

Introduction to the Vienna Scientific Cluster

Introduction

- The Vienna Scientific Cluster (VSC) is a Top500 level high-performance cluster operated by several Austrian universities (currently TU Wien, Uni Wien, BOKU Wien, TU Graz and Uni Innsbruck).
- It consists of 2 systems, VSC-3 and VSC-4, the latter not yet generally available
- The system is available for academic projects from all fields
- A bioinformatics extension exists on VSC-3
- Member of PRACE, giving access to other systems

Hardware VSC

The VSC-3 consists of more than 2000 nodes, each with:

- 2x 8-core CPU and 64GB RAM (some nodes have 128GB or 256GB)
- 54 additional GPU nodes (GTX 1080) and 4 Xeon Phi nodes
- 5 storage systems, mostly on a BeeGFS parallel file system
- The VSC-3+ is an extension of 864 nodes with 2x10 cores

The VSC-4 consists of 790 nodes, each with:

- 2x Intel Skylake Platinum 24-core CPU with 96GB RAM (some nodes have 384GB or 768GB)

Hardware bioinformatics

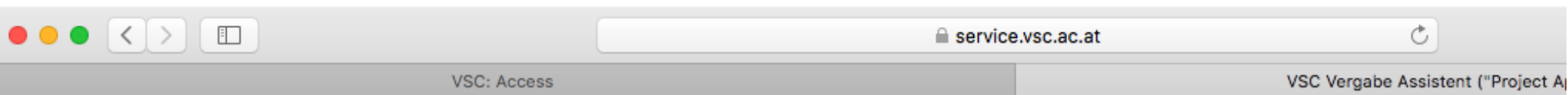
A Bioinformatics extension, consisting of 17 nodes:

- 2x Intel Xeon 14-core CPUs
- from 512GB to 1.5TB RAM
- 8TB local disc space

How to apply for a project

Scientific personnel of the following universities can apply for a project on the VSC:

- TU Wien (Technische Universität Wien)
 - University of Vienna (Universität Wien)
 - University of Innsbruck (Universität Innsbruck)
 - University of Natural Resources and Life Sciences Vienna (BOKU Wien)
 - Graz University of Technology (TU Graz)
 - University of Graz (Universität Graz)
 - Montanuniversität Leoben
 - Alpen-Adria-Universität Klagenfurt
 - Medical University of Vienna (Medizinische Universität Wien)
 - Johannes Kepler University of Linz (Johannes Kepler Universität Linz)
 - Free University of Bozen-Bolzano (Freie Universität Bozen)
 - eurac research Bozen-Bolzano
 - Materials Center Leoben
 - AC2T research GmbH (AC2T)
 - Earth Observation Data Center
 - Complexity Science Hub
 - A2C2 Virtual Vehicle
 - VRVis
 - Institute of Science and Technology Austria (IST)
- VSC is open to users from other academic and research institutions. For conditions of use please inquire at: service@vsc.ac.at.
- **Access to the VSC is granted on the basis of peer-reviewed projects which, beside scientific excellence, can demonstrate the need for extremely large computational resources.**



Thomas Rattei's (id=906) projects

- list projects
- statistics
- request project
- add publications
- list publications

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project id	title	type	cluster	start date	end date	contingent	status
71060	HRSM SOLID	funded	VSC-3	2017-10-09	2018-10-10	10,000	approved
70771	P 27703 Evolution and Function of t...	funded	VSC-3	2015-04-23	2018-04-25	12,513,072	approved

logged in as
Thomas Rattei (univie)

Create new project

list projects

statistics

request project

add publications

list publications

Please choose 'standard mode' if you want to apply for **resources on one cluster** and 'expert mode' for application on **more than one** cluster. If you want to specify which cluster you want to run on in 'standard mode', please include this information in the comment field.

standard mode expert mode

Type:

test

Project title:

Institute:

Parent project:

default project

Please choose 'default project' if in doubt.

Cputime [core-h]:

Storage [GiB]:

Start date:

2017-11-27

Test projects can be used for one month. All other projects have a runtime of one year. An extension of the runtime should be requested in time before the project expires.

Parallel cores:

Typical number of cores your calculations will run on.

Software description:

Comment:

Submit

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Vienna Scientific Cluster

Cluster: VSC-3

status	approved
project start	2015-04-23
project end	2018-04-25
job submission until	2018-05-26
cluster login until	2018-08-23
cpu contingent	11,856,294 of 12,513,072 core-h used (94.8%) usage details
\$HOME	0 of 499 GB used (0.0%)
\$GLOBAL size	0 of 500 GB used (0.0%)
\$GLOBAL #files	0 of 100,000 files used (0.0%)
\$BINFS size	0 of 2 GB used (0.0%)
\$BINFS #files	39 of 100,000 files used (0.0%)
\$BINFL size	0 of 10 GB used (0.0%)
\$BINFL #files	0 of 1,000,000 files used (0.0%)
parallel cores	1
software description	Smith-Waterman alignments of protein sequences, hardware-optimized for SSE4
comment	FWF-funded project

Quarter statistics

quarter	start	end	usage			contingent		
			regular	idle	total	quarter	unused	remaining total
1	2015-04-23	2015-07-24	11,472,989	1,614,549	13,087,538	2,984,600	0	11,938,400
2	2015-07-24	2015-10-24	0	0	0	155,137	155,137	465,411
3	2015-10-24	2016-01-24	0	0	0	155,137	155,137	310,274
4	2016-01-24	2016-04-25	0	0	0	1,155,137	1,155,137	1,155,137
5	2016-04-25	2016-07-26	0	0	0	366,352	366,352	1,465,411
6	2016-07-26	2016-10-26	59,952	0	59,952	366,353	306,401	1,099,059
7	2016-10-26	2017-01-26	0	0	0	366,353	366,353	732,706
8	2017-01-26	2017-04-28	91,905	0	91,905	366,353	274,448	366,353
9	2017-04-28	2017-07-29	0	0	0	328,388	328,388	1,313,554
10	2017-07-29	2017-10-29	231,448	0	231,448	328,388	96,940	985,166
11	2017-10-29	2018-01-29	0	0	0	328,389	328,389	656,778
total			11,856,294	1,614,549	13,470,843	12,513,072		656,778

Vienna Scientific Cluster

Extensions

resource	requested	granted	valid from	type	requested	granted	manager comment	staff comment
duration [days]	366	366	—	initial amount	2017-09-21	2017-10-09		
cpu [core-h]	10,000	10,000	2017-10-09	initial amount	2017-09-21	2017-10-09		
storage [GiB]	100	100	—	initial amount	2017-09-21	2017-10-09		

Files

File: no file selected

timestamp	size	link
2017-09-21 09:42:50	161.5 KB	SOLID.pdf

Project group memberships

group name group id

User accounts

[Please click here to create a user account.](#)

uid	gid	username	name	mail	phone	VSC-3	
72665	71060	goldenberg_s	Florian Goldenberg	florian.goldenberg@univie.ac.at	+436769380093	yes	edit this account
72666	71060	rattei_s	Thomas Rattei	thomas.rattei@univie.ac.at	+436648175724	yes	edit this account

External user accounts

uid	gid	username	name	mail	phone
70032	60000	markus	Markus Stoehr	markus.stoehr@tuwien.ac.at	+4369981785696

List publications

list projects

statistics

request project

add publications

list publications

back to previous search

We kindly ask you to add here all publications that are related to your project(s) on the Vienna Scientific Cluster.
Please perform the following steps:

1. Search for your publications in the Web of Science using the search fields below.
2. From the returned list, assign the relevant publications to your projects.

back to previous search

70771 **P 27703 Evolution and Function of the Environmental Protein Sequence Universe**

Huerta-Cepas Jaime, Szklarczyk Damian, Forslund Kristoffer, Cook Helen, Heller Davide, Walter Mathias C, Rattei Thomas, Mende Daniel R, Sunagawa Shinichi, Kuhn Michael, Jensen Lars Juhl, von Mering Christian, Bork Peer:

eggNOG 4.5: a hierarchical orthology framework with improved functional annotations for eukaryotic, prokaryotic and viral sequences.

Nucleic acids research 44, D286 (2016)

Nucleic acids research 44, D286 (2016)

DOI: [10.1093/nar/gkv1248](https://doi.org/10.1093/nar/gkv1248) ([details](#))

delete

71060 **HRSM SOLID**

No publications have been added to this project.

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Software environment

- CentOS 7 on both machines
- Most important languages and compilers are available as modules
- A few bioinformatics applications are installed in the extension
- Almost no other software, users have to install themselves

Job scheduling

Node allocation policy

- On VSC only complete compute Nodes , i.e., integral multiples of 16/48 cores, can be allocated for user jobs. If you wish to run many single core jobs, there are possibilities to schedule them in a smart way exploiting all CPUs of one node.
- **NOTE on accounting:** the project's core-h are always calculated as $\text{job_walltime} * \text{nnodes} * \text{ncores}$.

VSC QOS

The QOS's hard run time limits	
normal_0064 / normal_0128 / normal_0256	72h (3 days)
idle_0064 / idle_0128 / idle_0256	24h (1 day)
normal_binf	24h (1 day)
fast_binf	72h (3 days)
private queues p....._0...	240h (10 days)
devel queue (up to 10 nodes available)	10min

Links

VSC homepage: <http://vsc.ac.at>

VSC wiki: <https://wiki.vsc.ac.at>

VSC service page: <https://service.vsc.ac.at>

VSC-4 brochure (german):

http://typo3.vsc.ac.at/fileadmin/user_upload/vsc/download/brochure/VSC-brochure-2019-web.pdf