reaches a usage threshold that qualifies for a plan discount. • **Calculations** — Similar to aggregates, calculations are attribute values that are computed at a single point in time rather than accumulated over time. For example, for a banking customer, you might have calculations for things like the customer's current account balance, or the number of days until the customer's birthday.

Concept		Summary
7	**Runtime subsystem**	The Active>360 runtime subsystem contains the graphs, plans, transforms, and scripts that perform all Active>360 processing. Depending on the given processing task, Active>360 uses either of the following runtime modes: • **Real-time** — In real-time mode, Active>360 processes events as soon as they are received and updates the affected 360 profile entities and attributes as quickly as possible. This mode uses *Active>Data* to hold 360 profile data in-memory during processing for the fastest response times and up-to-the-second results. • **Batch** — In batch mode, Active>360 waits until a day's worth of events is received before processing. This can improve processing efficiency with certain types of calculations. Batch mode is also used for complex aggregations that would require too much memory to keep up to date in real-time. Unlike real-time processes, which provide up-to-the-second results, the sections of 360 profiles that are calculated in batch processes reflect the state of events only up until the previous calendar day.
8	**Events & notifications**	*Events* are incoming messages and data that are received and processed by the Active>360 runtime subsystem. Events are generated by applications, systems, or customer behaviors outside of Active>360. For example, an event might be generated when a mobile plan customer completes a telephone call, visits an account web page, or checks remaining plan minutes. *Notifications* are outgoing messages and data that are generated by Active>360 and made available to other enterprise applications and systems. For example, when a mobile plan customer's remaining plan minutes drop below 10%, Active>360 can publish a notification that is picked up by an enterprise application, which then pushes an SMS message to the plan customer. Different enterprise applications can *subscribe* to particular kinds of Active>360 notifications, so that a given application receives only relevant notifications.
9	**Enterprise integration**	*Enterprise integration* refers to any internal or customer-facing enterprise application, service, network, or data system that is not directly part of Active>360. Such integrations might generate events, receive notifications, or consume 360 profile data. Examples include the following: • Data integration, even data integration built using Ab Initio software, to send data into Active>360. • An Ab Initio graph that processes change data capture (CDC) events from a production dataset and turns them into Active>360 events. • A Java application that listens for certain kinds of notifications, and upon receiving a notification, sends out an SMS message. • A program that listens for particular notifications, recomputes a machine-learning model result for the affected customer, and then publishes an updated score back to Active>360.

Active>360 components and subsystems

This section summarizes the core, additionally required, and optional Active>360 components and subsystems.



Category	Component or subsystem	Description
Active>360 core	**Active>360 administration host**	The primary Active>360 infrastructure host; among other components, subsystems and utilities, the administration host contains the Active>360 cluster control engine, and the core Active>360, Active>Data, and API sandboxes. Most Active>360 administration tasks are performed from the Active>360 administration host.
	Co>Operating System environments	The Active>360 installer configures a dedicated Co>Operating System environment, as needed, on each target host on which Active>360 applications and jobs will run. Depending on the Active>360 installation configuration, the Active>360 installer will not necessarily install a Co>Operating System on all target installation hosts.
	Active>360 runtime subsystem	The runtime subsystem is the core set of Active>360 graphs, plans, transforms, formats, and scripts that process Active>360 entity data in real-time and batch modes.
	Active>Data cluster	Active>360 real-time runtime features are implemented in a dedicated Active>Data cluster. The Active>Data cluster control engine is located on the Active>360 administration host, and cluster engines can be distributed across one or more Co>Operating System hosts.
	Active>Portal web application	The Active>Portal is a web application that enables nontechnical users to configure how Active>360 entities and attributes are configured, organized and processed.
	Active>360 internal datastore and Metadata Portal	Active>360 entity data is maintained in an internal datastore that technical users can manage through the dedicated Metadata Portal web application. The Active>360 internal datastore and Metadata Portal are based on the full Metadata Hub product but are specifically implemented for exclusive use by Active>360.
	Active>360 message bus subsystem	The Active>360 message bus subsystem provides internal APIs and services for publishing messages and consuming notifications across Active>360 components and subsystems.
	Active>360 observability stack	The Active>360 observability stack is a dedicated set of logging, monitoring, and metrics applications to support Active>360 maintenance, tracking, and performance tuning.

Category	Component or subsystem	Description
	Ab Initio license keys	All Active>360 components and subsystems that require a Co>Operating System environment require corresponding Ab Initio host or user license keys. The Active>360 installer creates a license-key client, as needed, on each target Co>Operating System host. The license key clients installed by Active>360 connect to an existing license key server in the enterprise. Alternatively, Active>360 can use machine-key files on specified target Co>Operating System host.
Additionally required	**Authorization Gateway**	Active>360 requires an Authorization Gateway deployment for managing Active>Portal and Metadata Portal user groups and accounts. You can configure Active>360 to use an existing (for example, enterprise) Authorization Gateway or install the Authorization Gateway that is bundled with Active>360.
Optional	**Data>Catalog**	The Active>360 installer provides a set of Data>Catalog integration parameters that enable you to use an existing Data>Catalog deployment with Active>360. You can use Active>360 as a Data>Catalog data source and use Data>Catalog datasets as inputs for Active>360 ingested attributes.
	Control>Center	The Active>360 installer provides a set of Control>Center integration parameters that the installer can use to automatically create an Active>360-specific Control>Center authentication profile, configuration profile, bridge profile, system, application, and runtime profile. Using the Control>Center with Active>360is recommended but not required. You can use an existing Control>Center deployment in your enterprise, or you can install the Control>Center that is bundled with Active>360.
	Customer Interaction Platform (CIP)	The Active>360 installer provides a CIP integration parameter that enables you to import data and configurations from an existing CIP deployment.
	Active>360 Reference Application	The Active>360 Reference Application (RFA) is an example implementation that demonstrates interactions between an external application and Active>360.
	Active>360 seed metadata	The Active>360 seed metadata is an optional starter set of 360 profile entities and attributes.