

# PRE-STACK PRO CLOUD SOFTWARE AND HARDWARE IN ONE BUNDLE



## PRE-STACK SEISMIC ANALYSIS AT LIGHTNING SPEED

All Pre-Stack Pro modules running on top-notch servers in the Amazon cloud, including maintenance and support in one integrated package.

Make full use of annual allowances from day 1 with this upfront payment option.

Included node computing time: 100 hours node computing time is equivalent to 100 hours on one node or 10 hours on 10 nodes.

Choose a high-end single node or a high performance cluster, to suit you speed and size needs.

Included average cloud storage. Over-usage of storage in one month can be offset with under-usage in another month.

Maximum concurrent sessions.

Cost for additional storage and compute hours. For the Pay-As-You-Go model pre-pay in increments of \$10,000.

	NO COMMIT	ANNUAL PLANS			
	PAY AS YOU GO	BRONZE	SILVER	GOLD	PLATINUM
NO COMMIT		€ 29,000 annual subscription	€ 90,000 annual subscription	€ 180,000 annual subscription	FROM € 250,000 annual subscription
PAY-AS-YOU-GO node computing time	1,000 HOURS P.A.	9,000 HOURS P.A.	18,000 HOURS	18,000 HOURS	18,000 HOURS
UNLIMITED NODES	1 NODE	4 NODES	16 NODES	UNLIMITED NODES	
PAY-AS-YOU-GO monthly storage	15 TB	30 TB	60 TB	60 TB	60 TB
NO LIMIT	SINGLE SESSION	SINGLE SESSION	5 SESSIONS	NO LIMIT	
€ 8 / HOUR € 180 / TB / M	€ 4 / HOUR € 90 / TB / M	€ 4 / HOUR € 90 / TB / M	€ 4 / HOUR € 90 / TB / M	€ 4 / HOUR € 90 / TB / M	€ 4 / HOUR € 90 / TB / M

prices valid through December 31, 2018

### READY FOR SPEED?

When you are ready to experience pre-stack seismic data analysis at an amazing speed, fasten your seat belt and contact us: [sales@sharpreflections.com](mailto:sales@sharpreflections.com).

# PRE-STACK PRO CLOUD

# FREQUENTLY ASKED QUESTIONS

## WHAT ARE THE IT TECHNICAL REQUIREMENTS ON MY SIDE?

The only equipment you need for running your Pre-Stack Pro projects in the cloud are a stable internet connection and a computer, either Windows, Linux or MAC, preferably with two screens. We recommend minimum 25 Mbps for interactive cloud sessions, and a connection of at least 500 Mbps to transfer large pre-stack data volumes.

## DO I NEED TO INSTALL ANY SOFTWARE?

You'll need to install and up-to-date version of HP RGS Receiver in order to run Pre-Stack Pro in the cloud. For data transfer an SFTP compatible client is required, e.g. FileZilla or WinSCP.

## HOW DO I GET MY DATA LOADED?

If you have a high capacity internet-connection you can upload/download all necessary data yourself. Otherwise you can send the data to Sharp Reflections and we can arrange both uploading and downloading for you. In the US, we can also assist you in utilizing the AWS Snowball service for "couriered" data transfer.

## HOW ARE SERVER NODES AND STORAGE CONFIGURED?

We give you access to our web portal. In the web portal you can configure several Amazon instances and define their number of server nodes. You can also allocate storage up to the allowance of your plan to your instances. These instances can be started and paused according to your needs. That way you have full control of the compute hour and storage consumption.

## CAN I CHANGE THE NUMBER OF SERVERS AND STORAGE OF A VIRTUAL CLUSTER?

When you create a new virtual cluster in our web portal you can select the number of server nodes and assign storage up to your maximum allowances. When you pause a cluster, you stop computing time usage but continue to use the assigned storage. Before you restart an existing cluster, you can increase or decrease the number of server nodes. You can also increase (but not decrease) the storage assignment. The only way to free up the assigned storage of an instance is to download the data you want to keep and delete the instance in the cloud.

## WHAT IS THE TECHNICAL SPECIFICATION OF SERVER NODES?

For the Bronze Plan we currently use Amazon's g3.16xlarge nodes with 64 virtual CPUs, 488 GB of RAM. All other plans make use of the EBS-optimized m4.10xlarge nodes with 40 vCPUs and 160GB RAM each. From time to time we will upgrade the server nodes used to even more powerful ones.

## WHAT DO YOU MEAN WITH COMPUTE SCALABILITY?

Pre-Stack Pro scales linearly, allowing you to speed up your processing jobs. E.g. doubling the number of compute nodes halves the computing time.

## HOW DO I KEEP COUNT OF MY ALLOCATED COMPUTE HOURS AND STORAGE SPACE?

In our portal you can read out how many compute hours you have spent and how much storage space you have utilized.

## DO I NEED TO START UP AND CLOSE DOWN MY SESSIONS ON A DAILY BASIS?

Yes. The virtual cluster will cost you running hours as long as it is engaged, even if it stands idle. Unless you are running overnight processing jobs you should close down your session outside working hours. This means starting/stopping the virtual cluster and starting/stopping the Pre-Stack Pro software session. To make life easy for the user we have developed a one-click exit and start-up option in our portal.

## HOW IS THE USAGE OF QUOTAS CALCULATED?

Node computing time is calculated as the number of server nodes times the usage time, and calculated by the second. 100 hours of computing time is equivalent to one server running for 100 hours, or 10 parallel server nodes running for 10 hours each. You can allocate storage to one or more instances. The storage allocation is reserved to you even if you don't make full use of it.

## WHAT HAPPENS WHEN I NEED MORE STORAGE OR COMPUTE HOURS?

In our prepaid Pay-As-You-Go model you pay in advance in increments of \$10,000. Credits are used for storage and/or compute hours at the published rates. Consumptions are calculated by the hour and charged with the prorated amounts. If you exceed your annual plan allocations, we charge you \$5.00 per additional node compute hour, and \$3.50 per TB per day for additional storage. You can also subscribe for another annual package and get another year's quota.

## DO UNUSED ALLOWANCES ROLL-OVER?

Unused compute hours and storage days roll over as long as your subscription is uninterrupted – even if you change your plan. In our Pay-As-You-Go model, unused amounts can be used even after longer interruptions.

## WHAT IS THE ADVANTAGE OF AN ANNUAL SUBSCRIPTION?

If you subscribe to an annual plan, you'll receive discounted rates for storage and compute hours compare to the Pay-As-You-Go option. Annual allowances can be used from the beginning of the subscription. If you have a regular need to use our software, the annual plans are more attractive. If you don't know your requirements yet or have intermittent needs, the Pay-As-You-Go model might be your preferred option.

## CAN I CONVERT FROM ONE PLAN TO ANOTHER?

You can switch from the Pay-As-You-Go plan to an annual plan at any time, and apply any unused funds to the price of the subscription. You can also upgrade any annual plan to a higher-level plan at any time. In this case, you'll receive a credit for all unused allowances. Downgrading is possible at the end of an annual subscription.

## HOW SECURE IS PRE-STACK PRO CLOUD?

Our system relies upon Amazon Web Services (AWS) which has numerous compliance certifications including ISO 27001 and SSAE-16 SOC 2. We use Amazon EC2 compute instances and Amazon EBS for storage (encrypted volumes). For optimal security, we work with three security layers: (i) we generate SSH keys and upload the public key. The private key is distributed to the customer through means of his choice. This key is required in addition to SSH-key; the portal does not have access to SSH-keys. (ii) In addition, a new 12-key random password is generated every time a customer resumes or starts a new cluster. For a successful connection, both password and key must be provided. And finally (iii), we are using Amazon EC2 security group (firewall), allowing for connection only from the customer's network. The portal detects the IP address via the Amazon ELB load balancer, from the authenticated user accessing the portal, the customer also has option to define this manually. If behind a proxy, this approach could be problematic; in that case we can manually add defined IP-ranges, and you are able to put in your own CIDR range by editing inside the portal. All communication to the virtual cluster is done using SSH2 protocol. Our Pre-Stack Pro software in the cloud is accessed through HP RGS also utilizing SSH2 protocol. The Pre-Stack Pro portal uses HTTPS encryption and a signed Amazon certificate.