



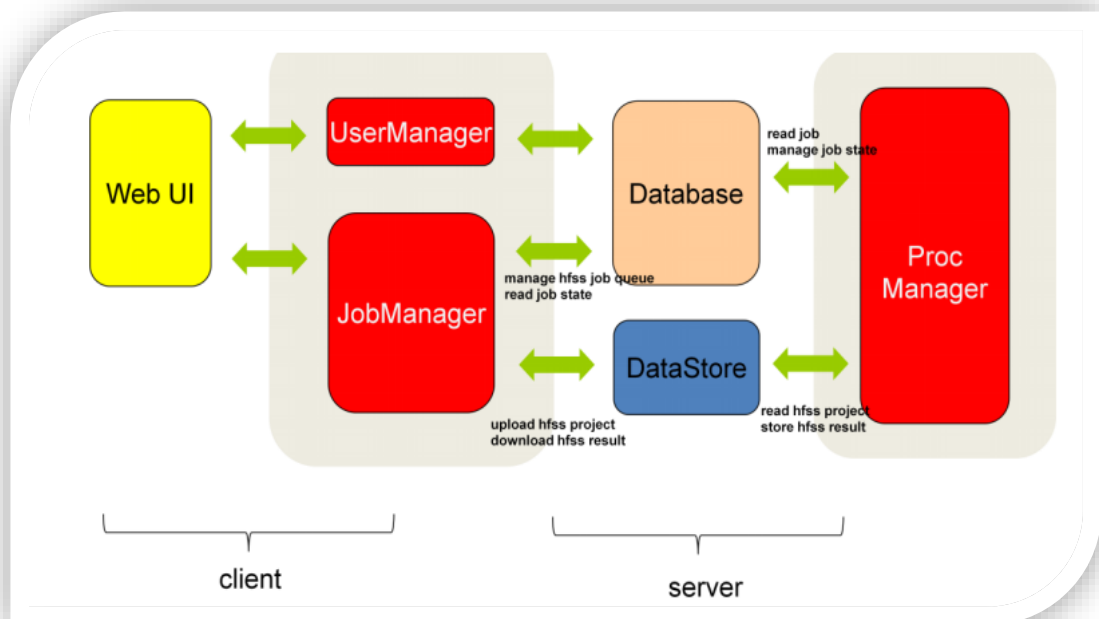
Data Sheet

JobQueue: Simulation Job Management Platform

JobQueue is a web based platform that enables you to submit, monitor and manage your simulation jobs, including IRIS, HFSS and more. As a web application, JobQueue utilizes both client hardware devices and servers based on Client/Server mode, so it's simple to install, and get your team to work across the region with only one system. Anyone with web browsing experience can pick it up in a matter of minutes. In JobQueue, all heavy computational simulation jobs are dispatched automatically to computing machines' clusters in order to maximize hardware resource utilization, and make the best of parallel computing and distributed computing. With a built-in queuing and batch simulation system it assists customers to adjust task priorities, manage computing resources, save GUI licenses and increase the simulation tool's utilization ratio. The project management module can supervise and manage submitted tasks that can easily be back traced and reused, which greatly increases the value to the business enterprise knowledge backlogs. Simulation displays and forwards real time results to your chosen browser which will improve simulation productivity.

JobQueue Solution

As a web based simulation job management platform, JobQueue mainly consists of “User interface”, “Account management”, “Job Manager” and “Process Manager”, as shown in the following figure. The user interface accesses the system, account management helps you manage your login account, including the addition and deletion of accounts, setting up of passwords and defining priorities. Job Manager submits simulation jobs to queue, manages job priority, monitors job status as well as other functions.. Process Manager is an independent service process, which is always running to detect and manage simulation jobs.



System Architecture

Key Points

- Both Windows and Linux simulation platforms are supported, in order to meet every customers’ requirements.
- Supports multiple simulation tools, including HFSS, SPECTRE, IRIS Plus and other
- Based on B/S architecture, it’s simple to install, upgrade and play.
- Supports all three major browsers; Chrome, IE(8 above) and Firefox.

- Supports several user roles with different access permissions, including administrator, manager, and basic user
- Maximizes the use of computing resources to support scheduling systems, such as LSF, SGE and PBS.
- Provides an internal resource scheduling system to support computing resources that are not added to the cluster scheduling system.
- Maximizes simulation speed and efficiency by fully utilizing parallel computing and distributed computing.
- Maximizes simulation tool usage and saves on GUI licensing cost by fully utilizing queuing and batch simulation technology.
- All submitted simulation projects are managed and supervised by the project management module to allow easy traceability and reusability.
- Simulation results and convergence status are displayed in real time to improve simulation efficiency and productivity.
- Functionality of computing nodes are displayed in real time.
- Real-time statistics and information for queued jobs.
- Prioritizes jobs efficiently based on their user defined importance. The built-in scheduling system supports personalization to adjust the resource allocation policy of the job and supports the user's job limit.

FEATURES

User Login

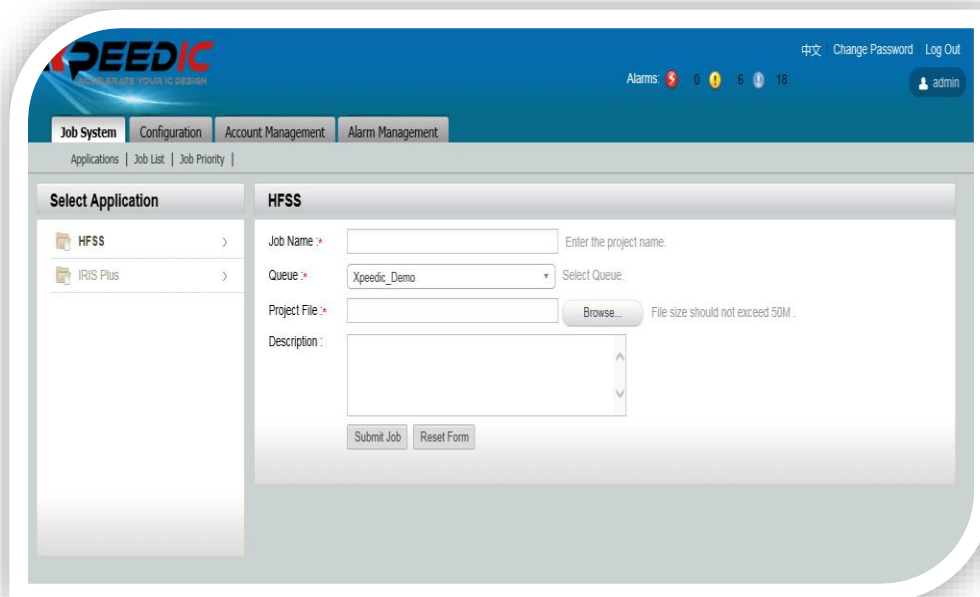
JobQueue supports both English and Chinese versions, and the default setting is consistent with your browser. JobQueue supports major browsers to take care of all users' habits. After logging in, the default home page of the user will load according to the system settings.



User Login

Submit Simulation Jobs

JobQueue supports multiple simulation tools, including HFSS, SPECTRE, IRIS and IRIS Plus. Users can upload simulation jobs from local machines to the queuing system, all submitted projects will be uploaded to the file server for unified management.



Submit Simulation Jobs

Validation Check

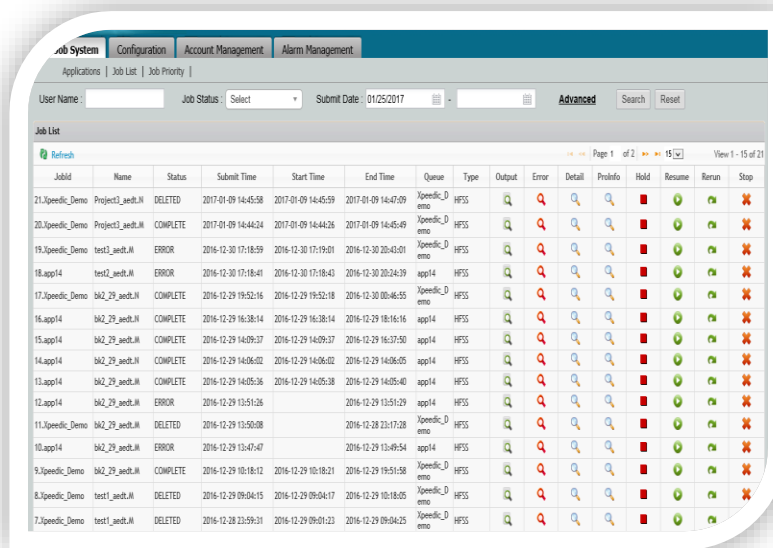
JobQueue can check all submitted simulation jobs, and ensure modeling complexity and simulation settings meet the tolerance requirements. The available validation checks include; model size, component number, sweep frequency, convergence tolerance and more.

Priority adjustment

JobQueue system lists all the jobs waiting in the queue, and allows administrators to adjust the priority and job queuing order of the jobs, to allow seamless transition between multiple workers within a team

Manage Job List

JobQueue stores all recent jobs onto the job list page, so that users can view detailed information for each job, including profile, convergence, mesh status and more. Submitted jobs can be re-queued, suspended, resumed, stopped and even deleted from the job list. Job running priority can only be adjusted by users with the appropriate level of access.



JobId	Name	Status	Submit Time	Start Time	End Time	Queue	Type	Output	Error	Detail	Profile	Hold	Resume	Rerun	Stop
21.XpEedic_Demo	Project1_swept.M	DELETED	2017-01-09 14:45:58	2017-01-09 14:45:59	2017-01-09 14:47:59	XpEedic_Demo	HFSS								
20.XpEedic_Demo	Project1_swept.M	COMPLETE	2017-01-09 14:44:24	2017-01-09 14:44:26	2017-01-09 14:45:49	XpEedic_Demo	HFSS								
19.XpEedic_Demo	test1_swept.M	ERROR	2016-12-30 17:18:59	2016-12-30 17:19:01	2016-12-30 20:43:01	XpEedic_Demo	HFSS								
18.app14	test2_swept.M	ERROR	2016-12-30 17:18:41	2016-12-30 17:18:43	2016-12-30 20:24:39	app14	HFSS								
17.XpEedic_Demo	hsk2_29_swept.M	COMPLETE	2016-12-29 19:52:16	2016-12-29 19:52:18	2016-12-30 00:46:55	XpEedic_Demo	HFSS								
16.app14	hsk2_29_swept.M	COMPLETE	2016-12-29 16:38:14	2016-12-29 16:38:14	2016-12-29 18:16:16	app14	HFSS								
15.app14	hsk2_29_swept.M	COMPLETE	2016-12-29 14:09:37	2016-12-29 14:09:37	2016-12-29 16:37:50	app14	HFSS								
14.app14	hsk2_29_swept.M	COMPLETE	2016-12-29 14:08:02	2016-12-29 14:08:02	2016-12-29 14:08:05	app14	HFSS								
13.app14	hsk2_29_swept.M	COMPLETE	2016-12-29 14:05:36	2016-12-29 14:05:38	2016-12-29 14:05:40	app14	HFSS								
12.app14	hsk2_29_swept.M	ERROR	2016-12-29 13:51:26		2016-12-29 13:51:29	app14	HFSS								
11.XpEedic_Demo	hsk2_29_swept.M	DELETED	2016-12-29 13:50:08		2016-12-28 23:17:28	XpEedic_Demo	HFSS								
10.app14	hsk2_29_swept.M	ERROR	2016-12-29 13:47:47		2016-12-29 13:49:54	app14	HFSS								
9.XpEedic_Demo	hsk2_29_swept.M	COMPLETE	2016-12-29 10:18:12	2016-12-29 10:18:21	2016-12-29 19:51:58	XpEedic_Demo	HFSS								
8.XpEedic_Demo	test1_swept.M	DELETED	2016-12-29 09:04:15	2016-12-29 09:04:17	2016-12-29 10:18:05	XpEedic_Demo	HFSS								
7.XpEedic_Demo	test1_swept.M	DELETED	2016-12-28 23:59:31	2016-12-29 09:01:23	2016-12-29 09:04:25	XpEedic_Demo	HFSS								

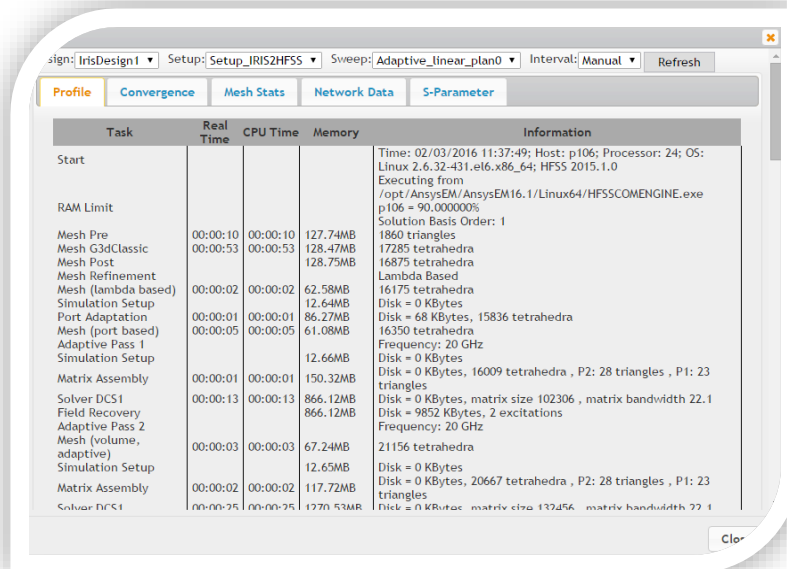
Job List

Queue job statistics

The JobQueue system is able to count the number of jobs in each queue; waiting, queuing, running, completing, error, and aborting.

Simulation Results Real Time Display

JobQueue displays real time convergence status and simulation results after dispatching tasks from the queuing system to computing cluster based on priority, and helps users to get simulation results as quickly as possible. Based on real-time results, users can discover engineering settings errors and pause or abort the simulation in advance without waiting for the whole simulation to end, thereby improving the efficiency of the workflow.

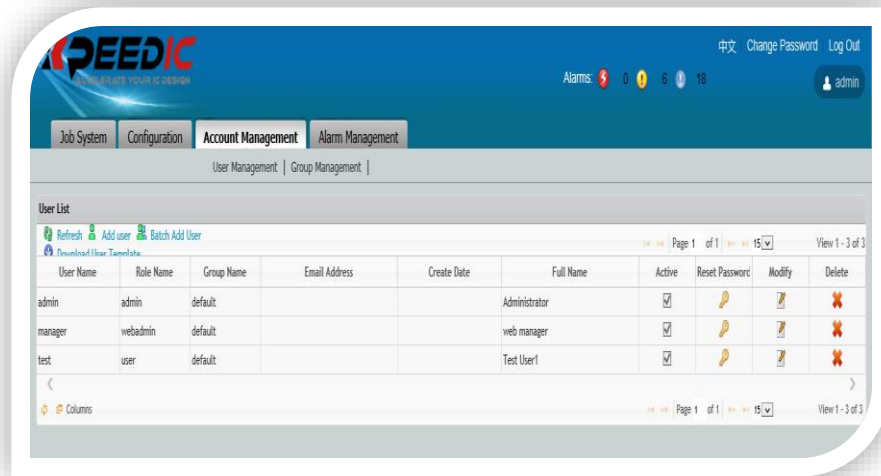


Task	Real Time	CPU Time	Memory	Information
Start				Time: 02/03/2016 11:37:49; Host: p106; Processor: 24; OS: Linux 2.6.32-431.el6.x86_64; HFSS 2015.1.0
RAM Limit				Executing from /opt/AnsysEM/AnsysEM16.1/Linux64/HFSSCOMENGINE.exe p106 = 90.000000%
Mesh Pre	00:00:10	00:00:10	127.74MB	Solution Basis Order: 1
Mesh G3dClassic	00:00:53	00:00:53	128.47MB	1860 triangles
Mesh Post			128.75MB	17285 tetrahedra
Mesh Refinement				16875 tetrahedra
Mesh (lambda based)	00:00:02	00:00:02	62.58MB	Lambda Based
Simulation Setup			12.64MB	16175 tetrahedra
Port Adaptation	00:00:01	00:00:01	86.27MB	Disk = 0 KBytes
Mesh (port based)	00:00:05	00:00:05	61.08MB	Disk = 68 KBytes, 15836 tetrahedra
Simulation Setup			12.66MB	16350 tetrahedra
Matrix Assembly	00:00:01	00:00:01	150.32MB	Frequency: 20 GHz
Solver DCS1	00:00:13	00:00:13	866.12MB	Disk = 0 KBytes
Field Recovery			866.12MB	Disk = 0 KBytes, 16009 tetrahedra , P2: 28 triangles , P1: 23 triangles
Adaptive Pass 1	00:00:03	00:00:03	67.24MB	Disk = 0 KBytes, matrix size 102306 , matrix bandwidth 22.1
Simulation Setup			12.65MB	Disk = 9852 KBytes, 2 excitations
Matrix Assembly	00:00:02	00:00:02	117.72MB	Frequency: 20 GHz
Solver DCS1	00:00:25	00:00:25	1720.53MB	21156 tetrahedra
				Disk = 0 KBytes
				Disk = 0 KBytes, 20667 tetrahedra , P2: 28 triangles , P1: 23 triangles
				Disk = 0 KBytes, matrix size 137456 , matrix bandwidth 22.1

Simulation Results

Account Management

JobQueue supports several user roles with different access permissions, including administrator, manager, and basic user. Basic users are able to submit jobs. Administrators are in charge of JobQueue system maintenance and configuration. Managers have the permission to manage both users and user groups, import domain users via batch mode into JobQueue.

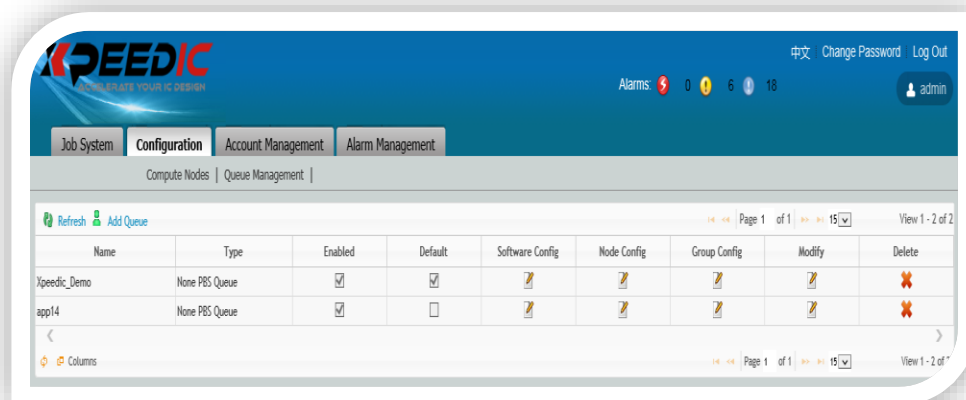


Account Management

Configuration

The system has a built-in priority-based queuing system. The system configuration of the computing node and queuing settings page helps the user to configure the computing resources, managed by the built-in resource scheduling system; the queue and user job settings can be used to allocate and limit the system's job assignment. At the same time, the cluster scheduler can be utilized to optimize computing resource usage.

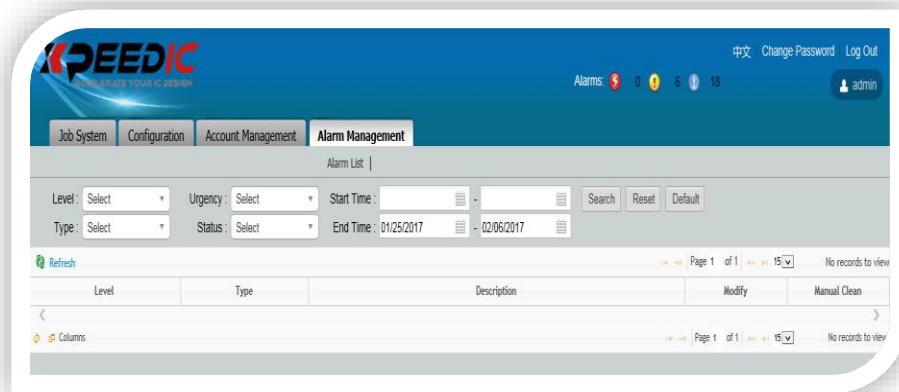
JobQueue supports LSF, SGE and PBS farm cluster in Linux platform, PBS and HPC in Windows platform.



Queue Management

Alarm Management

After the task is completed, the JobQueue will send a notification to inform the user of the simulation status, including errors, warning and normal statuses, and ensures the user is up to date with the latest status of simulation jobs. You can also set the system up to send a notification email if a mail server is configured.



Alarm Management

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