



Elastic Domain Guide



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Configuring an Elastic Domain

Important Note: This guide covers only how to configure the specific settings for a Vantage Elastic Domain. All other standard aspects of Vantage configuration and administration are covered in the standard Vantage user guides.

Note: Features in products for which you don't have a license are disabled and indicate that you need a license to use them.

The following topics are presented in this chapter:

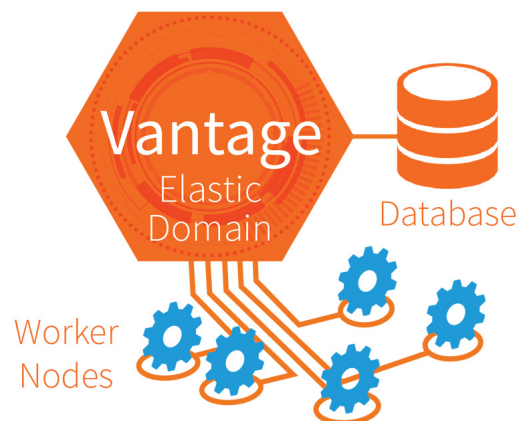
- [Elastic Domain Overview](#)
- [Installation and Configuration](#)
- [Managing the Transient Worker Node Life Cycle](#)
- [Monitoring an Elastic Domain](#)
- [Troubleshooting and Other Considerations](#)
- [Appendix A: Deploying an Elastic Domain in a Windows Workgroup](#)

Elastic Domain Overview

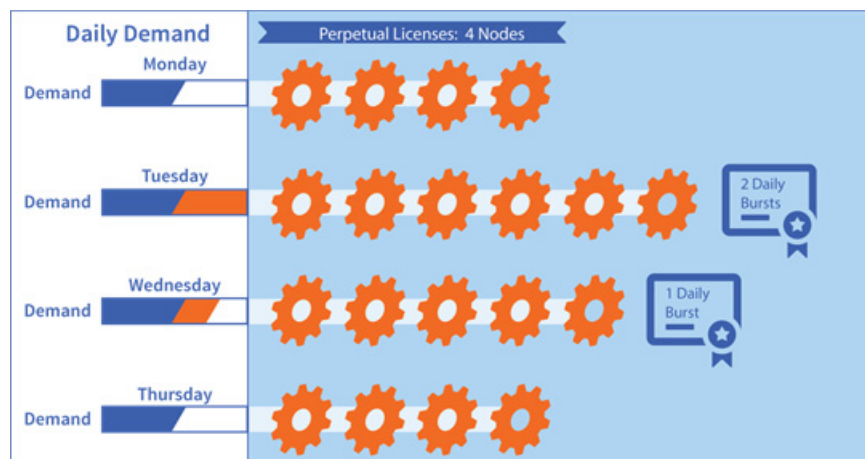
A Vantage Elastic Domain is a Vantage Array configured to allow you to spin up extra *transient* Vantage Worker Nodes (media processing machine instances) anytime you need extra Vantage computing capacity. (A transient node is a machine instance of Vantage added to a Vantage domain temporarily.) Vantage Elastic domain is intended to capitalize on the deployment flexibility offered by virtualized and Infrastructure as a Service (IaaS) cloud-based environments. This flexibility depends on your ability to deploy a Vantage machine instance on demand.

Transient nodes can reside in any of these environments:

- Private data centers using managed virtualization
- Public cloud IAAS, such as Amazon AWS, Rackspace, Google GCE, MS Azure, etc.
- An on-premises/IaaS hybrid cloud model, if an adequate dedicated connection is available



For Vantage Array installations whose workload varies considerably, an Elastic Domain offers ideal flexibility. You license and deploy a Vantage Array containing the number of *worker nodes* you need to handle your average daily workload. Your installed license can include an optional subscription to add burst capacity by the day during periods of peak demand. With this system in place, you are always ready to handle whatever video processing workload comes your way.

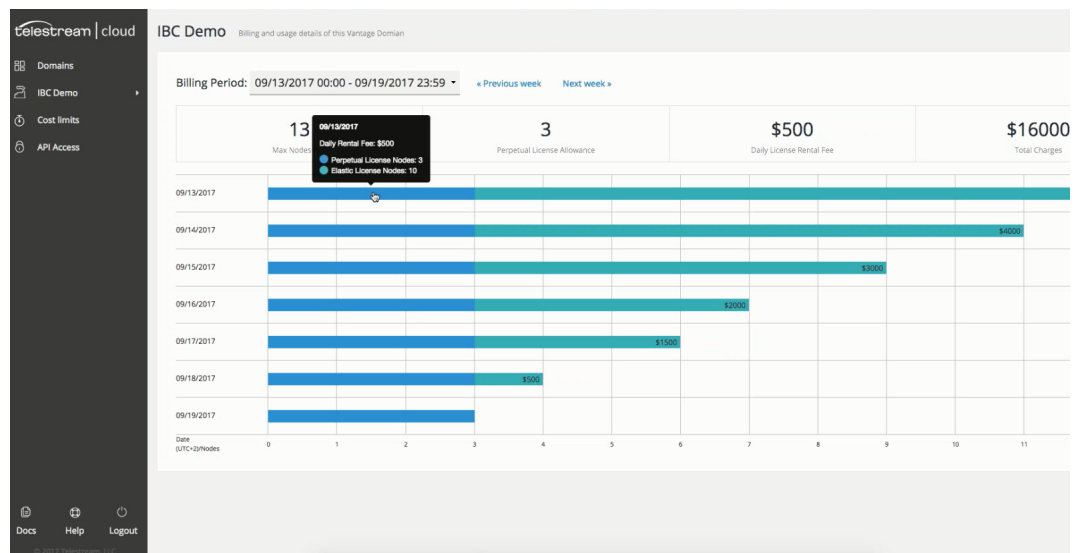


When your Vantage installation is complete, you can make a template of a worker node in your infrastructure platform. This allows you to easily duplicate the template to spin up new instances as Vantage worker nodes are required. When you no longer need the additional nodes, you just shut down the instances.

The infrastructure platform you use is up to you as long as you can provide Windows Server based machine instances that meet our performance, networking, and storage specifications. Example deployments include on-premises virtualization with VMWare and COTS blade servers, Amazon AWS EC2 computing instances, and Microsoft Azure.



A dashboard in the Telestream Cloud enables you to monitor the billing for your burst licensing. You get billed only for the number of days that the extra Vantage nodes are operating. This billing is in addition to your yearly subscription fee.



When you are ready to put together your Vantage Elastic Domain, contact [Telestream Support](#) to discuss your plans and get help to implement a smoothly working system.

Installation and Configuration

Install and configure a base Vantage Array according to the installation procedures in the *Vantage Domain Management Guide*. The following topics explain the additional requirements for a Vantage Elastic Domain:

- [Additional Elastic Domain System Requirements](#)
- [Creating Your Elastic Billing Account](#)
- [Configuring Vantage Burst Billing](#)
- [Installing and Configuring Vantage Services](#)

Additional Elastic Domain System Requirements

The following topics list and describe the machine instances, software, connectivity, and accounts you will need to implement a Vantage Elastic Domain in either a virtualization environment or an IaaS cloud platform.

Vantage Media Processing Machine Instance Requirements

Windows operating systems:

- Windows Server 2012 R2 (64-bit)
- Windows Server 2016 (64-bit, with Desktop Experience) Standard or Data Center

Requirements for machine instances that host Vantage services:

- ❑ CPU—Minimum 16 Intel-based 64-bit virtual CPU cores, 2.0 Ghz. Recommend 24+ cores. Because of CPU-intensive Vantage processing, we recommend that CPU resources be dedicated (reserved) in the infrastructure platform.
- ❑ RAM—16 GB minimum. Recommend 32 GB+. Vantage consistently uses many GB of RAM when processing media. We recommend that some or all memory resources be dedicated (reserved) in the infrastructure system.
- ❑ OS Volume—6 GB of space should be available for Vantage service installation.
- ❑ Networking—All Vantage machine instances should have 1 Gb+ low-latency management connectivity and access to the Vantage MS SQL database instance. Networking infrastructure must allow for high-speed access to shared storage (see below).
- ❑ DNS—Each instance must be addressable via a forward-lookup DNS record matching the Windows host name. Transient instances must be reachable via this DNS record within 60 seconds of instantiation.
- ❑ Active Directory—All Vantage instances should be members of a Microsoft Active Directory. An Active Directory account should be used for Vantage service logons and MS SQL authentication. This provides the Vantage services permission to access file locations shared with the Windows user. An Active Directory account is also a prerequisite for an elastic domain so that Vantage services on transient nodes can use SSPI (Security Support Provider Interface) for implicit authorization in SQL Server and the Vantage Domain Database. If Active Directory is not available, see [Appendix A: Deploying an Elastic Domain in a Windows Workgroup](#) for alternative methods.

- ❑ Networking Security—Vantage instances must be able to communicate with each other over a variety of TCP ports. See the *Vantage Domain Management Guide* for port lists.
- ❑ NTP—All Vantage instances should have accurate system clocks established by using an NTP server.
- ❑ Remote Access—All instances should be accessible either via Microsoft Remote Desktop or a virtual console for support purposes.
- ❑ Shared Media Storage—Multi-node Vantage systems depend on shared media storage locations for media file input, output, and intermediate storage. This storage must be accessible from all Vantage machine instances via either UNC paths or drive letters provided by SAN client software for block-level media SANs. Vantage processing performance depends on the throughput and latency of this storage.
- ❑ (Optional) GPU - A Virtual Lightspeed License (delivered either in the base perpetual license or in a daily burst), allows Vantage media processing instances to utilize GPUs presented to the instance via GPU passthrough (also known as 1-to-1 mapping and direct device assignment). The GPU model must be qualified by Telestream, and the hypervisor or cloud platform must perform a native pass-through allowing for native GPU driver installation. Only single or dual die GPU configurations can be used. Currently qualified GPU models include NVIDIA K80, M60, M6, and P100.

Vantage Domain Database Server Instance

Vantage Domains require a Microsoft SQL database. Please consult the *Planning and Setting Up Your Vantage Database App Note* to determine which edition of SQL Server to use: http://www.telestream.net/pdfs/app-notes/app_Vantage_DatabaseSetup.pdf.

- ❑ SQL Server Standard is recommended for elastic domains expected to have 5 or more Vantage nodes running at a time. The *Planning and Setting Up Your Vantage Database* PDF also explains how to install SQL Server Standard for use by Vantage.

The requirements and deployments of this database are covered in the *Vantage Domain Management Guide*. The Vantage database can be deployed using machine instances meeting the performance requirements described in the guide. Follow the guide to deploy the Vantage database structure into the MS SQL instance.

- ❑ For Vantage elastic domains to allow transient services to use SSPI to connect to the database with implicit authentication, the Windows domain user for Vantage services logon must be given the *sysadmin* Server Role with SQL Server. (By default, the user specified as the SQL Server Administrator during the installation of SQL Server is given the *sysadmin* role.)

Note: For Amazon AWS deployments, the Vantage database can be deployed into an RDS instance if desired. Contact Telestream for more information.

Vantage Web Apps Server Instance

Vantage installations utilizing one or more web application interface require a web server hosting the applications.

- ❑ The web apps web server can be deployed as a machine instance with CPU and RAM allocations of a typical web server. The server must meet the other environmental requirements listed above for Vantage media processing machine instances.

See the *Vantage Domain Management Guide* for more information on deploying and configuring a Vantage web apps server.

Configuring Vantage Client Instance(s)

Vantage administration is performed in two client applications, the Vantage Workflow Designer and the Vantage Management Console. These applications can be run from any instance within the Vantage Domain.

- ❑ We recommend that you provision an administration client instance to run the Vantage Workflow Designer and the Vantage Management Console and perform other management tasks.

Client Operating Systems:

- Windows Server 2012 R2
- Windows Server 2016
- Windows 7
- Windows 8.1
- Windows 10

Client Network Security:

- ❑ The configuration instance must be able to communicate with Vantage media processing instances over a variety of TCP ports and the SQL database ports listed in the *Vantage Domain Management Guide*.

Users, Shared Storage, and ComponentPacs

Vantage requires shared storage and a central location for ComponentPacs, accessible to all Vantage nodes, including the burst nodes. Follow the guidance below and refer to the *Vantage Domain Management Guide* for details.

- ☐ For the Vantage services to properly authenticate to a UNC location, either use the *Authorization* tab of the Management Console (under *Settings & Options*) to provide the user credential, or change the logon of the Vantage services.

Note that the Vantage services must have permission to read from the shared location where the ComponentPacs reside.

- ☐ Copy your ComponentPacs from the default directory (*C:\Program Files (x86)\Telestream\Vantage\ComponentPacs*) to your shared storage location.
- ☐ In the Vantage Management Console *ComponentPac Management* panel, enter or browse to your central ComponentPac storage location, and press Enter.

Licensing Your Vantage Software

You will need the following software and licenses:

- ☐ Vantage 7.1 or later Installer.
- ☐ Vantage Elastic Domain XML license file which includes:
 - The features licensed in the domain
 - The perpetually licensed node count for each feature
 - The inclusion or exclusion of each feature in the bursting profile

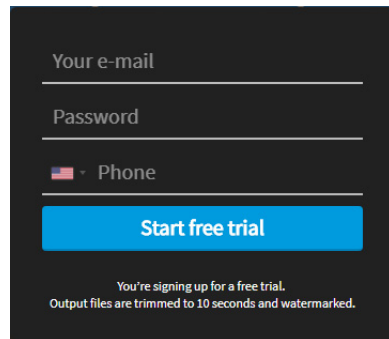
Once an Elastic Domain bursting agreement has been completed, Telestream will deliver a Domain license specifying licensed features, quantities, and functionality available to burst nodes.

Note: If you plan to use a GPU with your nodes, you should also purchase the Vantage Virtual Lightspeed License option to include in your domain license.

Creating Your Elastic Billing Account

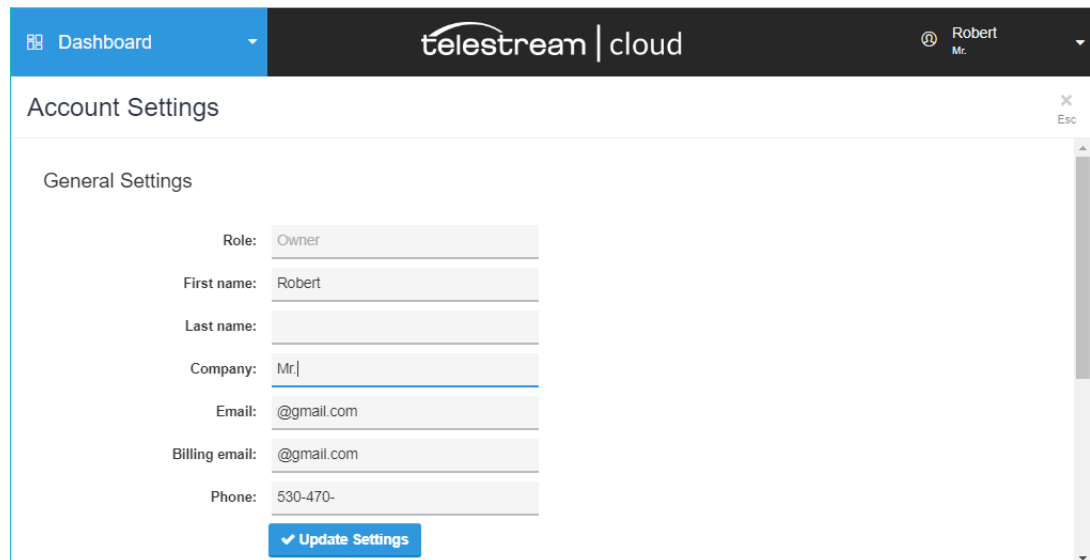
To use your Elastic Domain, you will need an Elastic Billing Account. This is where your billing will be tracked, and where you can monitor what you are spending. If you have an existing account, you can use that without creating a new one.

1. Point your browser to <https://cloud.telestream.net>.
2. Click *Start Free Trial* and fill in the form to establish an account.



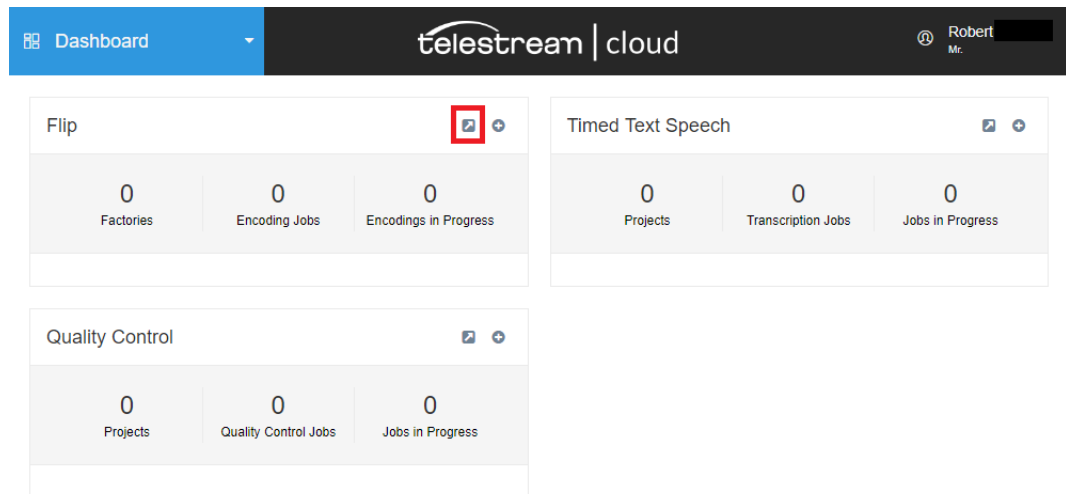
A registration form on a dark background. It contains three input fields: 'Your e-mail', 'Password', and 'Phone' (with a US flag icon). Below these is a blue button labeled 'Start free trial'. At the bottom, there is a small note: 'You're signing up for a free trial. Output files are trimmed to 10 seconds and watermarked.'

3. Fill in the form to complete your account, and click *Update Settings*. After this, you only need to click *Sign In* in the upper right corner to sign in.

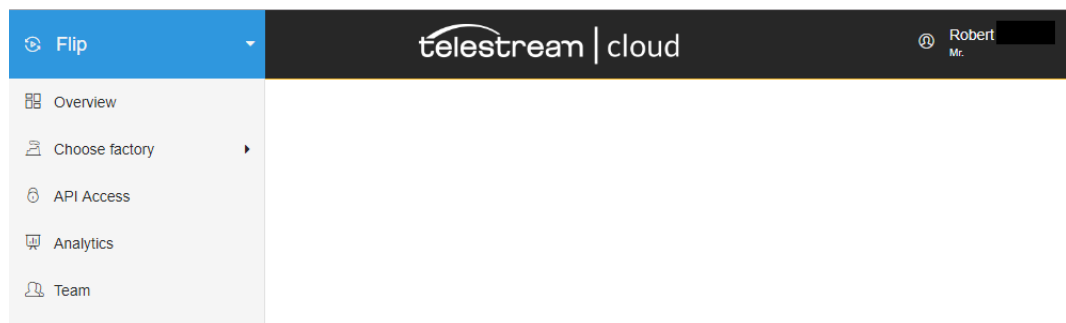


A screenshot of the 'Account Settings' page in the telestream cloud interface. The page has a dark header with the 'telestream | cloud' logo and a user profile 'Robert Mr.'. The main content area is titled 'Account Settings' and contains a 'General Settings' section. This section has several input fields: 'Role' (set to 'Owner'), 'First name' (set to 'Robert'), 'Last name' (empty), 'Company' (set to 'Mr. |'), 'Email' (set to '@gmail.com'), 'Billing email' (set to '@gmail.com'), and 'Phone' (set to '530-470-'). A blue button labeled 'Update Settings' is at the bottom of the form.

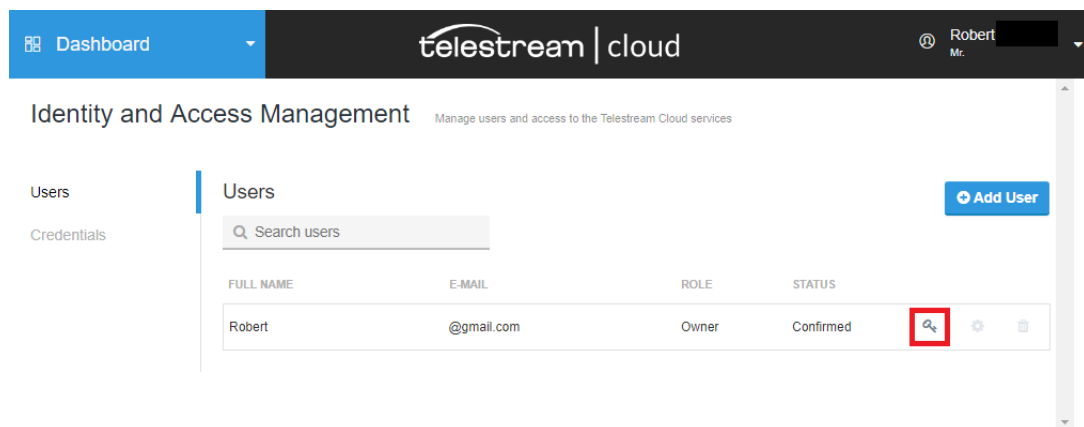
4. Select the Dashboard view, select Flip, and click the Flip expansion button.



5. Click API Access in the left column, and select Users.



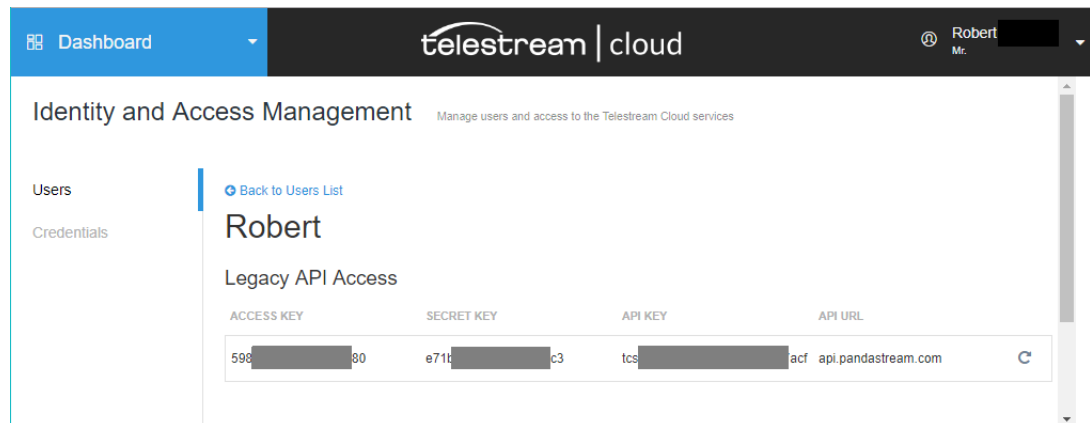
6. Click the key icon to see your Access Key, Secret Access Key, and API Key.
(Alternatively, you can select the IAM page from the menu under your user name.)



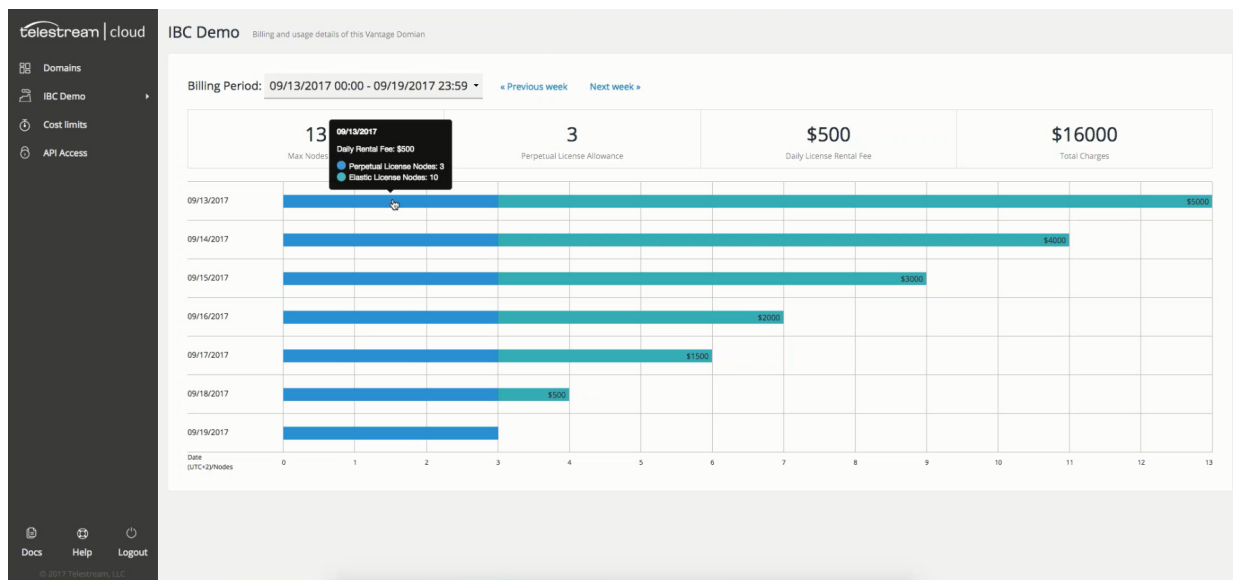
7. Note these keys for future use in Vantage.

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Installation and Configuration



8. Now that you have an account established, please contact Telestream and supply the user name for your Telestream Cloud account together with your Vantage Domain ID. Telestream will link the ID to the account. This will give you a new set of menu choices and displays where you can monitor and manage your Elastic Domain (example shown below).

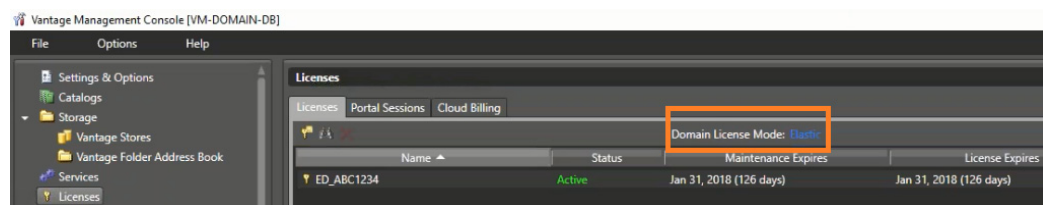


Configuring Vantage Burst Billing

After the Vantage database and one or more worker nodes are online, follow these additional steps to configure the Vantage domain for Elastic Domain operation.

- ☐ Install an Elastic Domain license using the Vantage Management Console > *Licenses* tab—*Elastic* displays at the top.

Note: When an elastic license is first activated, the display shows *Domain License Mode: Elastic (Bursting Suspended)* until the first reconciliation report is successfully sent by a Vantage Metric Service to Telestream Cloud.

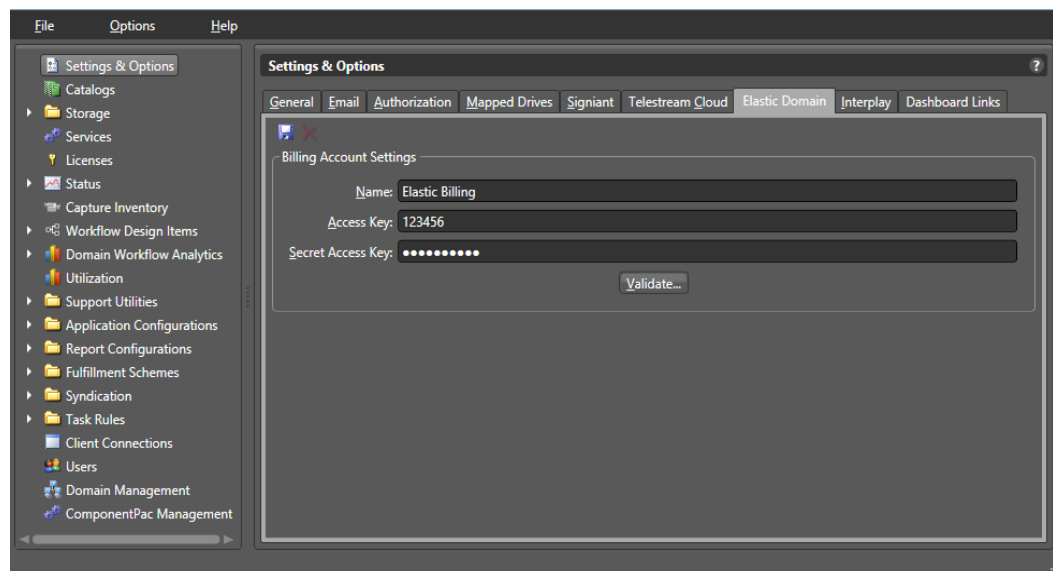


- ☐ If the correct licenses are not available, contact [Telestream Sales](#) for licenses.
- ☐ Verify that all expected services are running (Online) in Vantage Management Console > *Services*. If not, right-click and *Restart Service*.

Configure the Billing Account in Vantage

- ☐ Open the Vantage Management Console, Settings & Options, Elastic Domain tab.
- ☐ Enter Elastic Domain credentials for the Telestream Cloud Billing Account obtained from <https://cloud.telestream.net> > *API Access*:

Enter *Name*, *AccessKey*, *SecretAccessKey*, click *Validate* to test, and click *Save*.



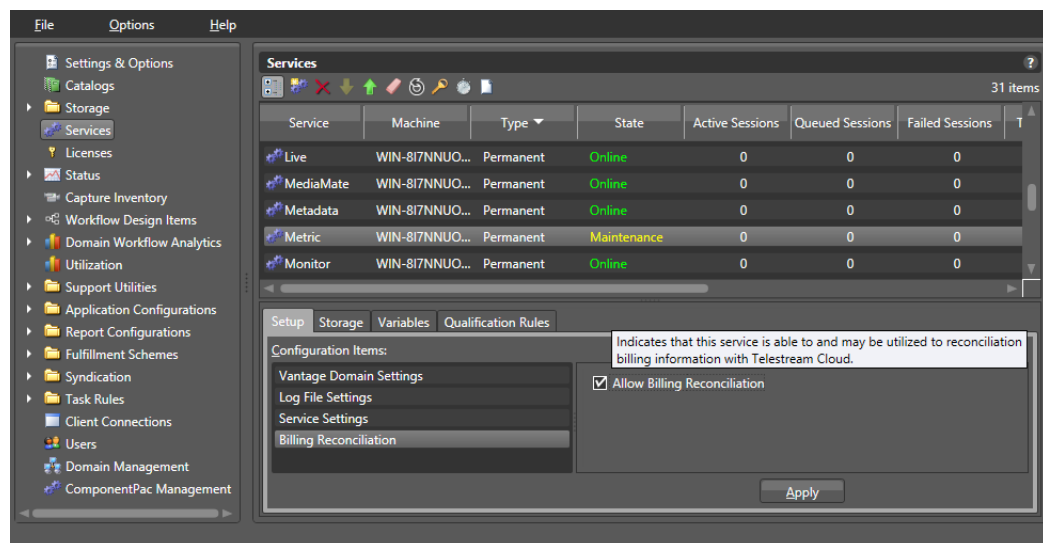
Enable Metric Service Billing Reconciliation

❑ To start the billing reconciliation process:

- Open Vantage Management Console > Services
- Select the desired Metric service(s) to use for billing reconciliation. (Multiple Metric services may be used so that if one fails, billing reporting fails over to the other.)
 - Billing metric services must be hosted on permanent instances with outbound Internet access.
 - Billing metric services can be located on the Vantage database instance, a permanent worker node, or a standalone instance. A standalone instance may be desired when other instance types are not permitted outbound Internet access.

Note: When multiple Metric services are enabled to send billing reports, the Vantage Management Console > Licenses > Elastic Domain tab states which service has been elected to send reports.

- Place the billing Metric services into Maintenance mode.
- On each billing Metric service, select *Billing Reconciliation*, check the *Allow Billing Reconciliation* box, and click *Apply*.
- Exit the billing Metric services from Maintenance mode and ensure that they come back Online.
- A billing Metric service reports to the Telestream Cloud billing service every 5 minutes, indicating how many nodes are running in the domain. This allows automatic billing adjustment for nodes as they start up and shut down.
- Nodes are considered “running” for billing purposes if they are online for more than 10 minutes.



Installing and Configuring Vantage Services

Follow these instructions to install Vantage on permanent and transient worker nodes.

Note: The deployment, management, and support of instances meeting the requirements listed previously in [Additional Elastic Domain System Requirements](#) is the customer's responsibility. The steps involved may vary greatly depending on the environment and selected infrastructure providers. This document does not attempt to detail this process.

There are two primary types of worker nodes that may be configured:

- Permanent worker nodes—Permanent nodes are expected to be online continuously, and Vantage will flag an error if their hosted services are unreachable.
- Transient worker nodes—Transient nodes are expected to be booted only when additional burst processing capacity is needed. Vantage expects that they may disappear at anytime, and allows additional options for configuring the life cycle of the services hosted on these nodes.

A worker node is assigned transient or permanent status before it joins the Vantage Domain, based on the use of the Vantage Service Configuration Utility (covered later in this section) to set the host type parameter of the installed services. Otherwise, the process of installing Vantage services onto an instance is identical for both transient and permanent nodes.

A Vantage Elastic Domain may also contain services hosted on transactional bare-metal servers or Lightspeed appliances.

Installing and Configuring Vantage on Burst Nodes

Follow the installation instructions in the *Vantage Domain Management Guide* plus the additional instructions below to install Vantage on your burst worker nodes.

- ☐ Use the Vantage installer to install only the Vantage services that you need for expanded burst capacity on your burst worker nodes.
- ☐ Place the Vantage Metric service(s) used to send reconciliation reports on a permanent Internet-connected node. Other Vantage services, including Metric services that are not used to send reconciliation reports, do not require an Internet connection.

Running the Vantage Service Configuration Utility

- ❑ On your worker nodes, run the Vantage Service Configuration Utility:
`C:\Program Files (x86)\Telestream\Vantage\Tools\ServiceVirtualizationConfig\ServiceVirtualizationConfig.exe`

Fill in the fields of the utility UI as shown and described below.

Host: Required parameter. The host name or IP address of the Vantage SQL server node.

Failover: Optional parameter. The host name or IP address for the mirror database system (if applicable).

Instance: Defaults to VANTAGE. The name of the Vantage SQL server instance.

Host Type: Required parameter. Select *Transient* or *Permanent*. Transient services join the domain until automatically removed at the end of the specified lifespan or when the service or host machine shuts down. Permanent services behave normally in the domain and are not limited by lifespan.

Lifespan: Optional parameter. The minimum time in hours that a service must remain accessible. The service will be removed from the domain after the specified amount of time. Use 0 (zero) to set no time limit (run forever). Note that when the lifespan expires, the service continues processing any in-process actions until they finish, but the service will offload its queue and not accept any new jobs.

Queue Threshold: Optional parameter. The number of elements on the incoming queue which will keep the service processing jobs. If the queue length is greater than this number, operation of the node may continue beyond the Lifespan until the queue drops to this threshold value.

Individual Service Config: The Individual Service Config check box allows individual Vantage services to override the server-level values for Lifespan and Queue Threshold. If the top-level server Lifespan is not zero (0), any service Lifespan cannot be zero.

Click + to select a service and set its specific Lifespan and Queue Threshold values. The service is added to the configuration list. To edit a service in the list, double-click it or click it and select the Edit button. To delete a service, click the Delete (red X) button.

Change the Vantage Service Logon and Startup

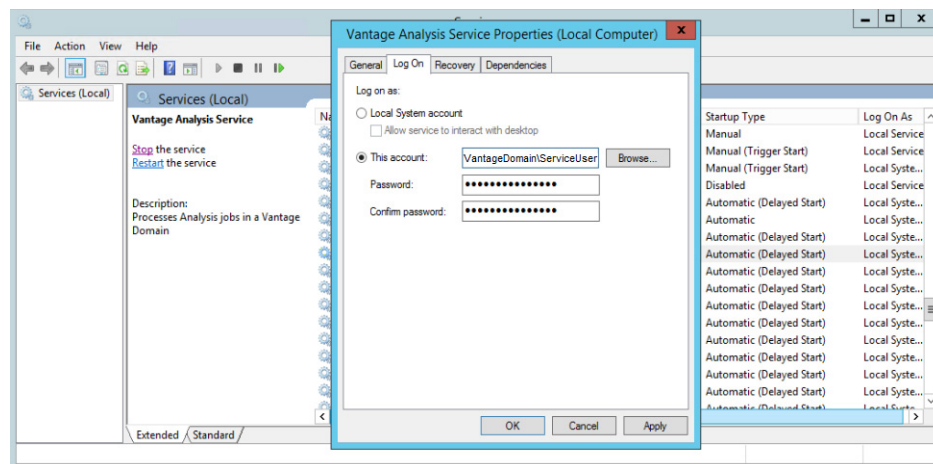
- ❑ Change the logon of the Vantage services on the worker node to the Active Directory user that was given the sysadmin SQL Server Role. This allows the Vantage services to use implicit authentication with SSPI database connectivity to automatically join the domain upon startup.

Important Note: The Active Directory user must be a local administrator on the worker node so that the Vantage services have permission to update log files.

In the following examples, Windows panels are shown, but you can also use a BAT file.

Important Note: If you use a BAT file, first use the Windows services console to manually change the logon of at least one Windows service. After this is done once, the local group policy is updated to allow services to log on as a specified user.

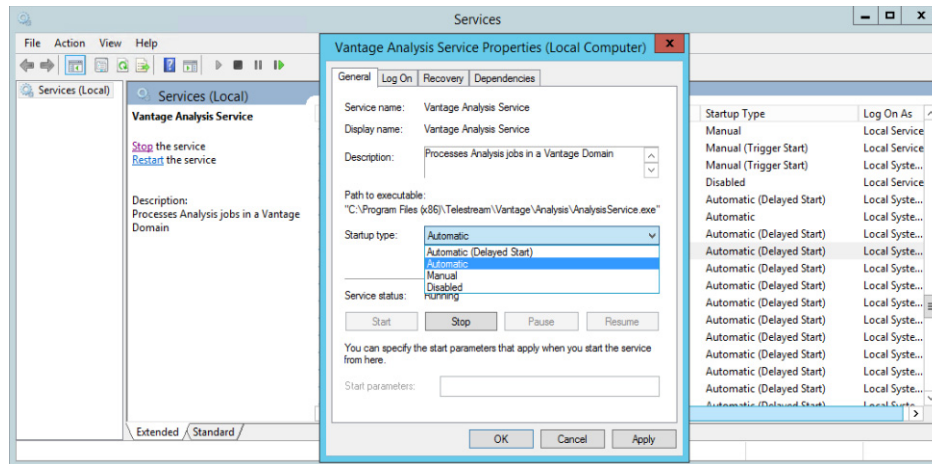
- ❑ Open the *Services* panel, right-click each Vantage service, and select *Properties*. On the Log On tab, set *This Account* for the Vantage user.



- ❑ Restart the instance so that service settings take effect, and the services join the Vantage domain, unpack ComponentPacs, and come fully online.

- ❑ After reboot, change the Vantage services to *Automatic* Startup Type for faster starts. This can be done manually or by using a BAT file.

Note: If the startup type of the services is changed before the first reboot of the instance after the installation of Vantage, the startup type will revert back to the Automatic (Delayed Start) type.



- ❑ Verify that all expected services are running (Online) in Vantage Management Console > *Services*. If not, right-click and *Restart Service*.

Managing the Transient Worker Node Life Cycle

This section explains how to use a Vantage media processing machine instance configured with transient Vantage services (a transient worker node) to dynamically add or remove processing capacity from a Vantage Elastic Domain.

Spinning up New Transient Worker Nodes

Before designating a worker node instance as a template, ensure the following steps have been taken:

- ❑ The instance meets the Vantage media processing machine instance requirements. (See [Additional Elastic Domain System Requirements](#) discussed previously.)
- ❑ The services have been configured for transient mode using the Vantage Service Configuration Utility. (See [Running the Vantage Service Configuration Utility](#).)
- ❑ Upon boot up, the Vantage services join the Domain and perform media processing effectively.
- ❑ Upon graceful Windows OS shutdown, the transient services promptly disappear from the Services pane of the Vantage Management Console.

Next, create an instance template in your infrastructure platform.

- ❑ The infrastructure platform must automate the following tasks wherever the template is instantiated in order for Vantage Domain expansion to occur without any additional configuration.
 - Generate a new Windows system ID
 - Apply a unique Windows host name
 - Specify the local Windows admin password
 - License Windows
 - Join the instance to the Windows Active Directory domain
 - Boot the instance after applying the changes above

- ❑ Test the process by instantiating a copy of the template.

After the infrastructure platform has performed the operating system customizations described above and booted the instance, the Vantage services should appear in the Vantage Management Console Services panel with the new hostname of the instance.

Ensure that the services come fully online and are able to perform processing. A 10-minute grace period prevents burst charges from accruing during short test cycles. If you need longer test cycles, contact Telestream to arrange a billing grace period.

After the template has been created and the instantiation process has been tested, expanding the capacity of your Vantage domain is as simple as instructing your infrastructure platform to spin up one or more copies of the template. This can be automated with an API call to the infrastructure platform, and could potentially be triggered with the rich set of utilization statistics available from the Vantage Metric service REST API (covered in other documentation).

Daily Rental Fees

Daily rental fees accrue only when the total number of running nodes tallied by the billing reconciliation report exceeds the number of perpetual nodes specified by the Vantage license. It doesn't matter whether nodes are permanent or transient.

For example, if you buy an elastic domain license with 2 perpetual nodes, you can run up to 2 nodes of either the permanent or transient type without accruing any daily rental fees.

In general, the number of perpetual nodes specified by an elastic license is intended for permanent nodes, but you can remove or shut off permanent nodes to allow spinning up more transient nodes for testing purposes without accruing any daily rental fees.

Shutting Down a Transient Worker Node

The following procedures will help ensure a smooth Vantage burst node shutdown.

Use a Virtual Machine Vantage Pre-Shutdown Notification

- ☐ Issue a *Pre-Shutdown Notification* by right-clicking the Machine Metrics View in the Vantage Management Console > Status panel.

Alternatively, you can also signal the Pre-Shutdown Notification via the Vantage SDK.

This places all services for the virtual machine in *Pending Shutdown* mode as seen in VMC Services. Queued sessions will migrate to other services in the domain, and the selected services will go offline when their active sessions finish.

Note: This step can be skipped if a faster shutdown is desired. Active sessions will be terminated and will restart on other services in the domain.

Shut down Windows

- ☐ Ensure that a graceful Windows OS shutdown is performed. Abrupt instance terminations should not be performed.

Monitoring an Elastic Domain

You can monitor billing and information about the Elastic Domain in two ways:

- [The Cloud Billing Tab](#)
- [The Telestream Cloud Billing Dashboard](#)

The Cloud Billing Tab

The Cloud Billing tab (shown below) in the Vantage Management Console > Licenses panel reports on the cloud billing process:

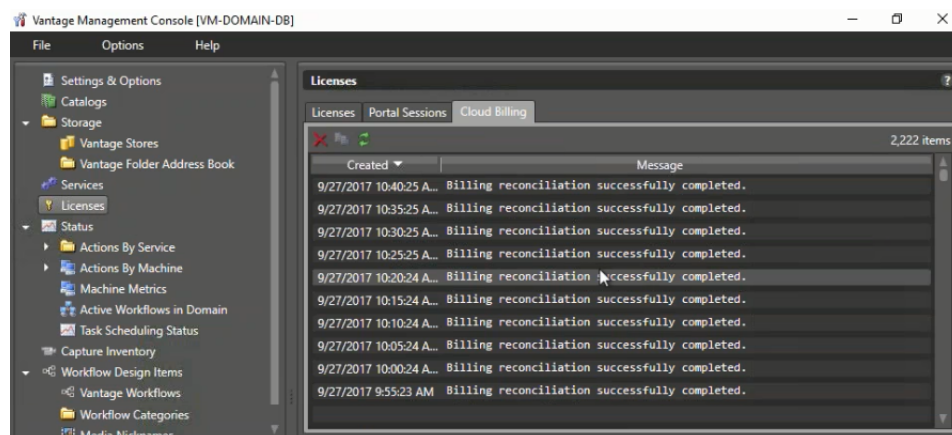
- Shows elastic billing status every 5 minutes
- Shows billing process error and informational notifications
- Shows the host name of the Vantage Metric service that has been elected to send reconciliation reports.
- Indicates suspended bursting (when only permanent licenses can be used).

Bursting may be suspended for these reasons:

- If a cost limit has been reached
- If a Vantage Metric service does not report for 24 hours
- If Telestream suspends bursting

To reactivate suspended bursting, change the cost limit or its effective date, start Metric service billing (see [Enable Metric Service Billing Reconciliation](#)), or contact [Telestream Support](#) for help with reactivation.

Note: If bursting is suspended and re-activated, current waiting jobs must be stopped and restarted so that they can be redistributed to burst nodes.

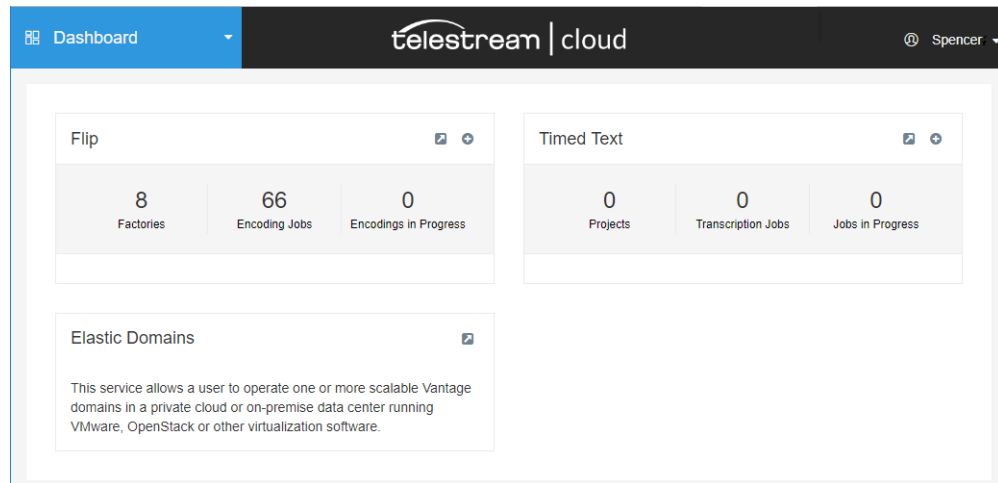


Note: Information sent by the Metric service to Telestream Cloud can be sent to a log if desired. Contact [Telestream Support](#) for assistance. Notifications are retained according to the time set in the Vantage Management Console > Settings > General > Report Retention Time. The default is 30 days.

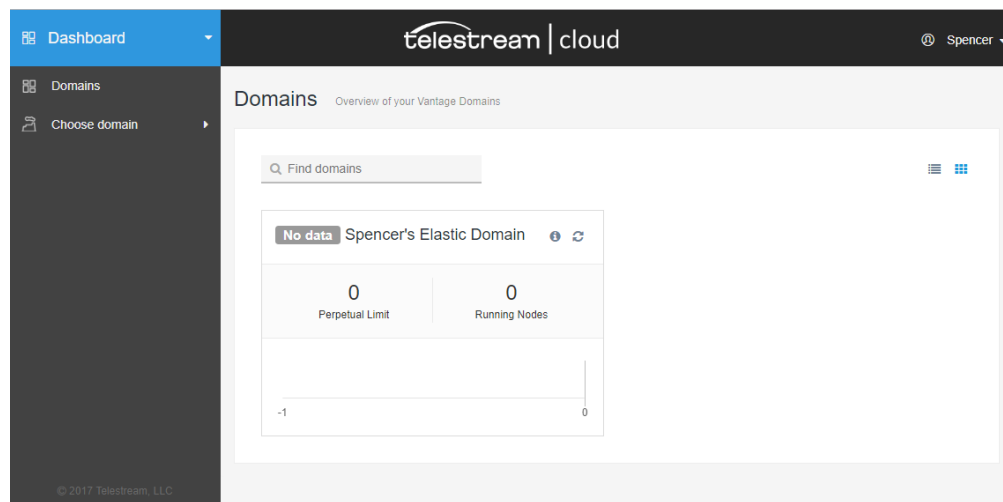
The Telestream Cloud Billing Dashboard

Follow the steps below to log into and use your Cloud Billing Account.

1. Go to <https://cloud.telestream.net> and log in. Your logged in display should look similar to the one below—the Dashboard view.



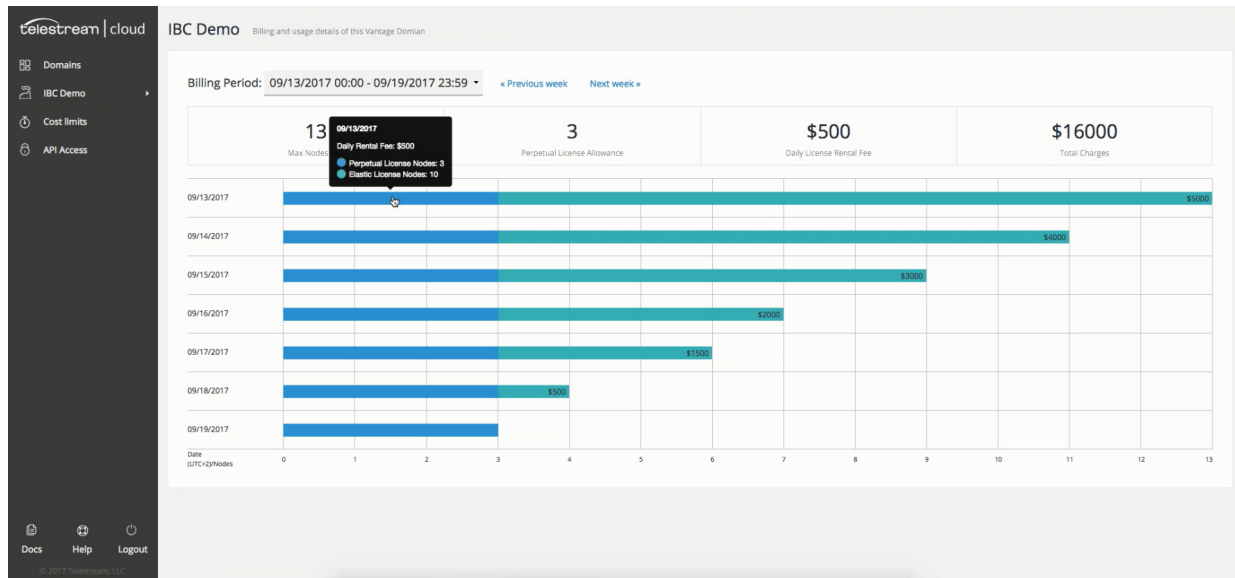
2. Click *Elastic Domains* in the lower left corner to see the *Choose Your Domain* selection and a page showing your domains.



3. Click on the desired domain for monitoring.

Monitoring a Domain

When you select a domain, a domain display appears, allowing you to monitor how many permanent and burst nodes you have, what you have spent on each burst node, and what you have spent as a grand total for the specified time period.



Setting Cost Limits

To help you protect against over-spending on bursting, Telestream provides a way to set a maximum cost for a specified time period. Select the Cost Limit menu on the left to see the display below, showing any current cost limits.

To create a new cost limit, click the blue Set Cost Limit button on the upper right.

The screenshot displays the 'Cost Limits' interface. The left sidebar shows navigation options: Domains, Max's IBC Demo, Cost limits, and API Access. The main content area shows the following details:

- Cost Limits:** Set temporary optional spending cap for this domain
- Set Cost Limit:** (Blue button)

A table shows the current cost limits:

COST LIMIT	START DATE (UTC+2)	END DATE (UTC+2)
\$10,000.00	Oct 1, 2017	Dec 30, 2017

Selecting the Set Cost Limit button brings up the display below.

Select the Maximum Cost that you want the system to allow, and specify a date range during which the Maximum Cost applies, and click Create.

When Elastic Domain costs reach the limit, the domain is suspended to prevent any further cost accrual.

To re-activate a suspended domain, allow the cost limit to expire, or change the expiration date to expire it immediately. You can also delete the cost limit or change the dollar amount to a higher value.

If the account is suspended by Telestream, contact [Telestream Support](#) for assistance.

The screenshot shows the 'Set Cost Limit' interface in the Telestream Cloud dashboard. On the left is a dark sidebar with the 'telestream | cloud' logo and navigation links: Domains, Max's IBC Demo, Cost limits (selected), and API Access. At the bottom of the sidebar are links for Docs, Help, and Logout, and a copyright notice for 2017 Telestream, LLC. The main content area has a title 'Set Cost Limit' and a sub-header 'Set max spending cap for defined period of time. When the limit is reached you won't be able to request additional nodes.' Below this, there are three input fields: 'Maximum Cost (\$US):' with a value of 5000, 'Start Date (12:00 AM UTC+2):' with a value of 2017-09-27, and 'End Date (11:59 PM UTC+2):' with a value of 2017-10-05. Each date field has a calendar icon. A blue 'Create' button with a checkmark is located at the bottom right of the form.

Field	Value
Maximum Cost (\$US):	5000
Start Date (12:00 AM UTC+2):	2017-09-27
End Date (11:59 PM UTC+2):	2017-10-05

Troubleshooting and Other Considerations

The following tips may help you resolve issues with Vantage Elastic Domain.

- **My Elastic Domain is suspended. What caused it, and what do I do?**

Suspension can occur under these conditions:

- A user-configured cost limit has been exceeded.
- Vantage is not able to contact Telestream Cloud for 24 hours.
- Bursting is suspended by Telestream.

When an Elastic Domain becomes suspended, the Vantage Management Console > Licenses tab indicates:

Domain License Mode: Elastic (Bursting Suspended)

To reactivate a suspended Elastic Domain:

- If bursting was suspended because of an exceeded cost limit, the domain will reactivate when the cost limit expires. If you'd like to reactivate the domain sooner, you can delete the cost limit.
- If bursting was suspended because the Vantage Metric service was unable to communicate with Telestream Cloud for 24 hours, the domain will reactivate itself once connectivity is restored.
- If bursting was suspended by Telestream, a [Telestream Support](#) representative must re-activate the domain. While bursting is suspended, Vantage will only enable the number of nodes specified in the perpetual license *Fallback* notations. For example, if the number of fallback nodes is 1, Vantage will only process jobs on one node at a time.

After bursting is re-activated for the Vantage Elastic Domain, the Licenses tab of the Vantage Management Console will indicate:

Domain License Mode: Elastic

If bursting becomes suspended and then reactivated, *waiting* jobs at the time of reactivation may not use services licensed through bursting. Any *new* jobs will properly load balance across all services. Stopping and then restarting waiting jobs (via the Workflow Designer Job Status view) will enable those jobs to use all services.

- **The Elastic Domain tab or my Telestream Cloud account says Vantage and Telestream Cloud are not communicating.**
 - In the Vantage Management Console, is the Metric service Billing Reconciliation > Allow Billing Reconciliation box checked?
 - In the Vantage Management Console, is the Settings & Options > Elastic Domain tab configured with the correct Name, Access Key, and Secret Access Key, matching the Telestream Cloud account?
- Did you change anything in your Telestream Cloud Account?
- Are the Vantage Services running? Check the Windows Services panel.
- Is the Internet connection to the Metric service host working?
- Is the NTP server time synchronization working?
- **What constitutes a running node for billing purposes?**
 - A running node must be online for more than 10 minutes before it is considered an active burst node and billed accordingly. This gives you some leeway to spin up nodes briefly for testing without getting billed.
- **I believe I was billed incorrectly. What should I do?**
 - Contact [Telestream Support](#).
- **After changing the logon of a Vantage service, the service is unable to restart.**
 - Make sure the Windows user that the services log on as is a local administrator on the instance so that it has permission to write to log files.
 - If the logon of the service was changed via a script, use the Windows services console GUI at least once to manually change the log on of a service. Using the GUI at least once updates the local policy of the machine to allow services to log on as a specified user.
- **What happened to my Cloud Billing notifications?**
 - Elastic Domain log files shown in the Vantage Management Console > Licenses > Cloud Billing tab are cleaned based on the log retention time specified in the Vantage Management Console > Settings > General > Report Retention Time. The default log expiration is 30 days.

Appendix A: Deploying an Elastic Domain in a Windows Workgroup

If necessary, a Vantage Elastic Domain can be deployed within a Windows Workgroup without Active Directory as follows:

1. On the domain database server, use the array installation option to deploy a new instance of SQL Server Express (for larger arrays, consider SQL Server Standard).
2. Copy the ComponentPacs to a shared location accessible to all domain nodes.
3. Use the VMC to install the ComponentPacs from the shared location.
4. On the worker node, do an array installation to install the Vantage services.
5. On the worker node, create the following Key Name:
`HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Telestream\Soa\Virtualization`
6. In the Virtualization Key Name, create a String Value called HostType and set the value to Transient.
7. Verify that the following Key Name does not exist. If it exists, delete it.
`HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Telestream\Soa\SSPI`
(The SSPI Key Name may be present if ServiceVirtualizationConfig.exe was used in the past)
8. Restart the worker node.
9. On the worker node, change the Startup Type of the Vantage services from Automatic (Delayed Start) to Automatic.
10. After the services start, use the Vantage Management Console to manually assign them to the Vantage domain.

When the worker node is shut down, the Transient services automatically leave the domain. When the worker node is turned back on, the Transient services automatically rejoin the domain.

Notes

The following notes apply to operating in a Windows Workgroup environment:

- A Windows user does not need to be given the sysadmin Server Role within SQL Server.
- It is not necessary to change the logon of the Vantage services to a Windows user because SSPI connectivity is not used when operating in a Windows Workgroup.
- When a worker template is cloned to create a new worker node instance, the worker node does not need to join a Windows domain.
- All machine names within the Vantage domain should be resolveable by hostname.
- DHCP is recommended for the ease of adding additional transient worker nodes.
- All nodes within the Vantage domain must be synchronized by NTP.