

Using Altium Documentation

Modified by Jason Howie on Jul 23, 2018



A distinct design solution in its own right, the *Altium NEXUS Server* works in harmony with Altium NEXUS to provide an elegant answer to the question of handling design data with secured integrity. The Altium NEXUS Server not only provides rock-solid, secure storage of data, but also enables re-release of data as distinctly separate revisions - essentially tracking design changes over time, without overwriting any previously released data. It also caters for the lifecycle of the data to be managed, allowing people that need to use the data to see, at-a-glance, what stage the data has reached in its 'life' and therefore what it can be safely used for.

But the Altium NEXUS Server is used to store so much more than just the data generated from a board design. It is also used to manage all other sets of data obtained from the Design Area through the running of specific release processes. This includes the release of component definitions, domain models, schematic sheets of circuitry and design templates. Indeed, you can even create and manage your entire design projects directly within the server, with the additional benefit of collaboration support, meaning an entire team can work concurrently on the same board design - even annotating the design with comments. You can even control the working environments of your designers - ensuring that company-wide design standards are enforced and adhered to.

By furnishing a set of reusable design 'building blocks' within the Altium NEXUS Server, you can embark on fresh projects safe in the knowledge that each model, component, and higher-order design element has been ratified and approved for use, with no having to reinvent the wheel as it were. The server becomes both the source and destination of design elements, with each new design utilizing elements released to, and managed through, the server. And by designing only with elements from the Altium NEXUS Server, the integrity of those designs is inherently assured.

Read about [Installing the Altium NEXUS Server](#). Read about [Getting Your Altium NEXUS Server Licensed](#). Read about [Details for IT Departments](#).

Server Items



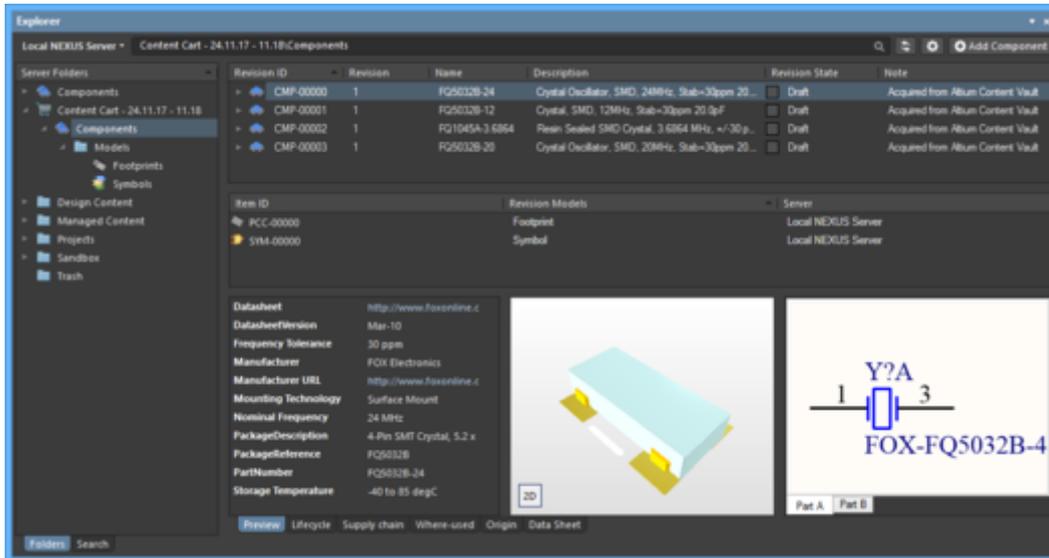
Within the Altium NEXUS Server, each design entity that can be stored, managed, and reused, is represented as a specific type of *Item*. An *Item* is uniquely identified within the server and can contain any number of *Revisions*, where a revision contains the data for that *Item*. Each time a change is made to the data contained within a revision - which for most *Item* types can be edited directly within an associated temporary editor - it is committed (or re-released) into a new revision of that *Item*, ensuring that no existing revision can ever be overwritten, and thereby ensuring the highest integrity.

An *Item* can have any number of revisions, which are essentially an evolution of that *Item* over time. A change is made and the new data content is committed/uploaded/released into a new revision. The data stored in each revision of an *Item* is therefore typically different. To identify between these different revisions of an *Item*, a revision identifier (ID) is used, which in combination with the *Item* ID creates a unique identifier for each release of an *Item*. This gives us the *Item-Revision*.

Another important aspect of an *Item Revision* is its *Lifecycle State*. This is another identifier that can be used to quickly assess what stage that revision has currently reached in its *life*, and what designers are therefore authorized to do with it. Where the *Revision* reflects design changes made to the *Item*, the *Lifecycle State* reflects the state of the *Item* from a business perspective, such as *Planned*, *New From Design*, *For Production*, *Obsolete*, and so on.

Read about [Server Items](#).

The Explorer Panel



Providing the direct interface to your Altium NEXUS Server is Altium NEXUS's [Explorer panel](#). From this panel you can perform many activities, including:

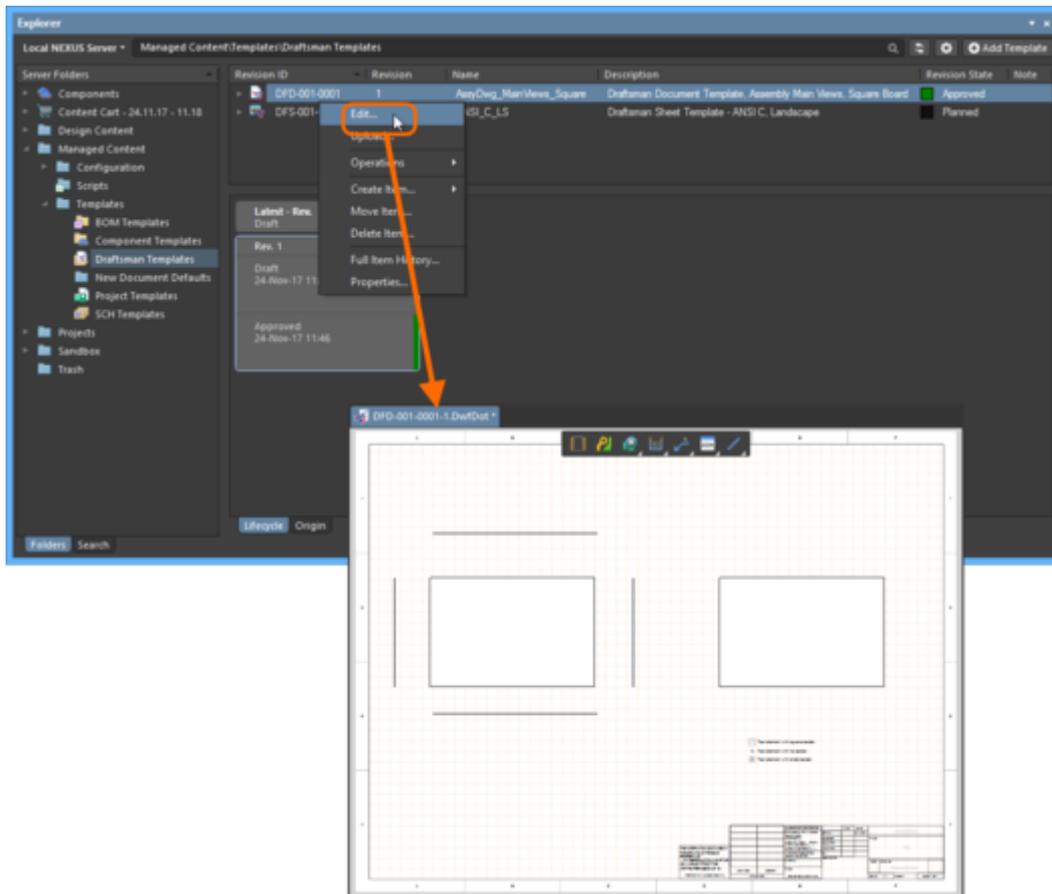
- Creating and managing the organizational structure used in the server.
- Creating any number of Items, each representative of a design object.
- Direct editing and placement of Item Revisions.
- Reviewing and managing the lifecycle of Item revisions.
- Interrogating the usage of a particular Item revision (Where-Used).
- Browsing and managing supply chain information for Component Items.
- Downloading stored data, including data generated through the managed release of board design projects.

The *Explorer* panel becomes your trusty right-hand, presenting a collection of features that can really enhance your productivity when working with the Altium NEXUS Server through Altium NEXUS.

And while the majority of your day-to-day working with the Altium NEXUS Server will be through the *Explorer* panel, there will also be occasion when you need to interact with the server through its browser interface - especially for administrative purposes. For more information, see [Browser-based Access & Management of an Altium NEXUS Server](#).

Read about [Working with the Explorer Panel](#).

Direct Editing



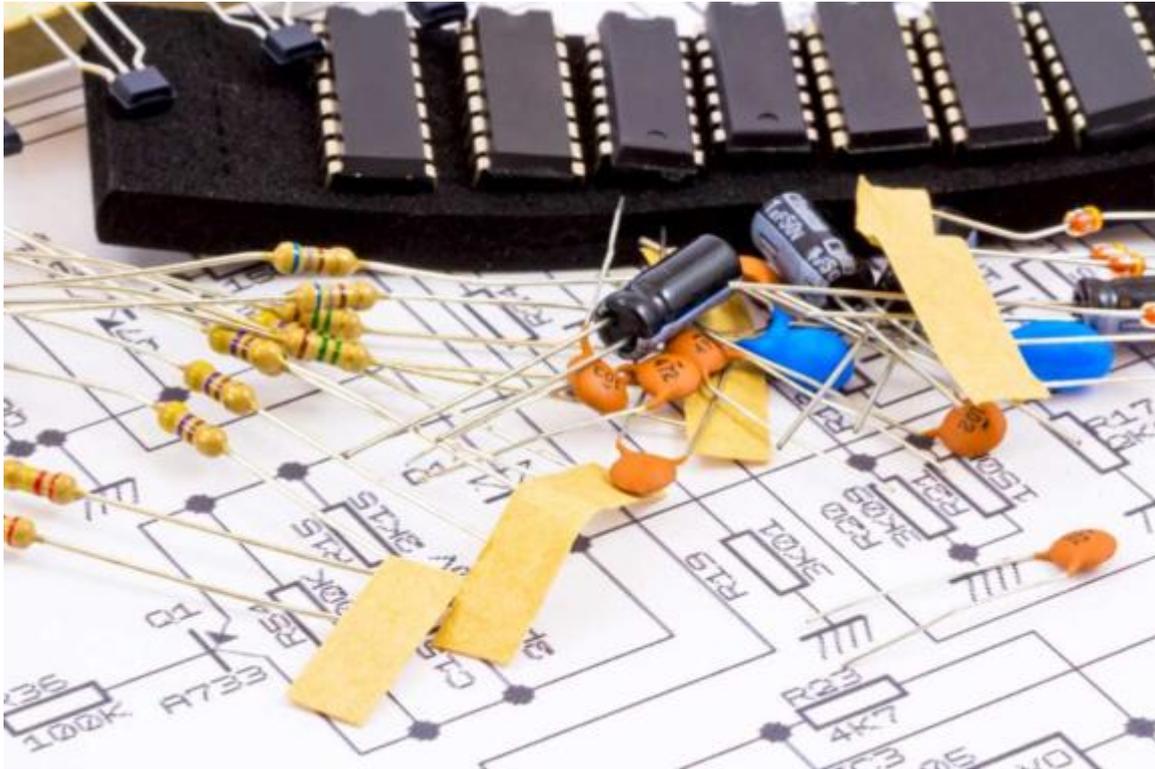
The Altium NEXUS Server provides a flexible and secure method of centralizing the storage and management of all types of design data used in Altium NEXUS. From the schematic model to the component, from managed sheets through to completed PCB designs, the Altium NEXUS Server delivers an ideal method of storing and managing your electronic design data.

Many design entities can be edited and released into the initial revision of a corresponding, and newly-created server Item, courtesy of the server's support for direct editing. Direct editing frees you from the shackles of separate version-controlled source data. You can simply edit a supported Item type using a temporary editor loaded with the latest source direct from the server itself. And once editing is complete, the entity is released (or re-released) into a subsequent planned revision of its parent Item, and the temporary editor closed. There are no files on your hard drive, no questioning whether you are working with the correct or latest source, and no having to maintain separate version control software. The Altium NEXUS Server handles it all, with the same great integrity you've come to expect, and in a manner that greatly expedites changes to your data.

And at any stage, you can come back to any revision of a supported Item in the server, and edit it directly. Simply right-click on the revision and choose the **Edit** command from the context menu. Once again, the temporary editor will open, with the entity contained in the revision opened for editing. Make changes as required, then commit the release of the document into the next revision of the item.

Read about [Creating & Editing Items Directly through a Server](#).

Managed Components



Altium NEXUS, with its unified design approach, has traditionally used a component model that extends across all aspects of the electronics design process. However, to seamlessly fit the process of electronics design into the encapsulating product development process as a whole, this model needs to evolve - extending to cover other aspects including other design processes (in particular MCAD and Industrial Design), as well as business processes (such as procurement and manufacturing) that intersect with the product development process.

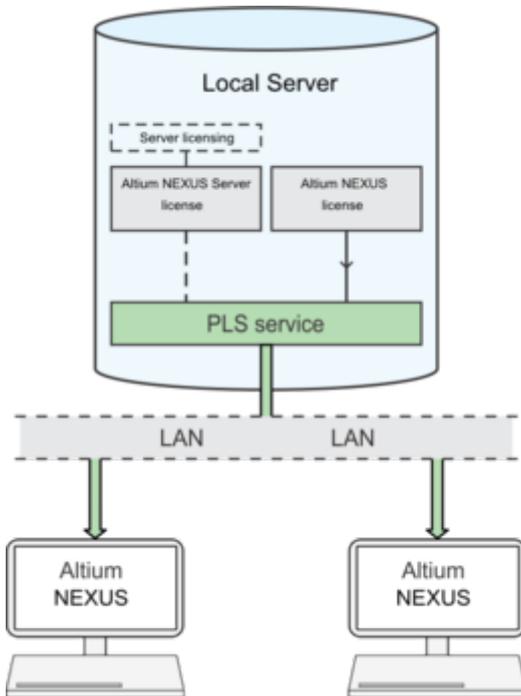
This evolved object model is known as the *Unified Component Model*.

Under this modeling paradigm, the design component, as seen by the designer, is separated from the Manufacturer and/or Vendor parts. This information is not defined as part of the component. Instead, *Part Choices* are used to map the design component to one or more Manufacturer Parts, listed in a *Part Catalog*, which in turn can be mapped to one or more Vendor parts, allowing the designer to state up-front, what real parts can be used for any given design component used in a design.

These components, along with their part choices, are stored in the Altium NEXUS Server. A component is stored as a series of revisions of a uniquely-identifiable Component Item. Each revision is lifecycle-managed, providing collections of certified components, authorized to be re-instantiated into new design projects, manufactured into prototypes, or used for production runs. In short, a catalog of components implemented through server-based 'libraries'.

Read about [Working with Managed Components](#).

Private License Service



For organizations that require their Altium NEXUS installations to remain offline - isolated from the internet - the convenience and flexibility of on-demand software licensing can be provided by a localized *Private License Server*, rather than from the internet-based Altium Licensing Service. The Altium NEXUS Server installation provides just the ticket, through its local Private License Service. It can be configured as a central, or local License Server, and can serve both Altium NEXUS and Altium NEXUS Server licenses over a local network. In addition, a server administrator is able to take full control over the offline leasing of license seats, configure licensing for use by specific roles, and configure a license for Roaming, and much more.

The server's PLS can be configured and used in different modes of operation, as summarized below:

- **No PLS mode** - the server's standard configuration, where its acquired licenses are not made available (served) on the network.
- **Local PLS mode** - both Altium NEXUS and Altium NEXUS Server licenses that have been acquired by the server are served over a network by the server's (local) PLS service.
- **External PLS mode** - the server connects to, and uses, an external PLS service (such as a remote server PLS that has been set up as a central license server) in place of its own PLS service.

Read about [Private License Service](#).

Local Version Control Service



The Altium NEXUS Server installation includes an SVN server (version 1.8). It provides version control possibilities right there where you need them, locally, without searching or paying for external SVN management software.

There are two key advantages over the standard SVN built in to Altium NEXUS (or sourced externally):

1. You have common users and rights management for both the Altium NEXUS Server and SVN. When you sign in to the Altium NEXUS Server, the local SVN version control service works with your session/credentials.
2. Repositories defined through the Altium NEXUS Server (through the **VCS** page of the server's browser-based interface) are populated to the client automatically during login, so users do not have to worry about urls, protocols, password etc. It is simply configured once, on the server, and shared with the intended users as required.

By defining design repositories in this centralized fashion, an organization can fully control which repositories its designers can access and use. Repositories can be created through the local SVN server, or external repositories can be connected to. Together, all repositories are centrally managed through the server's browser-based interface, in terms of:

- Their displayed name and description.
- Their configured accessibility - which specific users can access them (or roles in the case of repositories defined through the local SVN server).
- Their availability - add or remove them centrally, rather than individual designers having to create and connect to repositories independently.

Two default Design Repositories are available, named `DefaultRepository` and `Versioned Storage` respectively. You can rename and manage user access to the `DefaultRepository` as required (or delete it). The `Versioned Storage` repository cannot be renamed, shared, or removed. It is integrated storage used for managed projects, based on GIT support.

Read about [Local Version Control Service](#).

Centralized Project Management



The Altium NEXUS Server, in conjunction with Altium NEXUS, brings support for *Managed Projects*. Managed Projects target the development stage of the project lifecycle, simplifying the creation and ongoing workflow for version controlled projects. Centralized storage under the control of the Altium NEXUS Server also enables this feature to be a foundation for other collaborative services.

Some key benefits to using Managed Projects are:

- Simplified storage. No need to make decisions about storage locations. Backup and other basic services are taken care of.
- Foundation for collaborative features.
- Enforced version control.
- Beneficiary of a dedicated commenting system.
- Notifications and status. Document status including local modifications is visible to entire design teams.
- Concurrent PCB design works without any complex setup.

Management is performed through the **Projects** page of the server's browser-based interface. New Managed Projects can be created through this interface, or through the [New Project dialog](#) in Altium NEXUS. Alternatively, an existing, non-managed project, can be quickly [converted to a Managed Project](#).



The beauty of Managed Projects is that they are version controlled by default, and can be collaboratively worked upon without having to worry about shared drives, servers, agreements etc. Version control is handled courtesy of the Altium NEXUS Server's local SVN version control service.

Read about [Managed Projects](#).

Centralized Supply Chain Management



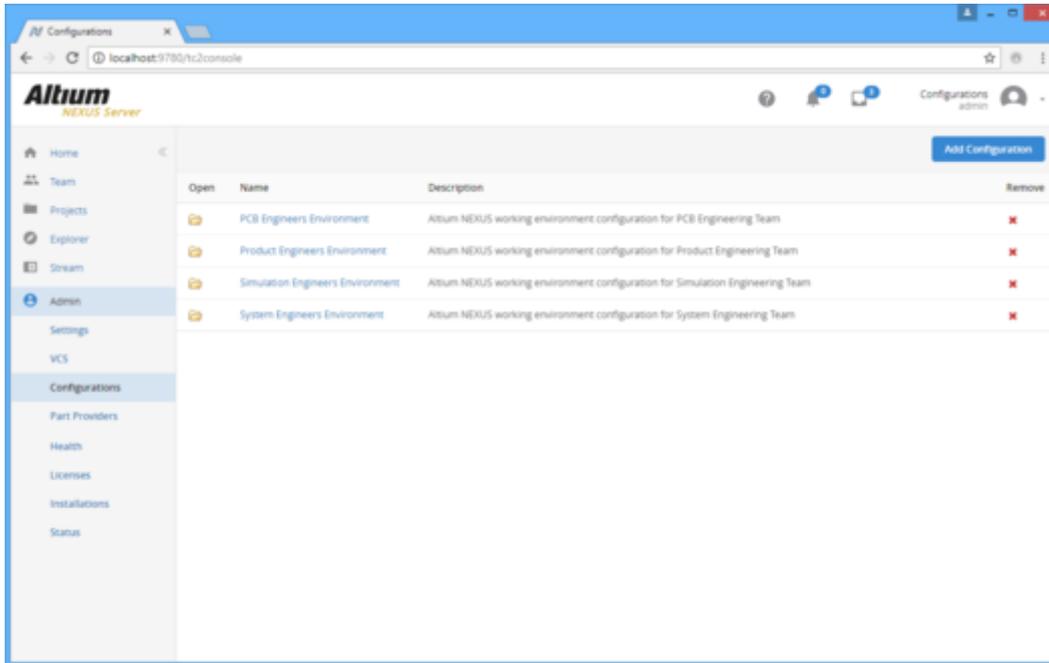
Each Altium NEXUS Server instance has its own dedicated *Part Catalog*. This is a managed local part catalog database, dedicated to the management and tracking of manufacturer parts and their associated supplier parts. The catalog is installed as a service (*Part Catalog Service*), provided through the Altium NEXUS Server platform, and works only with the Altium NEXUS Server.

The local Part Catalog stores items representative of actual Manufacturer Parts, along with one or more items representative of Supplier Parts - the incarnations of those Manufacturer Parts, as sold by the Suppliers/Vendors. Each Supplier Part is a reference to an item in a parts database - either the aggregate parts database of the **Altium Parts Provider** (which itself interfaces to, and gathers the parts from, enabled Suppliers), or a linked local parts database (ODBC-based).

Which Supplier Databases are actually used - a list of *Approved Suppliers* - is managed by the Altium NEXUS Server, through the **Part Providers** page of its browser-based interface. This facilitates centralized supply chain management, with designers across the entire organization using the same approved list of Suppliers, with which to source supply chain intelligence for parts used in their designs.

Read about [Supply Chain Management](#).

Configuration Management



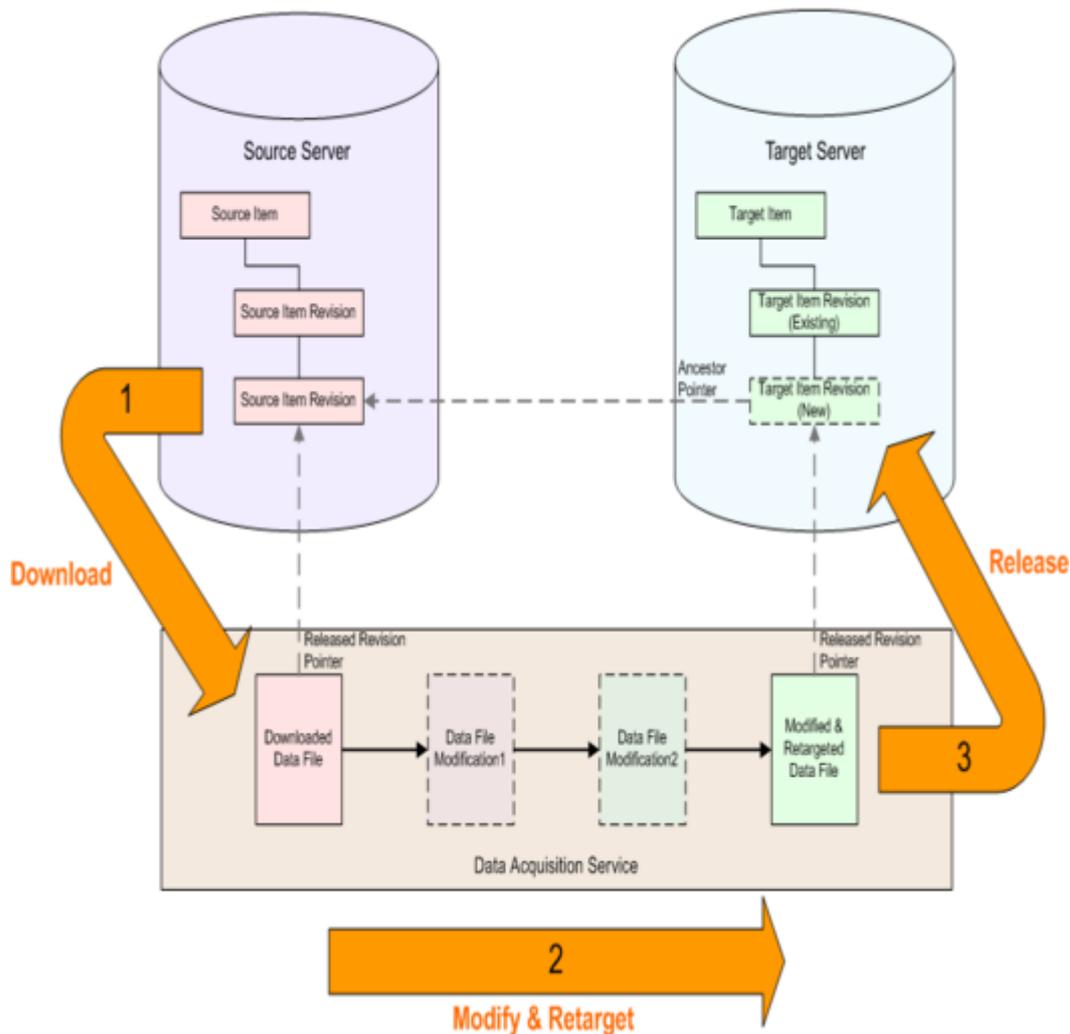
Facilitating enterprise-level enforcement of a designer's work environment - to ensure that they are following the required standards expected by that organization for design, documentation and production - the Altium NEXUS Server installation provides the *Team Configuration Center*.

The role of the Team Configuration Center is to give the organization centralized control over the environment its designers operate in. It achieves this through the definition and management of *Environment Configurations*. These are used to constrain each designer's Altium NEXUS working environment to only use company-ratified design elements, including schematic templates, output job configuration files, workspace preferences, and so on. In other words, it facilitates *Centralized Environment Configuration Management*.

Any number of environment configurations may be defined through the Center's dedicated browser-based interface. The data used and enforced by each configuration - referred to as *Configuration Data Items* - are sourced from the Altium NEXUS Server. And by associating each environment configuration with a specific user role, and in turn assigning users to those roles, the correct working environment is loaded into Altium NEXUS as soon as the user signs in to the Altium NEXUS Server. Using this role-based approach ensures that a designer always gets the setup they are entitled to, no matter whether they have their own PC, or are sharing a single PC with fellow designers.

Read about [Environment Configuration Management](#).

Data Acquisition



Altium facilitates the ability for an organization to copy the content they need, between nominated source and target managed content servers - a process referred to simply as *Server Data Acquisition*. By acquiring design content, ownership is placed firmly in the hands of the receiving organization, who are free to make local modifications and maintain the content as they desire moving forward. And by keeping a link between the acquired data and its original source, intelligent handling of the data can be performed, including notification when the source of any copied content is updated. And no matter if additional releases have been made to an item locally, there is always the possibility to revert to a previous revision from the original source server - all by keeping a link back to the item's original source, or *Origin*.

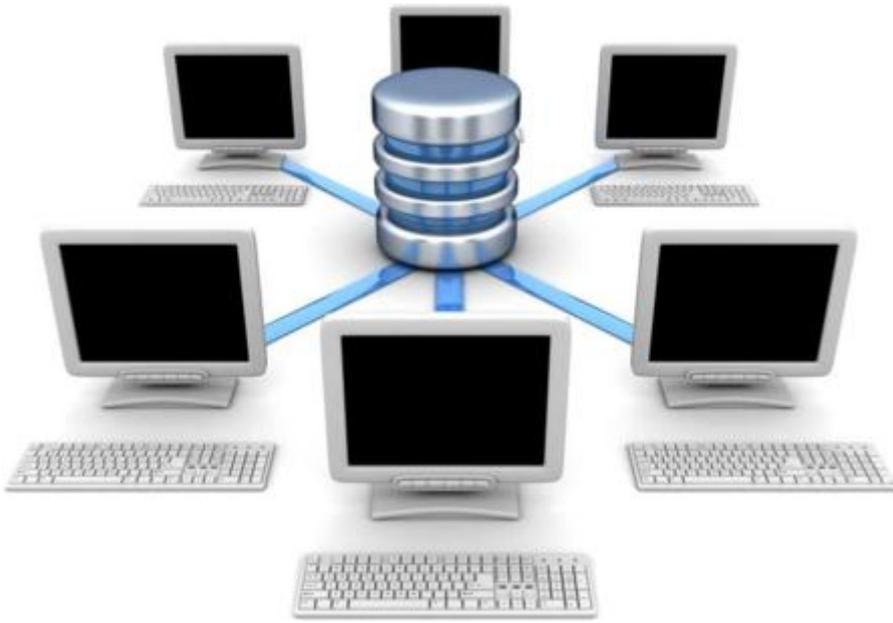
Acquisition is performed using the [Content Cart dialog](#). Access to this dialog is made from within the [Explorer panel](#). While browsing the source server from which you wish to obtain data, simply right-click on the revision of a supported Item type that you wish to acquire (or a folder of components, for example), and choose the **Add to Content Cart** command from the context menu.



Data Acquisition offers the perfect solution to obtaining content from the [Altium Content Vault](#) and delivering it to your local Altium NEXUS Server.

Read about [Data Acquisition Service](#).

Network Installation Service



The Altium NEXUS Server platform provides a dedicated *Network Installation Service*. This service, allows an organization to perform installations, or updates to Altium NEXUS, over their local network. The main goals of the Network Installation Service are:

- To improve speed of updates - people will download data inside of the local network.
- To remove dependency on Internet access for update functionality - it could work in isolated networks, without access to global internet.
- To provide the ability to control versions and updates in a centralized way.
- To support performing push installations, using Microsoft's *Active Directory Group Policy*.

The service is accessed through the **Installations** page of the server's browser-based interface. Typically you would acquire the products and extensions that you need from Altium's Cloud Repository into your local Altium NEXUS Server, then craft a deployment package for installation across your network. Subsequent updates can be configured automatically, or handcrafted manually for ultimate control over what gets installed on your designer's machines.



As well as being able to download and store products and extensions inside your local Altium NEXUS Server, you can also use this interface to download products and extensions outside of the Server. This ability is included so that you can easily copy an installer onto a portable drive or optical disk, for those situations where the target PC is not accessible over your Local Area Network.

Read about [Network Installation Service](#).

Backup and Recovery



Over time, your Altium NEXUS Server will accommodate a growing, and impressive amount of data. The value of this data cannot be overstated, for it is a mixture of source data that can be re-used in future design projects, as well as data from which past, current, and future products are fabricated and assembled. It is data that has been released and ratified under the highest scrutiny, and stored securely with the upmost integrity. And as with all valuable data, longevity of its integrity is ensured by being able to perform a backup.

The Altium NEXUS Server installation caters for the archival of your server data through the provision of a command-line-driven *Backup & Restore* tool. The tool's executable - `avbackup.exe` - is located in the `\Program Files (x86)\Altium\Altium NEXUS Server\Tools\BackupTool` folder, for a default installation of the Altium NEXUS Server.



Backup and restore using this tool is currently only supported for an Altium NEXUS Server installation using a Firebird database as its back-end.

Read about [Backing up and Restoring Your Altium NEXUS Server Installation](#).

Source URL: <https://www.altium.com/documentation/display/ADES/Altium+NEXUS+Server>