



**TRANSLATION
WORKSPACE™**
from Lionbridge

Translation Workspace Technical Overview

Revision 1.2
December 5, 2014

A Comprehensive Environment for the Translation Ecosystem

Introduction

In today's language services market, both service providers and enterprise customers are increasingly turning to new technology solutions for cost reduction, quality control and process management. Traditional desktop and client/server language technology solutions are simply not scalable enough to support a global supply chain that relies on real-time access to translation memory (TM) and glossary assets. All participants in the global language services market can benefit from tools that streamline the outsourcing process and deliver real efficiencies, allowing contract contributors to be sourced faster, projects to be completed more efficiently and increasing the value of language assets over time.

The Translation Workspace from Lionbridge responds to these challenges with the industry's first and only comprehensive, sophisticated work environment to streamline the translation process for agencies, freelance service providers and enterprises. Employing an efficient software-as-a-service (SaaS) architecture and offering the broad range of features that translation professionals need, Translation Workspace delivers advanced live language asset functionality in a high-performance environment that is easy to adopt, administer, and use. What's more, Translation Workspace is available in a pay-for-use subscription model that delivers immediate value and meaningful, measurable return on investment.

Translation Workspace builds upon and extends the advanced, internet-enabled translation memory technology already proven on many of the most complex translation projects at Lionbridge with clients and translators worldwide.

As the industry's most advanced Live Assets™ system, Translation Workspace allows users to create and manage TM and glossary assets in a secure, online environment, and provides advanced file filters, rich translation clients and a sophisticated Web-based review portal. Subscribers can share their TMs, glossaries and review packages through Asset Aliasing™ with other subscribers, enabling global virtual teams to collaborate on projects in real time, without having to exchange large data files or synchronize static TMs.

As a SaaS solution, Lionbridge hosts and maintains the system in a secure, third-party datacenter, guaranteeing uptime and maximizing business continuity with an industry-leading service level agreement. Subscribers also benefit from automatic updates, as the system pushes a steady stream of new features, avoiding the complex and expensive upgrade process characteristic of so many traditional desktop tools.

Translation Workspace is based on a solid ten-year foundation of research and development. Leveraging the same core Logoport technology used for years in production at Lionbridge, the system brings all the value and functionality available in Logoport, as well as a number of innovative, new features. This overview provides a more in-depth look at the technical underpinnings of the system, covering functionality, infrastructure and subscription management.

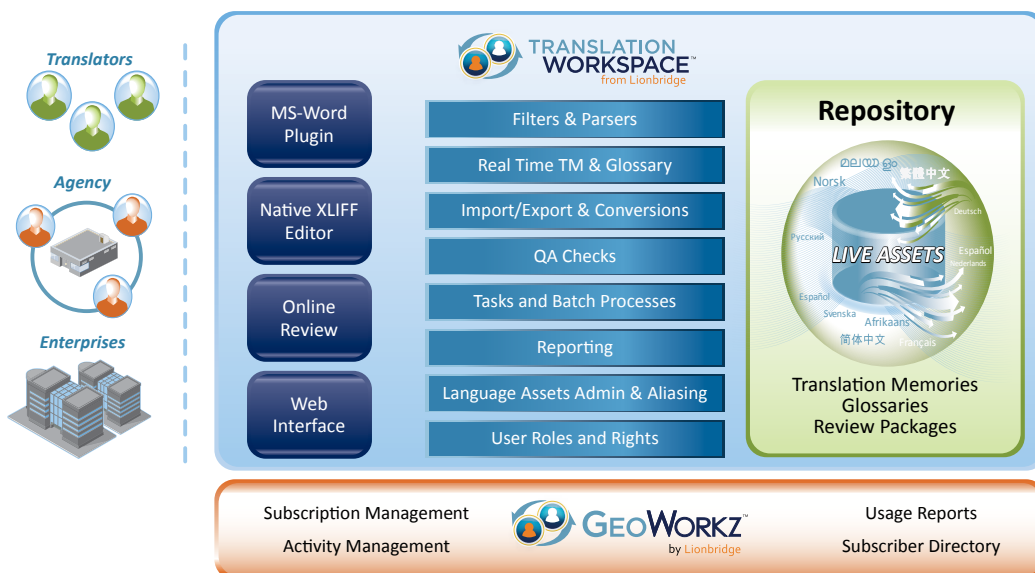


Figure 1 Translation Workspace – Live Assets for Scalable Global Collaboration

Translation Workspace Functionality and Key Technical Attributes

Language Asset Management

Translation Workspace is first and foremost a language asset management system, providing subscribers with state-of-the-art tools for creation, maintenance, sharing and optimization of Translation Memories (TMs) and glossaries.

Live Assets™

Live Assets are self-maintaining, internet-accessible Translation Memories (TMs), glossaries and review packages in Translation Workspace that can be updated and accessed in real-time by any authorized subscriber-members of a global translation project team.

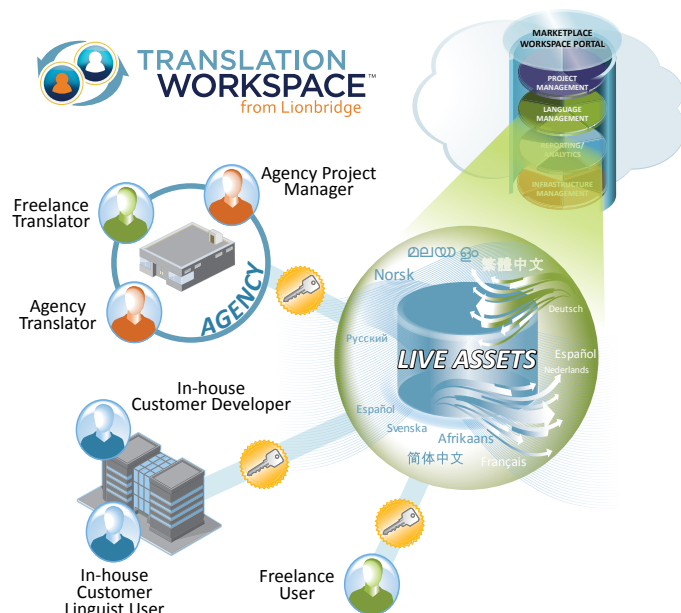


Figure 2 Live Assets Streamline Production Across Virtual Teams

TM and glossary assets can be imported and exported in standard formats for interchange or offline archiving. Live Assets are stored centrally on Translation Workspace servers and can be shared between subscribers based on explicit permissions—freelancer to freelancer, agency to freelancer, and enterprise to agency.

All changes to these shared assets—from any authorized user—are immediately available to all other authorized users. Translation Workspace delivers near-zero latency between server-based assets and remote clients, with response times measured in milliseconds. That means that all team members have anywhere/anytime access to the latest TM, glossary and linguistic review assets, eliminating the painful and time-consuming reconciliation phase later in the production process. With large, globally-distributed translation teams, Live Assets contribute to consistent quality, lower costs and faster production cycles.

TM and Glossary Linkage, Sequencing and Partitioning

Both language professionals and enterprises with significant translation volumes typically create large numbers of translation memories—for specific customers, projects, departments, product lines, and so on. Translation Workspace allows subscribers to associate translation memories and glossaries and create prioritized sequences for use during automated pre-translation and interactive translation. These sequences produce massive reference repositories from different sources, while keeping the individual repositories strictly separate.

Background-linked and sequenced resources are prioritized by penalizing less reliable or relevant resources or adding premiums to higher-value assets, all in an effort to provide translators with the most reliable and highest-quality matches. Subscribers can even link individual working memories from different stages or components of a multi-part project. Translation Workspace TM premiums and penalties ensure that the version of a translation from a more advanced or significant project component—such as a software interface—overrides versions from trailing stages or subordinate components—such as user documentation or help.

In-Context Matching

Translation Workspace provides in-context matching which stores and recalls the information from segments immediately preceding and following the current segment to translate. Context matching stores in the TM, along with the actual translation of the sentence, a computed value based on the text surrounding each segment of a document. This allows translators to differentiate between identical source strings that are used in different ways—as a title, as an instruction in a bulleted list, in the body of the text, and so on. Context Matches are given a premium above exact matches, and can be locked after pre-translation, allowing the Word plug-in and XLIFF Editor client applications to skip over them during interactive translation. Context matching is essential to producing highly accurate translations of legacy material, exposing possible inconsistencies early in the translation process, saving time and reducing edit and review cycle costs.

A Comprehensive Environment for the Translation Ecosystem

Asset Aliasing™

Translation Workspace enables globally distributed, independent subscribers to easily and efficiently collaborate on projects in real-time as virtual teams, sharing TMs, glossaries and review packages in a controlled, secure manner. For instance, a large or mid-sized multilingual service provider that has a large project to complete might provide TM access (with time-limited boundaries) to a couple of smaller agencies or single-language vendors, who are also Translation Workspace subscribers. These agencies could in turn subcontract part of the work to a number of freelancer subscribers, and provide access to the same assets for the duration of the project.

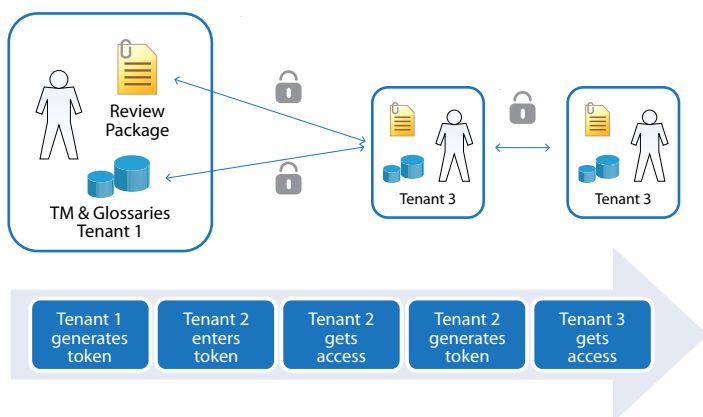


Figure 3 Asset Aliasing

In this scenario, the original large agency subscriber who first aliases the assets will not see the identities of the freelance subscribers who are granted access by the smaller agencies. The freelance subscribers will similarly not know the identity of the large agency. In this way Asset Aliasing facilitates sharing between subscribers, but also preserves the traditional upstream and downstream anonymity of the supply chain.

What is an Asset Alias?

An asset alias is a special kind of real object acting as a pointer to another object. It doesn't contain content itself. The content always lives in the original object. It can have its own properties independent of the origin object, including permissions. Aliases can be unlimited in number and they can live anywhere. Deleting an alias doesn't delete the original object, but deleting the original object makes an alias useless. In these respects, an alias is like a file shortcut in Windows.

Translation Editing and Review Tools

Translators can connect to server-based Live Assets through two different translation environments that are included in a Translation Workspace subscription. Both environments are installed locally on a translator's desktop or laptop computer, and connect to the Translation Workspace server for TM and terminology access. Both translation environments can be quickly downloaded, have minimal system requirements, and can receive updates automatically when connected to a subscriber's server.

Microsoft Word Plug-in

The Translation Workspace Word plug-in client is a Microsoft Office add-in that integrates seamlessly into Microsoft Word, allowing users to translate, pre- and post-process files and perform analysis operations in a familiar environment. Many translators prefer working in Word in order to leverage customized spelling dictionaries, grammar checking functionality, productivity utilities and automation (special purpose add-ins, macros, etc). For users who are already heavily invested in Word as their primary editing environment, this solution is ideal.

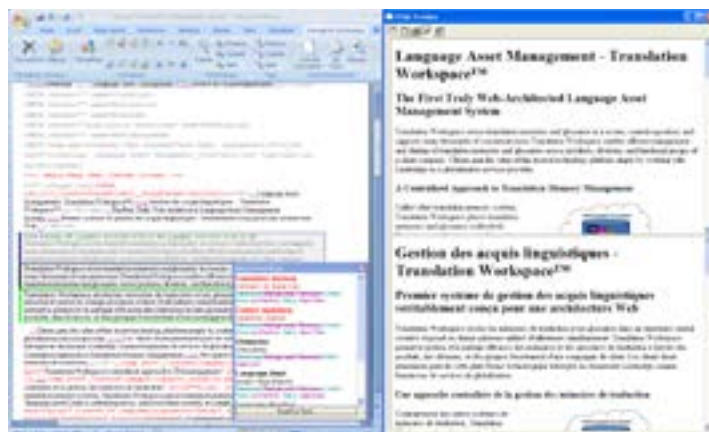


Figure 4 Translation Workspace Word Plug-in, showing preview window and terminology window

Users can take advantage of keystroke-based segment editing functions for faster translation. Integrated terminology lookup allows users to see term suggestions from accessible glossaries in a floating window. Built-in QA tools alert users of common errors dynamically as they are discovered during the translation process. For certain file types, users can generate WYSIWYG preview of files as they work on them.

XLIFF Editor

The Translation Workspace XLIFF Editor is a self-contained translation editing environment that allows users to work directly on XLIFF content, providing tag protection, expanded/collapsed tag views, metadata storage, and integrated QA and spelling functionality.

The XLIFF client features a configurable editing interface and a variety of pre- and post-processing functions. An intuitive Markup Language Assistant provides interactive, visual filter definition capabilities, as well as support for powerful XPath expression building.

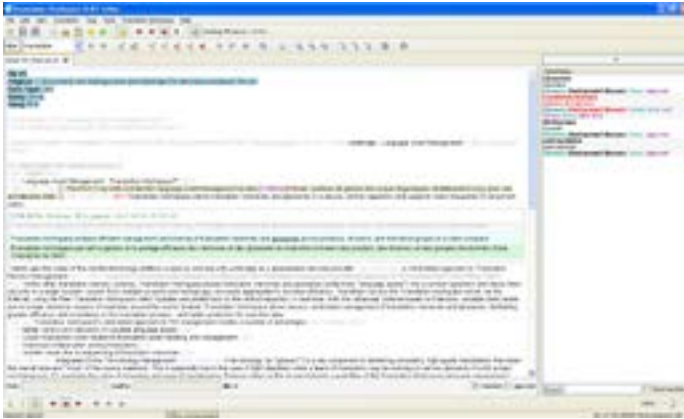


Figure 5 Translation Workspace XLIFF Editor

Online Review Client

In-market review by subject matter experts or legal resources can be time-consuming and expensive. Translation Workspace allows subscribers to create review packages out of files that have been translated, and then assign the packages to reviewers using Asset Aliasing functionality. Packages can have background linked TM and glossary assets for reference and update in the review process, as well as custom quality assurance models with defined error categories for reviewers to apply to segments.

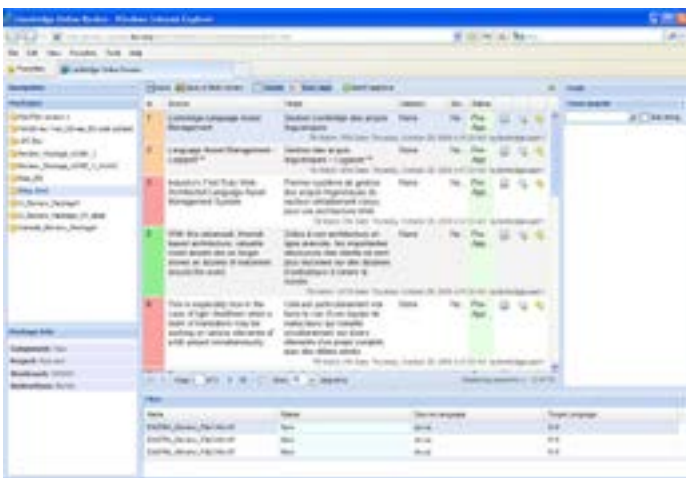


Figure 6 The Translation Workspace Online Review Client

Reviewers access their assigned packages through the Translation Workspace Online Review Client, an intuitive Web-based interface for users who have little or no experience with translation tools.

The Online Review Client displays source and target segments side by side, with versioning history on a segment level, and allows users to add comments, make changes directly to translations and rate translations based on linked quality models provided by the package creator. When finished, reviewers can simply approve one or more packages with a mouse click. Package creators can then generate review reports and post-process reviewed files. With nothing to install and minimal new functionality to learn, reviewers can complete their tasks quickly, reducing friction in the review cycle.

Translation Workspace Tools

The Tools client allows users to perform batch tasks on files and assets. Some of the tasks are also available through the translation editing environments, as well as through the Web interface.

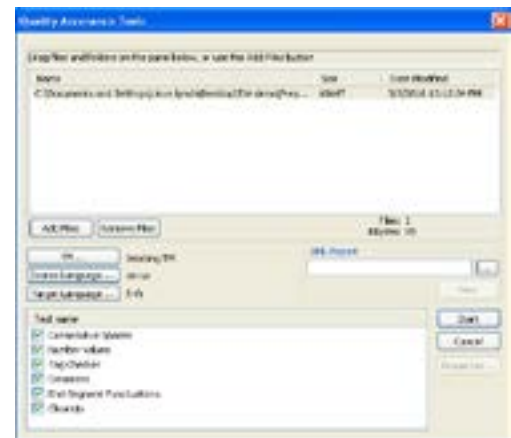


Figure 7 Automated QA checks through the Translation Tools

Through the Tools client, users can run pre-production and post-production tasks, like file format conversion and back-conversion, analysis, pre-translation, isolation of unknown segments and quality assurance operations. Users can also edit their TMs from the Tools client, import and export TMs, and configure attribute sets on TMs.

Infrastructure

The Translation Workspace is built on a world-class technology foundation, and resides in a tier-1 datacenter, which provides maximum security and availability for transactions and data. Lionbridge offers a best-in-class service level agreement (SLA), with uptime guarantees and ample protection against service interruptions and data loss.

As a pure SaaS application, all users are on one single, internet-based platform. This is the concept of multi-tenancy – where users have their own private areas on a shared technology environment.

A Comprehensive Environment for the Translation Ecosystem

Streaming Updates

In addition to eliminating the need for heavy in-house infrastructure, Translation Workspace also does away with costly, time-consuming upgrades and maintenance. As they become available, new enhancements and features are pushed automatically and simultaneously across the platform.

Scalability and Performance

With over a decade of research and development, and over five years of high-volume production throughput at Lionbridge, Translation Workspace has proven scalability to support the largest translation projects. Today, Translation Workspace manages more than 2 billion words in language assets for more than 700 Lionbridge customers, and 60 million words are translated interactively every month. The system has more than 19,000 registered users, with up to 2,000 translators active daily. Translation Workspace effortlessly handles 200 million SQL queries every day, and delivers average TM and term responses of 80ms via patented caching technology optimized to work seamlessly even over low-bandwidth connections.

Data Center

In a SaaS environment, the quality and security of the hosting facility is a critical consideration for customers, and a key system differentiator. Translation Workspace is hosted in a third-party, top-tier enterprise data center, located in a non-advertised, remote location. The data center provides 24/7 on-site security personnel, biometric access controls and redundant firewalls. All network connections are redundant, and application servers are load-balanced for maximum business continuity. Power is also redundant and monitored remotely.

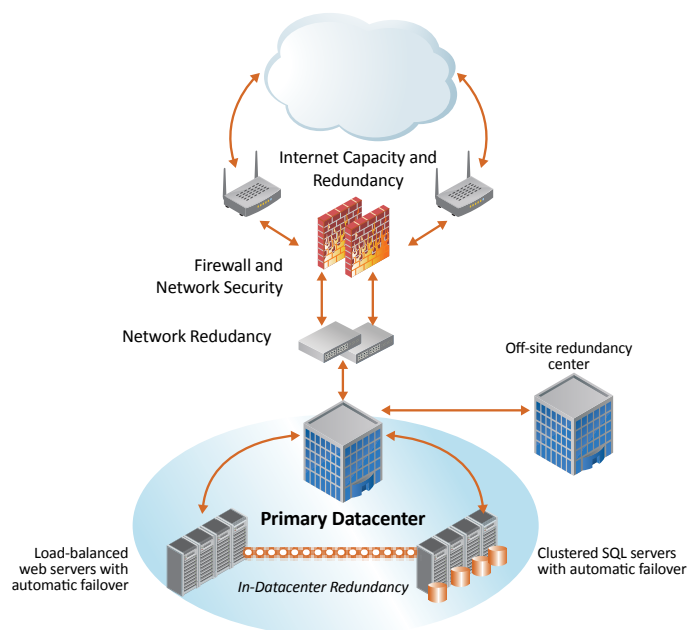


Figure 8 Translation Workspace Data Center

All power is on redundant physical power lines which are monitored remotely, with UPS coverage until backup generators come online. Generator coverage is for 4 days with additional N+1 level coverage via multiple fuel suppliers.

All application data is backed up and transferred regularly to an off-site redundancy center that can be activated in less than 24 hours, with no more than 15 minutes possible loss.

At the application layer, Translation Workspace provides comprehensive security using industry-standard data encryption as well as granular user-level data access control. All client/server communication is over http, using RSA and AES encryption.

User Access

Each user must be authenticated in order to login to their tenancy and use the specific TMs, glossaries and review packages that they have access to.

Security is organized around tenancies and workgroups. Each subscription provides complete data segregation from every other subscription, and a rigorous permissions structure within each tenancy provides highly-defined control over user access to specific features.

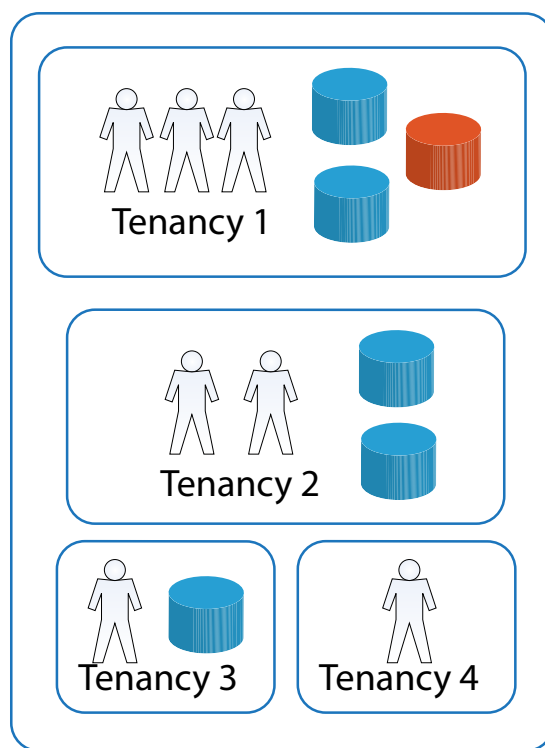


Figure 9 Subscriber tenancies are isolated from each other

Translation Workspace Subscription Management

Subscription Overview

Licensing of Translation Workspace is different than for traditional translation tools. All users have access to the same set of features and functionality, but subscribe to the system at various levels of capacity—paying for what they use. Translation Workspace offers simple Web-based tools for users to manage subscriptions. This section describes the key characteristics of a subscriber tenancy.

Inside a Tenancy

All subscribers sign up for accounts through GeoWorkz.com, selecting a specific plan with the number of users and words that meets their needs. A tenancy in the Translation Workspace is a subscriber's private work area, and contains:

- one subscriber user
- one or more system users
- a balance of words
- a certain number of user licenses
- language assets – TMs, glossaries, review packages (including aliases)

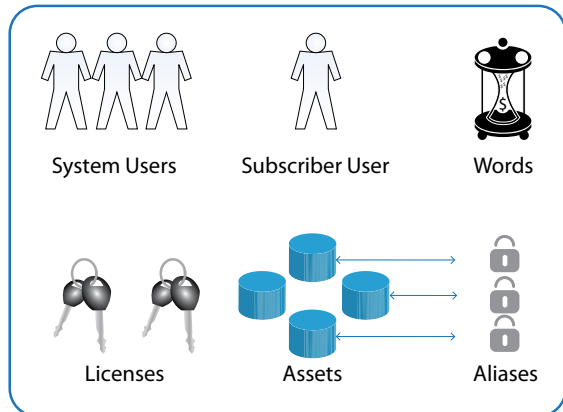


Figure 10 Inside a Translation Workspace Tenancy

Workgroups, Users, Roles and Permissions

Workgroups

A Workgroup in Translation Workspace is a container that allows subscribers to organize their assets (TMs, glossaries, review packages). Workgroups could be named for specific divisions within an organization, for internal/external customers, for projects, for specific project components, etc. Sub-workgroups can also be created inside other Workgroups, allowing for nested organizational hierarchies.

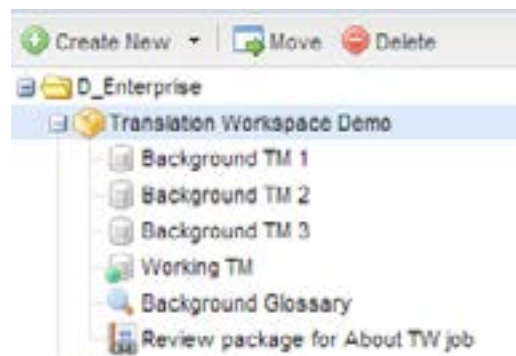


Figure 11 Tree view of the Translation Workspace Web interface, showing a Workgroup

Subscriber User

A subscriber user is the administrator of a GeoWorkz subscription. A subscriber user can go into GeoWorkz and access account settings there, choose a plan, upgrade/downgrade plans, and add licenses or words to a plan. A subscriber user may be a user who regularly uses Translation Workspace functionality, or may just be a user that manages the GeoWorkz subscription account from a business standpoint.

System Users

System users are users inside a subscriber's organization, typically performing project management, asset management, project engineering or translation-related tasks. System users are assigned a specific role in Translation Workspace that determines the permissions that they have, and they must be assigned a license in order to be able to access the system.

Users can be assigned to Workgroups in Translation Workspace, allowing them to perform whatever functions their role allows on any objects in that Workgroup. Users can also be assigned directly to assets, limiting their access to just the asset(s) to which they are assigned.

User Roles

Roles in Translation Workspace are collections of permissions that operate at the system level (interface display items) or object level (Workgroups and assets). Translation Workspace is configured with a number of default roles that can be completely modified and renamed. The system has hundreds of permissions that can be assigned in any combination to create new roles to meet the needs of diverse organizations.

Translation Workspace Subscription Management

User Roles, continued.

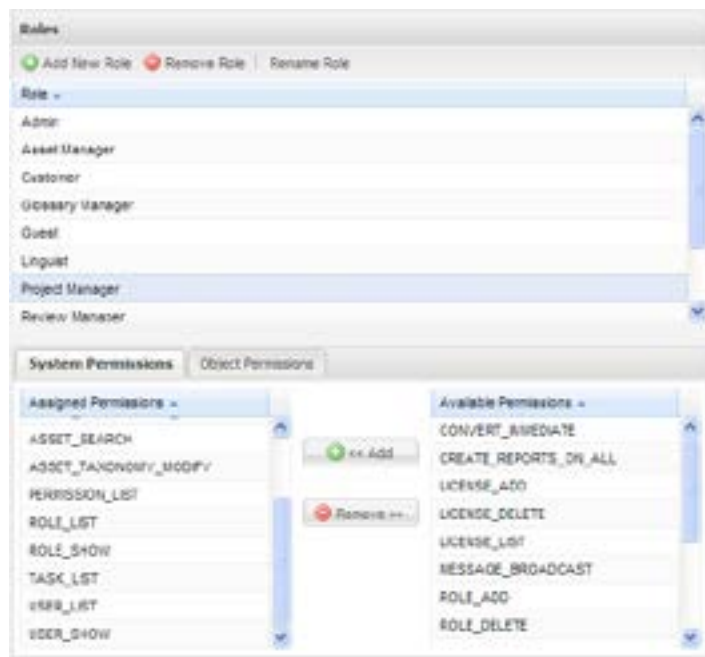


Figure 12 Roles in Translation Workspace

Licenses

Licenses allow system users to login to the system. A subscription plan has one or more licenses, which can be increased at any time by the purchase of additional licenses. Licenses can be assigned to users in a tenancy and then unassigned from those users and re-assigned to others—allowing subscribers to share or float a given number of licenses between a larger number of actual users in their organization.

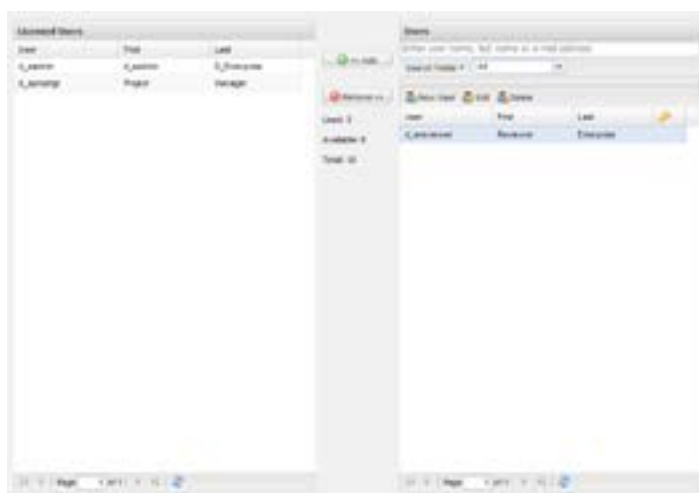


Figure 13 License management in Translation Workspace

Words

In Translation Workspace, subscription plan pricing is based in part on how much content is translated using a subscriber's own assets. This is measured in source words that are translated interactively or pre-translated. Words are not consumed during analysis operations or concordance searches.

The words in a given segment are only counted against a subscriber's word balance once in a 60-day period, allowing that particular segment to be opened multiple times for translation, editing, proofreading, review, and so on, while only counting one time against the subscriber's word balance.

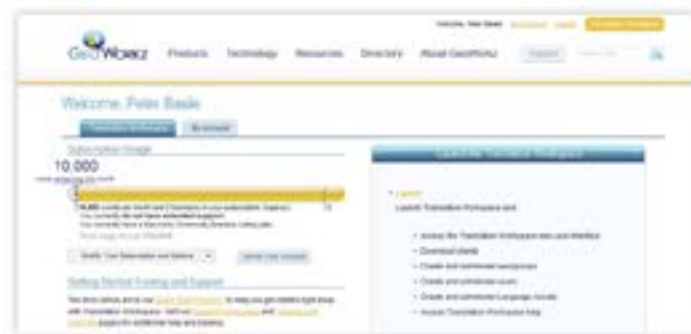


Figure 14 Word usage in a user tenancy

Words are also not consumed when processing content against aliased TM assets from other subscribers. Words processed by alias recipients will only be consumed by the tenancy of the alias publisher.

Translation Workspace & the GeoWorkz Directory

Translation Workspace System Requirements

Application System Specifications

Microsoft Word Plug-in	Operating System
Microsoft Word 2007 / 2010 / 2013 (all 32 bits)	Microsoft Windows 7 and Windows 8 (both 32 and 64 bits)
XLIFF Editor	Operating System
N/A	Microsoft Windows 7 and 8 (both 32 and 64 bits)
Web interface	Operating System
Internet Explorer 9 and higher Mozilla Firefox (latest version) Chrome (latest version)	N/A

Supported File Formats Requirements

Format	File Type	Translation Client
Microsoft Word 2000-2003	DOC, DOT	Microsoft Word Plug-in
Rich Text Format	RTF	Microsoft Word Plug-in
Microsoft Word 2007	DOCX, DOTX, DOCM, DOTM	XLIFF Editor
Microsoft Power-Point 2007	PPTX, PPTM, POTX, POTM, PPSX, PPSM	XLIFF Editor
Microsoft Excel 2007	XLSX, XLAM, XLSM, XLTM, XLTX	XLIFF Editor
InDesign CS4	IDML	XLIFF Editor
InDesign CS2, CS3	INX	XLIFF Editor
FrameMaker 5 - 12	MIF	XLIFF Editor
Markup languages	XML, HTML, SGML, XHTML, ASP, JSP	XLIFF Editor
Software and help	RESX, HHC, HHK	XLIFF Editor
Trados TTX	TTX	Microsoft Word Plug-in
Idiom WorldServer Translation Kit	XLZ, XLIFF	XLIFF Editor
OKAPI generic XLIFF	XLF	XLIFF Editor
Text files (plain text, properties, and INI files)	TEXT	XLIFF Editor

Supported Languages

Translation Workspace supports (at last count) 588 languages including but not limited to the following

Afrikaans	Lithuanian
Albanian	Luxembourgish
Amharic	Macedonian
Arabic	Malay
Assamese	Malayalam
Azerbaijani	Maltese
Bangla	Mapudungun
Basque	Marathi
Bengali	Mongolian
Bosnian	Ndebele (Southern)
Bulgarian	Nepali
Catalan	Norwegian (Bokmal)
Chinese (Simplified)	Norwegian (Nynorsk)
Chinese (Traditional)	Oriya
Cree	Pashto
Creole	Polish
Croatian	Portuguese
Czech	Punjabi
Danish	Raeto-Romance
Dutch	Romanian
English	Russian
Estonian	Serbian
Farsi	Sinhalese
Finnish	Slovak
French	Slovenian
Galician	Somali
German	Spanish
Greek	Swahili
Gujarati	Swedish
Hausa	Tagalog
Hebrew	Tamil
Hindi (India)	Telugu
Hungarian	Thai
Icelandic	Turkish
Indonesian	Ukrainian
Inuktitut	Urdu
Irish	Valencian
Italian	Vietnamese
Japanese	Welsh
Kannada	Yiddish
Kazakh	Yoruba
Khmer	Zulu
Konkani	
Korean	
Kurdish	
Laotian	
Latin	
Latvian	

The GeoWorkz Directory

The GeoWorkz Directory

Subscribers can list themselves or their organization in the GeoWorkz Directory, which is a system-wide yellow pages. Subscriber to Translation Workspace, can search the GeoWorkz Directory to locate other subscribers with whom you would like do business. Searches can be performed based on keywords, company/freelancer name, person's last name, location, (city, state/province/region, country), or language.

The online GeoWorkz Directory of subscribers lets users find and match the right resources to the right task, allowing subscribers who outsource work to scale up or down on-demand as business cycles shift. The results? Lower outsourcing costs, improved quality, and shorter time-to-market.

Freelancers

Freelance translation professionals spend hours each week finding and developing new clients. Also, they spend hours looking for qualified collaborators. The GeoWorkz Directory can help. As a benefit of a subscription to Translation Workspace, subscribers can add their profile to the GeoWorkz Directory to promote themselves to other subscribers including Lionbridge, find other service providers and collaborate with fellow subscribers. The GeoWorkz directory lets you create a profile of your skills and offerings, available to all other GeoWorkz subscribers at any time.

Profile

If you click the link in the result set, you will see that person's profile (example below). Then, you contact them via the published contact information (email, phone, and fax).

Tom Translator

Address: 123 Main Street, Springfield, IL 62760, United States

Email: tomtranslator@geoworkz.com

Web Site: www.tomtranslator.com

Phone:

Fax:

Additional Company or Background information:
Proficiency speaking in Arabic and Zulu languages.

Full or Part time: Full Time

Number of Employees: 1-5

Main Contact: Tom Translator, Freelancer

Email: tomtranslator@geoworkz.com

Phone: 123-456-7890

Fax:

Active Language: Arabic

Form is: Freelance language provider

Language Pairs:
Arabic to Zulu

Areas of Expertise:
Writing, Editing, Translation

Technical Competencies:
Translation Packages:
• Word Online Workflow
• Word Desktop Workflow

Figure 15 A sample GeoWorkz Directory Profile page

- **Alias Token:** An alphanumeric code used to securely alias Live Assets across tenancies
- **Asset Aliasing™:** A feature that enables users to securely provide users in other tenancies with access and permissions to chosen linguistic assets
- **Background Links:** A feature that enables linking of assets together to create a “memory network” while keeping the underlying information separate and protected.
- **Concordance match:** Matches that contain words from the searched segment, but may be in a different order.
- **Context match (101% match):** A 100% match with the same surrounding segments as when it was originally translated and saved to the TM
- **Directory:** The GeoWorkz Directory is an optional free listing service that allows subscribers to post a profile including information such as languages served, special domain skills and contact information. Registered users and guests of Translation Workspace can search the Directory.
- **License:** Each user in a subscription must have a license assigned to them before they can use Translation Workspace. Every plan includes a certain number of licenses, and supplemental licenses can be purchased as needed.
- **Linguistic Asset:** Stored data that is referenced by users based on their role and permissions. Includes Translation Memories (TMs), Glossaries (Terminology Databases), and bilingual Review Packages.
- **Linking (also called Background Linking, Backgrounding):** Using the Background Links feature to connect linguistic assets for simultaneous referencing
- **Live Assets™:** A linguistic asset that is hosted on the Translation Workspace server and is updated in real-time as users interact with it.
- **Match:** The similarity between two source segments.
- **Object Permissions:** Permissions to asset management functions, set when a user is added to an object (asset).
- **Plan:** A plan includes a base number of words, user licenses, Basic Support, and a Directory listing. Additional options may be available, including adding words, user licenses, and extended support.
- **Publisher of an Alias:** The tenancy that creates an Alias and publishes it for users in other tenancies to use.
- **Role:** A combination of system and object permissions that determines the functions the user is allowed to perform.
- **Source (string/segment):** Original language (string/segment) in a TM or file to translate. The source segment in the file is searched in the TM to find matches to use in the target segment
- **Subscriber to an Alias:** The tenancy that receives a token and uses the token to subscribe to an Alias. After subscribing to the Alias, the asset can be used in the usual manner.
- **Subscription Manager:** The individual responsible for the purchase of the Translation Workspace subscription, and the configuration and management of the Directory listing.
- **System Permissions:** Permissions to administrative functions, set at the user record level.
- **System user:** Individuals added to the subscriber's workspace, who may be granted access to the Live Assets and system configurations within the tenancy.
- **Target (string/segment):** Target language (string/segment) in TM or translatable file
- **Tenancy (Workspace):** A subscriber's workspace that contains users, workgroups, and linguistic assets.
- **Words Metering:** The words balance in a tenancy is consumed as content is translated using TMs owned by the subscriber. Translation Workspace reports the tenancy's daily word usage. When the subscriber's TMs are queried during translation, words are debited from the purchased words balance. If the TM is made available to users outside the tenancy by issuing an Asset Alias token, the queries made by those users are debited from the original TM owner's purchased word balance. Users are not charged for work they do using TMs owned and aliased to them by other tenancies.

About Lionbridge

Lionbridge Technologies, Inc. (NASDAQ: LIOX) is a provider of translation, development and testing services. Lionbridge combines global resources with proven program management methodologies to serve as an outsource partner throughout a client's product and content lifecycle - from development to translation, testing and maintenance. Global organizations rely on Lionbridge services to increase international market share, speed adoption of global products and content, and enhance their return on enterprise applications and IT system investments.

Contact Us:

You can reach the GeoWorkz and Translation Workspace team at:

GeoWorkz Headquarters:
1050 Winter Street
Waltham, MA 02451 USA
+1 781 434 6000

www.GeoWorkz.com

