

Welcome to **EnterpriseSCHEDULE**

This presentation will outline many of the features and implementations of EnterpriseSCHEDULE, the foremost scheduling solution available for Windows, OpenVMS, Linux, Sun Solaris, HP-UX, AIX and Tru64 UNIX

When you're done reading, contact ISE to set up a free WEBEX remote demo or a 45 day product demo



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What is EnterpriseSCHEDULE?

EnterpriseSCHEDULE enables an enterprise to administer, control and monitor scripted batch jobs. It can initiate and manage a stream of jobs based on time, internal or external events or manual intervention. Using Windows,

Web-based and command line clients it provides a single point of control for all job processing in a distributed network of computers.



How will EnterpriseSCHEDULE reduce my workload ?

- Optimizes automated processing allowing more work to be accomplished without intervention.
- Reduces personnel costs by allowing employees to focus on less repetitive and time consuming tasks
- Launches jobs based on time or events reducing potential for human error





Why is a Job Scheduler necessary for today's growing enterprises?

Enterprise job scheduling has become a vital part of today's enterprises both large and small. It has become an essential tool to perform the many automated processes that IT managers are responsible for.

EnterpriseSCHEDULE is the preeminent Enterprise wide job scheduler on Windows, OpenVMS, Linux, HP-UX, Sun Solaris, AIX and Tru64 UNIX and is backed by more than 25 years of experience in the field.

EnterpriseSCHEDULE features

- Single point of Control
 - Administer, control and monitor scheduling activity on a heterogeneous Enterprise from a single client
- Time based Scheduling
 - Base job flow on time intervals, days of the week or marked calendars
- Event based Scheduling
 - Base job flow on availability of files, variable states, resource states
- Interdependencies between jobs
 - Base job flow on jobs initiating each other (initiates) or jobs holding up others until complete (prerequisites) **more...**

EnterpriseSCHEDULE features

- Availability across heterogeneous platforms
 - OpenVMS, Windows, Linux, Tru64 Unix, AIX, Solaris and HP-UX
- Scalable
 - Standalone
 - Workgroups
 - Cluster
 - LAN/WAN installations (TCP/IP or DECnet)

more...

EnterpriseSCHEDULE features

SERVER AVAILABILITY AND SCALABILITY

- **Server to Server design**
 - Cooperative Architecture (Agents to each other)
 - Fault tolerant (No single point of failure as in Master/Agent Architecture)
 - Distributes processing (Highly scalable)
- **High Availability fault tolerant server logic**
 - Multiple level exception handling at code level
 - Handles system errors and unforeseen errors
 - Server rollover at cluster level
 - Definable server activity classes

EnterpriseSCHEDULE features

- Distributed, Centralized or Replicated database
 - **Distributed database** allows for individual nodes to store their own data (jobs, calendars, variables etc.) in a peer to peer network or limited cluster
 - **Centralized database** is a single database in a cluster providing a central location for the storage of data
 - **Replicated database** is used to maintain a copy of the data set on all nodes in a job scheduling Workgroup thus providing excellent fault tolerance
- more...**

EnterpriseSCHEDULE features

- **Embedded data**

- The EnterpriseSCHEDULE database is embedded, independent and complete. There is need for third party database support necessary

- **Object oriented data set**

- Database is organized to keep jobs, calendar definitions, variables and other data in an object oriented fashion that makes accessing and modifying data easier

- **Comprehensive Data set security**

- Allows the assignment of multiple levels of access to the jobs, directories, calendars etc. to determine who can submit or modify jobs

more...

EnterpriseSCHEDULE features

- **Windows Client**
 - Manage job streams across platforms using the layout window to set up jobs and dependencies by drawing job boxes and connecting lines
 - Administer jobs, calendars, variables etc. using the Windows style Explorer
 - Monitor job progress across the Enterprise using the job monitor module
- **Web Client**
 - Maintain job sets, control job submissions and view job status from a browser anywhere in the world
- **Command line client**
 - Perform all job scheduling duties using a command line client from the native operating system or a DOS prompt from the Windows client

EnterpriseSCHEDULE features

USABILITY

- **Simple usage with complex functionality**
 - Single point of control from Windows, Web and Command line clients
 - Explorer view allows Windows style administration of jobs, calendars etc.
 - Job streams can be edited and controlled in Windows graphical layout
 - Objects are organized in file/directory hierarchy
 - Intuitive command set

EnterpriseSCHEDULE features

JOB FLOW

- Initiates signal subsequent jobs to execute based on exit status
- Prerequisites hold up subsequent jobs
- Prejob actions check conditions before job executes
- Unlimited numbers of resource requirements
- Post job actions execute after job runs

EnterpriseSCHEDULE features

WORKGROUPS

- **Distribute the Workload across servers**
 - Method 1: Automatically chooses least busy server in a workgroup freeing up resources on busy servers
 - Method 2: Round Robin method runs jobs in a sequence across the workgroup
 - Method 3: Runs jobs on the first accessible server in a workgroup
- **Replication of database across workgroup**
 - A complete copy of all jobs, calendars, variables etc in the database is replicated across all nodes. Provides solid fault tolerance in the event of inaccessible or faulty servers.

EnterpriseSCHEDULE features

NETWORK PROTOCOLS

<i>Connection type</i>	<i>Protocol</i>
Windows or UNIX/Linux server to "all platforms" server	TCP/IP
Unix/Linux client to UNIX/Linux server	"Unix domain" socket protocol
Windows/Unix client to "all platforms" server	TCP/IP
OpenVMS server to UNIX server	TCP/IP
OpenVMS client to server	Standard mailbox protocol
OpenVMS server to server	Decnet and/or TCP/IP

EnterpriseSCHEDULE features

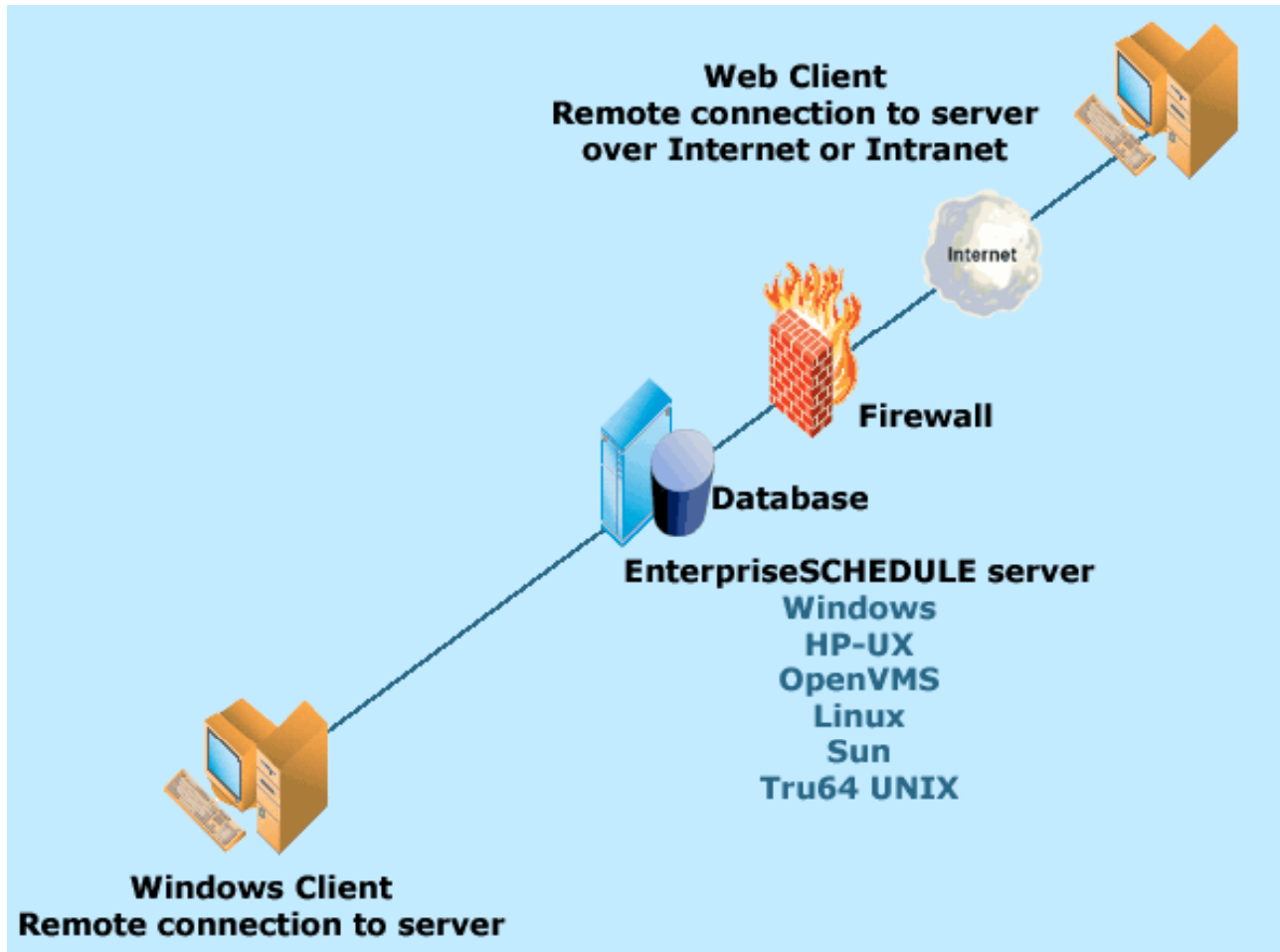
EVENT QUEUES

**Event Queues maintain current job state info.
Some examples are:**

- B queue holds Jobs waiting for scheduled start time
- E queue - Jobs waiting for prerequisite job(s) to complete. Jobs that reach the completion queue P, signal an event to the E queue for prerequisite validation.
- H queue - Jobs waiting for a independent resource variable state to change
- P queue maintains old job completion status. The data is maintained for a database value retention period

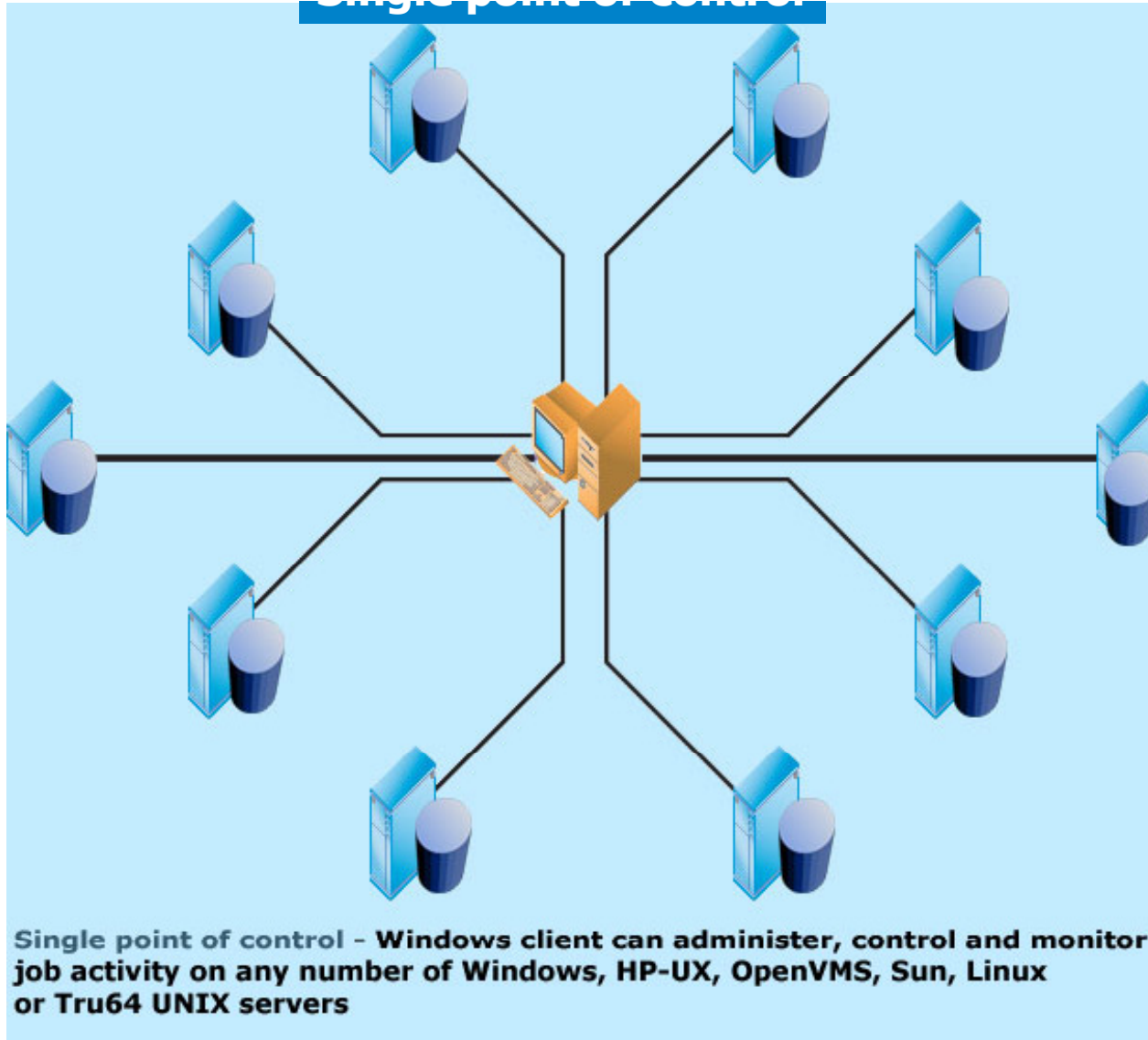
Configuration Examples

Windows/Web Remote Client



Configuration Examples

Single point of control

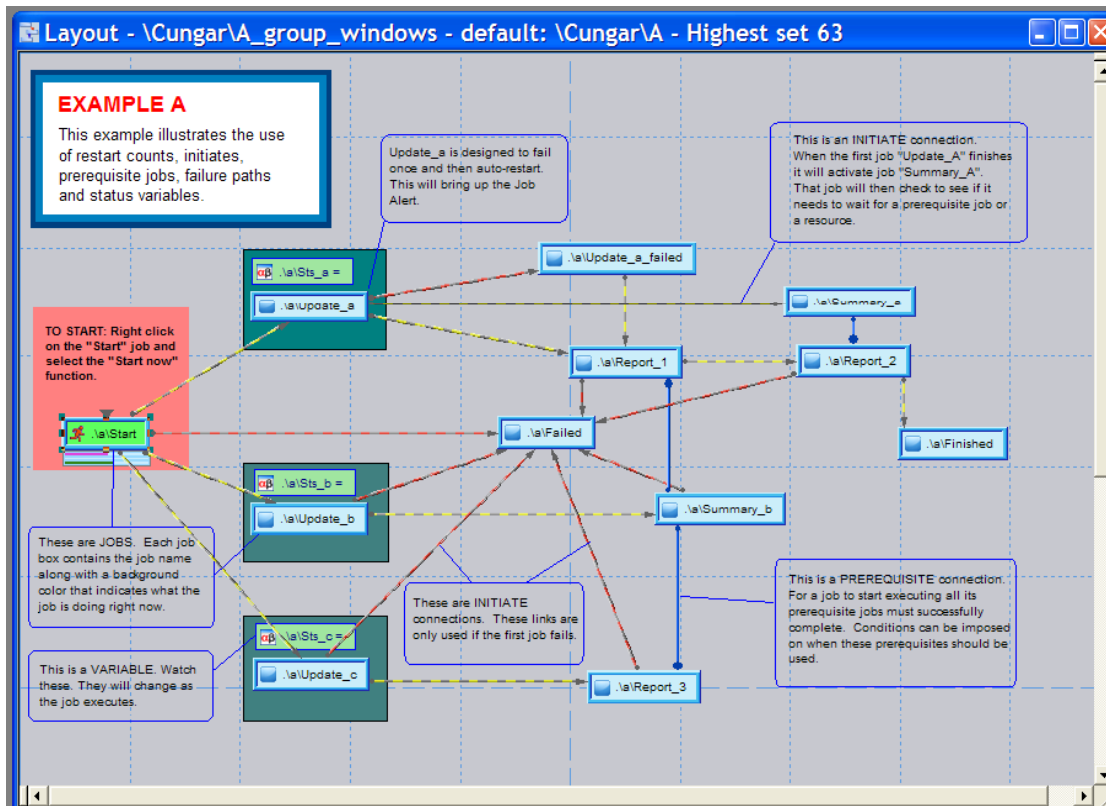


Windows Client

The EnterpriseSCHEDULE for Windows interface features an assortment of valuable modules that makes working in the job scheduling environment faster and easier than ever before. From the familiar Explorer view to the powerful Job Layout window, it was designed to make scheduling jobs a breeze.

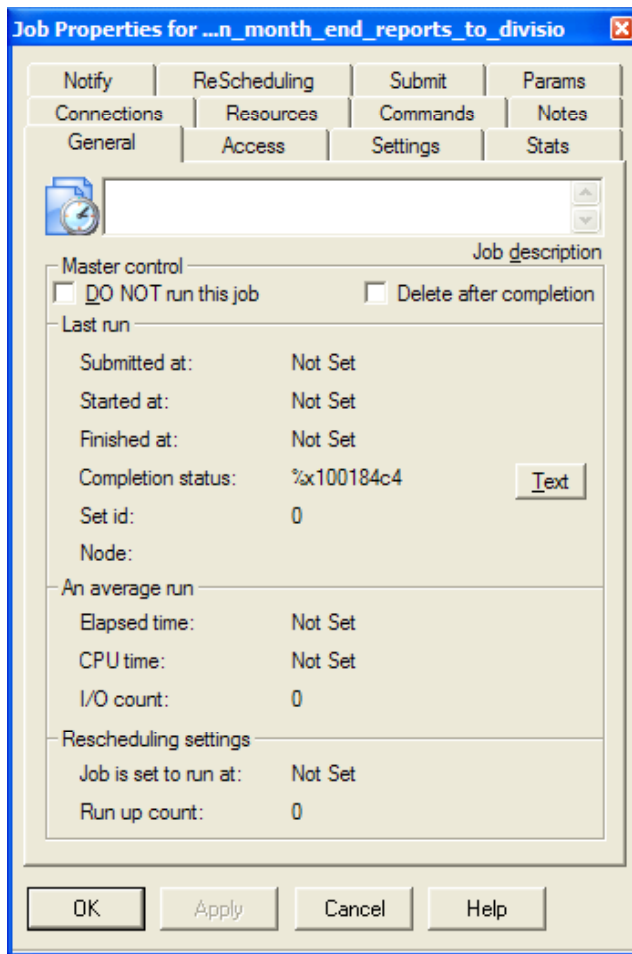


MODULES – Job Layout



Jobs can be created in the layout, their properties modified and updated, submitted for execution or stopped and restarted if necessary. Job dependencies (the connections between jobs) can be created, modified and updated.

Job Properties

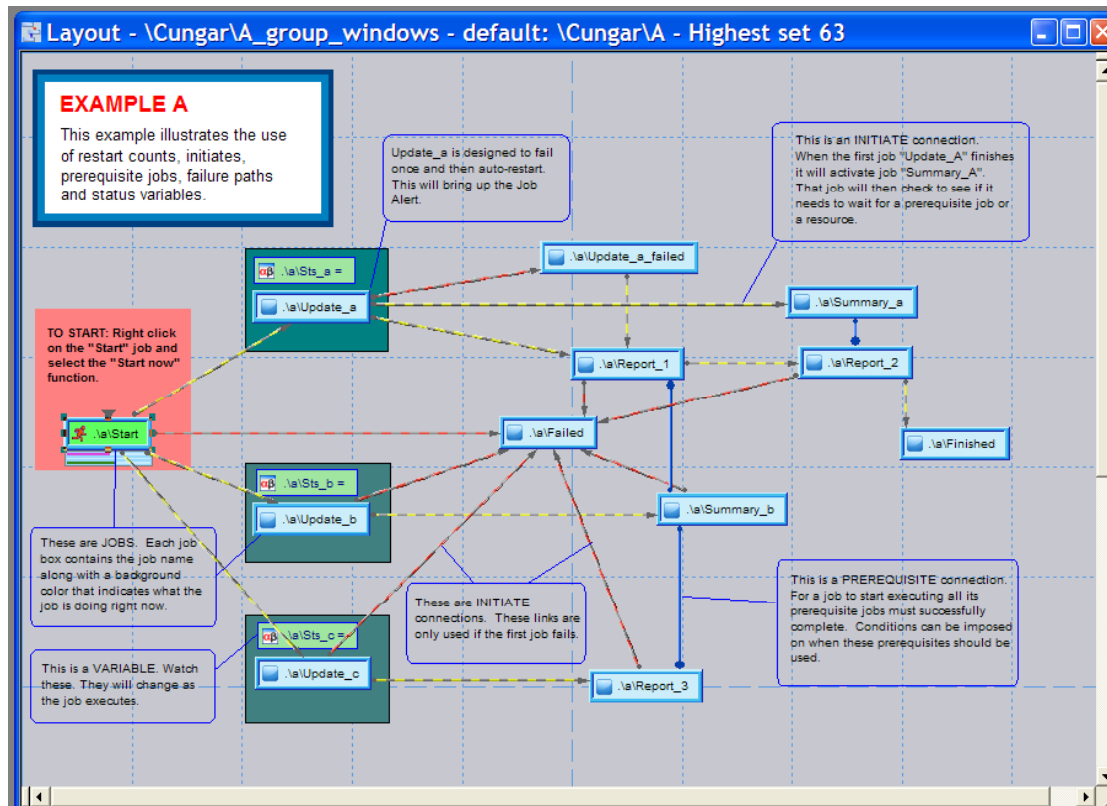


Job Properties Include

- Rescheduling method
- Batch commands
- Notification settings
- Runtime statistics
- Variable resources
- Submission settings
- Parameters
- Job interdependencies
- History data

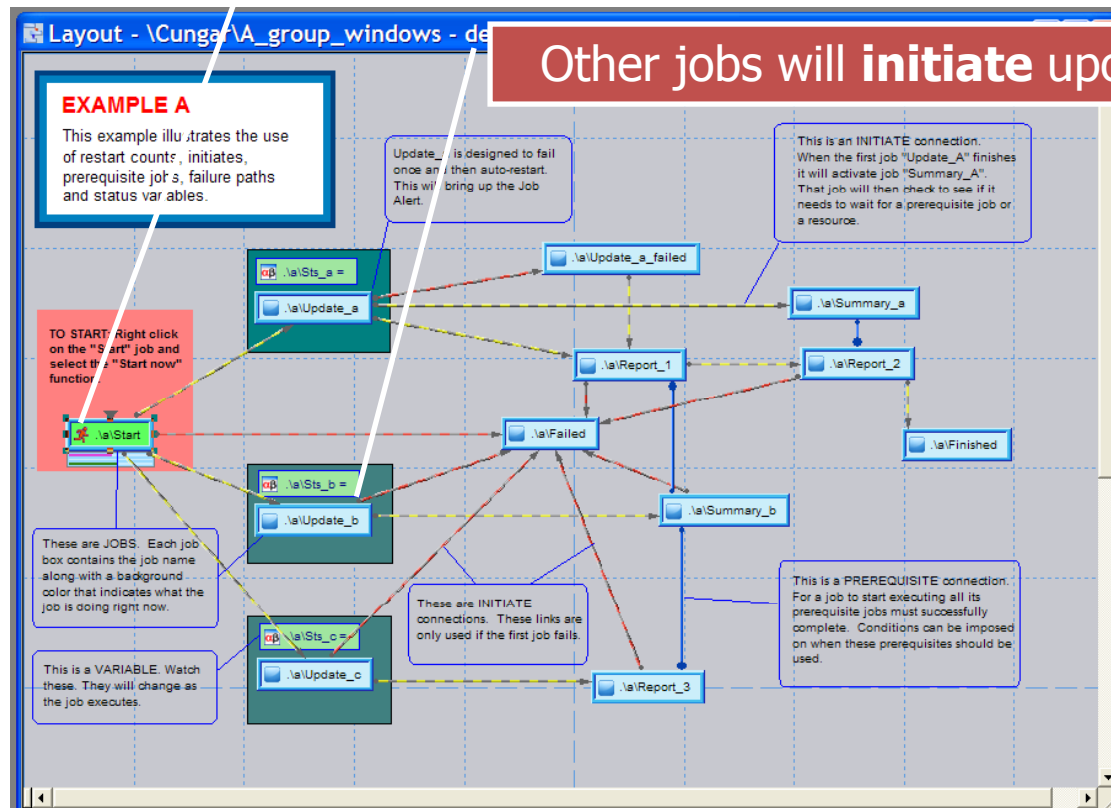
Job Stream

Initial Layout State before submission shows last completions



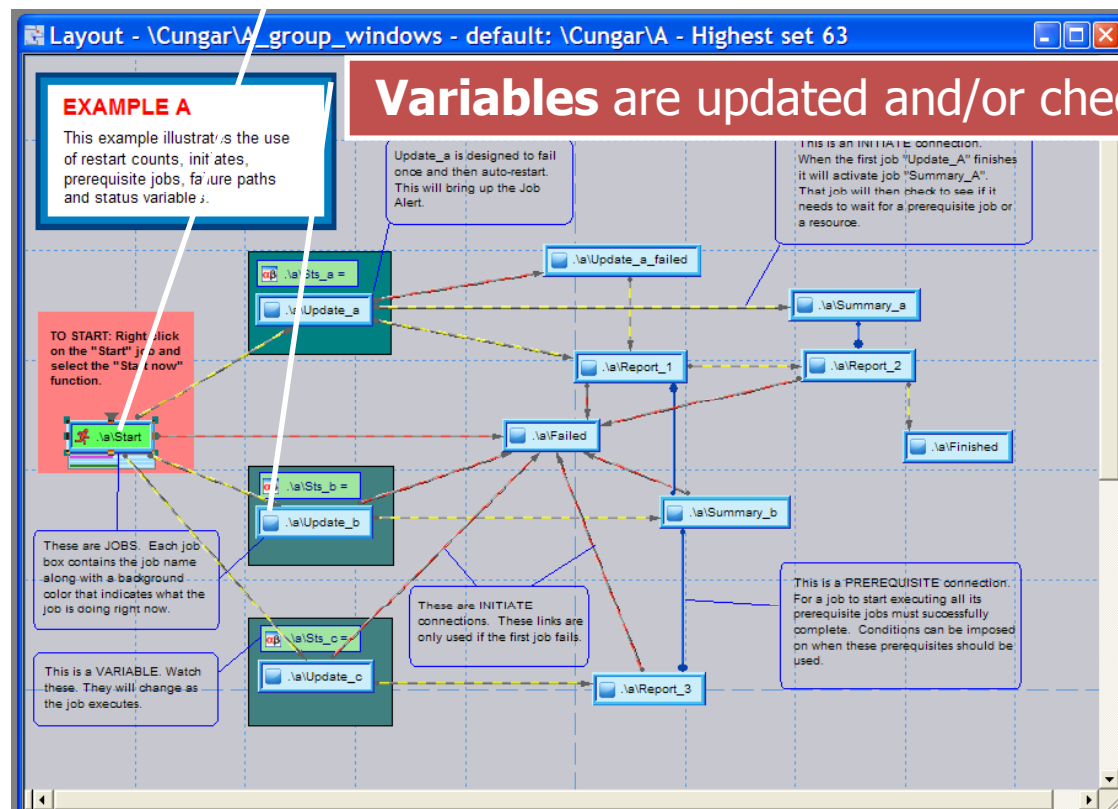
Job Stream

Icon and color changes indicate **state changes**



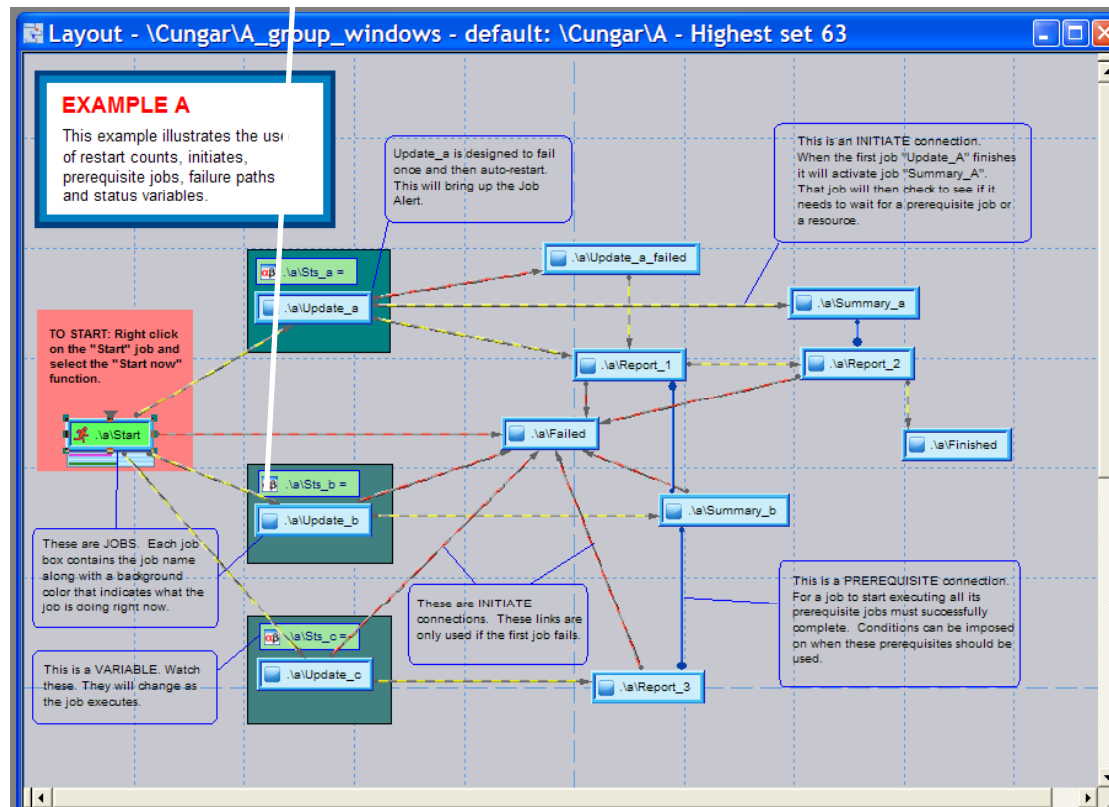
Job Stream

First job completes and three others initiate



Job Stream

Job flow continues through subsequent jobs



Job Stream

Monitor tracks vital state changes from submission to completion

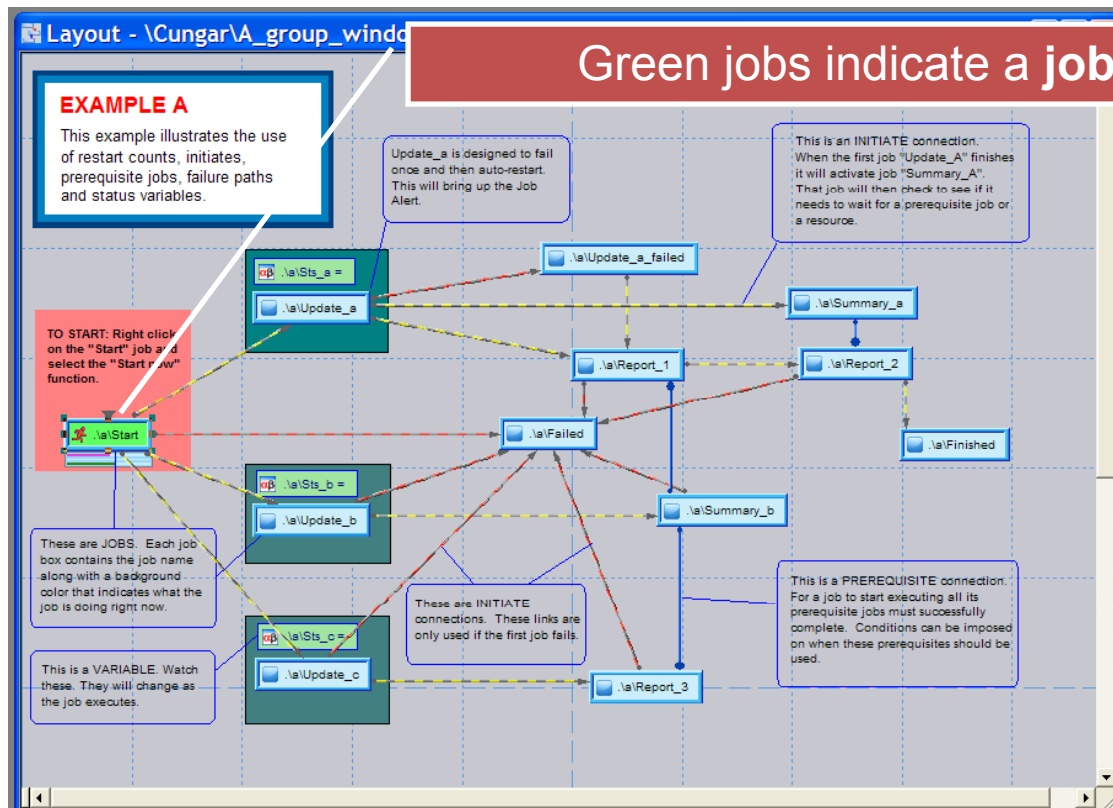
The screenshot displays the Monitor Console interface. On the left, a sidebar shows the 'Monitor Console' title and a timestamp of 'March 12, 2010, 12:40:31'. Below this is a 'Number of jobs in each state' section with a list of states and their counts: A Next start (0), B Wait for start (7), C Assign set number (0), D Workgroup manager (0), E Wait for local jobs (1), F Request remote status (0), G Wait for remote jobs (0), H Waiting for resources (0), I Waiting for disk space (0), J Ready to execute (0), K Job created (0), L Job started (0), M Job finished (0), N Initiate local jobs (0), O Initiate remote jobs (0), P Recently finished (19), Q Event signals (0), R Job completions (0), and S Remote requests (0). A 'Filters' section at the bottom left includes fields for Users, Nodes, Folders, and Set identifiers, along with a 'Select Events' button.

The main area is divided into two tables. The top table, 'Current job states', has columns for Job, State, and Progress. It lists 11 jobs with their respective states and completion times. The bottom table, 'Server events received', has columns for Time, Job, and Event. It provides a detailed log of events from March 12, 2010, 12:33:59 to 12:36:37, including job creation, starting, finishing, and waiting for local jobs.

Job	State	Progress
\\Cunqar\A\Finished [53]	P Recently finished	Completed March 12, 2010, 12:36:37
\\Cunqar\A\Report 1 [53]	P Recently finished	Completed March 12, 2010, 12:33:49
\\Cunqar\A\Report 2 [53]	P Recently finished	Completed March 12, 2010, 12:35:13
\\Cunqar\A\Report 3 [53]	P Recently finished	Completed March 12, 2010, 12:33:44
\\Cunqar\A\Start [53]	P Recently finished	Completed March 12, 2010, 12:30:44
\\Cunqar\A\Summary a [53]	P Recently finished	Completed March 12, 2010, 12:36:36
\\Cunqar\A\Summary b [53]	P Recently finished	Completed March 12, 2010, 12:35:21
\\Cunqar\A\Update a [53]	P Recently finished	Completed March 12, 2010, 12:32:27
\\Cunqar\A\Update b [53]	P Recently finished	Completed March 12, 2010, 12:32:19
\\Cunqar\A\Update c [53]	P Recently finished	Completed March 12, 2010, 12:32:21
\\Piones\B\Finish [11]	E Wait for local jobs	Delayed

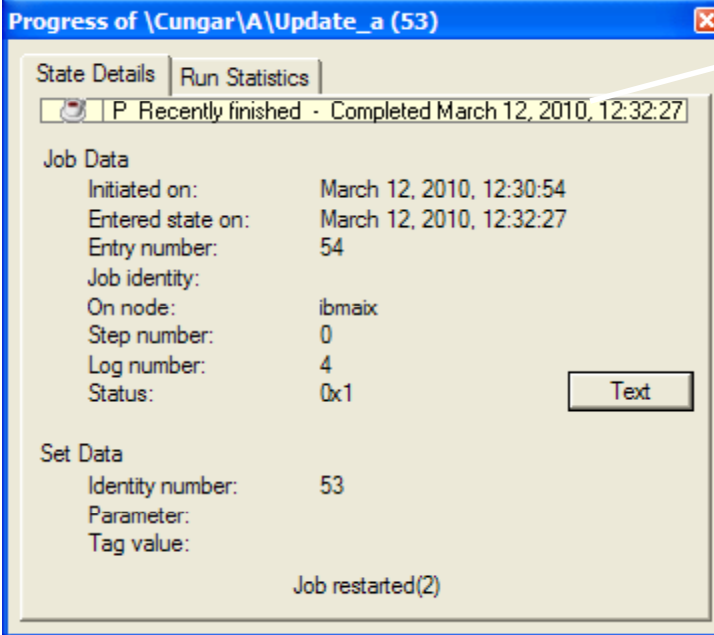
Time	Job	Event
March 12, 2010, 12:33:59	\\Cunqar\A\Summary b [53]	J Ready to execute
March 12, 2010, 12:34:00	\\Cunqar\A\Summary b [53]	K Job created Job identity is 315404
March 12, 2010, 12:34:01	\\Cunqar\A\Summary b [53]	L Job started Job identity is 315404
March 12, 2010, 12:35:13	\\Cunqar\A\Report 2 [53]	M Job finished Completed March 12, 2010,
March 12, 2010, 12:35:13	\\Cunqar\A\Summary a [53]	J Ready to execute
March 12, 2010, 12:35:13	\\Cunqar\A\Report 2 [53]	P Recently finished Completed March 12, 2010,
March 12, 2010, 12:35:13	\\Cunqar\A\Finished [53]	B Wait for start
March 12, 2010, 12:35:13	\\Cunqar\A\Finished [53]	E Wait for local jobs
March 12, 2010, 12:35:13	\\Cunqar\A\Finished [53]	J Ready to execute
March 12, 2010, 12:35:15	\\Cunqar\A\Summary a [53]	K Job created Job identity is 176282
March 12, 2010, 12:35:15	\\Cunqar\A\Finished [53]	K Job created Job identity is 368830
March 12, 2010, 12:35:16	\\Cunqar\A\Summary a [53]	L Job started Job identity is 176282
March 12, 2010, 12:35:16	\\Cunqar\A\Finished [53]	L Job started Job identity is 368830
March 12, 2010, 12:35:21	\\Cunqar\A\Summary b [53]	M Job finished Completed March 12, 2010,
March 12, 2010, 12:35:21	\\Cunqar\A\Summary b [53]	P Recently finished Completed March 12, 2010,
March 12, 2010, 12:36:36	\\Cunqar\A\Summary a [53]	M Job finished Completed March 12, 2010,
March 12, 2010, 12:36:36	\\Cunqar\A\Summary a [53]	P Recently finished Completed March 12, 2010,
March 12, 2010, 12:36:37	\\Cunqar\A\Finished [53]	M Job finished Completed March 12, 2010,
March 12, 2010, 12:36:37	\\Cunqar\A\Finished [53]	P Recently finished Completed March 12, 2010,

Job Stream



Job Stream

Detailed current state information available



The screenshot shows a window titled "Progress of \Cungar\A\Update_a (53)". It has two tabs: "State Details" (selected) and "Run Statistics". Below the tabs is a status bar with a red stop icon and the text "P Recently finished - Completed March 12, 2010, 12:32:27".

Job Data

Initiated on:	March 12, 2010, 12:30:54
Entered state on:	March 12, 2010, 12:32:27
Entry number:	54
Job identity:	
On node:	ibmaix
Step number:	0
Log number:	4
Status:	0x1

Set Data

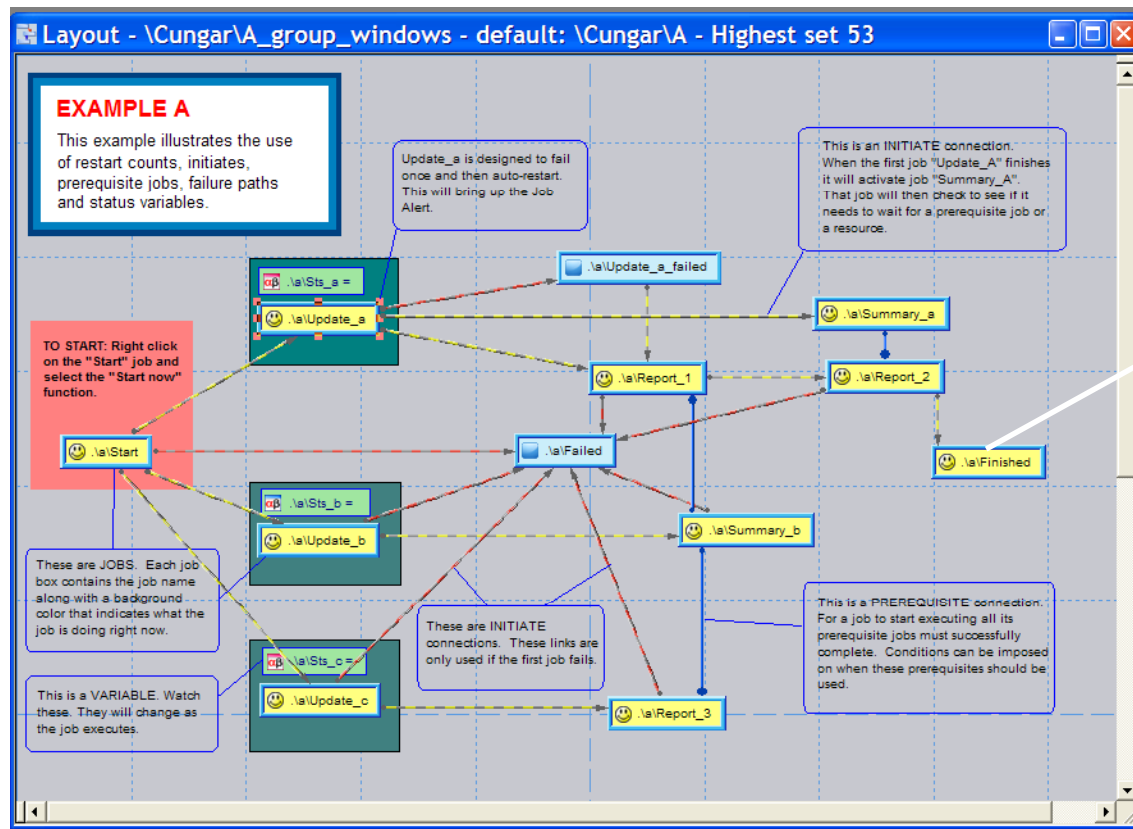
Identity number:	53
Parameter:	
Tag value:	

Job restarted(2)

Text

Job Stream

Stream is complete. Log files and monitor document all activity



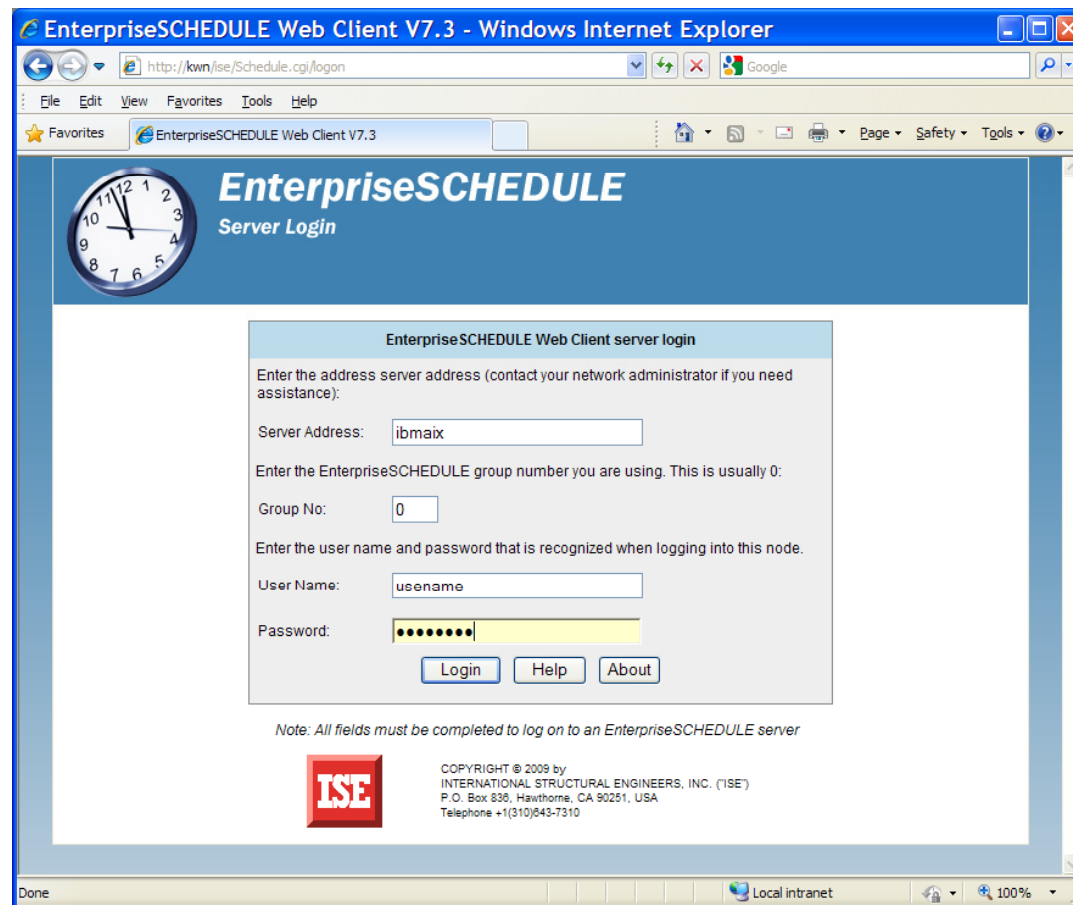
Web Client

The EnterpriseSCHEDULE Web Client allows you to maintain job sets, control job submissions and view job status from a browser anywhere in the world. The program is installed on a Microsoft Windows IIS server and can access any Windows server on your network regardless of platform. The web interface provides remote management of EnterpriseSCHEDULE servers. View job status, reports, event logs and trigger jobs on remote computers.



Web Client

Connect to any accessible server using the logon screen



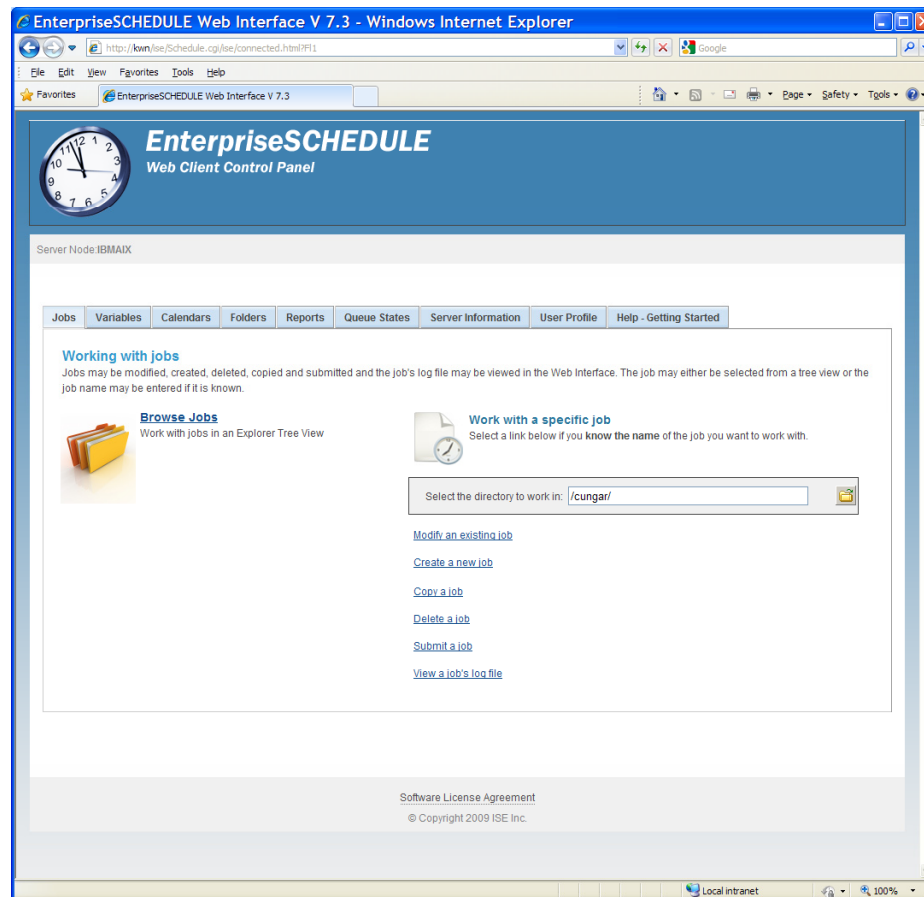
The screenshot shows a Windows Internet Explorer browser window titled "EnterpriseSCHEDULE Web Client V7.3 - Windows Internet Explorer". The address bar contains the URL "http://kwn/ise/Schedule.cgi/logon". The page features a blue header with a clock icon and the text "EnterpriseSCHEDULE Server Login". Below the header is a login form titled "EnterpriseSCHEDULE Web Client server login". The form contains the following fields and instructions:

- Server Address:
- Group No:
- User Name:
- Password:

Below the form are three buttons: "Login", "Help", and "About". A note at the bottom of the form reads: "Note: All fields must be completed to log on to an EnterpriseSCHEDULE server". At the bottom of the page, there is a red "ISE" logo and copyright information: "COPYRIGHT © 2009 by INTERNATIONAL STRUCTURAL ENGINEERS, INC. (ISE) P.O. Box 836, Hawthorne, CA 90251, USA Telephone +(310)643-7310". The browser status bar at the bottom shows "Done" and "Local intranet".

Web Client

Choose from a variety of operations using the main menu



Web Client

Explorer Tree view allows users to **modify, create, submit, delete** jobs, folder, variables etc.

EnterpriseSCHEDULE Web Client V7.3 - Windows Internet Explorer

EnterpriseSCHEDULE Job Explorer

Server Node: IBMAIX

Folders

- IBMAIX
 - Aix_test
 - App_bar
 - App_sched
 - App_system
 - Banner_feeds
 - Cache_expect_examples
 - Cedars
 - Close_books
 - Cunqar
 - A
 - Folder1
 - Folder2
 - Folderx
 - Default
 - Delhi
 - Finaid
 - Forms
 - Group5
 - Idx
 - Lstockli
 - Mossberg
 - My_first_folder
 - Per_se
 - Per_se_idx
 - Perftesting
 - Pjones
 - Pyc
 - Report

Job Name | Last Completed | Next Start | Comments

Job Name	Last Completed	Next Start	Comments
Copy_from_rename			Copy a file from a remote node 2
Copy_from_test	February 17, 2010, 9:02		Copy a file from a remote node 2
Copyandrenmae	February 11, 2010, 13:38		Copy a file to a remote node and rename
Copyfromandrename	February 17, 2010, 10:06		Copy a file from a remote node & rename
Copytest	February 17, 2010, 8:15		Copy a file to a remote node 2
Default	September 21, 2007, 0:0		
Eight_to_five	November 20, 2009, 10:27		
Ftp_job	February 5, 2010, 9:49		Copy a file to a remote node
Job	October 10, 2007, 11:12		
Job1	March 9, 2010, 7:00	April 9, 2010, 7:00	
Job10	October 10, 2007, 9:41		
Job11	March 9, 2010, 7:00	April 9, 2010, 7:00	
Job12	March 9, 2010, 7:00		
Job13	March 10, 2010, 11:12	March 17, 2010, 11:12	
Job14	October 19, 2009, 9:28		IDX: Generic 5 parameter
Job15	November 23, 2009, 11:08		
Job16	November 23, 2009, 11:08		
Job17			Wait for a file
Job18			Copy a file to a remote node
Job2	March 9, 2010, 7:00		
Job3	March 26, 2007, 8:47		
Job4	June 19, 2009, 10:55		Check if an Ftp server is running

Web Client

Property pages allow you to modify any aspect of a job

The screenshot displays the EnterpriseSCHEDULE Web Client V7.3 interface within a Windows Internet Explorer browser window. The page title is "EnterpriseSCHEDULE General Job Settings" and the job name is "/cungar/copy_from_test". The interface features a navigation menu with tabs for General, Access, Settings, Statistics, Submit, Parameters, Initiates, Prerequisites, Held By, Activated By, Commands, ReScheduling, Resources, End Actions, Notification, Message Text, Notes, and Runtime Controls. The main content area is divided into several sections:

- Job Description:** A text input field containing "Copy a file from a remote node 2".
- Master Control:** Two checkboxes: "Do not run this job" (unchecked) and "Delete this job upon completion" (unchecked). A warning message states: "Warning: The job will be permanently deleted when it completes if this is checked off!".
- Last Run:** Fields for Submitted at, Started at, and Finished at, all showing "February 17, 2010, 9:02". A Completion status field shows "0x00000001 - SYS-S-NORMAL, Normal successful completion".
- An average run:** Fields for Elapsed time (57), CPU time (0), and I/O count (0).
- Rescheduling settings:** A field for Previous run count set to 25.

At the bottom of the form are buttons for "OK", "Apply", "Cancel", and "Help". The browser's status bar at the bottom indicates "Local intranet" and "100%" zoom.

EnterpriseSCHEDULE

This presentation discusses only a small segment of the many features of **EnterpriseSCHEDULE**. If you want to learn more or have a specific question contact us by e-mail or phone so we can discuss your needs

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