

PTV Hub

Service Description

Short title	PTV Hub Service Description
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1 General profile

PTV Hub is a subscription-based cloud service that connects with PTV Hub desktop subscription licenses of PTV Visum, PTV Vissim, PTV Viswalk, and PTV Vistro and offers functionality, such as license management, workspaces, model management, cloud computing, and dashboard applications. Users of the PTV Hub service can upload models and result data from PTV Hub desktop licenses to the PTV Hub cloud instance to share them, calculate results, or create dashboards. Collaborative use can happen with team members added as a PTV Hub users, *internal* to or *external*, of the PTV Hub cloud instance.

The *internal* users are defined as those within the *Organization* subscribing to a PTV Hub cloud instance, as defined by the email domain – and *external* users are those invited to the instance, but do not have the same email domain address.

This service description outlines the overall PTV Hub subscription service including the primary components of the cloud-based functionality in a PTV Hub instance and the data transferred to and from the PTV Hub desktop licenses.

As a cloud-based offer, it requires an internet connection and connectivity to the PTV cloud instance and to the PTV Hub desktop licenses to the servers to work.

2 Technical system description

2.1 General

PTV Hub is used as a web client and is recommended to be used with the Google Chrome™ web browser on a desktop computer. Functionality and layouts from untested web browsers and operating system can vary.

PTV Hub operates via Windows Azure™; PTV GmbH's data center and network.

The Service Description is not an assurance of a claim to all variants.

2.2 Technical requirements

2.2.1 *PTV Hub desktop licenses*

The installation of PTV Hub desktop licenses (PTV Visum, PTV Vissim, PTV Viswalk, or PTV Vistro) is required to upload data to a PTV Hub instance. The PTV Hub instance uses data from the current version release of PTV Hub desktop licenses. Older versions of PTV Hub desktop licenses are not guaranteed to be compatible. The Data Transfer tool provided in PTV Hub desktop licenses establishes the connection to PTV Hub.

2.2.2 *PTV Hub cloud instance*

Browser

- Use the latest version of Google Chrome or another Chromium-based browser.
- Web.GL 2.0, Java.Script and Cookies need to be enabled.
- The browser needs to support hardware acceleration.

Client configuration

- Network bandwidth: recommended connection speed 20 Mbps or more.
- Screen resolution: 1600 x 900 (high color quality) or higher.
- Processor: recommended Intel Core i5 or newer.
- Graphics card: needs to support web.GL and hardware acceleration.

Operating systems

- Microsoft Windows 10 or newer.
- Apple Mac OS X Lion 10.12 or higher.
- Chrome OS with Intel-CPU.
- Linux.

Mobile requirements

PTV Hub is not designed for mobile devices. Usage and viewing on a mobile device is at the customer's own risk.

2.2.3 *Performance limitations*

Models data access:

The upload and download times for models and related data heavily depend on model size and the available network bandwidth. We recommend reducing network size e.g. by deleting unrequired result data from base networks to improve speeds.

Models cloud computation:

Model cloud computation performance depends on model size, complexity and on the characteristics of the procedures applied in a model - e.g. how well models scale with the number of available cores or how much memory calculations consume. While PTV operates a high-performance infrastructure for model cloud computation, PTV does not guarantee specific run times for models.

Models requiring more than 240GB of RAM during computation or simulation cannot be computed with the PTV Hub cloud instance.

PTV does not provide selection or control of the infrastructure used for cloud computation to PTV Hub users.

In addition to model complexity, overall time required for model cloud computation also depends on the availability of computation resources and the number of computations (including such from other users) being run concurrently.

Waiting times may apply before computations are started and computations may be executed in parallel or successively depending on the availability of resources.

PTV does not guarantee a specific number of computations in parallel or any maximum waiting times or execution times for cloud computations.

Dashboard animations:

The performance of streaming trajectories for animations in dashboards depends heavily on the available network bandwidth, processor, and graphic card. To minimize waiting times and ensure fluid animations, we recommend adjusting the number of concurrent animated objects in case loading times are too long when playing the animation.

Dashboard static data:

The performance of loading static data depends on the number of data sources, contained objects, and the complexity of their geometries when displayed in a map widget. To reduce loading times, it is possible to restrict the number of uploaded objects before exporting and uploading the data sources, using filters in the dashboard, and simplifying the geometries in the desktop software before uploading them.

3 Service description

3.1 PTV Hub service

A subscription to PTV Hub provides the customer with one PTV Hub cloud instance in which PTV Hub desktop licenses, model data, results, and dashboards are stored and managed. It also contains functionality for user management to add team members and assign roles. Typically, a PTV Hub cloud instance is used to store the information needed for one *Organization* and across multiple projects. A subscription is owned by the initiating user determined by the *Organization* – and the cloud instance can be accessed by the assigned users.

A PTV Hub cloud instance is assigned to a plan. A plan defines the limitations of the cloud instance's functionality.

The plans available for a PTV Hub cloud instance are described in the table in Section 3.2.

3.2 Plans

All current paid plans include the limits and functionality to upload and manage models and results, perform cloud computations, and create, edit, and view dashboards – as described in the following table.

Product limitations	Entry Plan	Custom Plan
Customize plan size	No	Yes
Users	Unlimited users Add <i>internal/external</i> users	
Licenses	Manage unlimited PTV Hub desktop licenses Only for <i>internal Organization</i> users	
Workspaces	Create unlimited workspaces Assign roles and users per workspace	
Models	10 GB storage	200 GB storage
Cloud calculation	5 hrs/month	10 hrs/month
Dashboards	10 dashboards 5 public links	20 dashboards 20 public links
Help	Yes	
Support	Yes	

*A public dashboard is limited/ metered to 500 parallel sessions to provide fair usage of services across all customers, as described in the “Terms of Use – MyPTV” available under https://legaldocs.myptv.com/en/Terms_of_Use_MyPTV_EN.pdf?inline. Anyone that receives a publicly shared link via direct (or indirect) distribution can see the dashboard content. The ID Owner is solely responsible for the use and sharing of protected, licensed, or sensitive information.

The PTV Hub cloud instance and content is accessible by the contracting *Organization’s* designated *Owner* (for example the PTV Hub subscription procurer) requesting the subscription.

Initially, the *Owner’s* account must be created and the user must accept the myPTV ID Terms to create an account and activate a PTV Hub cloud instance. This user is then assigned all access-right groups and has access to all available plan functionality of PTV Hub. This *Owner* may delegate further subscription *Admins*.

The Custom Plan features and limitations enable the *Organization* to add paid upscale packages to increase the plan limits. It is not possible to downgrade a Custom Plan to an Entry Plan.

An *Organization* can upgrade from an Entry Plan to a Custom Plan at any time. This upgrade renews the subscription term and ends any Entry Plan’s free subscription term early. Upgrading a paid Entry Plan to a Custom Plan requires

that the difference in plan prices prorated for the remainder of the subscription term must be made prior to the upgrade.

Only a Custom Plan may be customized with upscale packages to increase functionality like model storage, cloud computation time, and number of dashboards and dashboard public links. The plan must be upgraded to the Custom Plan before adding upscale packages.

It is not possible to decrease the number of models storage packages or dashboard packages.

If a PTV Hub subscription ended (e.g. contract payments are not received or the contract is terminated) valid desktop subscription licenses still can be used. A limited functionality in the PTV Hub cloud instance access will be provided and the access to the Licenses app retains. Access to other apps and data may be restricted.

4 Included apps

4.1 Licenses app

This app streamlines the process of managing and delivery of PTV Hub desktop licenses. The desktop licenses are purchased and then assigned to the PTV Hub cloud instance. Each PTV Hub desktop license can only be associated to a single PTV Hub cloud instance. Transfer of licenses to another PTV Hub cloud instance is not possible. The Licenses app provides users with a centralized platform to retrieve licenses. Users with respective privileges can easily view license statuses and details.

4.1.1 *Functionality*

PTV Hub desktop licenses of PTV Visum, PTV Vissim, PTV Viswalk and PTV Vistro are delivered to the PTV Hub cloud instance. By default, these desktop licenses are only available to the *internal Organization* users of the PTV Hub cloud instance. When logged in with a myptv-ID account, these licenses are listed in the Licenses app installed with the desktop software and can be selected for usage with the installed products. *Internal* users may view license details and levels regarding each license in the Licenses app web user interface.

4.2 Workspaces app

The Workspaces app in a PTV Hub cloud instance create distinct data spaces where users can access and collaborate on data sets. *Internal Organization* users can create, customize, and manage workspaces to suit their specific project requirements, fostering visibility and teamwork requirements.

This app organizes and manages visibility of dashboards, data, models, results, and scenarios to both *internal* and *external Organization* users of the PTV Hub cloud instance.

4.2.1 *Functionality*

Any *internal Organization* user can create a workspace and assign team members to a workspace based on their roles. Models, data, results, and dashboards are then assigned to the workspace. Team members of the workspace will be able to see the workspace content and interact with it based on the assigned roles in the Users app. If the workspace *Owner's* account is removed, all workspaces and assigned data will be accessible to *Admins*. Workspaces created will be displayed in Models and Dashboards apps and will be selectable to view content.

Note: Content unmanaged in the Workspaces app is placed in a “common area” and is accessible by any *internal* or *external Organization* users based on roles described in Section 4.5.

4.3 Models app

This app enables users to efficiently upload, access, and manage their desktop models from PTV Hub desktop licenses within a PTV Hub cloud instance. Users can upload, organize, version control, and share models.

Within the Models app, users can run cloud calculations of uploaded models from PTV Hub desktop licenses and store model results. The Workspace app control access and visibility of models, scenarios, and results described in Section 4.2.

Accessible users will be able to store models, scenarios, and results on the cloud once they have available storage capacity.

4.3.1 *Functionality*

Desktop software access

The Models app provides the functionality for integration cloud model storage and versioning with the desktop applications PTV Visum, PTV Vissim, PTV Viswalk and PTV Vistro. Accessible users can open models from the cloud, upload new models or save modified models to PTV Hub through respective menus in the desktop software. When models stored in the cloud are edited, the resulting revision can be annotated by short comments to inform other users of the contents of the revision.

Model & scenario management

The Models app provides a list of all models stored in a PTV Hub cloud instance along with information about model type, size, upload date etc. For each model, a revision history can be called. This provides a history of all model uploads along with the name of the uploading user, time and the comment applied when committing the change. The revision list allows to open any revision in the respective desktop application and to revert to previous revisions.

The Models app provides scenario management functionality for PTV Visum, PTV Vissim and PTV Viswalk models. For such models, modifications can be created. The respective desktop software will be opened for coding of the network changes for a modification. From these modifications, scenarios can be composed and assessed.

Cloud computations

Accessible users will be able to conduct cloud calculations once a model is stored in a PTV Hub cloud instance and has available computation time.

Cloud computation is provided for PTV Visum, PTV Vissim, and PTV Viswalk base models and scenarios based on these models. Using the cloud computation functionality does not require or block licenses for the respective desktop applications. Functionality and network sizes supported by model cloud computation is not subject to license restrictions in the PTV Hub desktop licenses. Cloud computations utilize the latest service pack of the release version.

During the computation, the progress of the computation is reported. Computation results can be opened in the respective desktop application for analysis. Log files of successful and failed computations can be called from the web interface

4.4 Dashboards app

The Dashboards app encompasses both data and visualization of dashboards functionality. Users can upload data from PTV Hub desktop licenses to the dashboard app and create, viewing, and share dashboards.

Sharing can be between invited *internal* and *external* team members via a secure link (accessible to only select team members that are added to the *Organization's* PTV Hub Users app and has access via Workspaces app described in Section 4.2), or via a public link where dashboards can be shared and viewed by anyone with the public link.

The Workspace app controls access and visibility of dashboards and data, with exception to dashboards shared via public links.

4.4.1 *Functionality*

The Dashboards app functionality is divided into three (3) main areas:

- Dashboard list;
- Data list; and
- Dashboard editor.

Accessible users will be able to access dashboards and upload model data to the dashboard data manager in a PTV Hub cloud instance. Accessible users can create dashboards if they have available capacity. Data uploaded to the dashboard data list does not consume Model app storage.

Dashboard list

Dashboard list displays and manages details of all dashboards within the subscription and workspace and controls to create new or delete dashboards. Active public link controls and summary are available to *Editors* to toggle on and off dashboard links.

Data list

Data list displays the hierarchy and data source(s) and scenarios available within a subscription and workspace, as well as processing status, details, warnings, errors, and attributes for the data. Uploaded data is processed for usage in the dashboard editor. Controls to add/delete models, scenarios and edit details are available.

Dashboard editor

The dashboard editor displays the selected dashboard. Dashboards are set up by adding widgets onto the dashboard canvas, and widget settings can be applied. Filters can be used to trim the data set. Furthermore, comments, replies, and resolutions can be added to specific widget types. Additionally, toggles are available to turn on/off team sharing or public sharing functionality per dashboard.

Background map services

Live internet web maps are provided in the Dashboard app's map-based widgets via MapTiler© and OpenStreetMap© contributors. These maps enable pan, zoom, and pitch functionality, as well as various map display styles. PTV Hub may add, discontinue, replace, or update these 3rd party services at any time during a plan term, or access may be removed by the 3rd party provider in the Dashboards app. For more details and usage requirements, see the "Third-Party License" section in the "Terms of Use for MyPTV" available under https://legaldocs.myptv.com/en/Terms_of_Use_MyPTV_EN.pdf?inline.

4.5 Users app

Users app allows users to manage access to the PTV Hub cloud instance and Models, Dashboards, and Licenses apps.

Each account can be assigned to multiple access-right groups. User accounts are granted different access to the functionality of the product depending on what group they are assigned to.

4.5.1 Roles

PTV Hub cloud instances includes three access-right groups:

Admins

Internal Organization users that have access to the User Management of the cloud instance. They can add users to the cloud instance or invite people without a MyPTV ID to register and join the subscription. Admins can assign accounts to access-right groups or remove them from the subscription. Admins also can assign users to PTV Hub desktop licenses in the Licenses app.

Editors

Both *internal* and *external Organization* users that can upload, edit, and delete data, models, and dashboards in PTV Hub cloud instances. Editors will be able to create and delete comments on accessible dashboards. Only internal editors will have access to cloud computation time in the Models app.

Viewers

Both *internal* and *external Organization* users that can view all content marked as accessible in read-only mode. Viewers will be able to create, edit and delete comments on accessible dashboards.

4.5.2 *Functionality*

Admins may invite *internal* and *external* users to the *Organization's* PTV Hub cloud instance. These users will receive emails and links to join the subscription once they have accepted the legal terms and conditions.

4.6 Data Transfer tool

The Data Transfer tool is provided and installed with PTV Hub desktop licenses. The export can be done with the current main version of PTV Hub desktop licenses. Older versions are not guaranteed to be compatible. Within PTV Hub desktop licenses, users log in to PTV Hub cloud instance, select a target location, and upload applicable data into a PTV Hub cloud instance. The Data Transfer tool will upload the data, such as models, results, and data for dashboards. See the PTV Hub desktop licenses user manuals for information.

The Data Transfer Tool is installed along with the desktop software and updated, when applicable, with new versions and service packs or automatically when accessed.

Note: If an *Organization's* IT or system configuration prevents the automatic installations or updates are not possible, this required software can manually be installed through a dedicated installation package provided by PTV. Please contact support in such cases.

4.7 Functionality limitations

In general, the following are limitations for all PTV Hub desktop licenses:

<i>App/function</i>	<i>Function limitations</i>
<i>Licenses</i>	<p>Cloud functionality works with version 2025 or greater. Supports opening the current main release version.</p> <p>PTV Hub can't be used with:</p> <ul style="list-style-type: none"> • Non-PTV Hub-desktop licenses • Academic licenses • Trial versions
<i>Models</i>	<p>PTV Hub allows multiple users to open and modify the same model simultaneously on multiple computers. Parallel editing of the models is currently not supported. Concurrent changes by different users are not synchronized and resulting conflicts are not resolved. In most situations, the software warns if committing model modifications would override intermediated changes by other users or results.</p>
<i>Cloud computations</i>	<p>Due to differences of the technical platforms and environments, PTV does not guarantee results from cloud computations to be equal to results from computations of the same models on local desktop computers. Upgrades and changes to the technical infrastructure may also lead to differences in cloud computation results of the same model at different times</p> <p>Cloud computations are provided for most models developed with PTV Visum, PTV Vissim and PTV Viswalk. The latest available service pack is used for the calculation. Certain types of models are not supported for cloud computation though:</p> <p>PTV Vissim</p> <ul style="list-style-type: none"> • Models containing scripts • Model using external signal controllers and VAP • Models using external driver models • Models using the driving simulator interface • Models using emissions calculation (TNO EnViVer) • Models using Bosch ESTM emissions calculation

	<ul style="list-style-type: none"> • Models requiring more than 30GB RAM during computation <p>PTV Visum</p> <ul style="list-style-type: none"> • Models containing scripts • Models using AddIns • Models using one of the following procedures <ul style="list-style-type: none"> ○ Signal control optimization ○ Signal offset optimization ○ HBEFA emissions calculation ○ Tour planning (Ride pooling) • Procedures using local files (e.g. Save version, ...) • Models requiring more than 240GB RAM during computation
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The following includes additional specific PTV Hub desktop licenses and their limitations:

Product	Functionality limitations
<i>PTV Viswalk</i>	Dashboards: No export to the Dashboards app.
<i>PTV Vistro</i>	<p>Models: Only models and revisions are uploaded and accessible. Scenarios or results will not be available in the Models app.</p> <p>Cloud computations: No cloud computations in the Models app.</p> <p>Dashboards: No export to the Dashboards app.</p>

5 Help and Support

5.1 Help

Documentation is provided within the PTV Hub cloud instance and in the PTV Hub desktop licenses. This help information provides guidance to set up and use PTV Hub.

5.2 Support

The support levels for PTV Hub are described in the offer provided to the customer.