Using ANSYS with Remote Solve Manager at Windows

⚠ New users of ANSYS should get access to the license first by going to this page: https://ansys.epfl.ch/ and following the instructions.

Prerequisites: Configure PuTTY SSH

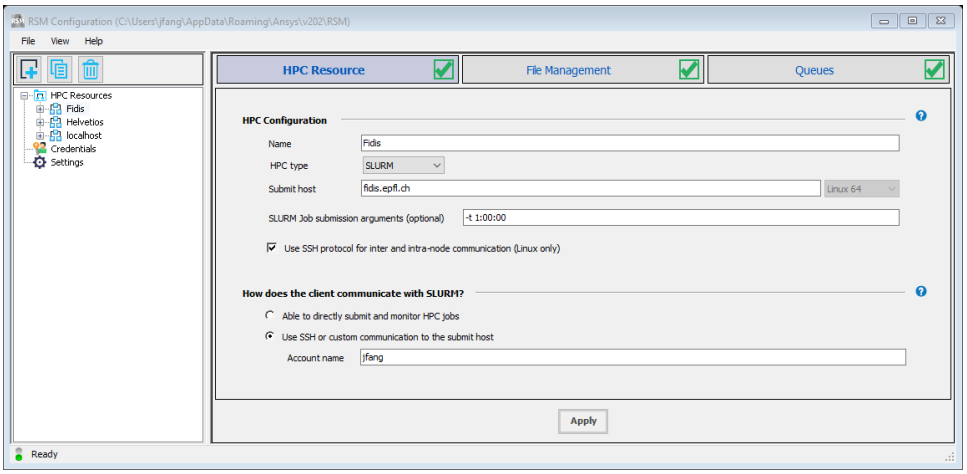
Step-by-step guide

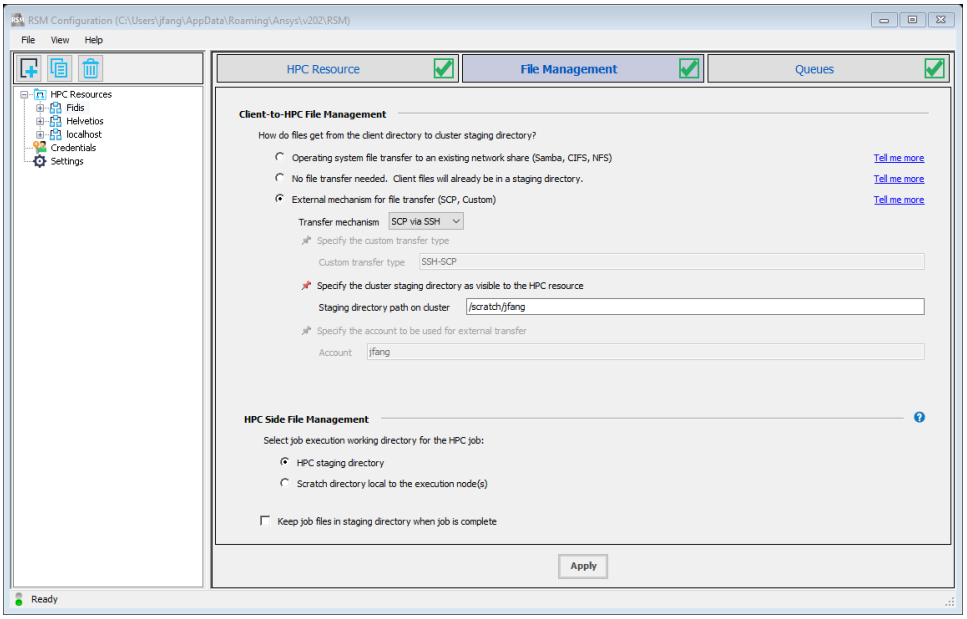
1. Install the same version of ANSYS as that at cluster (2020 R2 for now) at your Windows machine.
2. Login to the cluster (say Fidis) and add the following line to the **.bashrc** file.

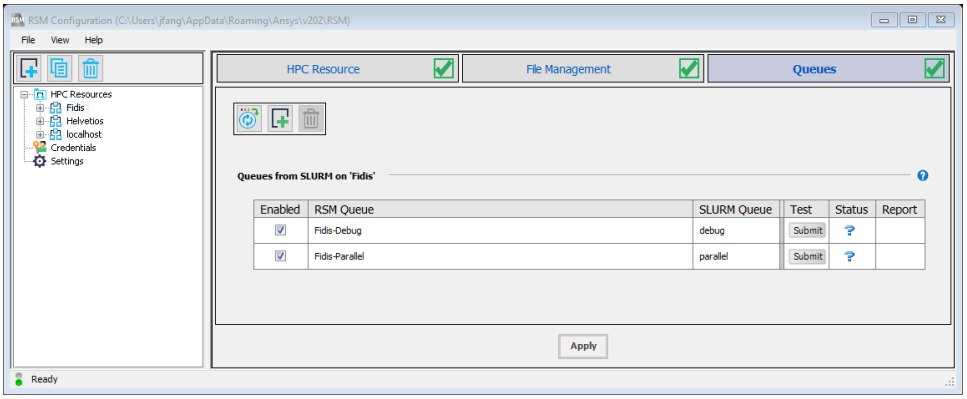
```
export AWP_ROOT202=/ssoft/spack/external/ansys/2020R2/v202
```

3. At your Windows machine, launch the RSM Configuration application (only need to do the steps 3-5 once), for example, select **Start > ANSYS 2020 R2 > RSM Configuration 2020 R2**
4. Define RSM Configurations.

- Click + to create a new RSM configuration for the cluster and give the configuration a name (e.g., the name of the cluster)
- Specify information on **HPC Resource**, **File management**, and **Queues** as shown below
- In the field **HPC type**, select **SLURM** from the drop-down menu (directly integrated for ANSYS 2020 R2 and later)
- In the field labeled **SLURM job submission arguments (optional)**, enter (for example to request wall time of 1h and mem-per-node of 120GB): **--time=1:00:00 --mem=120G**
- Select **Use SSH communication to the submit host** and enter your username at cluster.
  Note:
  Submit host depends on the machine you use. The values for maximum time will need to be changed once you begin submitting actual jobs.







Note:
To test the new configuration, click on Submit.

5. Quit the RSM Configuration application.
6. Launch the ANSYS Workbench, for example, select **Start > ANSYS 2020 R2 > Workbench 2020 R2**
7. Create/Open your workbench project file (.wbpj).

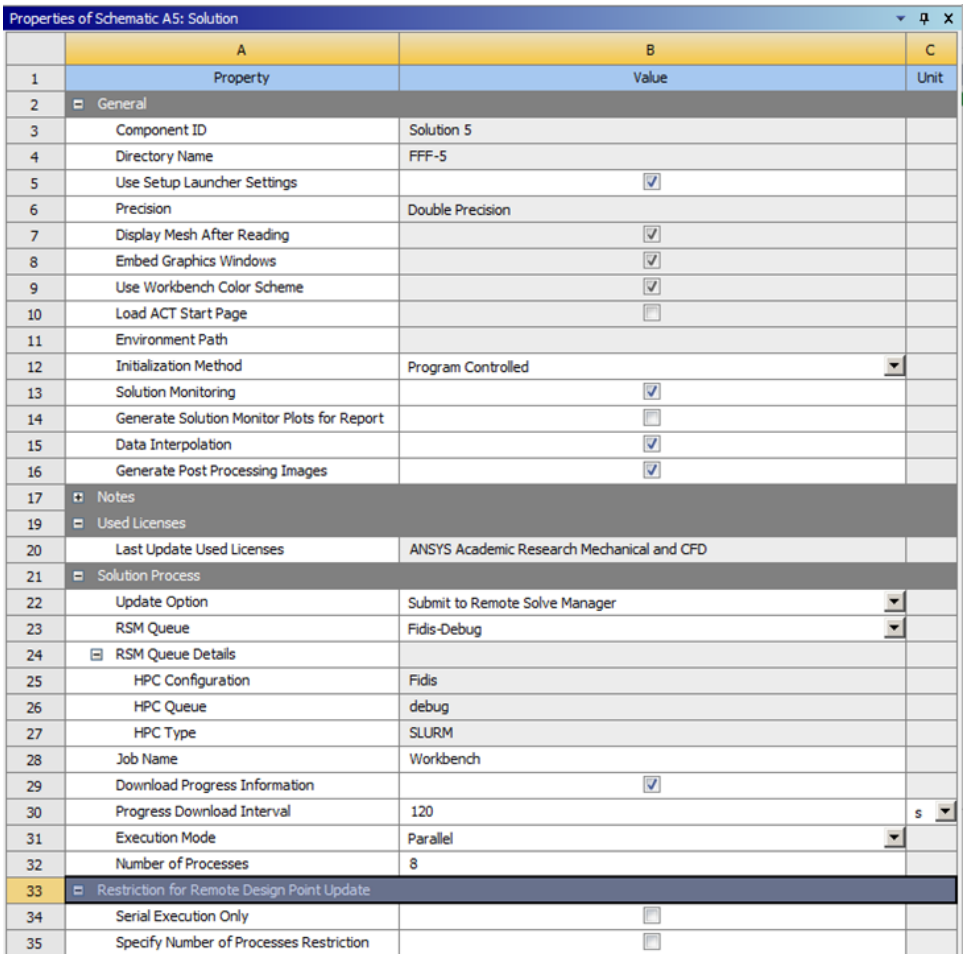
Submitting a Mechanical Job from Workbench to Remote Solve Manager:

- On the Project Schematic, double-click either the Model or the Setup cell to launch Mechanical.
- In the Mechanical application, on the **Home** tab, select **Solve Process Settings**.
- In the **Solve Process Settings** dialog box, click **Add Queue**.
- In the **Rename Solve Process Settings** dialog box, enter a **Solve Process Setting Name** (for example, **Cluster**), then click **OK.**
- In the **Solve Process Settings** dialog box: In the left pane, select the solve process setting whose name you just specified.
- In the **Settings** pane, select the **RSM Queue** to which the Mechanical job will be submitted.
- From the **License** drop box, select the ANSYS product license to be used for the solution (**maybe the default one "Ansys Mechanical Enterprise"**).
- In the **Advanced Properties** dialog box: Select the **Distribute Solution (if possible)** option, Specify the **Max number of utilized cores**. , Click **OK**.
- In the **Solve Process Settings** dialog box, click **OK**. The dialog box closes and the solve process setup is complete.
- Select the **Solve** drop-down on the toolbar. You will see the solve process name you just defined (in this example, **Cluster**). Select that process**.**
- Tick **Distributed** ans specify **Number of Cores** (Note: However, the 2020R2 version ignores this and uses the maximum cores per node: 36 for Helvetios and 28 for Fidis to run the job).
- Click **Solve**. The solve commences. When the solution has completed, the Solution branch and the items underneath it in the project tree will each have a down arrow next to them.
- Right-click **Solution** and select **Get Results**.

Submitting a Fluent Job from Workbench to Remote Solve Manager:

- In the Fluent system, right-click the Solution cell and select **Properties**.

- In the Solution Properties view, Clear **Use Setup Launcher Settings** and Set Solution Process properties as follows:



Properties of Schematic A5: Solution

	A	B	C
1	Property	Value	Unit
2	General		
3	Component ID	Solution 5	
4	Directory Name	FFF-5	
5	Use Setup Launcher Settings	☑	
6	Precision	Double Precision	
7	Display Mesh After Reading	☑	
8	Embed Graphics Windows	☑	
9	Use Workbench Color Scheme	☑	
10	Load ACT Start Page	☐	
11	Environment Path		
12	Initialization Method	Program Controlled	
13	Solution Monitoring	☑	
14	Generate Solution Monitor Plots for Report	☐	
15	Data Interpolation	☑	
16	Generate Post Processing Images	☑	
17	Notes		
19	Used Licenses		
20	Last Update Used Licenses	ANSYS Academic Research Mechanical and CFD	
21	Solution Process		
22	Update Option	Submit to Remote Solve Manager	
23	RSM Queue	Fidis-Debug	
24	RSM Queue Details		
25	HPC Configuration	Fidis	
26	HPC Queue	debug	
27	HPC Type	SLURM	
28	Job Name	Workbench	
29	Download Progress Information	☑	
30	Progress Download Interval	120	s
31	Execution Mode	Parallel	
32	Number of Processes	8	
33	Restriction for Remote Design Point Update		
34	Serial Execution Only	☐	
35	Specify Number of Processes Restriction	☐	

- Right-click the Solution cell and select **Update** or select **Update Project** on the toolbar.

Submitting a Design Point Update from Workbench to Remote Solve Manager:

- Right-click the **Solution** and select **Properties** to set the **Update Option** property to **Run in Foreground**.
- Right-click the **Parameter Set** and select **Properties** to set the **Update Option** property to **Submit to Remote Solve Manager (Legacy).**
- From the **RSM Queue** drop box, select the queue (note: i.e. partition in slurm) that will be used for the job.
- Set the **Job Submission** to **One Job for Each Design Point**.
- For **Component Execution Mode**, specify **Serial** or **Parallel** solver execution mode. The **Parallel** option is available only if the selected solver supports parallel execution mode.
- For the parallel option, set the **Number of Processes** (i.e. the number of tasks per job) equal to or less than the maximum CPUs per node (36 for Helvetios and 28 for fidis).
- Use the defaults for the other settings.
- Proceed with updating the project or design points. For example, select **Update Project** or **Update All Design Points** on the toolbar.

Related articles

- Using ANSYS with Remote Solve Manager
- Using ANSYS with Remote Solve Manager at Windows
- Compiling codes on different systems
- Using the clusters
- How to configure PuTTY SSH to transfer files to Cluster from Windows