PTC SOFTWARE PRODUCTS
LICENSING BASIS

Scope of this Document

This document sets out the licensing basis and restrictions for each of PTC's Licensed Products. In most cases, this document is incorporated into the legal documents governing the Customer's use of software licensed from PTC (collectively the "License Agreement"). In the event of inconsistency between this document and the PTC quote pursuant to which the Customer purchased the licenses (the "Quote"), the Quote shall govern. For example, this document may identify that a product is licensed in a particular way, but if the product name on the Quote specifies a different licensing basis, the Quote shall govern.

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DESCRIPTION OF COMMON LICENSING BASES

"Concurrent User" (CU): Each Concurrent User product license may be used by one individual person at any given time.

Concurrent User products are generally "floating," except:

- Designated Computer (DC): Where the product name contains the words "fixed," "locked," or "node-locked", and for all "Kepware" and "KepServerEx" products, such products are licensed to operate solely on the designated computer on which they are installed.
- License Locked (L): Where the part number contains the suffix "L", such products may only be used with another PTC product to which the product is an extension and the License Locked Product will assume the licensing basis of such other product.
- Multiple Instances: An individual using multiple instances of Concurrent User products at a particular time will in most cases consume that number of licenses. That is, for example, if a user opens two instances of Creo Elements/Direct, that user will be consuming two licenses, not one.

"Designated Server" (DS): Each Designated Server product may only be used on the computer server that is designated by the Customer in connection with the initial installation of the product and that has one unique instance of the applicable installed product application. In the event a computer server is partitioned in any manner (physically, logically or otherwise), the reference in the preceding sentence to "computer server" shall mean each partition of such server, and such Designated Server product may only be used on one of such partitions.

There is a variation of the Designated Server model referred to as "Designated Server (per CPU)". For these products, the license is limited to a server with only one central processing unit (CPU); an additional license is required for each additional CPU.

"Per Core" (PCO): For Per Core products, a license is required for each core of a processor within a system with which the applicable product is executed, as reported by the operating system running the applicable product. For example, if a device is executing PTC software that is licensed on a Per Core basis, assuming each device has two multi-core processors, each with two cores that all execute the software, four licenses would be required. Likewise, if the device had three single-core processors that all execute the software, three licenses would be required. If the operating system that runs the applicable product is within a virtual system (such as VMware) with two virtual cores allocated to the operating system running the applicable product, two licenses are required.

"Per Instance" (PI): For Per Instance products, one license is required for each instance of a system to which the applicable product connects. For example, if an adapter that is licensed on a Per Instance basis enables Windchill to connect to an ERP system and a CRM system, two licenses of such adapter will be required.

"Registered User" (RU): Registered User products may only be used by individual, named registered users on a password basis. The Customer may add and/or substitute from time to time new Registered Users as long as the aggregate number of Registered Users does not exceed at any point in time the number of licenses in effect at such time for that particular product and, provided further, that if a person who was previously a Registered User returns to Registered User status, a new license fee must be paid to PTC at PTC's then current rates. Note that, whereas Concurrent User products can only be accessed by users located in the "Designated Country" as defined below (unless they are "Global" or "Restricted Global" licenses), this restriction does not apply to Registered User products.

"Site License" (S): Products licensed on a "Site License" basis require a license for each Customer location at which such product will be used.

"Demo and Test": Products licensed on a "demo and test" or "non-production" basis (or similar designation), such Licensed Software may not be used in a production environment.

Packages (P): The licensing basis for each component of a PTC product package shall be the same as if such component were being licensed separately, except that the components of each package may only be used with the base seat in the package. For example, the Windchill PDMLink and Windchill ProjectLink Registered User Licenses bundled with the Creo Enterprise XE Package are Licensed on a Registered User basis and must be assigned in combination to a single Creo user.

Bundles (B): Each PTC Bundle contains several different PTC Licensed Products and the licensing basis for each such Licensed Product may differ from the other Licensed Products included in that Bundle. See below for the licensing basis of each component of a Bundle.

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LICENSE RESTRICTIONS COMMON TO MULTIPLE PRODUCTS

Subscriptions: A "Subscription" is a License type that includes a License for a term as specified in the product name, Quote, order agreement or other order documentation, and/or the invoice, and such License includes Support Services during such License Term at no additional fee. For Subscriptions that either start after October 1, 2018 or that renew (i.e., after the initial committed term) after October 1, 2018, and in each case for an initial term or renewal term longer than seventeen months, unless the Quote or order agreement or other ordering agreement specifies that the Subscription is not cancellable, the Customer will have a periodic right to terminate the remaining Subscription (in whole, and not in part) early for convenience, subject to the following: (a) the terminated period(s) must be in twelve month increments counted from the end of the subscription period, and (b) Customer's notice of termination must be received by PTC (at cancellations@ptc.com) during the seven-day period commencing on the date that is five months prior to the beginning of the final twelve (or twenty four) months of the License Term. Termination notices received before or after such seven-day period will not be effective. For example, if Customer orders a 30 month Subscription beginning July 1, 2019, which expires on December 31, 2021, Customer will be able to cancel the period of January 1, 2020 through 12/31/21 (i.e., the final twenty four months) by notifying PTC of termination during the seven day window between August 1, 2019 and August 7, 2019. Customer will then subsequently be able to cancel the period of January 1, 2021 through December 31, 2021 (i.e., the final twelve months) during the seven day window between August 1, 2020 and August 7, 2020.

Virtualization Technologies: Although in some cases it may be possible through the use of virtualization technologies to circumvent the license control mechanisms that PTC employs in order to enforce the above licensing schemes, or to circumvent the intent of such licensing schemes, such practices violate the Customer's License Agreement with PTC. Without limiting the foregoing, Customers may not install or access Designated Computer licenses (also sometimes referred to as "node locked licenses") on or through virtualization technologies.

Third Party Terms: Various PTC products contain or consist of technology from third parties. See the Schedule of Third Party Terms (available at http://www.ptc.com/legal-agreements) for additional restrictions and terms that apply to such third party technology.

Upgrades: For PTC software licensed as an upgrade from a previous version, the Customer must first be licensed for the software identified by PTC as eligible for the upgrade and Customer must be active on Support Services for such software at the time Customer purchases the relevant upgrade. After installing the upgrade, the software licensed as an upgrade replaces and/or supplements the product that formed the basis of the Customer's eligibility for the upgrade and the Customer may no longer use the original software that formed the basis for the Customer's upgrade eligibility.

Interoperability Tools/Toolkits. PTC interoperability tools (e.g., Pro/TOOLKIT, or J-Link, Pro/Web.Link and application programming interfaces) are provided solely for purposes of enabling the Customer (itself or with the assistance of a third party) to cause the Licensed Products to interoperate with the Customer's other computer systems and programs. Customer shall not distribute to any third party all or any part of any such interoperability tool or use such interoperability tools to develop an integration for distribution to third parties. The foregoing does not apply to PTC's MKS toolkit.

Batching. For license types based on numbers of users (e.g., Registered User, Concurrent User, etc.), a License is required for each individual who accesses such Licensed Product or the functionality or data contained therein, whether directly or through a web portal or other mechanism for "batching" or otherwise achieving indirect access to the Licensed Product or such functionality or data. Generic or shared log-ins are not permitted.

Home Use Licenses/Portable License Enabler Licenses:

If the Customer's license is a "home use" license, such license is only for use within the home of an employee or contractor of the Customer who is a primary user of a separate non-home-use license of the same product. More information about home use entitlements and restrictions is located at http://www.ptc.com/legal-agreements/support-documents.

Windchill and Service Intelligence:

The following use restrictions apply to the Business Reporting functionality in Windchill and in the Service Intelligence Product, depending on the license type:

(i) Each license of Windchill (i.e., PDMLink and add-on modules such as MPMLink and RequirementsLink) and each license of PTC's "i" products (i.e., iWarranty, iService, iOwn, iPart and iSupport) includes a license to use the base Business Reporting functionality to: (a) select reports, view reports and set personal preferences (for languages, time zones etc.); and (b) run and schedule reports created by a person using Windchill Business Reporting Author, Service Intelligence Professional Author or Service Intelligence Advanced Business Author, or created by any of the means of report generation which are consistent with

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these use restrictions, interact with prompts, output the reports to other formats such as PDF and CSV, subscribe to a scheduled report, create and manage report folders and portal pages, personalize standard reports, and receive notifications, and (c) use the Business Insight to create interactive dashboards. One of these licenses may also be used for administration of the Business Reporting Software, with the additional permission to setup, deploy, configure and manage the Business Reporting software and components within the Customer's environment, use the Framework Manager to define and publish metadata, and in the case of Service Intelligence Administrators, to use Portal, Query Studio, Report Studio, Analysis Studio, Business Insight and Business Insight Advanced to author, publish, generate and view sophisticated and interactive reports, analysis, queries and dashboards.

(ii) A "Windchill Business Reporting Author" or "Service Intelligence Professional Author" license allows for the same functionality as clause (i) above, except that, in addition, the Customer may permit the specified number of Registered Users to use the Business Insight Advanced, Query Studio and Report Studio module and functionality and to model metadata via the Framework Manager.

(iii) A "Service Intelligence Advanced Business Author" license allows for the same functionality as clause (i) above, except that, in addition, the Customer may permit the specified number of Registered Users to use the Business Insight Advanced, Query Studio and Analysis Studio module and functionality and to model metadata via the Framework Manager.

(iv) A "Windchill Business Reporting Monitor" license means the Customer may permit the specified number of Registered Users to use the Event Studio module.

The Customer is required to configure the Business Reporting functionality to ensure that each user will be restricted from using any reporting functionality other than that licensed, as specified above. The Business Reporting functionality is only permitted to be used only with PTC products and not independent thereof.

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GEOGRAPHICAL RESTRICTIONS ON INSTALLATION AND/OR USE OF PTC PRODUCTS

Restriction on Installation Location. Except for "Global" licenses (as specified in the product name), all of PTC's products are restricted such that they may only be installed in the country of purchase (referred to in the License Agreement as the "Designated Country"). Where Customer desires to change the country of installation, Customer is required to notify PTC and, where the list prices for such licenses are higher in the proposed new country of installation, uplift fees are required based on the difference.

Restrictions on User Location (Concurrent User Products). Except for "Global" and "Restricted Global" licenses, PTC products that are licensed on a Concurrent User basis may only be used by persons physically located in the country where the products are installed, and all of the software components shipped as part of that product (for example, client code and license server) may only be installed in the Designated Country. However, where a person who is normally located in that country is traveling abroad, that person can "borrow" the license for a limited period of time (for most products two weeks), during which time period such license is not available on Customer's network. Users who are not employees of the Customer may use PTC products licensed on a Concurrent User basis only while physically located at a Customer site. **THE RESTRICTIONS IN THIS PARAGRAPH APPLY ONLY TO CONCURRENT USER PRODUCTS, NOT TO PTC PRODUCTS THAT ARE LICENSED ON A DIFFERENT BASIS THAN CONCURRENT USER.**

Global/Restricted Global Licenses.

Global Licenses. A "Global" License allows the Customer to install, operate and use such Licensed Product at any of the Customer's site(s) throughout the world, notwithstanding any restrictions in the License Agreement in relation to limiting use of Licensed Products to the country of installation, but subject to compliance with all applicable export laws and regulations.

Restricted Global Licenses. A "Restricted Global" License allows the Customer to install, operate and use such Licensed Product at any of the Customer's site(s) located in the Designated Country and/or in any Permitted Country, notwithstanding any restrictions in the License Agreement in relation to limiting use of Licensed Products to the country of installation. "Permitted Countries" means China, India, Russia, the Czech Republic, Poland, Hungary, Malaysia, South Africa, Israel, Mexico, Brazil, Argentina, and Romania.

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LICENSING BASIS TABLES

Creo and Other PTC MCAD and Simulation Products

Licensed Product Name	Licensing Basis
Creo Family of Products (except as noted)	Concurrent User
Creo Extensions	Concurrent User or Designated Computer (as designated in the part number)
Creo Application Programming Toolkit	Registered User
Creo View **(2)**	Registered User or Concurrent User
Creo View Adapters	Designated Server or Registered User
Creo View Toolkits	Per Instance
SD/Fast	Designated Computer

Licensed Product Name	Licensing Basis
Creo Elements/Direct Family of Products (except as noted)	Registered User **(1)**
Creo Elements/Direct Modeling Personal Edition	Registered User (except that, after this Licensed Product is assigned to a Registered User, the License may not be re-assigned to any other user even if the original Registered User ceases to be employed by the Customer)
Creo CADDS	Concurrent User
Rights Management User Licenses	Registered User
Creo View Express	See note (3) below
Creo Illustrate	As specified in the product name for perpetual licenses

(1) Creo Elements/Direct: Creo Elements/Direct may not be installed on servers with more than 4 sockets. In addition, Customer must purchase a minimum of 5 licenses per processor on the server on which Creo Elements/Direct is installed.

(2) Creo View ECAD: Whenever a Unix version of Creo View ECAD software incorporates Mainsoft's MainWin Dedicated Libraries, the following additional terms apply:

- A 3 to 1 ratio may not be exceeded between the number of users with access to the Creo View ECAD software and the number of licenses purchased; and
- Mainsoft's proprietary rights and the Libraries are protected to the same degree as the terms and conditions of the Agreement and PTC makes no representations or warranties on behalf of Mainsoft. Microsoft Corporation is a third party beneficiary of this License Agreement.

(3) Creo View Express: PTC makes Creo View Express available for download free of charge on www.ptc.com. Notwithstanding anything to the contrary in the License Agreement, Customer may embed Creo View Express in products Customer makes available to its customers and thereby distribute Creo View Express to such customers.

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PTC Mathcad Products

Licensed Product Name	Licensing Basis
PTC Mathcad	Concurrent User or Designated Computer, based on the name of the product and/or as shown on the PTC Quote Student Edition is always Registered User and notwithstanding anything to the contrary elsewhere in this document, may not be re-assigned to any other user even if the original Registered User ceases to use the product.
Mathcad Server	This product is licensed on a Designated Server basis, and is not limited to a specified number of submissions to the server for calculation per subscription year. Each license of Mathcad Server includes three Concurrent User licenses of PTC Mathcad - one for production, one for test, and one for development. The development license may also be used for worksheet authoring purposes. The other two are to be used to run Mathcad Server in production and in test, and cannot be used for worksheet authoring purposes.

Arbortext Products

Licensed Product Name	Licensing Basis
Arbortext Family of Products	Concurrent User (except as noted below)
Arbortext Publishing Engine	Designated Server (per CPU)
Arbortext Content Manager	Registered User
Arbortext Adapter to Oracle Content Manager	Designated Server (per CPU)
Arbortext Adapter to Oracle CM/SDK	Per Instance
Arbortext IETP Viewer - S1000D	Designated Server (per CPU)
Arbortext LSA Interface	Designated Server

Licensed Product Name	Licensing Basis
Arbortext Provisioning Transaction Manager	Concurrent User
Arbortext Learning Content Manager - S1000D	Designated Server
Arbortext IsoView Distribution Kit	Site License **(1)**
Arbortext Dynamic Link Manager	Designated Server
Structured Product Labeling	Designated Server
Arbortext Advanced Print Publisher – Enterprise	Designated Computer, Designated Server or per CPU, as specified in the product name
Arbortext CSDB - S1000D	Concurrent User
Web Access/Expert Users	Registered User

(1) Arbortext IsoView Distribution Kit: Notwithstanding anything to the contrary in the License Agreement, a Distribution Kit License of the Arbortext IsoView Licensed Product permits the Customer to: (i) use Arbortext IsoView in a single building or group of buildings that share a common physical address to develop Interactive Electronic Technical Manuals ("IETM") or a software application that must have significant additional functionality to the functionality of the Licensed Products and/or significant additional and primary content (e.g., an IETM) ("Application"), and (ii) sublicense to Customer's end-users, without the right to further sublicense and subject to the terms of this paragraph, the applicable installation program files and included runtime components, as bundled in an IETM or other significant content or an Application, solely for use in connection with such IETM/significant content or Application. The right to sublicense Customer's end-users shall not apply unless an Application has significant additional functionality and significant additional and primary content. If Customer installs such installation program files on Customer's webpage(s) for presentation of illustrations such installation programs files must be protected by requiring the use of a restricted password. Any such sublicense may only be granted to Customer's end users who agree to abide by all of the terms and conditions of the License Agreement with respect to such use. Customer shall not remove any proprietary notices or labels contained in the Arbortext IsoView Licensed Products and shall include a valid copyright notice with each copy of the IETM and Application. If Customer uses or distributes runtime components or their copies as part of the Arbortext IsoView installation files, Customer shall indemnify and hold PTC and Microsoft Corporation harmless from all and any claims caused by this distribution and use by its end-users.

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SLM/Servigistics Products

Licensed Product Name	Licensing Basis
Third Party Products **(1)** Informatica Intellicus Navteq Google Maps	 Each license entitles Customer to use Informatica on up to 8 cores Designated Server or Concurrent Report Limited **(2)** Registered User Unlimited geo-coding and 250,000 annual page views
Field Service Management	All Registered User, except for the base package, which is Site License

Licensed Product Name	Licensing Basis
Service Knowledge and Diagnostics • Servigistics Service Knowledge and Diagnostics - includes 5 Advisor Studio and 5 Advisor for Analytics* • Servigistics Advisor for Self Service - B2C • Servigistics Advisor for Contact Center • Servigistics Advisor for Field Service • Servigistics Advisor Offline • Servigistics Advisor for Analytics - 5 Pack • Servigistics Advisor Studio • Servigistics Advisor Service Session for Call Center • Servigistics Advisor Service Session for Field Service * For Subscription offerings, Servigistics Advisor Studio and Advisor for Analytics are included in the Site License	Package Site License Registered User

The Service Parts Management family of products are licensed based on the following two models

1. If the Quote specifies "PMI" as the licensing basis for this product, in such case the license is limited by the value of inventory that is included in the software (using the values assigned by the Customer as specified in the software and consistent with the values of such inventory as stated in the company's audited financial systems). It is sold in blocks of US$1 million (or such other currency as may be specified in the Quote), with each quantity unit ordered representing US$1 million of Customer inventory. Additional restrictions (e.g., geographic, divisional, etc.) may be specified in the order documents. Customer will be required from time to time upon request to inform PTC of the value of the inventory included in the software. All parts, at all locations (parts times locations) input to the SPM system is considered inventory (e.g. forecasted, optimized, supply/demand planned, repaired, balanced, etc) regardless of the condition of the inventory (e.g., on hand new, on hand fixed, on hand bad, on order, in return, in repair).
2. If the Quote refers to "PXL" as the licensing basis for a product, the calculation of the number of PXLs required shall be determined by multiplying the number of part numbers in the software times the number of locations in the software. For example, without limiting the foregoing, if Customer includes in the software 10,000 part numbers and 4 locations, Customer will be managing 40,000 "PXLs" and would need to purchase a quantity of at least 40,000 PXLs.

Service Parts Pricing is licensed based on the annual Customer revenue from the sale of service parts that are being managed by the software. It is sold in blocks of US$1 million (or such other currency as may be specified in the Quote), with each quantity unit representing US$1 million of annual Customer revenue. Additional restrictions (e.g., geographic, divisional, etc.) may be specified in the order documents. Customer will be required from time to time upon request to inform PTC of the annual revenue from the inventory included in the software. Additional restrictions (e.g., geographic, divisional, etc.) may be specified in the order documents.

Service Network Management family of products

Perpetual licenses for this family of products are licensed based on the number of locations (Customer or third party) where inventory is stored that is included in the Licensed Product. The "Foundation" license includes 25 locations. Additional locations can be added by "additional location" licenses.

Subscription licenses for this family of products are licensed based on PMI (as described above).

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Warranty & Contract Management	Designated Server **(4)**
Warranty Analytics **(3)**	Registered User **(4)**
Warranty products	Concurrent User **(4)**
Warranty Web Access	Designated Server **(4)**
Warranty Registration	Designated Server **(4)**

Service Center	Designated Server
iService	Concurrent User
iSupport	Concurrent User
iParts	Concurrent User
InService	Per instance of the InService system, except InService Viewers and Public Access, which are Registered User

(1) The Servigistics third party products are subject to restrictions and terms and conditions that PTC is required to flow down to Customer, as set forth on the PTC Schedule of Third Party Terms available at http://www.ptc.com/legal-agreements. PTC hereby assigns to Customer all assignable warranties and indemnities granted to PTC by the third party providers of the applicable third party products as set out in such third party terms.

(2) "Concurrent Report Limited" means that the Product is limited in how many reports can be generated at a given time. Thus, for example, if Customer purchases a "5-Pack" of this Product, only five reports can be generated at any given time.

(3) The Service Intelligence bundle includes 1 Administrator, 2 Advanced Business Authors and 1 Professional Author. Note that additional Advanced Business Authors can also be purchased under this product name.

(4) See page 3 of this document for additional terms relating to the Service Intelligence functionality in PTC's Warranty products.

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Windchill Products (1) (11) (12) (15)

Licensed Product Name	Licensing Basis
Windchill Family of Products (except as noted)	Registered User
Windchill Enterprise Systems Integration (except as noted)	Designated Server
Windchill Enterprise Systems Integration Adapters	Per Instance **(4)**
Windchill Info*Engine Adapters	Per Instance
Materials Compliance	See below **(5)**
GDX Connector Subscriptions	See below **(5)**
UDI Solution	UDI **(7)**
MPMLink	Registered User **(8)**
MPMLink View and Print	Active User **(9)**
Windchill Bulk Migrator	Site License

Licensed Product Name	Licensing Basis
Windchill Quality FRACAS, FMEA, FTA and Prediction	Concurrent User
Windchill FlexPLM	Registered User **(2)**
PTC's Retail IoT ADK (Application Developer Kit)	Registered User **(3)**
Pro/INTRALINK Family of Products (except as noted)	Concurrent User
Pro/INTRALINK Toolkit Access	Registered User
Windchill PDM Essentials	Registered User **(6)**
Windchill External Server Access Navigate Author Application Development Kit	Registered User (**1**)
GPD Packages	See below **(10)**
Windchill Service Information Manager	See below (**13**)
Windchill Platform Structures	Active Daily User (ADU) (**14**) or Registered User, as the product name specifies

(1) Integrations. If the Customer creates an interface or otherwise enables access between a Windchill implementation and a non-PTC system, Customer must purchase a license of either Navigate Author Application Development Kit or Windchill External Server Access for each user with access to Windchill.

(2) Windchill FlexPLM

FlexPLM "Light User" licenses may only be assigned to users who do not have substantial duties within the following organizations or functional areas within the Customer's organization: System Administrators, Technical Designer, Designer, Fabric Development, Color Development, Fit Specialist, Merchandising, Product Quality, and Sourcing ("Light Users"). The Customer may not assign (or reassign) Light User licenses to persons who are not Light Users unless and until Customer pays the applicable upgrade fee(s) for software and Support Services.

FlexPLM "Supplier Licenses" or "External User Capacity" licenses may be assigned only to users who are vendors, third parties and others external to the Customer and its affiliates ("External Users"). External User licenses may be reassigned to another External User at no additional license fee, except that an External User license may not be used by more than one External User during any calendar month.

Registered Users of FlexPLM also receive entitlements to use certain role-based applications (e.g., the FlexPLM TechPack Access App). These applications are limited to use by Registered Users of FlexPLM and may only be used for the following purposes:

1. to execute applications to view and print information from solutions sold by PTC and delivered through the components bundled with the role-based applications.
2. to install the ThingWorx server for the sole purposes of accessing FlexPLM data as applicable to the role-based applications and configuring details required for the role-based applications.

Certain FlexPLM modules are sold on an "as is" basis, as specified in the product name. Notwithstanding anything to the contrary in the License Agreement, these modules are sold without any warranty or support services whatsoever. In addition, certain of these modules include the right to install the ThingWorx server modules specified below for the sole purpose of enabling the integration of FlexPLM and the applicable third party product(s). No other use of ThingWorx is permitted.

- ThingWorx-Utilities
- ThingWorx-Utilities-Installer
- ThingWorx-Platform-Mssql (for SQL Server DB)
- ThingWorx-Platform-Postgres (for Postgres DB)

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There are also the following FlexPLM offerings that are specific to the consumer products industry. For each offering, only the functionality listed below may be used.

- **FlexPLM for Consumer Products – Line Management**: This offering enables collaboration between marketing / product management user roles and design / development / engineering teams by providing abilities to manage product line plans and communicate these plans to others. The specific features that may be used in this offering are:
  - Plan and placeholder management
  - Color, finish, and palette management
  - Abilty to create & manage products and SKUs
  - Image management
  - Line board creation
  - Season or program management
  - Calendar management

- **FlexPLM for Consumer Products – Product Spec Management**: This offering enables design, development, and engineering teams to manage information relevant to a product's specifications. The specific features that may be used in this offering are:
  - CAD and Windchill Part associations to Products
  - Materials definition and management
  - Supplier management
  - Specificaion management - including BOMs and Packaging and Labeling

- **FlexPLM for Consumer Products – Sourcing and Costing Management**: This offering provides the ability to assign suppliers as finished goods manufacturers and derive finished goods costs for cost and margin analysis. The specific features that may be used in this offering are:
  - Product sourcing
  - Product costing – including RFQ and commitment management
  - Product testing
  - Supplier scorecards

(3) ADK. PTC's Retail IoT ADK (Application Developer Kit) product may be used by Customer only to connect to PTC's FlexPLM product and to other enterprise systems (e.g., Oracle ERP, SAP, CRM systems, etc.). It may not be used to access data from devices – which can include but is not limited to connected products, wearables, production machinery, and physical assets – and any edge servers or services that devices are connected to. It also may not be used to connect to manufacturing systems, processes, and/or operations belonging to the Customer's internal production facilities or the Customer's suppliers' production facilities.

(4) ESI. Each Windchill product which includes "Enterprise Systems Integration" or "ESI" in the name of the product includes one instance of ESI. Customer may purchase additional instances of ESI separately, including licenses for non-production and development use.

(5) Materials Compliance. Materials Compliance solution is licensed as follows:

- The "process adapter" is required where Customer integrates Materials Compliance to another system where Materials Compliance publishes data to such other system. The process adaptor is limited to use on one Designated Server per license and also the product name specifies the limit on the number of users of the system to which Materials Compliance is integrated. A license is not required where the integration only permits data to be published from the other system into Materials Compliance.
- Other than GDX subscriptions (see below), the other licenses of Materials Compliance are licensed on either a Designated Server basis (where the name of the product includes the word "Server") or on a Registered User basis. For the Registered User version of these products, there are two types of licenses as specified in the product name – "author" licenses and "access" licenses:
  - An "author" license permits use of the full functionality of the relevant data in Materials Compliance for the purpose specified by the name of the applicable module. For example, a Materials Compliance Author License permits the user to request, create, modify, approve content/data in Materials Compliance for Materials Compliance purposes. Notwithstanding the foregoing, the Conflict Minerals RCOI Author License does not permit the user to create parts or BOMs or to generate BOM Conflict Minerals Reports. Where the Materials Compliance software is hosted by PTC for the Customer, a "subscription author" license is required, which is the same as an "author" license except that a license is required for each Registered User for each server such Registered User accesses.

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- An "access" license permits the user only to search and view the relevant data in Materials Compliance, and to generate reports, for the purpose specified by the name of the applicable module. For example, a Materials Compliance Access license permits the user to search and view Materials Compliance information in Materials Compliance. Where the Materials Compliance software is hosted by PTC for the Customer, a "subscription access" license is required, which is the same as an "access" license except that a license is required for each Registered User for each server such Registered User accesses.

(6) Windchill PDM Essentials

- Microsoft SQL Server Standard Runtime Edition is bundled and is automatically installed and configured in a Windchill PDM Essentials deployment. No other database or database configuration may be used. PTC's license from Microsoft for SQL Server does not permit Customer to use SQL Server independently from Windchill PDM Essentials, and Customer may not do so.
- Physical or virtual deployment of Windchill PDM Essentials may be used only on a ***single*** Windows Server machine. No other configuration may be used. For example, the default deployment cannot be modified to include multiple front-end webserver machines or separate database servers or database clusters.
- A version of Creo Parametric is installed on the server exclusively to enable publishing of 2-D and 3-D viewables and representation formats such as PDF and IGES. The Creo installation on the server cannot be used interactively (e.g., as an additional design seat).
- The following Windchill functionality is specifically ***excluded*** and cannot be used with a Windchill PDM Essentials deployment:
  - Replication (i.e., Customer cannot set up replica servers or replica vaults in a Windchill PDM Essentials deployment)
  - Parts (EPM Documents and WT Documents may be used but WT Part objects may not be used)
  - Changes (no change objects may be used—only promotion requests may be used)
  - Advanced Configuration Management (options, variants or part baselines may not be used)
  - Catia, Unigraphics, Creo CADDs workgroup managers (These Workgroup managers are not installed for download on the server may not be used with Windchill PDM Essentials)
  - ECAD workgroup managers (The ECAD workgroup managers are not installed and may not be used with Windchill PDM Essentials)
  - Indexed search (Database attribute-based search is configured out of the box and may be used but SOLR Search is not configured and therefore no indexed search may be used)
  - PDMLink module add-ins (PDMLink modules such as Windchill ProjectLink, Windchill MPMLink, Windchill PartsLink, Windchill Quality) cannot be added to this product. The Customer must first upgrade to PDMLink before the add-on modules may be deployed)
  - ERP integration
  - Cognos Reporting integration
  - ESI integration
  - Packages (for exchanging data among systems)
  - Security labels and agreements
- Customer is not allowed to use Windchill Info*Engine with Windchill PDM Essentials except in the following cases:
  - Use of the JNDI adapter is allowed to enable directory services integrations such as with Microsoft Active Directory. No other Info*Engine adaptors may be used.
  - Use of Info*Engine queries and tasks to export data for read-only use in external systems (such as in ERP or MRP systems) is allowed. The ESI and ERP integrations may not be used and bi-directional integration with any external system other than a directory service may not be created.

(7) UDI Solution. For PTC's UDI Solution, two different licenses are required – core system licenses and agency submittal licenses:

- Core system licenses enable management, replication and approval of UDI data.
- Agency submittal licenses enable UDI regulation compliant submission, as well as submission retention and monitoring and auditing capabilities, and also include user training specific to UDI usage.

Each UDI license covers up to the number of Devices indicated in the product name. Thus, for example, without limiting the foregoing, if Customer has 30,000 actively-marketed Devices registered with the U.S. FDA and 10,000 actively-marketed Devices registered with the UK Medicines and Healthcare products Regulatory Agency, then in that case:

- If all 10,000 Devices registered with the in the UK are a subset of the 30,000 registered in the U.S., Customer would need 3 "10,000 Device" core system licenses and 16 "2,500 Device" agency licenses (12 for the U.S. FDA and 4 for the UK Medicines and Healthcare products Regulatory Agency) (assuming the 10,000 Devices registered).
- If there is no overlap, then Customer would need 4 licenses of the core system and 16 of the agency licenses.

A "Device" means a product make or model that Customer has registered with any regulatory agency and that is being actively marketed by Customer.

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(8) MPMLink. For MPMLink part #5405-F, the ESI functionality incorporated therein may only be used for integration with GEIP's MES Systems, and for no other purposes.

(9) MPMLink View and Print. "Active User" means that a license is required for each Permitted User who accesses the product in a given calendar month solely for purposes of viewing and/or printing data stored in the product; provided, however, that the restriction in the License Agreement against generic log-ins is not applicable for this license type where a number of individuals are sharing a workstation in a manufacturing environment (e.g., on a shop floor or an assembly line). This View and Print license is limited to the Permitted User viewing and printing information related to the creation and support of the manufacturing plan (e.g., mBOMs, eBOMs, manufacturing plans, operations, resources, 2D or 3D representations, tooling requirements and quality documentation).

(10) GPD Packages

GPD Package I - Limitations of Use

- The following Windchill functionality is specifically *excluded* and cannot be used with a GPD Package I deployment:
  - Parts (EPM Documents and WT Documents can be created but WT Part objects cannot be created or managed)
  - Changes (no change objects can be used—only promotion requests can be used)
  - Advanced Configuration Management (options, variants, or part baselines)
  - Packages (for exchanging data among systems)
  - Security labels and agreements
- The following workgroup managers *are* included with GPD Package I and any of these workgroup managers can be used by any, heavy Registered User at any time. Other workgroup managers are not included in the GPD Package I and may be purchased separately.
  - AutoCAD
  - Inventor
  - NX
  - SolidWorks
- Windchill Info*Engine Adapters cannot be used with the GPD Package I with the following exceptions (Windchill Info*Engine server and access licenses can be separately purchase to enable full use of Windchill Info*Engine capabilities):
  - Use of the JNDI adapter is allowed to enable directory services integrations such as with Microsoft Active Directory. No other Info*Engine adaptors may be used.
  - Use of Info*Engine queries and tasks to export data for read-only use in external systems (such as in ERP or MRP systems) is allowed. The ESI and ERP integrations may not be used and bi-directional integration with any external system other than a directory service may not be created.

GPD Package II – Limitations of Use

The GPD Package II allows a Registered User to use the Windchill ProjectLink collaboration capabilities only. The following project planning, scheduling and resource management features are *excluded* from this package:

- All actions associated with creating and managing a project plan (no creation or management of project activities, assignments, timelines, milestones or deliverables is permitted)
- All actions associated with managing project resources
- Advanced Configuration Management features for Options & Variants (these capabilities require a Platform Structures license).

(11) Heavy/Light/External User/View & Print (not applicable to Windchill Flex PLM or MPMLink View and Print)

Windchill "Light User" licenses may only be assigned to Registered Users who primarily work within the following organizations or functional areas within the Customer's organization ("Light Users"): manufacturing, production; purchasing; finance; quality; sales; service and support; and marketing. However, any Registered User who has substantial duties within the following areas shall not be considered a Light User: product engineering; application engineering; product management; Windchill system administration; program office; technical publications and procurement engineering. Light User licenses may not be assigned (or reassigned) to persons who are not Light Users unless and until the Customer pays the applicable upgrade fee(s) for software and Support Services.

Windchill "External User" licenses may be assigned only to Registered Users who are vendors, third parties and others external to the Customer and its affiliates ("External Users"). External User licenses may be reassigned to another External User at no additional license fee, except that an External User license may not be used by more than one External User during any calendar month.

Windchill "View/Print License" means that the License is limited to the following basic Windchill capabilities: (a) ability to perform full-text searches using the Windchill search engine to locate Windchill managed objects via matches against keywords found in metadata and

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content data, (b) the ability to perform database searches to locate Windchill managed objects via matches against metadata, (c) the ability to traverse cabinet/folder information classification structures to find Windchill-managed objects, (d) for any managed object found via any of the foregoing methods, the ability to view a "Properties" page that outlines metadata properties of the Windchill-managed object and provides the ability to download file content should any content exist as part of the object, (e) the ability to print objects, and (f) the ability to open viewables in Creo View and to view and measure the viewables in 3D but not to mark up the viewables. Without limitation, the following functionality is specifically excluded from View/Print Licenses: (1) the ability to participate in workflows and lifecycle action items, (2) the ability to upload content files or to modify metadata in any fashion, and (3) the ability to create or modify data.

(12) See page 5 of this document for additional terms relating to the Business Reporting functionality in PTC's Windchill products.

(13) Windchill Service Information Manager

Windchill Service Information Manager "Standard" means that the user is restricted to the following capabilities: Publication Structures, Translation Capabilities, version control, XML, illustrations, and graphics management, along with actions required to create, manage, update and delete information. Without limitation, the following functionality is specifically excluded from Standard Licenses: Information Structures, Change Management, graphical navigation authoring, Options and Variants, Effectivity / Service Effectivity.

Windchill Service Information Manager "Reviewer" means that the user is restricted to the following capabilities: read-only access to content with the ability to review information (in supported viewers), add comments/annotations, and complete assigned review and approval tasks.

The Windchill Service Information Manager - S1000D Module license grants user to a subset of Platform Structures capabilities. Namely, the S1000D license enables users to Create Options and list-based Choices, assign these Options and list-based Choices to S1000D data modules using the "Manage applicability" actions. This S1000D license shall also permit users to filter the S1000D information structure using Saved Filter and Variant Specification tools. System administrators may also programmatically import variant specifications to filter and manage these information structures. Other Platform Structure license capabilities such as defining and managing rules, or importing eBOMs shall require a full Platform Structures license.

(14) Windchill Platform Structures. "Active Daily User" means that the product is licensed on the basis of the number of unique users who access Platform Structures content at any time during a 24 hour calendar day. For example, if a user accesses Platform Structures content 3 times on a Monday and 2 times on the following Friday, then the user is counted as a single active user on both Monday and Friday only. The 24 hour period is defined using the time zone set for the connected Windchill server. Platform Structures content is defined as any content that includes configurable parts.

(15) Windchill Profiles. Various Windchill products are role-based (e.g., "author", "contributor", etc.). Different roles are entitled to use different functionality in such products, and it is necessary for the Customer's Windchill administrator to assign users to the correct roles corresponding to the licenses purchased by the Customer.

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ThingWorx Core Products

PTC has three licensing models for ThingWorx core products: (i) the ThingWorx Smart Connected Products model, (ii) the ThingWorx Smart Connected Operations model, and (iii) the ThingWorx Legacy Model. Each of these licensing models is described below.

ThingWorx Smart Connected Products ("ThingWorx SCP")

The ThingWorx SCP model allows Customers to license the IoT Platform for connecting Customer's products and for building and running IoT applications. The licensing basis for each Licensed Product in the ThingWorx SCP model is detailed in the table below:

Licensed Product Name	Licensing Basis
ThingWorx SCP Platform Edition (1)	SCP
SCP Named Users (2)	IoT
Assets (3)	IoT
DSE Storage (4)	Per Core (can only be purchased with the Enterprise Edition)
ThingWorx Analytics (5)	Per Core
Software Content Management	License required for each Instance (as defined below in note 1 below)
Additional Production Limited Instance (6)	Designated Server

(1) There are different ThingWorx SCP Platform "Editions": Premium Edition, Professional Edition, and Enterprise Edition. Each ThingWorx SCP Platform Edition includes one Instance for production usage and an unlimited number of Instances for non-production use only. Each ThingWorx SCP Platform Edition includes a designated number of SCP Named Users, Assets, and ThingWorx SCP Platform Edition-specific features as set forth in the table below. The ThingWorx SCP Platform can be installed on the Customer's physical premises or at the Customer's designated hosting provider. An "Instance" means a dedicated deployment of application servers, all of which are located in one physical location, and the corresponding shared database. Each ThingWorx SCP Platform Edition includes the "ThingWorx agents" or "Edge Microservers" and a ThingWorx SDK used by the Customer to add connectivity into the Customer's run-time applications. The "ThingWorx agents," "Edge Microservers," and Customer's applications created with a ThingWorx SDK are unlimited and distributable with connected products, but only for use with ThingWorx products.

	Premium Edition	Professional Edition	Enterprise Edition
Assets (included)	50	75	100
SCP Named Users (included, more may be purchased separately)	5	5	5
ThingWorx Analytics	Anomaly detection functionality only. Limited to 4 cores.	8 cores included	16 cores included
Starter/Standard Success Plan	Included with each Edition; access is limited to number of licensed SCP Named Users		
eLearning (Registered Users)	1 license included with each SCP Named User		
ThingWorx Foundation	Included	Included	Included
Technical Support	Silver	Gold	Gold+

(2) "SCP Named User" (designated as "IoT") means a log-in ID that enables access to the ThingWorx Platform directly or via an intermediate application and that is logged into the Software more than 5 hours per month. This licensing basis is a variant of the Registered User licensing basis, however, in this case, a User may have a log-in, or might be someone (e.g., a factory-floor employee) who accesses data through another system or through a shared log-in or screen. Users are counted on an individual basis, not on a concurrent basis.

(3) "Asset" (designated as "IoT") (also sometimes referred to in the product itself or elsewhere as a "Device" or a "Thing" or a "Remote Thing") means a sensor, device, machine, system, web service, etc. that is modeled (represented) and/or registered as an asset (or "device" or "thing" within the Licensed Product) or any separately defined part of the foregoing if it is being treated as a separate asset within the software. For example, without limitation, an Asset could be a brake press, industrial dryer, another computer system, or a set of individual components within those machines if modeled or registered as a separate asset in the software), etc.

(4) "DSE Storage" (DataStax Enterprise) is an optional technology component that may be licensed for use in conjunction with the ThingWorx SCP Platform Enterprise Edition, only. DSE Storage may be added to an Enterprise Edition on a Per Core basis. Customer may use their own DSE licenses with the ThingWorx SCP Platform Enterprise Edition, however these "bring your own" DSE licenses are not entitled to PTC technical support.

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(5) "ThingWorx Analytics" enables machine learning capabilities and other analytic services for the Internet of Things. ThingWorx Analytics may be licensed for use in conjunction with the ThingWorx SCP Platform Professional and Enterprise Editions, only. ThingWorx Analytics is licensed on a Per Core basis. Analytics Server may be run in single-server or distributed mode. In distributed mode, only CPU cores running ThingWorx analytics code (e.g., API interface, analytics workers) require a Per Core license.

Each Named User that accesses the ThingWorx Analytics UI functions must be licensed as an SCP Named User on the SCP platform. Any installed component that delivers analytic computational functionality as indicated in the table above requires a ThingWorx Analytics Per Core license for each physical or virtual CPU core as reported by the operating system on which such component is installed. If the Customer exceeds the compute capacity of the included ThingWorx Analytics cores, the Customer can purchase additional core licenses for additional compute capacity on any of instance running components that deliver computational functionality.

(6) The Additional Production Limited Instance allows a Customer to deploy an Instance on multiple servers with a corresponding shared database that are not located at one physical location. A license of the Additional Production Limited Instance is required for each such non-collocated server. Where there are multiple databases, however, an additional SCP Platform Edition must be purchased for each such Instance.

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ThingWorx Smart Connected Operations ("ThingWorx SCO")

The ThingWorx SCO model allows Customers to license the IoT Platform for connecting and monitoring Customer's internal manufacturing systems, processes, and/or operations related to the production of Customer products, using a Named User-based model.

The licensing basis for each Licensed Product in the ThingWorx SCO model is detailed in the table below:

Licensed Product Name	**Licensing Basis**
ThingWorx SCO Platform Edition (1) (2)	SCO
SCO Named Users (4)	IoT
Assets (5)	IoT
ThingWorx Manufacturing Apps (3)	MA
DSE Storage (6)	Per Core (can only be purchased with the Enterprise Edition)
ThingWorx Analytics (7)	Per Core
Software Content Management	License required for each Instance (as defined below in note 1 below)

(1) There are different ThingWorx SCO Platform "Editions": Free Edition, Standard Edition, Premium Edition and Enterprise Edition. Each Edition includes one Instance for production usage and an unlimited number of Instances for non-production use only (except where PTC is hosting the Licensed Products for Customer, in which case the entitlement is one non-production Instance). Each Edition includes a designated number of SCO Named Users, Assets, and Edition-specific features as set forth in the table in Note 2, below. An "Instance" means a dedicated deployment of application servers and the corresponding shared database. Each Edition includes the "ThingWorx agents" or "Edge Microservers" and a ThingWorx SDK used by the Customer to add connectivity into the Customer's run-time applications. The "ThingWorx agents," "Edge Microservers," and Customer's applications created with a ThingWorx SDK are unlimited and may be used only with ThingWorx Assets.

(2) Each ThingWorx SCO Platform Edition comes with the entitlements specified in the table below:

	Free Edition	**Standard Edition**	**Premium Edition**	**Enterprise Edition**
Assets (maximum)	Unlimited	500	500	2,500
SCO Named Users (included, more may be purchased separately)	Unlimited	5	10	15
ThingWorx Analytics	Customer may not use Analytics with this version	Anomaly detection functionality only. Limited to 4 cores.	Anomaly detection functionality included (all other functionality purchased separately). Limited to 4 cores.	16 cores included
ThingWorx Manufacturing Apps	See Note 3 below			
Starter/Standard Success Plan	Not included	Included with each Edition; access is limited to number of licensed SCO Named Users		

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eLearning (Registered Users)	Not included	1 license included with each SCO Named User		
ThingWorx Foundation	Not included	Included but limited per Note 3 below	Included	Included
Technical Support	Silver	Silver	Gold	Gold

(3) For each of the ThingWorx Manufacturing Apps (currently Controls Advisor, Production Advisor and Asset Advisor, collectively the "Manufacturing Apps"), each Edition includes the functionality entitlements and obligations specified below:

Tier	Licensing Model	Functionality Restrictions	Data Sharing Obligation	Data Retention
Free Edition	Free offering that can be used in production, with no limits on the number of Instances or users.	Customer is prohibited from: (i) editing the out-of-the-box mashups or creating new mashups, (ii) integrating the Manufacturing Apps with other systems, or (iii) exporting any data from the Manufacturing Apps.	Customer is required for each instance to periodically send usage data to PTC at such intervals as PTC requires.	All time series data in the Free Edition is purged after seven days.
Standard Edition	• Base Fee per application on a Per Instance basis. However, the Base Fee for Controls Advisor is waived if Customer purchases one or more other Manufacturing Apps. • Per user fee on SCO Named User basis (5 included with the Base Fee paid for each Manufacturing Apps)	Customer may edit the mashups provided with the out-of-the-box Manufacturing Apps, but is prohibited from creating new mashups (either directly or by excessive editing the existing mashups. Customer may integrate the Standard version with other systems but only for read-only purposes. Customer is prohibited from exporting any data from the Manufacturing Apps.	Not applicable (except as required by the applicable license agreement)	No automatic purging
Premium/Enterprise Editions	Manufacturing Apps are included subject to the SCO Named User and Asset limitations of the edition	Above restrictions do not apply to these editions.	Not applicable (except as required by the applicable license agreement)	No automatic purging

(4) "SCO Named User" (designated as "IoT") means a log-in ID that enables access to the ThingWorx Platform directly or via an intermediate application, regardless of whether such log-in ID is used by one unique person or is shared by multiple people.

(5) "Asset" (designated as "IoT") (also sometimes referred to in the product itself or elsewhere as a "Device" or a "Thing" or a "Remote Thing") means a sensor, device, machine, system, web service, etc. that is modeled (represented) and/or registered as an asset (or "device" or "thing" within the Licensed Product) or any separately defined part of the foregoing if it is being treated as a separate asset within the software. For example, without limitation, an Asset could be a brake press, industrial dryer, another computer system, or a set of individual components within those machines if modeled or registered as a separate asset in the software), etc. The quantity of Assets included with each Edition, as specified above in Note 2, is also the maximum number of Assets that a Customer may connect to each ThingWorx SCO Platform Edition, and Customer must purchase an additional ThingWorx SCO Platform Edition if Customer exceeds the Asset limitation.

(6) "DSE Storage" (DataStax Enterprise) is an optional technology component that may be licensed for use in conjunction with the Enterprise Edition, only. DSE Storage may be added to Enterprise Edition on a Per Core basis. Customer may use their own DSE licenses with the Enterprise Edition, however these "bring your own" DSE licenses are not entitled to PTC technical support.

(7) "ThingWorx Analytics" enables machine learning capabilities and other analytic services for the Internet of Things. ThingWorx Analytics may be licensed for use as specified in Note 2 above. ThingWorx Analytics is licensed on a Per Core basis. Analytics Server may be run in

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single-server or distributed mode. In distributed mode, only CPU cores running ThingWorx analytics code (e.g., API interface, analytics workers) require a Per Core license.

Each Named User that accesses the ThingWorx Analytics UI functions must be licensed as an SCO Named User on the SCO platform. Any installed component that delivers analytic computational functionality as indicated in the table above requires a ThingWorx Analytics Per Core license for each physical or virtual CPU core as reported by the operating system on which such component is installed. If the Customer exceeds the compute capacity of the included ThingWorx Analytics cores, the Customer can purchase additional core licenses for additional compute capacity on any of instance running components that deliver computational functionality.

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Legacy Model

PTC's legacy licensing model is set forth below. This model is only available for Customers who are expanding existing subscription licenses of the applicable Licensed Product(s), and it not available for Customers who do not already have existing licenses of the applicable Licensed Product(s).

PTC's legacy model involves three (and sometimes four) components: (i) a "Base Fee" for use of the platform generally, (ii) "User" licenses, (iii) "Asset" licenses, and (iv) in the case of ThingWorx products, also "Developer" licenses. The licensing basis for each of these license types is in the table below. In addition, there are other add-on functionalities that can be purchased, as specified in the table below.

Licensed Product Name	Licensing Basis
Base Fee **(1)(7)**	Per Core for ThingWorx Enterprise **(2)** Designated Server for ThingWorx non-Enterprise **(2)** "AXB" for Axeda **(3)**
"User" licenses **(4)**	IoT (see below)
ThingWorx Utilities	Designated Server
ML Server	Designated Server but limited to four cores. The ThingWorx Foundation technology that is included in this product, and all ThingWorx Analytics functionality running on the ThingWorx Foundation Server, may only be used to operate the ML Server product and for no other purpose.
ThingWorx Analytics **(8)**	Designated Server but limited to four cores

Licensed Product Name	Licensing Basis
ThingWorx Additional Server	Designated Server
"Developer" licenses	Registered User
"Asset" licenses **(5)(6)**	IoT (see below)
Axeda Additional Sandbox Environment **(7)**	SBX

(1) There are different base fees depending on the Base Fee's Asset and User capacity limits (as designated in the name of the "Base Fee" item description). For Base Fees designated in the product name as "limited", such Base Fee must be upgraded to a non-limited Base Fee if Customer exceeds the maximum number of Users and/or Assets as set forth in the product name. For example, if a Customer purchases a limited Base Fee with a maximum User amount of 50 Users and a maximum Asset amount of 250 Assets, and the Customer purchases 10 Users and 50 Assets, but the Customer's future use increases such that the Customer has more than 50 Users or more than 250 Assets, then at such time Customer must upgrade to a non-limited Base Fee. User and Asset quantities specified in a product name are capacity limitations only, and such Users and Assets are not included with any Base Fee unless such Users and/or Assets are designated as "included" in the product name.

(2) The Base Fee for ThingWorx is sold in two ways.

The "Enterprise" Base Fee is sold on a "per Core" basis. This version of the product includes:

- Two ThingWorx instances (one production, one test/development)
- DSE connectors for the 2 ThingWorx instances
- 20 cores of DSE to run Cassandra and Solr nodes in production
- DSE Ops Console (no DSE cores required)
- DSE development cores supporting Cassandra and Solr for the development instance
- 2 cores of ThingWorx Analytics for evaluation purposes only (and not to be used in production)

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The non-Enterprise Base Fee is licensed on a Designated Server Basis. The non-Enterprise ThingWorx Base Fee includes one test/development license, one production license and two cores of ThingWorx Analytics for evaluation purposes only (and not to be used in production). The ThingWorx Base Fee also includes the "agents" or "Edge Microservers", which are unlimited and distributable with Assets but only for use with the ThingWorx and/or Axeda products. The ThingWorx Base Fee also includes ThingWatcher, which is distributable with Assets but only for use with the ThingWorx products.

(3) "AXB" means that the Customer is entitled to one test/development environment (also referred to as "Sandbox") with up to 100 Assets and 10 Users, and one production environment. AXB includes Axeda agents, Axeda Policy Server, Axeda Deployment Utility and executable (run-time) components in Customer agents developed with Axeda or ThingWorx agent development tools, all of which are unlimited and distributable with Assets but only for use with ThingWorx and/or Axeda products. AXB also includes Axeda codecs (device specific translators), and also includes the right for Customer to copy and install development tools supplied with the Axeda product on any server within the Customer's control.

(4) "User" licenses (designated by "IoT") are licensed based on the number of Users. "User" means anyone that accesses a ThingWorx or Axeda product or an application built using such product directly or via an intermediate application. This licensing basis is a variant of the Registered User licensing basis, however, in this case, a User may have a log-in, or might be someone (e.g., a factory-floor employee) who accesses data through another system or through a shared log-in or screen. Users are counted on an individual basis, not on a concurrent basis. A "Frequent User" license is required for any User who is logged into the software more than 20 hours per month for more than 2 months in a rolling 12 month period.

(5) "Asset" licenses (designated by "IoT") are licensed based on the maximum number of authorized Assets, as defined below.

(6) The Base Fee and Asset licenses for Axeda include the Axeda Remote Service applications.

- "Asset" (also sometimes referred to in the product itself or elsewhere as a "Device" or a "Thing") means a sensor, device, machine, system, web service, etc. that is modeled (represented) and/or registered as an asset (or "device" or "thing" within the software) or any separately defined part of the foregoing if it is being treated as a separate asset within the software. For example, without limitation, an Asset could be a car, a toothbrush, another computer system, weather service, a helicopter (and/or a helicopter engine, if that engine is modeled or registered as a separate asset in the software), etc.
- Asset licenses are categorized in different "Asset Classes," each based on the number of Data Items associated with such Assets. A "Data Item" means a discrete value or location transmitted by an Asset. For example, a transmission of a value of 98 degrees Fahrenheit, transmitted twice, would be two Data Items. Data Items are calculated based on the monthly total, measured based on the entire set of Customer's Assets (i.e., not on a per Asset basis). For example, if Customer has licenses for 100 Class 1 Assets, the Data Item limitation will be 12,500 total Data Items per month. Customer will be required to upgrade to the applicable higher Asset Class if Customer exceeds the monthly Data Item limitation two times in any rolling twelve month period.

	Asset Class 1	**2**	**3**	**4**	**5**	**6**
Data Item Limitation (Per Asset/ Month)	125	1,100	9,000	90,000	180,000	720,000

(7) "SBX" means an additional Axeda test/development environment.

(8) ThingWorx Analytics licenses allow Customer to access and use the ThingWorx platform for user administration and ThingWorx Analytics Server administration purpose, API usage of the ThingWorx Analytics engine, and usage of the ThingWorx Analytics User Interface (UI) extension; any additional use cases require purchase of a ThingWorx IoT platform edition. ThingWorx Analytics comes with five (5) eLearning Registered User licenses.

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Other ThingWorx Products

ThingWorx Industrial Connectivity/Kepware

ThingWorx Industrial Connectivity and KEPServerEX are sold on a Designated Computer and driver basis. The Customer may also be licensed for other Plug-in functionalities/features being used.

ThingWorx Navigate

The licensing basis for ThingWorx Navigate is Registered User for the "Author" license. For the "View" and "Contribute" and View Application Development Kit and Author Application Development Kit licenses, the licensing basis is either Registered User or Active Daily User, as specified in the Quote. "Active Daily User" means that the product is licensed on the basis of the number of unique users who access a ThingWorx Navigate application at any time during a 24 hour calendar day. For example, if a user accesses a ThingWorx Navigate application 3 times on a Monday and 2 times on the following Friday, then the user is counted as an active user for Monday and Friday only. The 24 hour period is defined using the time zone set for the connected ThingWorx server.

Customers using ThingWorx Navigate licenses with Windchill products must associate all user and groups entitled to use the Navigate licenses with the Windchill License associated with the license. For example, all users for whom a ThingWorx Navigate Author license is purchased must be a member of a group associated with a Windchill Author License Profile.

<u>The ThingWorx Navigate – View</u> license grants the Customer the right:

1. to execute applications to view and print information from solutions sold by PTC and delivered through the components bundled with the ThingWorx Navigate apps.
2. to install the ThingWorx server for the sole purpose of delivering ThingWorx Navigate components to view information from solutions sold by PTC. The application components include only the gadgets, widgets, shapes and templates bundled with the ThingWorx Navigate apps.
3. to use the ThingWorx Composer and administration capabilities to configure the application components (Widgets, shapes and templates) bundled with the ThingWorx Navigate apps.
4. to directly log into the PLM enterprise application with view privileges without the need to purchase an additional PLM View and Print license.

Customer may not use any functionality not included in the list above. For the sake of clarity, without limitation, the ThingWorx Navigate – View license specifically does not authorize Customer:

1. to create information in solutions sold by PTC.
2. to use the ThingWorx platform integration capability to:
   a. export information from one PTC solution to another system (including a file system)
   b. acquire information from non-PTC solutions (a separate ThingWorx Navigate View or Author Application Development Kit license is required for this purpose)
   c. create or edit information in a system
   d. build integrations with systems that require components other than those bundled with the ThingWorx Navigate apps.
3. to use the ThingWorx platform to create new components (gadgets, widgets, shapes or templates) in addition to those bundled with the ThingWorx Navigate apps.
4. to use the ThingWorx platform to create new applications that include components (widgets, shapes and templates) other than those bundled with the ThingWorx Navigate apps.
5. to directly access ThingWorx or the PTC Solution Extension layers which are used by the ThingWorx Navigate apps to communicate with solutions sold by PTC.
6. to use the ThingWorx platform to create applications that directly or indirectly acquire information from and/or control physical Assets (for example, physical devices, equipment, and products). A separate ThingWorx Platform license is required to develop applications for physical asset connectivity.

<u>ThingWorx Navigate – Contribute</u>
This license supports all the capabilities included under a ThingWorx Navigate View license as well as those exposed in the Windchill Contribute License Profile.

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In addition to the collaboration capabilities exposed in the Windchill Contribute License Profile, this license also enables a user to use the Navigate Manage Traces apps. Each user of the Navigate Manage Traces App must have both a PLM license to create or edit content in Windchill (such as a Navigate Contribute license) and an ALM solution license (such as an Integrity Lifecycle Manager license).

ThingWorx Navigate – Author

This license supports all the capabilities included under a ThingWorx Navigate View license as well as those exposed in the Windchill Author License Profile.

ThingWorx Navigate – View Application Development Kit (ADK)

This license can only be added to a user with a Thingworx Navigate View, Contribute or Author license or a Windchill or Integrity base license. This license entitles a user to use the ThingWorx Composer and ThingWorx Mashup Builder to create custom apps and to connect to and acquire information from PTC and 3rd Party systems. Each user of a custom viewing app must have view privileges to the content from PTC solutons and 3rd Party solutions that is exposed in the custom viewing app. Each user who uses a custom Navigate viewing app must have this license in addition to a base ThingWorx Navigate View, Contribute or Author license (or Windchill or Integrity base license).

ThingWorx Navigate – Author Application Development Kit (ADK)

This license can only be added to a user with a Thingworx Navigate View, Contribute or Author license or a Windchill or Integrity base license. This license entitles a user to use the ThingWorx Composer and ThingWorx Mashup Builder to create custom apps and connect to PTC and third party systems to both view as well as to create and update information in the connected systems. Each user of the custom app must have the requisite view, create and update privileges to the content of connected PTC solutons and third party solutions that is exposed in the custom authoring app. Each user who uses a custom Navigate authoring app must have this license in addition to a base ThingWorx Navigate View, Contribute or Author license (or Windchill or Integrity base license).

The ThingWorx Navigate View and ThingWorx Navigate Author Application Development Kit (ADK) may be used by Customer only to connect to PTC's Windchill and Integrity products and to other enterprise systems (e.g., Oracle ERP, SAP, CRM systems, etc.). It may not be used to access data from devices – which can include but is not limited to connected products, wearables, production machinery, and physical assets – and any edge servers or services that devices are connected to. It also may not be used to connect to manufacturing systems, processes, and/or operations belonging to the Customer's internal production facilities or the production facilities of the Customer's suppliers.

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Vuforia Products

Vuforia Studio

There are different Vuforia Studio bundles: Starter, Premium, Professional and Enterprise. Each bundle includes the Vuforia Studio Experience Creator, the Experience Service (licensed on a Designated Server basis), Views and the Vuforia View Application with Bundle-specific features as set forth in the table below.Vuforia Studio licenses allow Customer to access and use the ThingWorx platform for user administration purposes only; any additional use cases require purchase of a ThingWorx IoT platform edition. Where the Customer engages PTC to host Vuforia Studio for the Customer, PTC's hosting will be governed by the Cloud/SaaS Service Terms and Conditions set forth at http://www.ptc.com/legal-agreements.

Definition of "View"
A "View" (also referred to as an "Experience" or "EXP") is a presentation of a mix of textual, numeric and 3D data that is presented to a user by the Vuforia View application. The View may include augmented reality interaction and/or "live" data from Things via ThingWorx. A View has a definite "entry point" which is invoked via a user action to select the View. This may be by selecting a "bookmarked" experience, following a scan of a ThingMark, or scanning a designated QR code. There is no definite "exit point" other than exiting Vuforia View or requesting another View. Invoking the same View within 15 minutes will count as a single View. Examples of Views include, without limitation:

- A service experience to instruct a service technician how to perform a service procedure
- A marketing experience to present capabilities of a product to consumers
- A monitoring experience to display live data streaming from a machine

Bundles

Each Vuforia Studio Bundle comes with the entitlements specified in the table below:

	Starter	Premium	Professional	Enterprise
Registered Users (included, more may be purchased separately)	20	200	1,000	10,000
Views (for non-Registered Users)	2,500	10,000	50,000	100,000

Registered Users
Customers may purchase additional Registered Users for users who will author and/or consume Views. There is no limit on the number of Views that may be consumed by Registered Users. Registered User licenses must be issued to persons accessing the A/R experiences who are either (i) employees or contractors of or otherwise engaged by the Customer or (ii) who receive login accounts/passwords to the Customer's Studio instance.

Non-Registered Users
Customers may purchase additional public Views for consumption by individuals who are not Registered Users (up to the number of Views purchased).

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ALM Products (1)(2)(3)

Licensed Product Name	Licensing Basis
Integrity Lifecycle Manager Server family of products (Integrity Lifecycle Manager Server, Integrity Lifecycle Manager Federated Server, Integrity Lifecycle Manager Agent, Integrity Lifecycle Manager Integration Platform, etc.)	Designated Server (except as noted below)
Model Based Systems Engineering and Model Based Software Engineering	Concurrent User (4)
Implementer and Implementer Receiver	Designated Server
Integrity Process Director	Concurrent User (4)
Integrity Process Check	Concurrent User (4)
Requirements and Validation Package	Registered User or Concurrent User (as specified in the product name), except that for the Concurrent User version, each Concurrent User license entitles Customer to four Registered User eLearning licenses (5)

Licensed Product Name	Licensing Basis
Integrity Lifecycle Manager family of products (Integrity Lifecycle Manager, Integrity Lifecycle Manager Source, Integrity Lifecycle Manager integrations (Eclipse, Visual Studio, Word, Excel, MATLAB, etc.))	Registered User or Concurrent User (4)
Integrity Requirements Connector	Concurrent User (4)
Integrity Modeler	Concurrent User (4)
Integrity Asset Library	Concurrent User (4) Designated Server
PERC, APEXADA, ADAWORLD, OBJECTADA, TELEUSE, X32 and MKS Toolkit	As specified in the license agreement
Global Software Development Package	Registered User or Concurrent User (as specified in the product name), except that for the Concurrent User version, each Concurrent User license entitles Customer to four Registered User eLearning licenses (6)

(1) Integrity/Implementer Licenses: Notwithstanding anything to the contrary in the License Agreement, (a) use of Integrity and Implementer software is not restricted to persons located in the Designated Country and (b) for these licenses Customer may not substitute one Registered User for another, except that a Registered User who ceases to be employed by Customer or who permanently ceases to use the license may be replaced with another Registered User.

(2) For Integrity licenses, if the name of the product includes the word "Enterprise", then the Customer may use Integrity to publish and synchronize documents (Requirements and Test Documents) from Integrity to Windchill, allowing the user to publish or re-publish a document and its related content from Integrity to Windchill using the Integrity Integration Platform technology. Once published, PDMLink licensed users can establish traceability / associativity between the documents or content and a relevant set of PDMLink objects. If the product does not include the word "Enterprise", such functionality may not be used.

(3) Permitted Users of ALM solutions may use the Navigate View apps to access solution information in such ALM solutions without the need to separately purchase an additional Navigate license.

(4) For these Concurrent User licenses, the restriction in the License Agreement that the user must be located in the country of installation is not applicable, unless the name of the product includes the words "single site" or the equivalent. The server version of the same product is a pre-requisite to use of these licenses.

(5) Requirements and Validation Package – Limitations of Use

The Requirements and Validation Package allows users to use only the following functionality:

- Integrity Lifecycle Manager:
  - Management and change of requirements and specifications
  - Management and change of test cases, steps, sessions, and results

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- Baseline, review and approval processes for requirements, specifications, and tests
- Validation and verification of requirements, as understood by traditional industry practices
- Administer system configuration, delivery, and deployment

- Integrity Requirements Connector:
  - Exchange requirements between Integrity Lifecycle Manager and IBM Rational DOORs or standard file exchange format (ReqIF and RIF)
  - Administer system configuration, delivery, and deployment

Users are not allowed to use any functionality not listed above. For example, without limitation, the following functionality is not authorized to be used:

- Integrity Lifecycle Manager:
  - Software change configuration management
  - Software build management
  - Issue or defect management
  - Agile or other software process management offerings
- Integrity Requirements Connector:
  - Exchange requirements between IBM Rational and IBM Rational DOORs or standard file exchange format (ReqIF and RIF)
- Windchill integration:
  - Any offerings related to Windchill Integrations to Embedded Software
  - Any integrations related to software (source code, build artifacts) or BOM configurations
  - Any related change management processes between Windchill and Integrity Lifecycle Manager

The Customer's system administrator is responsible for configuring the above software so that only the included functionality is visible/accessible to the user. Instructions for such configuration are provided by PTC.

(6) Global Software Development Package – Limitations of Use

The Global Software Development Package includes functionality of the Integrity Requirements Connector product, users are only authorized to use the following Integrity Requirements Connector functionality:

- Integrity Requirements Connector:
  - Exchange requirements between Integrity Lifecycle Manager and IBM Rational DOORs or standard file exchange format (ReqIF and RIF)
  - Administer system configuration, delivery, and deployment

Users are not authorized to use the following functionality of Integrity Requirements Connector:

- Integrity Requirements Connector:
  - Exchange requirements between IBM Rational and IBM Rational DOORs or standard file exchange format (ReqIF and RIF)

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Training Products and Instructor-Led Training

Training Products

Licensed Product Name	Licensing Basis
All eLearning software licenses (e.g., Pro/FICIENCY, Create, Control, Collaborate, Coach, etc.)	Registered User
Individual Public Training Subscription	Registered User
PTC University Expert Model Analysis Desktop	Designated Computer
Creo eLearning "Extension" licenses	Concurrent User

e-learning Licenses: Customer has the option to host its e-learning software for Customer's internal use on Customer servers. Notwithstanding anything to the contrary in the License Agreement, (a) use of e-learning software is not restricted to persons located in the country of installation and (b) for e-Learning licenses Customer may not substitute one Registered User for another, except that a Registered User who ceases to be employed by Customer may be replaced with another Registered User.

Instructor Led Training

PTC reserves the right to cancel classes five (5) business days or more before the class start date. In such unfortunate circumstances, PTC will endeavor to re-enroll the student in a similar class. However, certain classes in select regions are subject to a special "guaranteed to run" policy that ensures the class will not be cancelled, even if there is only one student enrolled. These classes are marked with a "*" on the schedule search results page.

In order to reschedule a class or cancel a class and receive a full refund, PTC must be notified in writing at least 10 business days prior to the class start date. Any cancellations or changes made after the 10 business day window will be charged 100% of the class price, even if payment information or PO has not yet been received.
Note: Customer may substitute the learner assigned to the class registration at any time with no additional charge.
If payment information or PO is not received within 5 business days of registration, the registration may be cancelled and Customer will nonetheless be held responsible for payment.

For all instructor-led training courses to be delivered at a Customer site, Customer will provide a dedicated classroom/lab area with adequate seating and desk space during the full duration of the course and Customer will provide a dedicated whiteboard and projector for classroom use. Unless purchasing PTC's Mobile Classroom, Customer is responsible for providing all computer hardware and all hardware preparations including software installation prior to the class. Customer will reimburse PTC for the actual Travel and Lodging expenses incurred by the resource while delivering the above services unless otherwise documented. All onsite courses have a capped number of students allowed. Additional students above this cap will be charged an additional fee.

Individual Public Training Subscription

An Individual Public Training Subscription entitles one Registered User to access unlimited PTC University online content and classes for the duration of the purchased subscription term, except as set forth below:

- Maker Lab sessions are excluded.
- Registered User shall be entitled to access only classes and materials available in the applicable region or geography in which the Registered User is located.
- Due to limited class sizes, a Registered User may enroll in only one session of a particular class in any given 90 day period (i.e., a Registered User may not enroll in multiple sessions of the same class in order to hold the seat until he/she determines which session to take). To effectively un-enroll in a class, PTC must be notified in writing at least 11 business days prior to any class start. The Registered User may not enroll in that same class for 90 days if he or she fails to provide the required notice.
- Materials and classes may not be copied or shared.

Registered User log-in IDs and passwords may not be shared between users. Registered Users may be substituted free of charge (a) within the initial 6 months of any subscription, provided there has been no enrollment or consumption of materials at the time of substitution or (b) at the end of each annual subscription term. Otherwise, substitution of a Registered User will result in a transfer fee of 25% of the then-current subscription local list price. Customer must provide PTC with notice at least 15 days prior notice of any substitution request.

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Education/Intern Products

The following Licensed Products may only be used for educational purposes; use for other purposes, in particular for commercial or productive purposes or by regular personnel of Customer, is not permitted and represents a violation of the terms of the License Agreement.

Education/Academic Licenses

If the Licensed Product is identified as "University Plus," "Priced for Education," "Professor's Edition/Version," "Academic Edition/Version," "Classroom," or "Student" or if the name otherwise indicates that it is intended for academic or education purposes, Customer must be enrolled in or employed by an academic institution and must use the Licensed Product solely for educational purpose. If Customer does not meet one of these qualifications, Customer has no right to use such Licensed Products. Without limitation, non-educational research or funded educational research conducted using the facilities of an academic institution or under an academic name does not qualify as "educational purposes" and use of educational software for such purposes and represents a violation of the terms of the License Agreement.

For any educational "site license", such license will be limited to the following number of seats: University – 500; Schools Advanced (Europe Only) – 35; Schools Edition – 300; Windchill – 100 Registered Users. A Schools Edition Site License will automatically terminate if the Customer ceases to have on staff a PTC certified trained teacher with up-to-date credentials (as may be established by PTC from time to time) in the use of the Licensed Product. Customer agrees that it shall require each student to whom the Customer provides a Schools Edition license to sign PTC's then-current Student License Agreement form, and the Customer will provide copies of such agreements to PTC upon request.

Research License

If the Licensed Product is identified as "Research", despite anything to the contrary in the License Agreement, Customer must be a college, university, university-owned research lab or center, or teaching hospital and may only use the Licensed Products for research purposes. In no event shall the Licensed Products be used for commercial purposes, including but not limited to the sale of intellectual property rights generated by the research or the creation of training materials for resale using the Licensed Products.

Intern/Apprentice Licenses

If the Licensed Product is identified as "Intern" or "Apprentice" or if the name otherwise indicates that it is intended for use by interns or apprentices, the Customer shall limit the use of the Licensed Product solely for training of interns or apprentices of Customer (i.e., temporary personnel who are still engaged in a course of study but working at Customer in order to gain practical experience in their field of study). Such training may only be conducted by employees of Customer, and not by employees of any third parties.

Examples	**Academic License**	**Research License**	**Internship License**	**Commercial License**
K – 12 Projects, Undergraduate research projects (*)	X			
Student enrolled in K-12 program or university/college (*)	X			
Graduate student research projects – non-funded	X			
Curriculum development (for internal use only)	X			
Undergraduate research projects – paid or generating IP		X		
Publication of research results in open source platforms		X		
University owned research lab/center		X		
Graduate student projects – funded with deliverables (IP remains property of university)		X		
Curriculum development – open source sharing		X		
Academic non-profits or consortiums		X		
Teaching Hospital			X	
Commercial enterprise uses employees to train undergraduate or graduate interns			X	
Commercial enterprise uses interns to develop commercial IP				X
National Laboratories				X
Start-up commercial enterprises				X
Individual consulting				X
Curriculum development for resale				X

(*) In countries where K-12 is not applicable, references to it above mean primary and secondary education.

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Online Supported Training

Online Supported Training is an offering that entitles one Registered User access to the purchased online content for one year. In addition, the following terms apply: (a) registered user log-in IDs and passwords shall not be shared, (b) support questions will originate from the registered user and pertain to the training content only, and (c) the training materials may not be copied or shared.

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