Visual Studio®

Microsoft Visual Studio Licensing

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Introduction

Visual Studio 2015 provides a rich, integrated development environment for creating stunning applications for Windows, Android, and iOS, as well as modern web applications and cloud services. Visual Studio 2015 also provides a comprehensive, highly flexible set of application lifecycle management (ALM) tools. Team Foundation Server 2015 has added important capabilities like Agile Project Portfolio Management, a major overhaul to the TFS build system including a cross-platform build agent, and Release Management capabilities enabling continuous delivery of your applications. Visual Studio subscriptions offer customers high-value subscriber benefits such as development/test use rights for Microsoft platform software like SQL Server/Windows/Windows Server, monthly Microsoft Azure credits, a developer account for publishing apps to the Windows Store and an O365 Developer subscription.

The remainder of this paper provides an overview of the Visual Studio product line and the licensing requirements for those products in common deployment scenarios. If you're a volume licensing customer, the definitive guide to licensing terms and conditions is the Microsoft Licensing Product Terms and your licensing program agreement. For retail customers the license terms are specified in the Retail Software License Terms included with your product.

Visual Studio 2015 Licensing Overview

With the primary Visual Studio 2015 offerings there are essentially two things for which you purchase licenses:
1. Users
2. The Visual Studio Team Foundation Server environment

Additionally, there are Visual Studio Team Services that you can purchase.

Users

The primary way to license users is by purchasing the appropriate level Visual Studio subscription for each user who will be participating in software development projects. The software, services, and support included with Visual Studio subscriptions varies by level, so you should consult the Visual Studio subscription comparison to determine the right level for the needs of each team member. The Visual Studio software and other Microsoft software that the individual subscriber can install and run is defined by what is available for that Visual Studio subscription level in Subscriber Downloads while the user's subscription is active.

Visual Studio subscription options:
- A. Standard subscriptions (sold via the Microsoft Store and Volume Licensing resellers):
  - Visual Studio Enterprise with MSDN
  - Visual Studio Test Professional with MSDN
  - Visual Studio Professional with MSDN
  - MSDN Platforms
- B. Cloud subscriptions (sold via the Visual Studio Marketplace):
  - Visual Studio Enterprise – annual
  - Visual Studio Enterprise – monthly
  - Visual Studio Professional – annual
  - Visual Studio Professional – monthly

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The Team Foundation Server Environment

The Team Foundation Server environment is where the software developers, testers, project managers, stakeholders, and other participants in the software development team collaborate, manage source code, manage and prioritize work, generate builds of the application, and much more. You purchase Windows Server and Team Foundation Server licenses for each server in this environment, plus Windows Server and Team Foundation Server Client Access Licenses (CALs) for each user connecting to these servers. Microsoft SQL Server 2014 Standard is included with the Team Foundation Server license for use with Team Foundation Server.

Visual Studio Team Services

Visual Studio Team Services offers a broad and growing set of cloud-based Application Lifecycle Management capabilities for use by your development team. Creating a Visual Studio Team Services account is free.

It's also free to add as many stakeholders and active Visual Studio subscribers to your Visual Studio Team Services account as you need. All Visual Studio subscribers get Basic access to your account, plus certain Visual Studio subscriptions include additional capabilities, such as the Test Manager extension. The Visual Studio Marketplace provides a number of additional features through extensions, many of which are free.

In addition to the free stakeholders and Visual Studio subscribers, you get five free users in your account, with access to Basic features like version control, agile planning, and more. After that, you pay for each user accessing your Visual Studio Team Services account. You can also purchase additional services for use by the account overall, such as Build and Deployment agents, and Cloud-based Load Testing.

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How to Buy

Visual Studio products are offered through a variety of sales channels as outlined below.

Visual Studio 2015 Offerings and Purchasing Channels

		Enterprise with MSDN	Professional with MSDN	MSDN Platforms	Test Professional with MSDN	Team Foundation Server 2015	Visual Studio Professional 2015	Cloud Subscriptions
Microsoft Volume Licensing	Enterprise, Enterprise Subscription	✓	✓	✓	✓	✓		
	Select, Select Plus, MPSA	✓	✓	✓	✓	✓	✓	
	Open Value, Open Value Subscription	✓	✓	✓	✓	✓		
	Open	✓	✓	✓	✓	✓	✓	
	Campus, Enrollment for Education Solutions	✓	✓	✓	✓	✓		
Retail Channel	Microsoft Store (online only)	✓	✓		✓	✓	✓	
Microsoft Azure	Visual Studio Marketplace							✓

Each Microsoft Volume Licensing program has specific rules and benefits which your software reseller can help you understand so you can make the right choice. More information on Volume Licensing and the above programs can be found at: www.microsoft.com/licensing.

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Visual Studio Community 2015

Visual Studio Community 2015 is a free, full-featured IDE for any developer building non-enterprise apps across any platform or device. It includes all the capabilities needed to create compelling non-enterprise applications, including powerful productivity features, mobile development tools for Windows, iOS and Android, and access to thousands of extensions.

Who can use the Software

Rights to use Visual Studio Community depend on the customer segment and usage scenarios as explained below.

Individual developers

Any individual developer can use Visual Studio Community, to create their own free or paid apps.

Organizations

- An unlimited number of users within an organization can use Visual Studio Community for the following scenarios: in a classroom learning environment, for academic research, or for contributing to open source projects.
- For all other usage scenarios: In non-enterprise organizations up to 5 users can use Visual Studio Community. In enterprise organizations (meaning those with >250 PCs or > $1M in annual revenue) no use is permitted for employees as well as contractors beyond the open source, academic research and classroom learning environment scenarios described above.

> **Example 1:** A University wants to use Visual Studio Community 2015 for training students enrolled in the "Data structures and Programming" course and for a "Big Data" academic research project that requires building a cross-platform mobile application. Further the University also plans to customize its ERP software and automate processes through its internal LOB applications. Visual Studio Community 2015 use is allowed by academic institutions for classroom learning environment and academic research and hence the University can use the software for its coursework and the research project. However Visual Studio Community 2015 cannot be used for developing and testing its internal LOB applications.
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> **Example 2:** A Fortune 500 firm has outsourced the development of its store-locator mobile application to a small agency. The application is not an open source project. The agency has 5 employees working on the project and would like to use Visual Studio Community 2015. Since the agency is a contractor developing this application for the Fortune 500 firm, and since the application is not an open source project, the agency cannot use Visual Studio Community 2015 for developing and testing the application.
>
> **Example 3:** A Fortune 500 ISV is working on a mobile application which is released under the Open Source Institute (OSI)-approved open source software licenses. Employees and contractors developing and testing this application may use Visual Studio Community 2015.

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Visual Studio Subscription Renewals and Upgrades

Standard Subscriptions

Visual Studio standard subscriptions that are due to expire can be renewed cost effectively. Renewal pricing is considerably lower than purchasing a new Visual Studio subscription because the customer only pays for the ongoing right to receive new versions of the software, access to new product keys plus other expiring subscriber benefits, but not for a new license of the Visual Studio development tool, which the customer already has.

Retail Visual Studio subscriptions must be renewed annually. The renewal grace period—that is, the period from when the Visual Studio subscription expires to the point where the customer loses the option to renew at the renewal price—is 30 days.

Visual Studio subscriptions purchased under most Volume Licensing programs are valid until the Volume License Agreement or Enrollment terminates. However, the Select Plus Agreement (which does not expire) is an exception. Purchases under Select Plus last for 3 years from the date of purchase and there are also options for aligning the subscription term end date with an Agreement anniversary date.

For all Volume Licensing Programs, Visual Studio subscriptions must be renewed by purchasing the Software Assurance (SA) version of the product by the deadline specified under the Volume Licensing agreement. These deadlines vary by program, and may also vary depending on the terms in place when the agreement was signed.

Standard Subscription Upgrade Options

You can upgrade an active Visual Studio subscription either at renewal (in which case you must purchase both the subscription renewal at the former level and a "step-up" license which upgrades the subscription) or at another point during the term of the subscription.

		Upgrade from: Visual Studio Professional with MSDN Upgrade to: Visual Studio Enterprise with MSDN	Upgrade from: Visual Studio Test Professional with MSDN Upgrade to: Visual Studio Enterprise with MSDN
Microsoft Volume Licensing	Enterprise, Enterprise Subscription	✓	✓
	Select, Select Plus	✓	✓
	Open Value, Open Value Subscription	✓	✓

Upgrades are not available in other programs, but retail and Open License customers (where Step-up Licenses are not available) can still take advantage of Step-up Licenses by renewing into the Open Value program and immediately buying a Step-up.

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Renewing Down

Customers may "renew down" from a higher-level Visual Studio standard subscription to a lower-level subscription—effectively trading one license for another. In doing so, the customer forfeits all rights associated with the old Visual Studio subscription and must immediately discontinue using any products that were available as part of that subscription but that are not available under the new subscription.

> **Example:** An organization has been using Visual Studio Enterprise with MSDN subscriptions across their development team. The organization decides to renew all their subscriptions down to Visual Studio Professional with MSDN due to budget constraints. When the organization renews down, subscribers must immediately discontinue using and uninstall Visual Studio Enterprise—and thus can no longer benefit from the features in Visual Studio Enterprise. Subscribers also lose rights to use Microsoft Office, Microsoft Dynamics, SharePoint Server, and many other products included in Visual Studio Enterprise with MSDN but not in Visual Studio Professional with MSDN.

Cloud Subscriptions

Visual Studio cloud subscriptions renew automatically each month (for monthly subscriptions) or each year (for annual subscriptions). The price is the same each year because there is no perpetual software license included. In having the same each year, it also means that there is no "new" or "renewal" option, and there are no complexities in upgrading or downgrading—you simply select the subscription you want each month (for monthly) or each year (for annual).

Visual Studio Team Services Purchasing

In many cases, no purchase is necessary for using Visual Studio Team Services. There is no extra charge for active Visual Studio subscribers who join the account, there are five free users included with each Visual Studio Team Services account and unlimited stakeholders per account. Additionally, there are free amounts of certain additional services (e.g., Build and Deployment Hosted Agents, Build and Deployment Private Agents, Cloud-based Load Testing) available per account.

When Visual Studio Team Services user plans and shared resources need to be purchased, this is done through Microsoft Azure. Visual Studio Team Services is a set of finished Azure services so there is no need to pay for the underlying infrastructure (VMs, storage, bandwidth, etc.) that is used to run your Visual Studio Team Services account.

The first step is to create an Azure subscription. The Azure subscription establishes the payment terms such as payment via credit card or invoice, and also establishes the price discount relative to published "pay-as-you-go" rates. The discounted rate applies to the Azure services that you use: Visual Studio Team Services users, Cloud-based Load Testing, and Build and Deployment agents, as well as any other Azure services you may use outside Visual Studio Team Services such as virtual machines, storage, bandwidth, web sites, etc. Customers with an Enterprise Agreement get discounts off the published "pay-as-you-go" rates, please inquire with your software reseller for more details.

The second step is to visit the Azure Management Portal and set up billing for your Visual Studio Team Services account. You can link an existing Visual Studio Team Services account or create a new one, after which it is possible to purchase Visual Studio Team Services users or additional services (after exhausting the free amount you get each month on your account).

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Other Channels

Certain Visual Studio products are available for purchase through other Microsoft programs, including:

- Service Provider Licensing Agreement (SPLA): Visual Studio Team Foundation Server, Visual Studio Enterprise, Visual Studio Professional, and Visual Studio Test Professional are available on a subscription basis through participating hosted solution partners. The partner offers the software running on its own hardware that you connect to remotely. These are not Visual Studio subscription offerings. Use terms for the SPLA are covered in the Services Provider Use Rights (SPUR) document.

- Microsoft ISV Royalty Licensing Program is a program for ISVs wishing to include Visual Studio or other Microsoft products within their finished software applications that they distribute to customers.

Additionally, Visual Studio subscriptions or Visual Studio are provided as program benefits under certain Microsoft programs:

- Microsoft Partner Network: Partners with one or more competencies earn Visual Studio Enterprise with MSDN subscriptions which must be assigned to their end users and the Visual Studio subscriber must activate prior to use of the software. These subscribers may use the software in accordance with the MSDN subscriptions not for resale (NFR) retail license terms. Software offered through the Microsoft Partner Network cannot be used for direct revenue-generating activities, such as providing consulting services, customizing a packaged application for a specific customer, or building a custom application for a customer, for a fee. Partners can use Visual Studio subscriptions for indirect revenue-generating activities, such as building a packaged application on the Microsoft platform, which they can then market and sell to customers.

- Microsoft BizSpark: Microsoft BizSpark is a global program that helps software startups succeed by giving them access to Microsoft software development tools, connecting them with key industry players, including investors, and providing marketing visibility to help entrepreneurs starting a business. The Visual Studio Enterprise with MSDN subscriptions offered through BizSpark are subject to the MSDN subscriptions not for resale (NFR) retail license terms.

- Microsoft DreamSpark: provides tools to students, faculty, and staff at academic institutions for instructional use (e.g., for instruction, coursework, and non-commercial research) for a small charge per institution. Academic institutions participating in the Campus Agreement/EES and OVS/ES programs in Microsoft Volume Licensing receive an online subscription to DreamSpark at no additional cost. The software licensed through DreamSpark includes Visual Studio Professional, Windows Server, and SQL Server among other software. In addition, Science, Technology, Engineering, and Math (STEM) departments in higher education institutions may qualify for an online DreamSpark Premium subscription (formerly known as MSDN AA) which offers access to a wider range of Microsoft software titles. To take advantage of their DreamSpark subscription benefit (DreamSpark or DreamSpark Premium depending on eligibility), academic customers need to enroll at http://www.dreamspark.com/institution/subscription.aspx using their Academic Volume Licensing agreement number and the appropriate DreamSpark promotion code that are included in their Academic Volume Licensing subscription Welcome Letter. Students at institutions that do not have a DreamSpark subscription can verify their student status on the DreamSpark site for no-cost access to the software: https://www.dreamspark.com/Account/CreateAccount.aspx

Please consult the terms for each program for specific Visual Studio subscription use right additions or exclusions.

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User Licensing

Licensed for Design, Development, Testing, and Demonstrating Your Programs

All Visual Studio subscriptions and Visual Studio Professional are licensed on a per-user basis. Each licensed user may install and use the software on any number of devices to design, develop, test, and demonstrate their programs. Visual Studio subscriptions also allow the licensed user to evaluate the software and to simulate customer environments in order to diagnose issues related to your programs. Each additional person who uses the software in this way must also have a license.

What Software is Included and Downgrade Rights

For Visual Studio subscriptions, the software that is included is defined as any software that is available to the subscriber via Subscriber Downloads while the user's subscription is active, plus downgrade rights to prior versions of any of that software (for legacy software versions that are not available in Subscriber Downloads). Visual Studio subscriptions include both current version software plus many prior versions dating back over a decade, and often carry multiple different editions (Standard, Enterprise, Datacenter, etc.) of the same product to support a variety of software development and testing scenarios. Plus, Visual Studio subscribers are regularly gaining access to new versions of the software as it is released.

Anyone can visit Subscriber Downloads, search for a particular download, and then click on the details to see what date the download was published and what subscription levels have access to download it. It is not necessary to be a subscriber to review this, though it is necessary to be a subscriber in order to download. For a more general view of what software is included with each Visual Studio subscription, you can compare subscriptions.

For Visual Studio Professional 2015 standalone licenses, the software included in the license is the current version of the software, Visual Studio Professional 2015, plus downgrade rights to simultaneously run prior versions of Visual Studio Professional to which you may otherwise have access.

For purposes of this User Licensing section, we will refer to the software included with the license as "the software."

Different Licensed Users Can Run the Same Software

Each member of the development team that will use (install, configure, or access) the software must have his or her own Visual Studio subscription. Two or more individuals may use the same software if each has a Visual Studio subscription.

> **Example 1:** A development team consists of 6 software developers, 1 architect/developer, and 3 testers. The team is building an in-house Web-based accounting system, and wants to use the software to set up a test environment running Windows Server 2012 and Microsoft SQL Server 2014. If all 10 team members will be accessing the development or test environment, then each will require a Visual Studio subscription. The minimum subscription levels including both of these products are Visual Studio Professional – annual, Visual Studio Professional with MSDN and Visual Studio Test Professional with MSDN.

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> **Example 2:** An organization has two development teams—one based in Seattle and the other in Singapore. Because of the time difference, the two teams are never working at the same time. However, because Visual Studio subscription licenses cannot be shared, each team member in each location must have his or her own Visual Studio subscription.
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> **Example 3:** A systems engineer from the organization's IT department is installing the software needed for a development team—each member of which is licensed with a Visual Studio subscription—on centrally-managed hardware. This systems engineer is not doing any software development or testing. Because a license is required for any use of Microsoft software (installing is a use of the software), they must either acquire production licenses for all software being used in this environment or they must acquire a Visual Studio subscription for the systems engineer that includes the software he or she is installing.

Where the Software can be Installed and Run

The licensed user can install and use the software on any number of devices. The software can be installed and used on your devices at work, at home, at school, and even on devices at a customer's office or on dedicated hardware hosted by a 3rd party. Most subscriber software can also be run in Microsoft Azure VMs. However, the software is otherwise not licensed for use in production environments.

A production environment is defined as an environment that is accessed by end users of an application (such as an Internet Web site) and that is used for more than Acceptance Testing of that application or Feedback. Some scenarios that constitute production environments include:

- Environments that connect to a production database.
- Environments that support disaster-recovery or backup for a production environment.
- Environments that are used for production at least some of the time, such a server that is rotated into production during peak periods of activity.

> **Example:** A developer with a Visual Studio subscription uses subscriber software at work during the day, but occasionally needs to develop at home as well, using a different computer. Under the Visual Studio subscription license, there is no difference between a PC at work and a home PC; the home PC is just another device on which the developer is entitled use the subscriber software.
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> However, the restrictions for the subscriber software running on the developer's home PC remain the same as in the work environment: the subscriber software installed on the home PC must only be used for design, development and testing purposes; and only other users with an appropriate Visual Studio subscription can use the software.

Additional Use Rights and Benefits for Visual Studio Subscribers

Production use of Office Professional Plus 2016

Office Professional Plus 2016 can be used by licensed users of Visual Studio Enterprise with MSDN or Visual Studio Enterprise – annual on one device for production use.

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Production Use of Visual Studio Team Foundation Server

Visual Studio Enterprise with MSDN, Visual Studio Professional with MSDN, Visual Studio Test Professional with MSDN, and MSDN Platforms, and all Visual Studio cloud subscriptions include a server license and one Client Access License for Visual Studio Team Foundation Server 2015. More information is provided later in this paper under the section on Visual Studio Team Foundation Server 2015 Licensing.

Monthly Microsoft Azure Credits for Visual Studio Subscribers

Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, MSDN Platforms, Visual Studio Test Professional with MSDN, Visual Studio Professional with MSDN, and Visual Studio Professional – annual subscriptions include a monthly credit to use on Microsoft Azure services. Availability varies and the amount of service included is subject to change, please see http://www.windowsazure.com/en-us/pricing/member-offers/msdn-benefits/ for details. To use these services, the Visual Studio subscriber must sign up and accept the Microsoft Azure Agreement. The Visual Studio subscriber may not run production applications; all use of this benefit is limited to development and testing. Also, monthly Azure credits from multiple Visual Studio subscriptions cannot be combined onto a single account.

Visual Studio Team Services Benefits for Visual Studio Subscribers

All Visual Studio subscribers (standard and cloud) who have activated their subscription can create or join any Visual Studio Team Services account at no additional charge. Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, MSDN Platforms, and Visual Studio Test Professional with MSDN subscriptions include additional Visual Studio Team Services extensions, such as Test Manager.

Cloud Use Rights: Running the Subscriber Software on Microsoft Azure VMs

Visual Studio subscribers who have activated their subscription can run most subscriber software in VMs on Microsoft Azure. These cloud use rights are still limited to the design, development, testing and demonstration of your software. Cloud use rights apply to Visual Studio and all other software included in the user's Visual Studio subscription, but not to Windows client and Windows Server. Also, a Remote Desktop Services (RDS) client access license is not required to access Azure VMs for development and testing.

Activating the Visual Studio subscription means associating the licensed user's Microsoft account or Work or Student account login with the Visual Studio subscription. Activation is required in order to gain access to subscriber benefits including Subscriber Downloads, monthly Azure credits, and more.

Visual Studio subscribers *can* run Windows Server or Windows client VMs where these are offered but must pay the fees associated with running these VMs since Windows Server and Windows client are not included as part of Visual Studio subscriber cloud use rights. Windows Server VMs are available through Azure and many other providers. Windows client VMs are exclusively available to active Visual Studio subscribers (all standard subscriptions, plus annual cloud subscriptions) on Azure, and only through the monthly Azure credits for Visual Studio subscribers, or team Azure subscriptions set up using the MSDN Dev/Test Pay-As-You-Go offer or Enterprise MSDN Dev/Test offer.

> **Example 1:** A team of five developers are licensed for different Visual Studio subscription levels: three have Visual Studio Enterprise with MSDN and the other two have Visual Studio Professional with MSDN. One team member with Visual Studio Enterprise with MSDN sets up a Microsoft Azure subscription using the MSDN Dev/Test Pay-As-You-Go offer to act as the team's development environment. This team member deploys a VM with Microsoft SharePoint Server to be used for development and testing by the team members with Visual Studio Enterprise with MSDN. The other two team

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members with Visual Studio Professional with MSDN cannot use this VM because their subscription level does not provide rights to use SharePoint Server.

Example 2: A developer who is licensed for Visual Studio Professional with MSDN has deployed SQL Server in a VM running on Microsoft Azure in order to develop new stored procedures for a database application. While the work is proceeding, the Visual Studio subscription expires. Because the subscription has expired, the cloud use rights also expire and the developer must cease use of SQL Server within this VM.

Example 3: A developer who is licensed for Visual Studio Enterprise with MSDN has deployed Visual Studio and SQL Server in a VM running on Azure in order to develop new stored procedures for a database application. Using Visual Studio in this Azure VM to write code is allowed as part of cloud use rights. The developer could access this VM without needing to purchase a RDS CAL. The developer would also like to install Office in the VM to access his emails and Lync to communicate with other developers. Using Outlook to access emails or using Lync to communicate with other users in the VM is not allowed because this is production use, and is not within the Visual Studio subscription use rights which are limited to designing, developing, testing or demonstrating the software.

Lab Management

Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, MSDN Platforms and Visual Studio Test Professional with MSDN subscribers may install and run System Center – Virtual Machine Manager (SCVMM) for the purpose of creating, deploying and managing lab environment(s) using Microsoft Test Manager. A lab environment is a virtual operating system environment used solely for the purpose of developing and testing your programs. All other production use of SCVMM, such as managing virtualized production servers, requires separate management licenses. The Visual Studio Agents 2012 software, which includes the Test Controller 2012 is also included with these subscription levels to be used in this scenario. SCVMM and Team Foundation Server can share the same SQL Server database without needing to purchase a separate SQL Server license.

Load Testing

Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, and Visual Studio Enterprise - monthly subscribers can use the software to execute load tests with any number of virtual users, including load tests that run in a production environment.

SQL Server Parallel Data Warehouse Developer

Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, Visual Studio Professional with MSDN, and Visual Studio Test Professional with MSDN subscriptions include a license for SQL Server Parallel Warehouse Developer. The Parallel Data Warehouse appliances required to run this software are sold through OEMs.

IntelliTrace

IntelliTrace enables the recording and playback of application execution to help facilitate debugging. This is accomplished by deploying the IntelliTrace diagnostic data adapter (DDA) to the target system as part of the Visual Studio Test Agent,

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by deploying the IntelliTrace.exe command-line utility, or by running a test using Microsoft Test Manager. Microsoft Test Manager is included as a part of the Visual Studio Test Professional and Visual Studio Enterprise software installations.

IntelliTrace files—the output from running the IntelliTrace DDA or IntelliTrace.exe—can only be opened and debugged using Visual Studio Enterprise. IntelliTrace files *may* be shared among two or more companies. For example, a company can share IntelliTrace files with an external development consultant. Similarly, a company can use an external company for testing purposes and debug IntelliTrace files provided by that vendor.

Example 1: Finding a defect in a test environment

Company A is building a Web application. All the developers are licensed for Visual Studio Enterprise with MSDN, and the testers are licensed with Visual Studio Test Professional with MSDN. During a test run a defect is discovered in the test environment that is difficult to reproduce in a development environment. The test machines have previously been configured with the Visual Studio Test Agent, which includes the IntelliTrace DDA. The tester uses Microsoft Test Manager (a feature of Visual Studio Test Professional and Visual Studio Enterprise) to execute the test case with the IntelliTrace diagnostic data adapter (DDA) enabled. When the defect is encountered, the tester files a new bug, with the IntelliTrace files from each of the test machines is automatically attached to the bug. When a developer opens the bug using Visual Studio Enterprise, he or she can open the IntelliTrace files and use this to debug the problem.

Example 2: Working with an external consultant

In Example 1, Company A uses an external consultant to help with development. If the external consultant is licensed for Visual Studio Enterprise, he or she can open and debug the IntelliTrace files provided by Company A.

When the Software Included is Subject to its Own Terms

Prerelease and Trial Software

Visual Studio subscriptions include access to prerelease and trial versions of Microsoft software products. If the software is made available as part of the user's Visual Studio subscription, then it can be installed and used on any number of devices.

However, prerelease and trial versions of software provided via Subscriber Downloads are subject to their in-product licensing terms.

SDKs, DDKs, Feature Packs, and patterns & practices Releases

Visual Studio subscriptions include access to Software Development Kits (SDKs), Driver Development Kits (DDKs), Visual Studio Feature Packs, and patterns & practices releases, which are subject to their in-product licensing terms.

Windows Embedded

Windows Embedded products have additional software license terms that are governed by the specific product end user licensing agreement (EULA). Windows Embedded software cannot be used to run business operations or to distribute the Windows Embedded software for commercial purposes (e.g., licensing, leasing or selling the Windows Embedded software, distributing it in a product to customers for evaluation purposes or distributing it for use with commercial products). Additional steps are necessary to distribute the Windows Embedded software for commercial purposes. Microsoft Embedded Authorized Distributors can guide the subscriber through the licensing, certifying and shipping requirements.

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IntelliTrace Collector and Microsoft Management Agent

The IntelliTrace Collector (offered in the Visual Studio 2012 product line) and Microsoft Management Agent (offered starting with the Visual Studio 2015 product line) are free downloads. The IntelliTrace Collector and Microsoft Management Agent can be installed on any number of machines, including those in a production environment, to collect historical logs that can be used to debug application issues. Use of the IntelliTrace Collector and Microsoft Management Agent is subject to the in-product licensing terms, though the IntelliTrace output can only be read by Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, and Visual Studio Enterprise - monthly subscribers.

Remote Tools

Visual Studio Remote Tools, formerly known as the Remote Debugger, is subject to the in-product licensing terms provided. The Remote Tools can be used in a production environment to debug an application in real time.

Scenarios in which Unlicensed Users can use the Software

Demonstration Using Terminal Services

All Visual Studio subscriptions (except monthly cloud subscriptions) include the use of the Windows Server Remote Desktop Services for up to 200 simultaneous, anonymous users to access an online demonstration of your programs. These anonymous users do not need a Visual Studio subscription. Nonetheless, a Visual Studio subscriber can use Remote Desktop Services for development and testing as they can for any other software included in their subscription.

Acceptance Testing

At the end of a software development project, **end users** (or team members such as a business sponsor or product manager acting as proxies for end users, particularly in cases where it's infeasible or impossible for the actual end users of the program to participate) typically review an application and determine whether it meets the necessary criteria for release—a process often called user acceptance testing or UAT. The software may be accessed by end users who do not have a Visual Studio subscription for purposes of acceptance testing, provided that the use of the software otherwise complies with all Visual Studio subscription licensing terms. It is rare that someone whose primary role is designing, developing, or testing the software would also qualify as an "end user."

Acceptance testing must not use live production data. If a *copy* of any live production data is used, then that copy of the data must be discarded after the testing is complete and cannot be incorporated back into the live production data.

Feedback

End users can download the free Feedback Client for TFS and access the software to review your application and provide feedback. A Visual Studio subscription is not needed for end users accessing the software in order to provide feedback. The end user is not testing the application, which would require a Visual Studio subscription.

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How Certain Software Can Be Distributed to Others within Your Applications

Some software, such as the Microsoft .NET Framework, can be distributed.

Components of software products included in Visual Studio subscriptions that can be distributed (either within an application or as separate files) without royalty are identified in the REDIST.TXT file associated with the product. Components that can be distributed to non-Microsoft platforms are identified in the OTHER-DIST.TXT file associated with the product. Code identified as distributable that has the extension .lib cannot be directly distributed; it must be linked into the application. However, the resulting output can be distributed.

You may also:

- Modify and distribute source code and objects for code marked as "sample" or "Code Snippet".
- Distribute the unmodified output of Microsoft Merge Modules for use with an application's .msi file.
- Distribute the MDAC_TYP.EXE file containing core data access components (such as the Microsoft SQL Server OLE DB provider and ODBC driver).
- Distribute the object version of C++ libraries (Microsoft Foundation Classes, Active Template Libraries, and C runtimes).

For a complete list of components that can be distributed and the restrictions that apply, see Distributable Code in the Universal License Terms section of the Microsoft Licensing Product Use Rights (PUR) or the Distributable Code section of the Microsoft End User License Agreement (EULA) for retail Visual Studio subscriptions.

Other Guidance

When Windows on the "Developer Desktop" Requires a Separate License

In most situations, Windows used for the main PC (or set of PCs) must be licensed separately from the Visual Studio subscription due to mixed use—both design, development, testing, and demonstration of your programs (the use allowed under the Visual Studio subscription license) and some other use. Using the software in any other way, such as for doing email, playing games, or editing a document is another use and is not allowed under the Visual Studio subscription license. When there is mixed use the underlying operating system must be licensed normally by purchasing a regular copy of Windows such as the one that came with a new OEM PC.

> **Example:** A developer with a Visual Studio Enterprise with MSDN subscription builds a PC using spare hardware and intends to use this for development and testing of applications. The developer installs a copy of Project Professional 2013 (licensed separately) on the machine to use for managing project timelines, which is its normal production use. Because Project is being used for production, the PC is under mixed use and the Windows operating system on which Project runs must also have a normal production license. The developer is not licensed through the Visual Studio subscription to use Windows for this PC.

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When Virtual Environments Require a Separate License

If a physical machine running one or more virtual machines is used entirely for development and test, then the operating system used on the physical host system can be subscriber software. However, if the physical machine or any of the VMs hosted on that physical system are used for other purposes, then both the operating system within the production environment VMs and the operating system for the physical host must be licensed separately. The same holds true for other software used on the system—for example, Microsoft SQL Server obtained as subscriber software can only be used to design, develop, test, and demonstrate your programs.

Monitoring and Managing Development and Testing Environments Requires Management Licenses

Often Microsoft System Center is used to monitor or manage machines running in a development or testing environment. This is the normal use of System Center and requires normal System Center management licenses, which are acquired separately. This use—monitoring and managing machines—is not allowed under any Visual Studio subscription. The installation of the System Center agents on these development and testing machines must be performed by a licensed Visual Studio subscriber (because any use of the software, including the operating system, requires a license), but System Center operators can remotely monitor these machines without a Visual Studio subscription.

Additionally, for Visual Studio subscriptions that include System Center, subscribers can use the System Center software to design, develop, test, and demonstrate their programs.

Example 1: A company uses System Center – Operations Manager to manage both the servers running in its production datacenter and those running in its development and testing labs. The development and testing team members who each have Visual Studio subscriptions must perform all software installations in the development and testing labs, including installation of the System Center agents software, because the software running in this environment is licensed per user and only these individuals have Visual Studio subscriptions permitting this use. Once installed, the normal System Center operators who do not have Visual Studio subscriptions can monitor and manage these servers remotely using the System Center software.

Example 2: An ISV is writing an application that queries Microsoft System Center – Operations Manager via the APIs exposed in System Center and then generates a customized report. This is development and is allowed for Visual Studio Enterprise with MSDN or Visual Studio Enterprise – annual subscribers, whose subscriptions include the System Center software.

Perpetual Use Rights

Visual Studio subscriptions purchased through certain channels provide perpetual use rights that allow subscribers to continue using certain software products obtained through an active subscription after the subscription has expired. However, subscribers are *not* entitled to updates for that software after the subscription has expired, nor do they continue to have access to software or product keys through Subscriber Downloads or to other subscription services that are a benefit of having an active subscription. Product keys that were acquired while the subscription was active can continue being used until all activations for those keys have been exhausted. If a Visual Studio subscription is transferred or sold, any perpetual use rights are transferred to the new party and the seller can no longer use the software.

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Generally, Visual Studio subscriptions that do **not** provide perpetual use rights include:

- Visual Studio cloud subscriptions

- Visual Studio subscriptions purchased through Enterprise Agreement Subscription, Open Value Subscription, Campus Agreement, or other "subscription" Volume Licensing programs

- Visual Studio subscriptions offered through the Microsoft Partner Network to competency partners and to Microsoft Action Pack partners.

In the above cases, subscribers can no longer use *any* software provided through the Visual Studio subscription after it expires.

Reassignment of the License

The Visual Studio subscription or Visual Studio Professional standalone license can be reassigned to another user—such as when a person leaves the team—but not within 90 days of the last assignment for purchases through retail and Volume Licensing channels.

Distribution of the Software as Part of an Installation Image

Physical or virtual machine images provide a quick and convenient way to set up client or server machines. However, when the software is used to create images and the Visual Studio subscription through which that software is licensed was purchased through a retail channel, then those installation images cannot be distributed to others. This restriction holds true even if the target users that will install and/or use the image also have appropriate Visual Studio subscriptions for the software contained within the installation image. These users can, of course, download the software from Subscriber Downloads directly and create their own installation image.

If the Visual Studio subscription was obtained by an organization through a Volume Licensing program, then the installation image may be distributed among users licensed for the appropriate Visual Studio subscription level within the same organization only, including to external contractors working for the organization who have been temporarily assigned a Visual Studio subscription from the organization's available licenses. Redistribution of the software to 3rd parties is not allowed in any form, including physical and virtual machine images, DVDs and ISO files.

> **Example:** Company A subcontracts with Company B. Part of the work involves creating an image for installing machines in a test server environment. Because individuals from Company B cannot distribute Microsoft software to individuals in Company A, the only options for Company B to "distribute" the resulting image back to Company A are:
>
> - Company A assigns spare (unallocated) Visual Studio subscriptions to the individuals in Company B that will be creating the image. This enables the software to be transferred within the same organization (and thus is not a distribution of Microsoft software to a 3rd party), *OR*
>
> - Company B provides instructions for building the image to Company A, which then builds the image internally.

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Assigning Visual Studio Subscriptions to External Entities (e.g. solution providers, independent contractors, offshore development centers)

If an organization hires external contractors to work within their development team, then the contractors must have appropriate Visual Studio subscriptions for any software that they will be using. Customers must also ensure their development and test environments are completely and accurately licensed in situations when customers have outsourced all or part of their development and test environment to another entity in different geographies. Customers must track assignments for all external entities (e.g. solution providers, independent contractors, offshore development centers) and could be asked to report usage of all subscriptions assigned to external entities.

> **Example:** An external contractor is to work temporarily within a client organization's development team. Each development team member at the client has a Visual Studio Enterprise with MSDN subscription. If the contractor has a Visual Studio Enterprise with MSDN subscription too, then, like the existing team members, the contractor can use the software in the development environment. If the contractor does not have a Visual Studio subscription, or has a Visual Studio subscription at a lower level that does not include all of the software they will be using, then either:
>
> - The contractor must obtain an appropriate (higher-level) Visual Studio subscription.
>
> - The organization must assign one of their spare (unallocated) Visual Studio subscriptions—again, of a sufficient level to include the software they need to use—to the contractor for the duration of the contract.
>
> Additionally, if the contractor is using the client's Team Foundation Server then the client must supply a Team Foundation Server CAL for the contractor's use. This could be a CAL purchased separately or a CAL that is included with the Visual Studio subscription that the client assigns to the contractor temporarily. Team Foundation Server CALs are only valid for accessing a Team Foundation Server acquired by the same organization.

Visual Studio Subscriptions through Microsoft Partner Network(MPN)

Visual Studio subscriptions offered through the Microsoft Partner Network cannot be used for direct revenue-generating activities, such as providing consulting services, customizing a packaged application for a specific customer, or building a custom application for a customer, for a fee.

> **Example:** An external contractor is to work temporarily within a client organization's development team. The contractor has a Visual Studio Enterprise with MSDN subscription as a benefit of his firm being in the Microsoft Partner Network (MPN). Since a Visual Studio subscription obtained as a benefit of MPN cannot be used for consulting services:
>
> - The contractor must purchase a Visual Studio subscription for this use.
>
> - The organization must assign one of their spare (unallocated) purchased Visual Studio subscriptions—again, of a sufficient level to include the software they need to use—to the contractor for the duration of the contract.

Microsoft

Product Keys and Installation Software

Visual Studio subscribers can use any installation software as long as that software is from an authorized source (such as Subscriber Downloads, Volume License Service Center, or official Microsoft DVDs) and the software product is covered under the user's Visual Studio subscription. For example, a Visual Studio subscriber could choose to use his organization's Volume Licensing media for installing Windows in a test lab, which may be more convenient due to the Volume Licensing product key having higher activation limits than the key made available through Subscriber Downloads.

Using Software *Sourced* from Subscriber Downloads but *Licensed* Under a Production License

Often, it is more expedient to deploy a server running a fully-tested application directly into production. Normal licenses must be acquired for this use (such as a Windows Server license and Client Access Licenses) because the Visual Studio subscription license is per user and is generally limited to development and testing. However, the *installed software* and the *product key* used to activate that software, where applicable, can be from Subscriber Downloads, even though the *licenses* to use that software in production must be acquired separately from the Visual Studio subscription.

Software Activation

Many software products offered via Subscriber Downloads require activation, a process which validates that the software being installed is genuine Microsoft software (and not a corrupted copy) by connecting to Microsoft servers online. Activation happens after the product key has been entered and has been validated for the product being installed. Be careful to not confuse activation with licensing; activation has no way of determining whether you are licensed to use the product (such as Windows 8, offered through a Visual Studio subscription) or whether you're using the software in a way that is allowed under your license (such as using Windows 8 for developing an application). For more information, see Product Keys and Activation.

Visual Studio Team Foundation Server 2015 Licensing

Microsoft Visual Studio Team Foundation Server 2015 is the backbone of Microsoft's Application Lifecycle Management (ALM) solution, providing core services such as version control, work item tracking, reporting, and automated builds. Through its deep integration with Visual Studio 2015 development tools, Team Foundation Server helps organizations communicate and collaborate more effectively throughout the process of designing, building, testing, and deploying software—ultimately leading to increased productivity and team output, improved quality, and greater visibility into the application lifecycle.

Microsoft licenses Team Foundation Server under the Server/Client Access License (CAL) licensing model—that is, organizations must have a license for each running instance of Team Foundation Server (i.e., the server) and, with certain exceptions, a Team Foundation Server 2015 CAL for each user or device that accesses Team Foundation Server.

Obtaining Visual Studio Team Foundation Server 2015

Visual Studio Team Foundation Server 2015 can be obtained in three ways:

- **Visual Studio subscriptions.** Visual Studio Enterprise with MSDN, Visual Studio Professional with MSDN, Visual Studio Test Professional with MSDN, MSDN Platforms, and all Visual Studio cloud subscribers can download and

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deploy one instance of Team Foundation Server 2015. These same Visual Studio subscribers are granted a Team Foundation Server 2015 CAL to be used within their organization (it is not valid for use of Team Foundation Server acquired by a different organization).

- **Volume Licensing.** Team Foundation Server is offered through Microsoft Volume Licensing programs, as outlined in the How to Buy section above.

- **Retail.** Team Foundation Server 2015 purchased in the retail channel allows up to five users to connect to that same instance of the software without requiring a Team Foundation Server 2015 CAL. The sixth and further users each need a CAL.

> Example: An organization has purchased two retail server licenses for Team Foundation Server 2015. They have 10 people needing access to a single instance of Team Foundation Server (the other server license is currently not in use) and none of them has a Visual Studio subscription. Five people accessing this one instance of Team Foundation Server don't need a CAL, so the organization only needs to purchase CALs for the other five people.
>
> Alternately, if the organization installed both instances of Team Foundation Server 2015, they could have 5 people use one instance and the other five people use the other instance. In this case, the organization would not need to purchase CALs.

While this section of the document focuses on Team Foundation Server 2015 licensing, these terms also relate to Team Foundation Server 2015 Express, which is free, except as noted and except for features that are not included in Team Foundation Server 2015 Express.

General Guidance for Licensing Team Foundation Server

There are a number of points to understand when planning to license Team Foundation Server:

- **For each server license of Team Foundation Server 2015 that you acquire, you must assign that license to one of your servers**. You may run one instance of the server software in one physical or virtual operating system environment (OSE) on the licensed server.

- The Team Foundation Server license also includes certain additional software which can be run on any number of machines (physical or virtual). Additional software includes:

- Team Foundation Build Services (for running a build server)

- Team Foundation Server SharePoint Extensions (for installing on a SharePoint Server)

    o Team Foundation Server Project Server Extensions (for installing on a Project Server)

- Team Explorer (for installing with Visual Studio to connect to Team Foundation Server)

- **You must acquire an operating system license for each machine running Team Foundation Server 2015**, any of the additional software, or the SQL Server database for Team Foundation Server. You must acquire an

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operating system license even when your use of Team Foundation Server is licensed as part of a Visual Studio subscription. For Windows Server-based deployments where Windows Server is licensed on a Server/CAL basis, each user or device that accesses Team Foundation Server data (on a read or write basis) must also have a Windows Server CAL.

- One instance of the Microsoft SQL Server 2014 Standard software can be used as the Team Foundation Server 2015 database, except for Team Foundation Server 2015 Express which uses SQL Server 2014 Express. Team Foundation Server 2015 uses Microsoft SQL Server as its data repository and provides the right to deploy one instance of SQL Server 2014 Standard software per Team Foundation Server 2015 server license. This is not a separate SQL Server license. This instance of SQL Server can run on a separate server but can only be used by Team Foundation Server—not for any other purposes. If you do use the SQL Server software for purposes other than Team Foundation Server, then you must license that use separately.

- **SQL Server Enterprise can be used for Team Foundation Server 2015, but must be licensed separately**. If you wish to use a different edition of SQL Server (such as Enterprise) as the Team Foundation Server 2015 database, then you must acquire that license separately.

- **SQL Server Reporting Services for Team Foundation Server 2015 can be accessed without a SQL Server CAL**, using the SQL Server software supplied under the Team Foundation Server license. Normally, accessing SQL Server Reporting Services requires a separate SQL Server CAL, but access to Team Foundation Server 2015 reports under the Team Foundation Server 2015 license is allowed without a SQL Server CAL as long as the SQL Server software running is the version and edition supplied under the Team Foundation Server license (i.e., SQL Server 2014 Standard) or is licensed separately per core. In all cases, Team Foundation Server CALs are not required for users who are only accessing Team Foundation Server reports.

Server Licensing Requirements for Team Foundation Server

For each Team Foundation Server license you acquire, you can run one instance of the server software in one physical or virtual operating system environment. Before you run the software, you must assign the Team Foundation Server license to one of your servers.

Reassignment of the Server License

The Team Foundation Server 2015 license can be reassigned to another server, but not within 90 days of the last assignment. However, in the event of a permanent hardware failure, it can be reassigned sooner.

Using Visual Studio on the Build Server

If you have one or more licensed users of Visual Studio Enterprise with MSDN, Visual Studio Professional with MSDN, or any Visual Studio cloud subscription then you may also install the Visual Studio software as part of Team Foundation Server 2015 Build Services. This way, you do not need to purchase a Visual Studio license to cover the running of Visual Studio on the build server for each person whose actions initiate a build.

Client Licensing Requirements for Team Foundation Server

With certain exceptions, each user or device directly or indirectly accessing Team Foundation Server must have a User CAL or a Device CAL.

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When a Client Access License is Not Required

A Team Foundation Server CAL is <u>not</u> required in the following scenarios:

- Entering work items through any interface, and viewing and editing any work items.

- **Accessing Team Foundation Server reports**. Any read-only data that comes from the Team Foundation Server SQL data warehouse or is surfaced through SQL Server Analysis Services would be a report, but custom reports could also be written to call into Team Foundation Server APIs and could also join that data with other data sources.

- **Accessing Team Foundation Server using Microsoft System Center Operations Manager**. This enables operations staff to take operational issues encountered in production and raise them as issues to the development team, automatically creating a work item in Team Foundation Server.

- **Accessing Team Foundation Server using the Feedback Client for TFS**. This allows the user to provide Feedback about an application into Team Foundation Server.

- Viewing static data that has been manually distributed outside of Team Foundation Server.

- Up to two devices or users that only access Team Foundation Server to perform system administration, such as creating Team Projects or Project Collections.

- Up to five users when Team Foundation Server is purchased through the retail channel or for the free Team Foundation Server Express. However, a CAL is required for the 6th user and any subsequent user.

- **Accessing Visual Studio Team Foundation Server through a pooled connection from another integrated application or service.** This removes licensing friction from integrating TFS with LOB applications like customer ticketing solutions and other ALM solutions.

- **Accessing Team Foundation Service via a Team Foundation Server 2015 Proxy.** This enables Team Foundation Service subscribers with bandwidth latency issues to deploy Team Foundation Server 2015 Proxy to access the service

- Providing approvals to stages as part of the Release Management pipeline

In all cases, however, the user must still have the necessary CALs for Windows Server (when Windows Server is used as the operating system for Team Foundation Server, and where Windows Server is licensed under Server/CAL), SharePoint Server (when the user accesses a Team Foundation Server Project Portal running SharePoint Server), or SQL Server (when Team Foundation Server uses a version or edition of SQL Server other than SQL Server 2014 Standard), where applicable.

Server Features Requiring More than a CAL

In order to use the Request and Manage Feedback, the Test Management features and the Release Management client authoring tools of Team Foundation Server 2015, the user must be licensed for either Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, Visual Studio Enterprise – monthly, Visual Studio Test Professional with MSDN, or MSDN Platforms. Test Management features in Team Foundation Server can also be used by users with an active Visual Studio Team Services Test Manager extension. A CAL is not sufficient to use these features. Details on managing access to these features are available in the MSDN Library.

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Note that using the Agile Portfolio Management, Team Rooms and Work Item Chart Authoring in Team Foundation Server 2013 required more than a CAL. However, in Team Foundation Server 2015 only a CAL is required to use those capabilities. The following table illustrates the changes -

Features available with a Team Foundation Server 2015 CAL	Features requiring Visual Studio Test Professional with MSDN, MSDN Platforms, Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, or Visual Studio Enterprise - monthly
Task Boards and Kanban Boards Backlog Management and Sprint Planning Tools Agile Portfolio Management* Team Rooms* Work Item Chart Authoring* Request and Manage feedback*	Test Case Management Release Management

- * - Capabilities that were not available at base CAL in TFS 2013 but are now available at CAL level in TFS 2015

External contractors with Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, Visual Studio Enterprise – monthly, MSDN Platforms, or Visual Studio Test Professional with MSDN subscriptions supplied by their organization can also access these features in Team Foundation Servers running at other organizations. However, a Team Foundation Server CAL purchased by the organization that licensed the Team Foundation Server must be assigned to each of these users.

Choosing between User CALs and Device CALs

Organizations may choose to purchase *User CALs* or *Device CALs,* or a combination of both. User CALs may be appropriate when one user accesses Team Foundation Server from multiple devices or locations; device CALs are typically used when multiple individuals share a single device to access Team Foundation Server. Although a Device CAL permits multiple users on a single device, it may only be used by a single user at a time.

> **Example:** A training facility that is teaching Team Foundation Server to a group of classes needs to license Team Foundation Server. The teaching facility can purchase a Device CAL for each computer in their classroom. In this case, any number of students can use these machines, as each Device CAL allows any number of users to access the server software from a single device, though one at a time on each device.

Multiplexing and Pooling Do Not Reduce the Need for CALs

Hardware and software that reduce the number of users or devices that directly access Team Foundation Server (sometimes referred to as "multiplexing" or "pooling") do not reduce the number of Team Foundation Server CALs that are required. End users or devices that access Team Foundation Server in any way–other than the When a Client License is not Required scenarios noted above–are required to have the appropriate licenses, regardless of whether they are using a direct or indirect connection to the software.

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> **Example 1:** An organization implements an intranet Web site that connects to Team Foundation Server in a way that enables users to add work items, resolve bugs, or trigger builds through the Web site. Even though only one device (the Web server) is directly connecting to Team Foundation Server, each person *who uses the Web site to access Team Foundation Server* for purposes other than entering defects and enhancement requests must have a CAL. (A device CAL may not be used for the Web server because the Device CAL only supports one user logged-into the specified device at any given time.) A CAL is not required for accessing a second Web site that runs on the same physical Web server but does not access Team Foundation Server.
>
> **Example 2:** Multiple people simultaneously remote into a server running Terminal Services to access a development environment. Even though those multiple users are "sharing" one device, each user must have a CAL. (A device CAL may not be used because the Device CAL only supports one user logged-into the specified device at any given time.)

Downgrade Rights for Team Foundation Server

Microsoft provides downgrade rights for Visual Studio Team Foundation Server 2015. This enables you to use an earlier version of Team Foundation Server (such as Team Foundation Server 2005, 2008, 2010, 2012, or 2013) in place of the licensed version of Team Foundation Server 2015, and an earlier version of SQL Server 2014 Standard as the database supporting Team Foundation Server. The downgrade rights also apply to Team Foundation Server CALs, so a Team Foundation Server 2015 CAL can be used for accessing earlier versions of Team Foundation Server.

Team Foundation Server under Software Assurance

As is standard with Software Assurance, if you had a Visual Studio Team Foundation Server 2010 license and CAL that was under Software Assurance as of the availability of Visual Studio Team Foundation Server 2015 in Volume Licensing, then your server and CAL become a Visual Studio Team Foundation Server 2015 server and CAL; otherwise, you are required to purchase a Visual Studio Team Foundation Server 2015 server and CAL to access Visual Studio Team Foundation Server 2015.

Connecting Visual Studio Team Services to a Local Build Server

It is possible to set up your Visual Studio Team Services account to run builds on a local server running Team Foundation Build Services. The licensing requirements for the server running the Build server are no different whether it is receiving commands from a local Team Foundation Server or from Visual Studio Team Services—at a minimum it requires a Team Foundation Server license, an operating system license (plus potentially CALs), and all users whose actions cause builds to run require Team Foundation Server CALs. Therefore, users who check in code to Visual Studio Team Services which in turn kicks off a build to the local Build server need Team Foundation Server CALs. A Team Foundation Server CAL is provided for each paid Visual Studio Team Services user.

Methods of Accessing Team Foundation Server

The Team Foundation Server 2015 data can be accessed in several ways, including:

- **Visual Studio Team Explorer 2015**, which is included with Visual Studio Enterprise, Visual Studio Professional, Visual Studio Community (which is free), and Visual Studio Test Professional.

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- **Visual Studio Team Explorer Everywhere 2015**, which enables you to connect to Team Foundation Server from an Eclipse-based environment. Team Explorer Everywhere is free.

- **Visual Studio Team Web Access,** which is a browser-based version of the Team Explorer client.

- **Microsoft Office Excel or Microsoft Office Project,** which can access Team Foundation Server using add-ins for those programs that are provided with Team Explorer.

- PowerPoint Storyboarding add-in, which is free.

- **Programmatically,** as enabled through the Team Foundation Server 2015 application programming interfaces (APIs) or by other means.

No matter which method you use to access Team Foundation Server you must acquire a license for the client, other than for scenarios noted in the When a Client Access License is Not Required section above.

Deployment Options

Companies can take advantage of the inherent flexibility and scalability of Team Foundation Server to support development teams of all sizes. For example, Team Foundation Server can be deployed on a desktop system, on a single server, or in a two-tier configuration. Regardless of which approach is used, Team Foundation Server requires an operating system and a database, each of which have their own licensing implications.

Multi-Server (Two-Tier) Deployment

You can deploy Team Foundation Server 2015 in a two-tier configuration, where one tier hosts Team Foundation Server and the other tier hosts the SQL Server back-end. As outlined above, the operating system for each tier must be licensed separately, and one instance of SQL Server 2014 Standard can be deployed for each license of Team Foundation Server that you acquire.

> **Example**: An organization deploys Team Foundation Server 2015 to one server running Windows Server 2012 Enterprise, and the corresponding SQL Server 2014 Standard database on a separate instance of Windows Server 2012 Enterprise. In this case, only one Team Foundation Server 2015 server license is in use (comprising the Team Foundation Server and the SQL Server data tier collectively), but two server licenses of Windows Server 2012 Enterprise are required. Team Foundation Server Client Access Licenses may be needed.

When deployed in a two-tier environment, you can increase reliability by maintaining a second application-tier server in a warm or cold standby mode. In warm standby mode, the failover machine is running but a system administrator manually activates the failover functionality. In a cold standby setup, the failover system is usually off until an administrator turns it on and activates its failover functionality. Organizations considering warm or cold standby scenarios may want to consider a load-balanced application tier instead, with both servers in an active role by default.

You can increase the availability of Team Foundation Server in a two-tier configuration by using SQL Server clustering on the data tier—in this case comprised of two servers. Supported in SQL Server 2014 Standard and higher, clustering provides high availability by combining several physical SQL Server instances into one virtual instance. In a clustered, two-server data tier configuration, Windows Server and SQL Server 2014 licenses are required for each server but no *additional* Team Foundation Server CALs are required. Each server in the cluster running SQL Server 2014 Standard counts as a separate instance of SQL Server, so you need to have enough Team Foundation Server 2015 licenses to cover the number of instances, or acquire licenses for SQL Server separately.

Microsoft

Team Foundation Server Project Portal

A [Team Foundation Server Project Portal](#) is a SharePoint site that is created to present data from a Team Foundation Server team project, using the Team Foundation Server SharePoint Extensions. When it uses either SharePoint Foundation (available for download to the public) or Windows SharePoint Services, the use is covered under the Windows Server license. Since the Windows Server used to run Team Foundation Server must be acquired separately (this use is not included with Visual Studio subscriptions), this use is already covered.

As an alternative, organizations may choose to host Team Foundation Server Project Portals on the full version of SharePoint Server. In this case, SharePoint Server and SharePoint Server CALs must be licensed separately. This use of SharePoint Server is also not licensed under Visual Studio subscriptions.

Team Foundation Build Services

Build automation functionality in Team Foundation Server enables the software to run automated builds on the same server or a separate system, along with the ability to run quality or performance tests as part of the build process. Implementing a "build server" is accomplished using the build agent which is included with Team Foundation Server 2015. The build server can be separate from the server running Team Foundation Server, and no Team Foundation Server CAL or server license is required for the build server.

Lab Management Licensing

Microsoft's Visual Studio Lab Management solution extends the existing Visual Studio Application Lifecycle Management platform with integrated Hyper-V based virtual machine management. Lab Management automates complex build-deploy-test workflows to optimize the build process, decrease risk and accelerate time to market. It helps reduce development and testing costs associated with setup, tear down and restoration of virtual environments to a known state. Lab Management streamlines the collaboration between development, QA and operations to help achieve a higher ROI and realize the benefits of Microsoft's entire ALM solution.

Lab Management Components

Different pieces of software work in harmony across multiple machines to enable the Lab Management functionality. A typical configuration includes:

1. **Virtual Machine Host**:

    a. Operating system: Windows Server 2008 R2 or 2012

    b. Other software: System Center – Virtual Machine Manager 2008 R2 or 2012

    c. On the virtual machines: Visual Studio Agents 2015

2. **Team Foundation Server**:

    a. Operating system: Windows Server 2008 R2 or 2012

    b. Other software: Visual Studio Team Foundation Server 2015, SQL Server 2014 Standard, and Visual Studio Test Controller 2015 (part of Visual Studio Agents 2015 which is available to Visual Studio Enterprise with

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MSDN, Visual Studio Enterprise – annual, MSDN Platforms, and Visual Studio Test Professional with MSDN subscribers for this use).

3. **Client**:

   a. Operating system: Windows 8 or other Microsoft operating system capable of running the Visual Studio software

   b. Other software: Visual Studio Enterprise 2015 or Visual Studio Test Professional 2015

While it is possible to consolidate the Virtual Machine Host and the Team Foundation Server, this may not be ideal in terms of performance. It may also be preferable to deploy Team Foundation Server in multiple tiers (*see Multi-Server (Two-Tier) Deployment*).

Lab Management Licensing

To utilize the Lab Management functionality in Visual Studio 2015, you must acquire licenses for the following:

1. Each person using Microsoft Test Manager 2015 to configure and manage the lab environment must be licensed for either **Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, MSDN Platforms** or **Visual Studio Test Professional with MSDN**, depending on the product they're using. Microsoft Test Manager is installed with Visual Studio Test Professional and Visual Studio Enterprise. Interacting with the Visual Studio Agents 2015 software running on the virtual machines (which is done through Microsoft Test Manager 2015 and uses Microsoft System Center Virtual Machine Manager 2008 R2 or 2012) is also licensed under Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, MSDN Platforms, and Visual Studio Test Professional with MSDN.

2. **The operating system(s) running Team Foundation Server**. Use of Team Foundation Server 2015 (which includes use of SQL Server 2014 Standard) is provided to Visual Studio subscribers. (*See Visual Studio Team Foundation Server 2015 Licensing for more details, including details on Client Licensing Requirements for Team Foundation Server*.) However, the operating system(s) used to run Team Foundation Server, including the server, the build server, and the database—which can each be run on a separate operating system—must always be acquired separately.

3. **Each person accessing the Virtual Machine Host** (or accessing a virtual machine on that host) **must have a Visual Studio subscription** that contains the software they are using to develop or test the application. When these people do not need to create the lab environments or interact with the Visual Studio Agents software running on the virtual machines, then a lower-level Visual Studio subscription may be sufficient. The host operating system for the Virtual Machine Host, Windows Server 2008 R2, does not need to be licensed separately as long as the software running on this host is only used by Visual Studio subscribers for development and testing.

Visual Studio Release Management Licensing

Visual Studio 2015 provides a continuous deployment solution to Microsoft's ALM and DevOps solutions through Release Management capabilities, helping customers deliver applications faster, better and more efficiently. The Release Management continuous delivery solution will automate the development-to-production release process from Visual Studio Team Foundation Server, helping enable faster and simpler delivery of applications.

Microsoft

Learn more about Visual Studio 2015 Release Management solution: http://www.visualstudio.com/explore/release-management-vs

Release Management Solution Components

Different pieces of software work in harmony across multiple machines to enable the Release Management solution. The three components include:

1. **Release Management Client for Visual Studio 2015**

2. **Release Management Server for Team Foundation Server 2015**

3. **Microsoft Deployment Agent(Optional)**

To use the Release Management solution in Visual Studio 2015, you must acquire licenses for all users accessing the Release Management Client for Visual Studio 2015. Each person using the Release Management Client for Visual Studio 2015 for creating, updating, or deleting a release pipeline sequence must be licensed for either Visual Studio Enterprise with MSDN, Visual Studio Enterprise – annual, Visual Studio Enterprise – monthly, Visual Studio Test Professional with MSDN, or MSDN Platforms. A user who only approves stages or signs off on a release does not need to be licensed.

Note Effective January 1, 2015, target servers receiving automated deployment from Release Management Server no longer require a Visual Studio Deployment license.

Appendix

For More Information

Visual Studio: www.microsoft.com/visualstudio

Buy Visual Studio: https://www.visualstudio.com/products/how-to-buy-vs

Compare subscription options and benefits: https://www.visualstudio.com/products/compare-visual-studio-2015-products-vs

Evaluating Visual Studio 2015 Products

90-day trial versions of Visual Studio 2015products can be downloaded at http://www.visualstudio.com/. Microsoft Volume Licensing customers under a Select or Enterprise Agreement can download, install, and evaluate any of the Visual Studio products for 60 days before requiring a purchase. Applications built using trial software cannot be deployed into production.

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Visual Studio Express 2015 Products

A number of free development tools are also available, including Visual Studio Express for Windows, Visual Studio Express for Web and Visual Studio Express for Windows Desktop. These tools provide a subset of the functionality available in Visual Studio Professional 2015 and are specific to writing applications targeting these platforms. Each of these Visual Studio Express products is licensed per user and subject to the use terms included with the product. Visual Studio Express can be used to build production applications.

Licensing Training Environments

Organizations providing training services to third parties that include Visual Studio or other Microsoft software must be active in the Learning competency in the Microsoft Partner Network. Earning this competency provides the partner with rights to classroom licenses for any software that they have legally acquired, such as separate purchases or licenses that are a benefit of their membership in the Microsoft Partner Network.

Organizations that have signed an Enterprise, Select or Select Plus agreement are allowed to use up to 20 licenses of any product offered through Microsoft Volume Licensing programs in a dedicated training facility on the organization's premises.

Outside these two options, customers need to either use trial software available from Microsoft.com, or purchase licenses for the software being used for training.

Historical Visual Studio Subscription Transitions

At certain releases of Visual Studio, the Visual Studio subscription offerings have changed and existing subscribers at that point have been converted to the new subscription level, often providing significantly improved capabilities and benefits.

Visual Studio 2015

Customers who had active Visual Studio Ultimate with MSDN or Visual Studio Premium with MSDN subscriptions were automatically converted to Visual Studio Enterprise with MSDN.

MSDN OS is no longer available for purchase. Active MSDN OS subscribers can renew into Visual Studio Professional with MSDN.

Visual Studio 2013

There were no Visual Studio subscription transitions with the release of Visual Studio 2013.

Visual Studio 2012

Customers who had active Visual Studio Professional with MSDN Embedded (also called MSDN Embedded) subscriptions as of August 2012 were automatically converted to Visual Studio Professional with MSDN. All other subscriptions mapped directly to their successors.

2010 Subscription Levels:	Converted to these 2012 Subscription Levels in August 2012:
Visual Studio 2010 Ultimate with MSDN	Visual Studio Ultimate 2012 with MSDN
Visual Studio 2010 Premium with MSDN	Visual Studio Premium 2012 with MSDN

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Visual Studio Test Professional 2010 with MSDN	Visual Studio Test Professional 2012 with MSDN
Visual Studio 2010 Professional with MSDN	Visual Studio Professional 2012 with MSDN
Visual Studio 2010 Professional with MSDN Embedded	Visual Studio Professional 2012 with MSDN
MSDN Operating Systems	MSDN Operating Systems

Visual Studio 2010

Customers who had active Visual Studio subscriptions when Visual Studio 2010 launched in April 2010 were transitioned according to the logic below.

2008 Subscription Levels:	Converted to these 2010 Subscription Levels in April 2010:
Visual Studio Team System 2008 Team Suite with MSDN Premium	Visual Studio 2010 Ultimate with MSDN
Visual Studio Team System 2008 Architecture Edition with MSDN Premium	Visual Studio 2010 Ultimate with MSDN
Visual Studio Team System 2008 Development Edition with MSDN Premium	Visual Studio 2010 Ultimate with MSDN
Visual Studio Team System 2008 Test Edition with MSDN Premium	Visual Studio 2010 Ultimate with MSDN
Visual Studio Team System 2008 Database Edition with MSDN Premium	Visual Studio 2010 Ultimate with MSDN
Visual Studio 2008 Professional Edition with MSDN Premium	Visual Studio 2010 Premium with MSDN
Visual Studio 2008 Professional Edition with MSDN Professional	Visual Studio 2010 Professional with MSDN
MSDN Operating Systems	MSDN Operating Systems

This transition was referred to as "The Ultimate Offer." Additional details can be found here:
http://msdn.microsoft.com/subscriptions/ff625864.aspx

Visual Studio 2008

The Visual Studio 2008 product line did not have any special transitions, so the 2005 subscriptions mapped directly to their 2008 successors.

Visual Studio 2005	Visual Studio 2008
Visual Studio 2005 Team System Team Suite with MSDN Premium	Visual Studio Team System 2008 Team Suite with MSDN Premium
Visual Studio 2005 Team Edition for Software Architects with MSDN Premium	Visual Studio Team System 2008 Architecture Edition with MSDN Premium
Visual Studio 2005 Team Edition for Software Developers with MSDN Premium	Visual Studio Team System 2008 Development Edition with MSDN Premium
Visual Studio 2005 Team Edition for Testers with MSDN Premium	Visual Studio Team System 2008 Test Edition with MSDN Premium
Visual Studio 2005 Team Edition for Database Professionals with MSDN Premium	Visual Studio Team System 2008 Database Edition with MSDN Premium
Visual Studio 2005 Professional Edition with MSDN Premium	Visual Studio 2008 Professional Edition with MSDN Premium

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| Visual Studio 2005 Professional Edition with MSDN Professional | Visual Studio 2008 Professional Edition with MSDN Professional |
| MSDN Operating Systems | MSDN Operating Systems |

Visual Studio 2005

Visual Studio 2005 was a significant transition, including the launch of Microsoft's ALM offerings, branded Visual Studio Team System.

Pre-Visual Studio 2005 Visual Studio Subscription Level	Transition Path
MSDN Universal	Customers had the choice of Visual Studio 2005 Team Edition role: • Visual Studio 2005 Team Edition for Software Architects with MSDN Premium • Visual Studio 2005 Team Edition for Software Developers with MSDN Premium • Visual Studio 2005 Team Edition for Testers with MSDN Premium • Visual Studio 2005 Team Edition for Database Professionals with MSDN Premium
MSDN Enterprise	All active MSDN Enterprise subscribers were automatically transitioned to Visual Studio 2005 Team Edition for Software Developers with MSDN Premium.
MSDN Professional	All active MSDN Professional subscribers were automatically transitioned to Visual Studio 2005 Professional Edition with MSDN Professional.

Licensing White Paper Change Log

Release Date	Scope of Changes
July 2015	• First version covering Visual Studio 2015 licensing
November 2015	• Changed Visual Studio Online to Visual Studio Team Services • Moved Feedback Management from TFS Advanced to TFS Basic CAL • User with a paid Visual Studio Team Services plan has access to basic capabilities in TFS • User with active Test Manager extension has access to Test Management features in TFS • Changed Production Use of Office Professional 2013 to Office Professional 2016

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