



# ALTAIR

ONLY FORWARD

Altair Accelerator Software 2024.1.1

Release Notes

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## New Features

Internal Number	Products	Case Number	Description
VOV-13657		CS0192788, CS0264092, CS0438495	The "jquery" nested software component that is shipped as part of the Accelerator Products install images has been upgraded to version 3.7.1. This version delivers security fixes. JQuery is a JavaScript library.
VOV-14310	Monitor	None	An "Altair License Server" choice has been added to the Monitor "add monitor" menu in the web UI. This menu option has a pre-populated default monitoring status command which is appropriate for Altair License Manager (ALM). In addition, support for the "add_ALTAIR" directive is added to configure an ALM license manager monitor in <code>SWD/vovlmd/config.tcl</code> . See the <i>Altair Monitor Administrator Guide</i> , "Configuration Commands" section.
VOV-14337	Monitor	CS0247244	The monitor type "Altair License Server" was added to the Altair Monitor product, along with Monitor license monitoring directive "add_ALTAIR". Customers who want to monitor Altair cloud-based "managed licenses" do so by adding the option <code>-cloudbased 1</code> to the <code>add_ALTAIR</code> directive or by checking the "Cloud-based Server" box in the web UI. Additionally, the monitoring configuration for Altair licensing and its parsing code now supports the optional <code>almutil -managed</code> and <code>-id</code> command line options to request monitoring of Altair cloud-served "managed licenses" if active at the customer site. See the documentation of <code>add_ALTAIR</code> for details.
VOV-15688	FlowTracer	None	Real-time file data streaming over the WebSocket has been implemented for text files. This feature is limited to the FlowTracer product, and currently, only one file can be streamed at a time.
VOV-15737	All	None	Implemented functionality to check the change in schema file using hash generated by <code>sha256</code> . For this functionality to work, you must generate the schema file hash using <code>sha256sum</code> and update it in the <code>sds.cfg</code> file.
VOV-15789	Monitor	CS0404501, CS0406283	On the Feature Detailed Plots report page of the Monitor web UI, the tree maps near the top have been made more space efficient so less scrolling is needed to get to view the detailed plot below it.
VOV-16228	Accelerator, Accelerator Plus	None	New job placement policy option: <code>-jpp fastrand</code> .

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			Among all the taskers that can execute a job, randomly choose one from the group which has the highest power and same load. The assumption is that a tasker with a higher power will complete the job faster.
VOV-16267	Accelerator Plus	None	<p>The following Accelerator Plus server configuration parameters have been given higher default values:</p> <ul style="list-style-type: none"> <li>maxNormalClients is increased to 150000</li> <li>maxJobArray is increased to 100000</li> </ul> <p>The following parameter from <code>SWD/vovwxd/config.tcl</code> has been given a higher default value:</p> <ul style="list-style-type: none"> <li>CONFIG(tasker,max) is increased to 25000</li> </ul> <p>These settings will provide out-of-the-box capability for higher job volume when connected to large NC base queues.</p>
VOV-16451	All	None	Implemented SDS support for Azure Event Hub endpoints.
VOV-16492	Accelerator, Accelerator Plus	CS0498855	Added WXSOLUTION queryable field in <code>vovselect</code> for BUCKETS and JOBS objects. This field is used in WX with Direct Drive config and shows the resource name that the agent job in base queue is waiting for.
VOV-16495	Accelerator Plus	None	A template config file for Direct Drive setup, <code>config_acc.tcl</code> , is provided in <code>\$VOVDIR/./common/etc/config/vovwxd</code> . This template removes some variable settings that are not needed by Direct Drive. The result is that <code>SWD/vovwxd/config.tcl</code> is now a smaller file with only the necessary settings for Direct Drive.
VOV-16522	Accelerator, Accelerator Plus, Hero	None	Added a new <code>BUCKETINFO(procInterval)</code> parameter in Direct Drive's <code>onProcessBucket</code> procedure that can be used to set a time interval (in seconds) for the procedure to be called periodically. The default "0" means the procedure will not be called periodically.
VOV-16525	Accelerator, Accelerator Plus	None	Add a capability for users with ADMIN level security on an NC queue or VOV project to list keys for a specific user that is not themselves. The new <code>-u</code> option in <code>vovsecurity listkeys -u USERNAME</code> provides this capability.
VOV-16539	All	None	Added support for a tasker extra HW resource named "COST". The data type of this resource is double, and by default, the resource does not exist. It can be added to taskers via the normal methods in <code>taskers.tcl</code> and <code>taskerClass.table</code> .
VOV-16561	Hero	None	Removed support for domain-level placements for Palladium emulators, the smallest placement granularity is a board. This renders existing domain-level reservations invalid. Calls to <code>hero_reserve</code> that reserve Palladium

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			domains should be changed to board-level reservations. The vovemulmgr config command now validates the IGNORE_LIST parameter in emul.cfg.
VOV-16653	Hero	CS0533108	<p>VovServer got 2 new parameters:</p> <ul style="list-style-type: none"> <li>• hero.to.monitor.usage.update.enabled Default 0 Enabled 1</li> <li>• hero.to.monitor.flush.time Default 30 seconds Valid 1-10000</li> </ul> <p>As part of Hero config initialization it will generate file &lt;local&gt;/hero/&lt;hero_project_name&gt;.vtkle.features.set.tcl that contains following</p> <ul style="list-style-type: none"> <li>• vtkle_features_init</li> <li>• vtkle_feature_set &lt;featureName&gt; &lt;capacity&gt; -expire never -tag VOVDIRECT</li> <li>• ...</li> </ul> <p>Monitor should source the file (vovsh -f ...) to enable features.</p> <p>hero_adapter.tcl script works with vtool as before if hero.to.monitor.usage.update.enabled is disabled.</p> <p>When direct updates to Monitor are enabled, job resources will be converted to corresponding feature. If you use Emul config example then HERO:Z4_SPAN7 is linked to "cluster0 7 tokens" through VovResourceMaps.</p> <p>If you submit Hero job like <code>nc run -r HERO:Z4_SPAN7 -- hero_adapter &lt;someJob&gt;</code>, Monitor will display "cluster0 7" in checkouts after next "Flush Data" happens - any time between right away and "right away plus hero.to.monitor.flush.time".</p> <p>Need special type of license to enable Hero to Monitor direct communication.</p>
VOV-16700	Accelerator	None	<p>Some new URLs are supported for retrieving the vovserver VOV public key and to generate a new VOV user public/secret key pair.</p> <p>Retrieve Vovserver Public Key</p> <p>On a remote host where you wish to use Python scripts and do key based authentication, you can fetch the server's key via a REST call without authentication with a call such as:</p> <pre data-bbox="683 1797 1502 1911">URL=\$(nc cmd vovbrowser -url /api/v3/apikeys/serverkey) curl -k -X GET \$URL   jq '.rows[0][0]'</pre>

Internal Number	Products	Case Number	Description
			<p>Generate VOV Key Pair</p> <p>You can generate a new keypair with this URL:</p> <pre data-bbox="683 394 1503 512">URL=\$(nc cmd vovbrowser -url /api/v3/apikeys/newkey) curl -k -X GET \$URL   jq</pre> <p>Using this call does NOT add the public key to the server. You still need to use the <code>vovsecurity</code> command or the REST API Interactive web UI page at <a href="https://HOST:WEBPORT/html/vovrest.html">https://HOST:WEBPORT/html/vovrest.html</a>, in the "apikeys" section, to register/add a client key before trying to use it from a Python scripting client.</p>
VOV-16710	FlowTracer	None	<p>Align the down/up-cone behavior in FT web UI with <code>vovconsole</code>'s. Previously, each request to view a cone section of the graph would discard the previous state. As such it was not possible to view multiple cone sections of the graph at the same time, something that is actually viable to do in <code>vovconsole</code>.</p> <p>Cone sections will work in an additive manner. Asking for a cone section of a node and afterwards asking for the cone section of a different node will merge the two results and display them.</p> <p>Along with the change in behavior, a new Graph setting is introduced with the label "Filter by Set membership in Cone View". Setting this toggle switch to off, when a cone view is requested the whole trace will be traversed even if there is a Set selected. The equivalent of asking for the cone section while having selected the <code>System:nodes</code> set. However, if the toggle switch is set to on, only the contents of the currently selected Set will be traversed. So in the case of viewing the <code>System:jobs</code> set and asking for the up-cone of a job only the nodes that are part of the <code>System:jobs</code> and are ascendants of the node will be shown. The default value of this setting is set to off.</p> <p>A new option in the Selection sub-menu of the context menu is added, when right-clicking a node. The option has the label of Select Up/Down-cone Nodes. When selecting this options both the up/down-cone section of the graph for this specific node will be shown. The resulting graph is affected by the aforementioned setting.</p> <p>The location of where the selected cone is saved is changed as well. The active cone selections are stored in the URL as search parameters. Now it is possible to share cone section views of the graph by sharing the current URL. New keyboard shortcuts are included, emulating <code>vovconsole</code>'s <code>Ctrl+d</code> and <code>Ctrl+u</code>. Since these key combinations are reserved in the browser.</p>

Internal Number	Products	Case Number	Description
			"U" and "D" are selected for the up-cone and down-cone action respectively. These shortcuts are enabled when hovering a node.
VOV-16733	Accelerator Plus	CS0524695	Implemented streaming of job array events to Kafka, there will be events for each job in the array. This can be controlled by the SDS configuration parameter <code>enable_jobarraydata</code> , default is enabled. Config to control the streaming of system jobs events to Kafka is also added, disabled by default - <code>enable_systemjobs</code> .
VOV-16764	Accelerator	None	The <code>jetstreams.debug</code> configuration parameter has been removed. Scripts that attempt to set it should be updated accordingly.
VOV-16769	Accelerator, Hero	None	The <code>lmmgr start</code> , <code>ncmgr start</code> and <code>hemgr start</code> commands have been enhanced to support the <code>-eventport</code> option to optionally specify a port number. The VOV event port is currently used by Monitor projects that interface to an Accelerator queue with RDS enabled.
VOV-16798	All	None	Implemented REST mutator to modify and delete reservations using PATCH and DELETE request methods.
VOV-16809	All	None	<p>When writing a Python REST client that uses the <code>vov_rest_v3.py</code> helper library, <code>submitRequest()</code> now accepts an optional <code>authKeyFile</code> parameter that can point to the user's public/private security keys. If this is correctly set, the Python developer can simplify their code by not having to explicitly call <code>authorizeWithKey()</code> first. The library will automatically do this step.</p> <p>Further, if the user has their keypair in the standard location of <code>\$HOME/.vov/userkey</code>, <code>submitRequest()</code> can be called with the <code>authKeyFile</code> parameter unset and the library will automatically use the security key pair in the default location.</p> <p>Once a REST session token has been acquired, <code>submitRequest()</code> can also automatically acquire a new one if the session token expires, so long as the user has a valid keypair in <code>\$HOME/.vov/userkey</code>, or the Python script explicitly set <code>authKeyFile</code> to a valid keyfile location for every <code>submitRequest()</code> call.</p>
VOV-16862	Accelerator	CS0529692	For foreign buckets (those generated by <code>vovwxd</code> in Direct Drive mode), the COUNT field now returns the number of jobs in the originating bucket.
VOV-16870	Hero	None	Added support for Hero placement restrictions and requirements.
VOV-16937	All	None	Support for the following Windows OS releases is dropped from this release of Accelerator products: Windows 8 Windows Server 2012 Windows Server 2012R2

Internal Number	Products	Case Number	Description
VOV-16940	All	None	Upgraded LiveRecorder to 7.1.0.
VOV-16988	Accelerator	None	Improved Calibre version compatibility in <code>vovcalibremt</code> .
VOV-17050	Hero	None	Relax a Zebu placement restriction. Previously, a multi-unit job that did not fully occupy all units required the first module of all units to be part of the placement. The change allows the first module of the unit that is not fully occupied to be any module (subject to the job fitting into the allocated units).

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14226	Accelerator	None	Removed the non active URL from the servers drop-down at <code>/html/vovrest.html</code> web UI page for interactive use of REST. Previously even if SSL was enabled the user could select the invalid non-SSL URL using the unsecure protocol. The drop-down options are now consistent with the server configuration.
VOV-14707	All	None	VOV_SO_REUSEADDR has been deprecated. Setting VOV server port to be reused when VOV server is restarted is default behavior now.
VOV-15140	Monitor	None	Fix a problem with an exception pop-up being shown when sorting by the time or jobid columns in the processes table in the Monitor web UI.
VOV-15515	Accelerator	CS0373997	Fixed an issue in the attachment of stopped taskers that was causing unrelated taskers to affect the resources. Fixed a bug in tracking of resource usage by taskers that are in "DONE" state.
VOV-15828	FlowTracer	CS0416354	Fixed issues related to FlowTracer's automatic zipping and unzipping of FILE, FILEX, and PHANTOM databases. <ol style="list-style-type: none"> <li>1. FDL procedures "I" and "O" are enhanced with the addition of support for the <code>-zippable</code> argument</li> <li>2. Fixed an issue with automatic zipping: it will be triggered in a routine task every one minute.</li> <li>3. Fixed an issue with new "zip" jobs getting created over and over.</li> <li>4. Fixed an issue with unzipping, "unzip" job were getting created over and over.</li> </ol>
VOV-15966	Accelerator Plus	CS0435182	Fixed security level for <code>vtk_mq_get_...</code> based API calls so that they are now supported for READONLY access.

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VOV-16030	All	None	A core module was revised to improve overall performance. On workloads with large numbers of resource requests and 30% improvement in job dispatch was seen.
VOV-16051	All	None	Updated incorrect/outdated Altair Support Contact URLs in documentation and web UI pages.
VOV-16248	Accelerator, FlowTracer	None	With Resource Data Service (RDS) active, there are cases where the PID of the process that checks out a software license is used to match a checkout handle to a running job. This applies to a subset of software tools that present the PID of the checking out process in the FlexNet license manager checkout record. This PID matching can now be suppressed by the NC administrator by using the NOPIDMATCH flag in the <code>resources.cfg</code> configuration file.
VOV-16250	Accelerator, Monitor	CS0452383, CS0555579	Fixed a per job memory leak in <code>vovtasker/vovtaskerroot</code> . In Accelerator, RSS growth of 1.2 - 4 KB per job was measured. In Monitor, RSS growth of 43-150 MB per day had been observed.
VOV-16280	Accelerator, Accelerator Plus	CS0468119	<code>vovmetric</code> values for <code>scheduler/ram/capacity</code> , and <code>scheduler/ram/available</code> values are stored internally as unsigned 64-bit integer. <code>vovmetric</code> show printing of the values is fixed.
VOV-16373	Monitor	None	Added protection against form submission upon page reload on the Admin > Monitors page.
VOV-16405	Monitor	CS0419423	Fix a problem in the Monitor web UI Admin/Daemons page whereby text windows could not be freely resized in both dimensions.
VOV-16429	Accelerator	CS0486247, CS0491055	A bug has been fixed where resources in <code>taskerClass.table</code> would not be removed properly via <code>vovtaskermgr refresh &lt;taskerName&gt;</code> or <code>vtk_tasker_config &lt;taskerName&gt; refresh 1</code> .
VOV-16430	Accelerator, Accelerator Plus	CS0492368	Improve the format of long host names within the host name column in a table of sub-jobs shown by <code>nc info</code> for DP jobs. The host names had been truncated, but a better solution now in place is to omit a central part of the hostname, leaving the initial and final portions of the long names to be viewable.
VOV-16448	Accelerator	None	The robustness of complex Distributed Parallel jobs with many components was improved. The <code>nc rerun</code> command now supports the <code>"-after &lt;time&gt;</code> option. Jobs that exit with the special exit status values between 201-215 to be automatically rescheduled now have their logs appended to rather than overwritten. Added <code>vtk_prop_decr_and_get</code> to provide symmetry with <code>vtk_prop_incr_and_get</code> .

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VOV-16465	Hero	CS0495939	Hero web pages can now be accessed through the read-only port.
VOV-16477	FlowTracer	None	In the FlowTracer JavaScript web UI, add a checkbox to suppress new events so that sorting and filtering can be done on a quiescent table.
VOV-16497	Accelerator	CS0500300	If the default <code>vovtriggerd</code> trigger callback is used ( <code>triggerCallback</code> ), the TRIGGER property must be set to a Tcl proc defined in <code>vovtriggerd/config.tcl</code> . This is to improve security.
VOV-16504	Accelerator, Accelerator Plus	None	Fixed an issue with the <code>vovsecurity</code> command when it asks for user to enter their password where it appears that the app has hung due to how we disable echoing of character input back to the console.
VOV-16520	Accelerator	None	There was a case where you could access two different login pages when using the new NC dashboard. Now, only the original login page is available even if you use the NC dashboard.
VOV-16528	Accelerator Plus	CS0494348	<code>wx</code> and <code>nc</code> commands now handle properties, snapshots, logging and verbose options in the same manner, when <code>-f &lt;cmdfile&gt;</code> option is used.
VOV-16537	Accelerator, Accelerator Plus	CS0499992	The use of double quotes and single quotes with escape, and backticks within resource names are all invalid, but these conditions were not being diagnosed as errors. This issue is now fixed. Attempts to include these invalid characters in resource names will result in an immediate parser error diagnostic being printed.
VOV-16547	Monitor	CS0505870	Fix an issue in Monitor's web UI Detailed Plots history report page. The label of the rectangular sub-region had been displayed with truncation when hovering over a region in the tree map. With the fix, the full name will now be displayed.
VOV-16559	Accelerator	None	Third party software components were upgraded to more current versions to ensure security fix content is up to date: jQuery was updated to version 3.7.1, and jQuery UI was updated to version 1.13.2.
VOV-16560	All	CS0537642	Fixed handling when a user tries to enable SSL but has a mismatched SSL CRT/KEY pair installed.
VOV-16563	Accelerator Plus	CS0507416, CS0575632	Fixed rare race condition that could result in a tasker crash when using autokill. Taskers from version 2024.1.1 and later that are connected to pre-2024.1.1 servers will use the default autokill signals and timing instead of job specific ones.
VOV-16585	Accelerator, Hero	None	The <code>vtool</code> command was modified so that it will show prompts for Gnu readline based programs such as bash (when run in interactive mode). In

Internal Number	Products	Case Number	Description
			particular, running Hero jobs, which relies on <code>vtool</code> , will show prompts when run in interactive mode.
VOV-16588	All	None	Fixed an issue where a REST query with "from = nodes" did not return any data.
VOV-16589	Accelerator	None	Fixed deadlock issue related to SDS event overflow.
VOV-16602	FlowTracer	None	Fixed an issue with the FT web UI where re-runs of invalid jobs failed even after the jobs commands were corrected (edited).
VOV-16612	Accelerator, Accelerator Plus	CS0503217	Previously, running <code>nc wait</code> in certain circumstances printed a misleading "Illegal object ID" error message. This has been changed to an informational message that is only displayed at increased verbosity levels.
VOV-16623	Accelerator	None	<p>Fixed the ability to set up RDS security between NC and RDS The following steps are suggested on a system where LM and NC running, to enable RDS security</p> <ol style="list-style-type: none"> <li>1. As the user that owns the NC queue, create a keypair with <code>vovsecurity keygen</code>"</li> <li>2. On LM, add the public key from the keypair above with <code>vovsecurity addkey</code>.</li> <li>3. Turn off RDS on NC with <code>vovservermgr config rds.enable 0</code>.</li> <li>4. Enable RDS security on LM with <code>vovservermgr config rds.secure 1</code></li> <li>5. Turn on RDS on NC with <code>vovservermgr config rds.enable 1</code>.</li> <li>6. Use <code>nc resources</code> or similar to verify that NC can still see LM resources.</li> </ol> <p>Note that once RDS security is enabled on LM, ALL RDS clients of LM have to be set up similarly to above.</p>
VOV-16624	Accelerator	None	<p>The following issue had existed with reservations and backfill:</p> <p>When backfill reservations are enabled by setting the <code>enableBackfillResReservation</code> configuration parameter to 1, non-conflicting jobs that specify the relevant resource name would not be allowed to run. The issue has been fixed, and the following new changes has been made as part of this effort:</p> <ol style="list-style-type: none"> <li>1. <code>Policy.tcl config skipConflictingJobsInDispatchLoop</code> applies only on tasker reservation.</li> </ol>

Internal Number	Products	Case Number	Description
			<ol style="list-style-type: none"> <li>2. <code>Policy.tcl</code> config <code>enableBackfillResReservation</code> applies only on resource reservation. Once it is enabled conflicting jobs in the bucket will be automatically skipped.</li> <li>3. New queryable field 'filltype' is added in the 'RESERVATIONS' object to query backfilling option, and <code>vtk_reservation_get</code> is updated with 'filltype' information.</li> </ol>
VOV-16625	Monitor	CS0469383, CS0495095	Fixed an issue where the PostgreSQL database was running out of connection slots over time if the loading of daily data failed. This led to a respective error message on History report pages in the webUI.
VOV-16632	Accelerator, Accelerator Plus	CS0513188	Fixed errors associated with Tcl packages when using the linux64p portable architecture.
VOV-16634	Accelerator Plus	CS0511958, CS0548348	<code>vovwxd</code> can handle extra white spaces in <code>vncConfig/&lt;queue&gt;.tcl</code> file around <code>VOV_HOST_NAME</code> , <code>VOV_PORT_NUMBER</code> parameters.
VOV-16644	FlowTracer	None	The reason passed to the <code>vovstop</code> command now appears in the <code>nc info</code> output.
VOV-16645	FlowTracer	None	Fixed 2023.1.2 GUI bug that missed RH mouse menu when clicked on tasker rectangle.
VOV-16663	Accelerator, Accelerator Plus	CS0517250	Fixed the following bug: when the <code>VOV_DISABLE_SHARED_MEMORY_LOOKUP</code> environment variable was set to 1 in <code>vovtaskerroot</code> , the use of <code>/proc/PID/smaps</code> files to calculate CURRAM usage for jobs should have been disabled, but was not properly disabled.
VOV-16669	Accelerator	None	Added user friendly error for <code>nc gui -ioprofile</code> without a jobid
VOV-16673	Accelerator Plus	CS0514604	Previously, WX jobs could not be preempted using "suspend", "kill" methods. Now fixed.
VOV-16691	FlowTracer	None	Fixed issue in graph options dialog settings in which even though the graph direction was set to vertical the toggle switch would be set to off.
VOV-16695	Accelerator	None	Changed unit of Effective BW to B/s and rounded latency/op value to three decimal places.
VOV-16717	Accelerator, Accelerator Plus	CS0519927	Improved the management of job processes in <code>vovtasker</code> . As a result, fixed logging of endless log messages in <code>tasker.log</code> .

Internal Number	Products	Case Number	Description
VOV-16719	FlowTracer	None	In the case where a user navigation action like zooming, panning, or changing the direction of the graph will lead to no nodes being visible in the visible region of the graph, an info message will be displayed in the top right corner informing that there are nodes in the graph, but they are not visible. Clicking the info message would result to fitting the view.
VOV-16722	Accelerator	None	Added a content-security-policy header to protect from cross-frame-scripting. This added header is returned as part of every http and https response returned by the web server.
VOV-16723	Monitor	None	In the LM Feature Detailed Plots history report web UI page, the tree map representation has been restructured, placing the legend in the right and making it visible by default in order to make the tree map more informative and space-efficient.
VOV-16732	Accelerator	None	Fixed a bug where a user who registered more than one public VOV security key on a server instance could not authenticate with both keys.
VOV-16734	Accelerator	None	Fix an issue that had prevented the display of I/O profiling results in <code>nc info -ioprovile JOB</code> output when the job exited with a nonzero exit status.
VOV-16757	Accelerator, Monitor	None	Fixed issue that can cause the password for the database's read-only user to become lost.
VOV-16758	Accelerator	None	Added support for "@" character in FairShare group name.
VOV-16767	Accelerator, Accelerator Plus	CS0527899	The online documentation has been updated to include a clarification to the limitation on the number of resource expressions using AND expressions.
VOV-16768	All	None	Fixed server crash resulting from invalid data packets being sent to the event port.
VOV-16782	All	None	Fixed issue that prevented the <code>vovshow -prop</code> command from displaying pre-defined property information.
VOV-16787	Accelerator Plus	CS0529116	Deleted some development debug code related to removal of sick taskers that was inadvertently left behind.
VOV-16800	Hero	CS0533108	In some circumstances (for example, OOM Killer), if the vw wrapper in a Hero job was stopped with SIGKILL the vtool command remained running which kept the corresponding emulator feature checked out. This update will send a SIGKILL to the emulation command and vtool will exit, freeing the emulator features.

Internal Number	Products	Case Number	Description
VOV-16803	Monitor	None	In LM Detailed Plots history reporting web UI page, each tree map slice will display its corresponding percentage when space is available.
VOV-16804	Monitor	None	In LM Detailed Plots page, tree map rectangle colors have more divergence than in the past for easier visibility. Also each color represents the same entry in each of the tree maps in view.
VOV-16813	FlowTracer	None	Fixed issue in the Node Graph representation of the FT web UI, where in certain situations like toggling the "Grid View" would result in edges between nodes not being rendered.
VOV-16814	FlowTracer	None	Fixed an issue where the FT Web UI would timeout over a slow Internet connection.
VOV-16838	Accelerator	None	Fixed an issue that was causing jobs to remain in an idle state when they had a dependency on a named set containing done jobs.
VOV-16842	All	None	Fixed issue that caused <code>vovkill</code> to fail on Ubuntu 22.04.
VOV-16855	All, Accelerator Plus	None	Fixed a memory leak issue in the WX server related to the tasker reservation pack, specifically in the case of <code>vovwxd</code> .
VOV-16859	Monitor	None	Fixed the issue in the tree map plot of the help text and the view widget alone hover text stating incorrectly that the plot is a "piechart" instead of a "treemap"
VOV-16860	FlowTracer	None	Table in Query page will expand the whole height of the available space. The cell contents of the table will be wrapped. The truncation of the cell contents is eliminated making long text easier to read.
VOV-16869	Accelerator	CS0530754	Web UI resource map page will now show a message when matching is disabled for that resource due to exceeding <code>resuserDisableMatchingThreshold</code> .
VOV-16877	Accelerator	None	All Altair binaries and DLLs are now digitally signed on Windows.
VOV-16888	Accelerator	None	Fixed a potential <code>vovserver</code> crash when querying from the object with id 17, e.g. " <code>vovselect name from 17</code> ". Windows builds will correctly print backtraces when appropriate. Fixed a bug where WX launcher arrays could sometimes consume too many resources.
VOV-16901	Accelerator, Accelerator Plus	CS0537642, CS0576115	Fixed an issue that caused <code>vovserver</code> to crash when the recently added listening Event Port was scanned by the Linux <code>sslsca</code> command. The change incompatibly changes the protocol used on the communication channel between the Accelerator RDS thread and Monitor when Resource

Internal Number	Products	Case Number	Description
			Data Service (RDS) is active. If RDS is in use, then Accelerator and Monitor must both be upgraded to a fixed software version at the same time.
VOV-16902	Hero	None	A method of defining constraints has been added. This feature needs to be activated by the appropriate option in the emulator configuration file.
VOV-16916	FlowTracer	None	Sets can be forgotten in 3 ways: <ol style="list-style-type: none"> <li>1. Forget: it only deletes the sets.</li> <li>2. Forget recursively: it deletes the set and its elements.</li> <li>3. Forget direct nodes (only active if the set contains jobs and/or files): it deletes only the elements.</li> </ol>
VOV-16925	Accelerator	CS0550590	A discrepancy that resulted in <code>vovfsgroup create</code> and <code>nc run -g</code> resulting in <code>fsgroups</code> with different Acls has been repaired.
VOV-16927	All	None	Fixed issue that limited taskers to approximately 262 slots or less if using interactive jobs. Accelerator now will support up to 1000 job slots per tasker.
VOV-16930	Monitor	None	Updated the Monitor database schema diagram in the documentation.
VOV-16932	Accelerator	None	Updated the Accelerator database schema diagram in the documentation.
VOV-16941	All	None	Fixed issue that could cause the job wrapper to crash if running in verbose mode higher than 2 ( <code>VOV_VW_VERBOSE=3</code> ). Added support for LiveRecorder to the job wrapper. See <code>VOV_VW_LIVERECODER_ON</code> , <code>VOV_VW_LIVERECODER_LOGDIR</code> , and <code>VOV_VW_LIVERECODER_LOGSIZE</code> in the documentation for details.
VOV-16947	FlowTracer	CS0557646	Fixed issue in client ( <code>vtk_transition_set</code> ) not reading the latest values for the following server policy config parameters, causing FT Node editor not honoring <code>maxEnvLength</code> setting. <ul style="list-style-type: none"> <li>• <code>maxEnvLength</code></li> <li>• <code>maxResourcesLength</code></li> <li>• <code>maxPathLength</code></li> <li>• <code>maxCommandLineLength</code></li> </ul>
VOV-16948	Accelerator	None	For DP jobs, specifying <code>-rundir</code> or setting the <code>NC_LOGDIR</code> environment variable will now be honored for the output of the partial jobs.
VOV-16954	Accelerator	None	Fixed the following issues with <code>NOPIDMATCH</code> . With RDS active, the <code>NOPIDMATCH</code> flag in feature rules or in the <code>FLAGS</code> section of the <code>resources.cfg</code> resources configuration file was inoperative.

Internal Number	Products	Case Number	Description
VOV-16956	Monitor	CS0559569	Adjusted the Monitor batch report utility to not print a blank line at the beginning of reports in CSV format.
VOV-16957	Accelerator, Accelerator Plus	CS0559570	Suppress changes to the internal webserver settings during a vov sanity call (by re-reading <code>policy.tcl</code> ). This avoids a potential deadlock when the webserver is trying to handle a request for a Tel CGI page that triggers a vov sanity call.
VOV-16960	FlowTracer	None	Fixed graph font size change slider in the vovconsole tool.
VOV-16970	Monitor	None	Fixed table header alignment for the ALM Status table on the Admin > Licensing page.
VOV-16972	Monitor	None	Avoid text overlapping in <b>Network &gt; Machine load</b> and <b>History &gt; Usage &gt; Feature Detailed plots</b> pages in Monitor.
VOV-16978	Monitor	None	Fixed issues with the batch report UI that prevented dynamic show/hide from working on form fields that required it and fixed an issue that prevented the globally-styled tooltips from working.
VOV-16991	All	None	Fixed an issue which would cause vovserver memory growth and delays in queues exceeding a load of 100M job-minutes. This issue shows up in the default situation where RDS resource management is not active.
VOV-17005	Accelerator Plus	CS0564234	Fixed issue that caused the tasker to hang in the rare event a job was dispatched to the tasker after the tasker had entered the shutdown procedure.
VOV-17025	Monitor	None	Fixed server crash due to port scan attack on main server and read-only ports.
VOV-17030	Accelerator, Hero	None	Run tasker support scripts under the default user login.
VOV-17079	Accelerator, Accelerator Plus	None	Fixed a protocol compatibility issue when a 2024.1.0 or newer client is talking to a 2023.1.2-p3 vovserver.
VOV-17086	Accelerator Plus	CS0577991	Fixed a crash in WX vovserver for Direct Drive configurations which could happen when the WXAgents set was forcefully deleted.
VOV-17097	All	None	Corrected the schema for SDS topic vov-metrics-buckets WXQUEUE field to string allowing the publication of these events for buckets created on behalf of an Accelerator Plus queue using direct drive.
VOV-17123	All	None	Changed schema for remaining SDS VovId fields that had been in integer format to use padded string format, and non-event timestamp fields to use schema long in epoch seconds instead of timestamp-millis.

Internal Number	Products	Case Number	Description
VOV-17144	Allocator	CS0585460	Fix a problem in Allocator, whereby the LA::AddSite directive in the configuration file was inoperative when "-autodetect" was specified with "-ssl 1"
VOV-17157	Hero	None	Augment the Hero liveness task to handle the situation where scheduling stops because some of an emulator's runtime hosts taskers are no longer running.
VOV-17181	All	None	Fix a security vulnerability in CGI scripts. Disallowed "\$(*.)" and "()" combinations in Web URL. It was evaluated as a TCL command by Web server.
VOV-17184	All	None	Disallowed "[.*+]" combination in Web URL. It was evaluated as a TCL command by Web server.
VOV-17195	Accelerator	CS0591655	Fixed potential null pointer dereference and vovserver crash associated with invalid REST user authentication requests.
VOV-17210	FlowTracer	CS0592547	Fixed issue that occasionally caused FlowTracer jobs to be dispatched to full taskers.
VOV-17232	Accelerator, Accelerator Plus	CS0596906	Fixed issue that caused jobs to become invalid when refused by a tasker.

## New Features

Internal Number	Products	Case Number	Description
VOV-14441	Accelerator	None	All <code>config.tcl</code> , and <code>*.tcl</code> related source files using syntax such as <code>FOV(slave,bar)</code> have now been updated to use <code>FOV(tasker,bar)</code> .
VOV-14812	Accelerator	None	<p>Added functionality to <code>nc info</code> for displaying I/O profiling performance statistics.</p> <ol style="list-style-type: none"> <li>1. Run an NC job with the <code>nc run -ioprofile</code> option for job I/O profiling.</li> <li>2. Execute <code>nc info -ioprofile JOB</code> to view performance stats.</li> </ol> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> The above command displays stats after the job completes. It will display a message if the job is still running.</p> </div>
VOV-15409	Accelerator	None	The Accelerator User Guide has been updated to reflect the new Job I/O Profiling feature.
VOV-15610	All	CS0384959	Administrators can configure <code>\$VOVDIR/local/equivalences</code> to set symbolic name to physical path pairs. This file should not be removed. The template file <code>\$VOVDIR/etc/equivalences</code> has been given comment lines that describe how to use this configuration file. A note in the file is added to inform admins that the <code>\$VOVDIR/local/equivalences</code> file should not be removed, or unpredictable results will occur.
VOV-15803	Accelerator, Accelerator Plus	None	Accelerator Plus now supports multiple instances of the <code>vovwxd</code> daemon to be configured for dynamically requesting taskers from other job scheduler(s) or base queue(s). Daemons can be started and configured and managed via <code>SWD/autostart/start_wx_daemon.tcl</code> , <code>vovdaemonmgr</code> utility, and <code>vovwxconnect.tcl</code> same as for a single <code>vovwxd</code> daemon. For example, <code>vovdaemonmgr start -v -v -v -v vovwxd vovwx2d</code> would start <code>vovwxd</code> daemons configured in <code>SWD/vovwxd</code> and <code>SWD/vovwx2d</code> respectively.
VOV-15825	All	CS0411539, CS0433472	Added <code>config(tasker.minWaitToReconnect)</code> parameter in <code>policy.tcl</code> that specifies how long a tasker should wait and try to reconnect to the server before initiating the failover election process.

Internal Number	Products	Case Number	Description
VOV-15956	Accelerator, Monitor	None	Improved logging messages for registry permission errors and RDS startup with an invalid Altair Monitor name configured.
VOV-16009	Accelerator	None	Added the ability to create reservations for user groups.
VOV-16041	Accelerator	None	The capability for REST authentication via VOV security keys has been added. The new <code>authorizeWithKey()</code> function added to the <code>vov_rest_v3.py</code> Python module issues a REST JWT Access Token, and takes as input a private user VOV key and the public vovserver VOV key. See <code>vovsecurity -h</code> for more details.
VOV-16140	Accelerator	CS0448878	A systemd script <code>altair-vovtasker.service</code> was added to <code>VOVDIR/etc/boot</code> . It starts a tasker named <code>mytaskername</code> in the <code>vnc</code> project as user <code>vovadmin</code> at startup. Previously, Accelerator shipped only an <code>initd</code> version of this script with no systemd support.
VOV-16169	Allocator, Monitor	None	SSL/TLS is now enabled by default for VOV products LM, and LA. These products will open webports by default, and the web UI will have URLs beginning with "https:".
VOV-16190	All	None	A new trace parameter has been added, named <code>trustUserReportedByClient</code> , which is set to 0 by default. Actual client uid and gid values are sent by vov clients and are checked server side on protocol startup if the flag is set to zero. If the values do not match, an error is issued to prevent rootless container mode usage under vovserver.
VOV-16222	All	None	Added a new scheduler policy parameter, <code>taskerBusyUponDispatch</code> , to control whether the scheduler sets the tasker state to "BUSY" upon dispatching a job to it. Short job scheduling performance may be improved by setting this parameter to 0. Additionally, system taskers are no longer added to the "recent taskers" list. This is done to avoid an unwanted delay in job dispatching for queues that do not have many taskers connected to it.
VOV-16259	Accelerator, Monitor	None	A secure communication mode is implemented for communication between Accelerator's RDS service and Monitor's event port. The secure communication is enabled by setting the <code>rds.secure</code> configuration parameter to 1 and following the documented steps for proper configuration.
VOV-16264	Accelerator Plus	CS0464266	Implemented the <code>-forcedequeue</code> option on <code>nc run</code> . Like the <code>-force</code> option, it will place prior jobs that use the same <code>-l</code> output log file into sleeping state. If the prior job is currently running, the <code>-force</code> option will have no effect, but the new <code>-forcedequeue</code> option will stop the prior running job and put it into sleeping state. See <code>nc run -h</code> for details. The use of this new option is not recommended.

Internal Number	Products	Case Number	Description
VOV-16266	All	None	Added FSRANK, which is the FairShare rank of the FairShare group to which a job belongs, to SDS metrics for buckets.
VOV-16303	Accelerator	None	The <code>vovsecurity</code> command is added to manage VOV security keys. See the <code>vovsecurity -h</code> help screen for details.
VOV-16338	Accelerator	CS0474595	A <code>pty</code> port range for the <code>run -I</code> commands can be specified in <code>\${VOVDIR}/local/vncConfig/\${VOV_PROJECT_NAME}.tcl</code> . For example, <code>setenv VOV_PTY_PORT_RANGE 13300:14299</code> would specify the default range. If a <code>run -I</code> job is submitted and a <code>PTY</code> port in this range is not available then the submission will fail to add a job.
VOV-16341	All	None	Added a new SDS topic, <code>jobstats</code> , containing <code>cpu</code> , <code>ram</code> , and <code>io</code> usage stats for jobs.
VOV-16343	Accelerator	None	Enhanced scheduler to skip jobs conflicting with the future tasker or resource reservation so that subsequent non-conflicting jobs can run. It can be controlled by server config and policy parameters <code>skipConflictingJobsInDispatchLoop</code> and <code>unsetSkipFlagOnConflictingJobs</code> .
VOV-16355	All	None	Support for RHEL 9 and equivalent Linus distributions -- Rocky, Alma, and OEL -- has been added to the Altair Accelerator products.
VOV-16364	Accelerator, Monitor	None	Recent feature improvements caused issue with LM DB config failing upon restart after early server failure. This has been fixed.
VOV-16367	Accelerator, FlowTracer	None	When RDS is active, matching of jobs to license checkouts is now able to utilize PID information for software licensing systems that track and report the PIDs of the processes that make checkouts.
VOV-16409	Accelerator	None	The maximum allowed value of the <code>schedMaxEffort</code> policy parameter has been increased to 90.
VOV-16472	Monitor	None	The <code>ldap.cfg</code> LDAP configuration file in <code>SWD/config</code> supports a new option to require that an LDAP service that Monitor binds to uses CA-signed SSL/TLS certificates. This mode is off by default; to activate it, set the following in <code>ldap.cfg</code> : <code>set LDAP(validCertificate) 1</code>
VOV-16485	Accelerator, Accelerator Plus	None	The VOV Reference Guide has been updated to include information regarding the new VOV Security Keys feature.
VOV-16490	Monitor	CS0499980	The procedures for upgrading a database in Monitor using Windows have been added to the Installation Guide online help.

Internal Number	Products	Case Number	Description
VOV-16577	FlowTracer	None	The FlowTracer web UI has a new flow graph viewing and control page. This web page is a modernized alternative to using the vovconsole thick client for interaction with FlowTracer flowgraphs.
VOV-16583	Accelerator	None	Separated read and write results. Added Effective BW and Latency/Op to the output of <code>nc info -iopprofile</code> .
VOV-16636	Monitor	None	Fixed issue with the download icons missing in the HTML format of the resulting batch report. The HTML format of the batch report is now in line with the style in the browser.

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14506	Accelerator	None	Removed the non-functional "Authorize" button from the REST API interactive documentation page, aka the "Swagger" page.
VOV-14788	FlowTracer	None	vovwxd supports path equivalences for launches jobs.
VOV-15649	Accelerator	None	Fixed the diagnostic error messages reported by Accelerator products when an Altair standalone license file is being used and this standalone license file is valid on a different hostid. The error being reported now correctly says "HostID does not match license".
VOV-15756	All	None	Improved the documentation about properly configuring and running the Altair License Manager server with Accelerator products.
VOV-15817	All, Accelerator	CS0332038, CS0475775	Fixed an issue that prevented secure LDAP connections from the Monitor vovserver. The secure, ssl/tls-enabled connections are attempted if LDAP(ssl) is set to 1 in the ldap.cfg configuration file.
VOV-15818	Accelerator	CS0413116	Fixed a bug in the Windows installer that caused an incomplete installation with missing tcl/vtcl/ package.
VOV-15968	Accelerator, Accelerator Plus	CS0435337	Added support for controlling the minhw server parameter in <code>policy.tcl</code> . When calling the <code>vovservermgr config enableWaitReasons</code> command, old <code>waitreasons</code> will now be deleted when disabling, and <code>waitreason</code> counts will be updated when enabling.

Internal Number	Products	Case Number	Description
VOV-16006	Accelerator	CS0418446	Running and rerunning a job with <code>nc run</code> and <code>nc rerun</code> no longer causes vovserver to perform a stat call. Similar fixes for <code>vovconsole</code> & the node editor have been implemented.
VOV-16027	Accelerator Plus	CS0424970	WX taskers will now update fields such as memory, ram free, swap free, tmp space, load averages, and idle time after taskers maxlife has been reached.
VOV-16139	Monitor	CS0449822	Fixed issue that caused the name of a monitor agent to be ignored, resulting in the default name (the host name) being used.
VOV-16184	FlowTracer	CS0449650	Suppressed the bash function parsing messages that were appearing when using the <code>ves</code> command.
VOV-16191	Hero	CS0457702	Significantly reduced the run time taken by the <code>vovemulmgr config</code> command on large configurations. Added the <code>emul.cfg</code> Zebu emulator specific option <code>CONNECTIVITY = "extended"</code> . Updated <code>vovemulmgr config</code> to allow scheduling to continue during the config operation.
VOV-16199	Monitor	CS0421670	Allow Monitor customer group names longer than 80 characters in reports.
VOV-16206	Accelerator, Accelerator Plus	CS0461223	Fixed a vovserver crash that happened when multiple parallel REST job run requests (with different resources) were submitted.
VOV-16215	Allocator	CS0461778	In Allocator config file, if a site is present and the user edits the site nickname, the user can now see the result in Allocator Resource plot page without stopping and restarting the project.
VOV-16221	Accelerator, Accelerator Plus	CS0463085	Fixed incorrect vovselect tool value when using <code>vwi</code> & <code>hero_adapter</code> .
VOV-16224	All	None	The TCL/TK language interpreter package that is packaged with and used by Accelerator products has been upgraded from version 8.6.5 to 8.6.13.
VOV-16230	Monitor	CS0462741	In Monitor, when adding a new monitor via UI (Admin > Monitors), if any of the available fields is written wrapped into double quotes, the <code>confil_aux.tcl</code> file where they are stored will not be broken.
VOV-16236	Accelerator, Accelerator Plus	CS0464846	Fixed a potential log error when bogus vov protocol packets are sent to vovserver via a security scanning tool.

Internal Number	Products	Case Number	Description
VOV-16239	Accelerator, Accelerator Plus	CS0464909, CS0464910	Fixed issue that prevented DNS lookups from succeeding when using the portable architecture on CentOS 6.
VOV-16254	Monitor	None	Fixed issue that prevented tasker load graphs from being rendered on the Machine Load page that is located under the Network tab.
VOV-16263	FlowTracer	None	Fixed issue that prevented jobs from being dispatched when a base-queue-only taskerlist was requested.
VOV-16273	Accelerator	None	To address a potential SSL vulnerability, SSL/TLS renegotiation was disabled in the internal webserver when support for older TLS/SSL versions than TLS1.3 is enabled.
VOV-16274	Accelerator	None	Made guards against malicious HTTP GET file requests more strict.
VOV-16289	Monitor	CS0467401	Fixed issue with the Checkout Statistics report with cost reporting enabled where report numbers were elevated.
VOV-16290	Accelerator	None	When a user browsed the NC dashboard page URL before having logged in, a blank dashboard page was displayed instead of sending the browser to the login page. This has been fixed.
VOV-16315	Accelerator	None	Enhanced scheduler to skip the jobs conflicting with the future tasker reservation so that subsequent non-conflicting jobs get dispatched. This can be controlled using the policy parameter <code>skipConflictingJobsInDispatchLoop</code> .
VOV-16328	Accelerator Plus	None	When a WX queue was connected to a base NC queue that has SSL enabled (default in recent releases), some spurious "Connection failed" error messages were printed in <code>SWD/vovwxd/*.log</code> . This was fixed.
VOV-16340	All	None	ROLLOVERTS field has been added to property events in the vov-jobdata topic
VOV-16371	Accelerator, Accelerator Plus, Hero	None	Single-slot taskers will now report their status as "full" instead of "working" when a task is running on them.
VOV-16381	Accelerator	None	Fixed an issue where specifying incorrect values for a PERCENT resource in an <code>nc run</code> command, for example, <code>nc run -r PERCENT/abc --sleep 1</code> would give an inconsistent error message.
VOV-16387	Monitor	None	When <code>webserver=internal</code> and <code>webport</code> enabled, files such as batch reports that are placed in <code>SWD/html</code> would fail to be served, resulting in a NOT FOUND error when requested. This has been fixed.

Internal Number	Products	Case Number	Description
VOV-16413	All	None	The version of the TCL TCLLIB library included in the Accelerator products package has been updated to version 1.21.
VOV-16432	FlowTracer	None	Fixed issue that prevented splines from being rendered in vovconsole on ARM hosts.
VOV-16439	Accelerator, Accelerator Plus	CS0473552	EINTR on system primitives will now retry and should not disconnect from server for Linux.
VOV-16440	Accelerator	None	Added support for relative paths in the installation utility <code>install.sh</code> .
VOV-16441	Accelerator	None	Fixed an issue in the installer script <code>install.sh</code> that caused the <code>-platforms</code> option to honor only 1 of multiple values passed in.
VOV-16446	Monitor	CS0483193	Fixing an issue with the <code>ftlm_batch_report</code> utility that would produce two different representations of the tree map for the same feature. There was a difference in the produced tree map graph when comparing the plot of a single feature and comparing the plot of this feature when plotting all features of the tag.
VOV-16448	Accelerator	None	The robustness of complex Distributed Parallel jobs with many components was improved. The <code>nc rerun</code> command now supports the <code>-after &lt;time&gt;</code> option. Jobs that exit with the special exit status values between 201-215 to be automatically rescheduled now have their logs appended to rather than overwritten. Added <code>vtk_prop_decr_and_get</code> to provide symmetry with <code>vtk_prop_incr_and_get</code> .
VOV-16470	Accelerator	None	The "http" or "https" part of the URL displayed on the REST documentation page was wrong in some circumstances. This was fixed.
VOV-16479	Allocator	None	Removed the requirement that the LA project be enabled before using the <code>lamgr reset</code> command with the <code>-name PROJECT</code> option.
VOV-16484	Monitor	CS0419423	In LM, all text-edit boxes display has changed. Now the text-edit boxes are displayed in the maximum width possible (full screen width) and text lines are not wrapped (if lines are longer than space available, a horizontal scroll bar appears to show all the content).
VOV-16494	Accelerator	None	On systems where the <code>hostname</code> command is configured to print the long fully qualified host name, the <code>nc info -ioprofile JOB</code> command could not successfully find the I/O profiling results that had been generated by a job launched with the <code>-ioprofile</code> option. This has been fixed.

Internal Number	Products	Case Number	Description
VOV-16497	Accelerator	CS0500300	If the default <code>vovtriggerd</code> trigger callback is used ( <code>triggerCallBack</code> ), the <code>TRIGGER</code> property must be set to a Tcl proc defined in <code>vovtriggerd/config.tcl</code> . This is to improve security.
VOV-16501	Accelerator	None	The following improvements were made to the <code>nc_gui -ioprofile JOB</code> display: <ol style="list-style-type: none"> <li>1. Last column will show the last valid value and will be zero only when there is no data present for the graph.</li> <li>2. The per second values are now displayed on the graph. The units are also changed to kB/s and #/s.</li> <li>3. The Help button has moved to the top right corner.</li> </ol>
VOV-16502	Accelerator	None	The following improvements were made to the <code>nc_gui -ioprofile JOB</code> display: <ol style="list-style-type: none"> <li>1. If the job is running, the graph will begin at the job's start time, and will end at the current time.</li> <li>2. If the job is completed, the graph will begin at the job's start time, and will end at the job's end time.</li> <li>3. Removed the interval button from <code>nc_gui -ioprofile</code>.</li> </ol>
VOV-16506	All	None	Fixed an issue with the new <code>ROLLOVER_TS</code> implementation where existing jobs might get a new <code>ROLLOVER_TS</code> in the Kafka event.
VOV-16541	All	None	Fixed issue that caused the scheduler to ignore tasker HW resources that have both letters and numbers in their name.
VOV-16550	Accelerator, Accelerator Plus, Monitor	None	Fixed issue that prevented Monitor non-admin users from generating and viewing historical license usage reports.
VOV-16573	Accelerator	None	Changed <code>-ioprofile</code> data labels using more appropriate terminology.
VOV-16591	Allocator	None	The <code>lamgr reset</code> command is supposed to reset the LA project enabled in the current shell, but instead it tried to reset LA project "la". This has been fixed.
VOV-16599	Accelerator	None	Added <code>-l</code> compatibility to <code>nc_run -ioprofile</code> . A logfile name can be specified using the <code>-l</code> option when submitting a job with I/O profiling option.
VOV-16606	Accelerator	None	Fixed a crash that occurred when resources for REST job create requests were longer than 1024 characters.

Internal Number	Products	Case Number	Description
VOV-16628	Accelerator	None	Fixed an issue where RDS could cause a server crash when removing/restarting old jobs.

This chapter covers the following:

- [2023.1.2 Release Notes](#) (p. 29)
- [2023.1.1 Release Notes](#) (p. 40)
- [2023.1.0 Release Notes](#) (p. 47)
- [2022.1.1 Release Notes](#) (p. 55)
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## 2023.1.2 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-14464	Accelerator	None	Removed PERCENT/1 from the minimum resource requirements for a job. From this release onward, the PERCENT resource will need to be used explicitly to limit the number of jobs running on a Tasker. Jobs will no longer request the PERCENT resource by default. This change allows more than 100 jobs to be run concurrently on a single Tasker.
VOV-14728	Accelerator	None	Fixed issue which could result in RDS missing some checkin/checkouts that occur during startup and changes in configuration in <code>SWD/resources.cfg</code> .
VOV-14810	Accelerator	None	<p>Preview feature: Added functionality to deliver Mistral results to Accelerator. We can run a job with the <code>-ioprofile</code> option that generates log file. Visualization is added in the NC GUI for a few of the measured labels from the log file. Below are the steps:</p> <ol style="list-style-type: none"> <li>1. Acquire the Mistral license and place it in <code>\$VOVDIR/local</code> as <code>mistral.dat</code>.</li> <li>2. Run the command <code>nc run</code> in CLI with the <code>-ioprofile</code> option. For example, <code>nc run -ioprofile &lt;job&gt;</code>. To test this you can run a script that reads/writes to a file.</li> <li>3. In your working directory, the Mistral log file should be generated inside the <code>vnc_logs/&lt;current date&gt;</code> folder</li> <li>4. Run the command <code>nc gui -ioprofile&lt;jobId&gt;</code> in CLI to get graphical view of the log data. You can also achieve this by running <code>nc gui</code>, right clicking on your job and clicking on <b>View Mistral Profile</b>.</li> </ol>
VOV-15253	Accelerator Plus	CS0351320	Multiple "Deleting failed tasker" alerts now increases the alert count rather than generating distinct alerts.
VOV-15508	Accelerator	CS0390432, CS0438406	Adds support for VOV user groups in reservations. The <code>vtk_reservation_create</code> Tcl procedure now accepts a <code>-usergroup</code> option for specifying the name of a VOV user group.
VOV-15770	All	None	When RDS is active, Monitor now uses a new port, the "event port". The <code>lmmgr start</code> command has a new option <code>-eventport</code> . The option <code>-upport</code> is no longer available.

Internal Number	Products	Case Number	Description
VOV-15889	Accelerator	None	Improved error diagnostic messages for syntax errors in RDS configuration file <code>resources.cfg</code> by including the line number where the error is detected.
VOV-15909	FlowTracer	None	Implemented callback to customize functionality for <code>vovconsole</code> status 'Force Validate...', 'Skip...' and 'Waive Exit Code...'.
VOV-15919	Hero	None	The <code>FREE_RESOURCES</code> preemption rule type for Hero has been added to the online help.
VOV-15946	Accelerator, Accelerator Plus	None	The <code>live_keepfor_jobs.tcl</code> file is deleted and the implementation to cleanup the keepfor jobs is moved to <code>vovserver</code> , which can be controlled by following policy parameters: <code>keptJobsCleanupChunkSize</code> and <code>keptJobsCleanupInterval</code>
VOV-15982	Accelerator, Monitor	None	RDS no longer uses the init port, <code>lmmgr -initport</code> and <code>INIT_PORT</code> parameter in <code>resources.cfg</code> are deprecated.
VOV-16007	Accelerator, Accelerator Plus	CS0439498	A new callback has been added that can be used in <code>vnc_policy.tcl</code> . The procedure <code>VncPolicyValidateOptions</code> has been added which takes a sub-command name and a list of options to verify. This procedure is expected to return a modified list of options.
VOV-16022	All	None	Added a field 'ROLLOVERTS' in the trace object which can be used in the query to address the jobid uniqueness issue.
VOV-16031	FlowTracer	None	Implemented callback to customize functionality for <code>vovconsole</code> status 'Invalidate...'.
VOV-16036	Accelerator Plus	None	The online help has been updated to include Azure output parameters for Streaming Data Services.
VOV-16046	Accelerator	None	<p>With a Tasker set to <code>autokillmethod=direct</code>, <code>autokill</code> will honor signal specifications in <code>NC_STOP_SIGNALS</code> and <code>NC_STP_SIG_DELAY</code> as well as <code>VOV_STOP_SIGNALS</code>.</p> <p>Multiple signals are comma separated. Each "signal" can be a signal name such as "USR1", or an EXT-like signal specification using <code>EXT:SIGNAL:includerx:excluderx:skiptop</code> format. The EXT-like signal specification can also omit the leading "EXT" so long as it begins with a colon. For example,</p> <pre>nc run -D -autokill 10s -P NC_STOP_SIGNALS=EXT:USR1:::1,CONT,:USR1:::1,CONT,KILL -P NC_STOP_SIG_DELAY=1 -v 1 -- mylongjob</pre> <p>The default signal list for <code>autokillmethod=direct</code> is <code>TERM,HUP,INT,KILL</code>, but the default can also be controlled</p>

Internal Number	Products	Case Number	Description
			by default <code>StopSignalCascade</code> in <code>Policy.tcl</code> . <code>defaultStopSignalCascade</code> does NOT support the EXT signal format. It only supports a comma separated list of signal names and it has been this way for quite some time.
VOV-16134	All	None	The <code>batch_install.csh</code> installation script for Linux is no longer provided with Accelerator product installation media. The new CLI-based installation method on Linux is to use the <code>install.sh</code> script with its <code>-batch</code> option. The new <code>install.sh -batch</code> method is compatible with <code>batch_install.csh</code> with the following 2 exceptions: <ol style="list-style-type: none"> <li>1. If you prefer no confirmation prompt when invoking <code>install.sh</code> to do the CLI installation, specify the <code>-noconfirm</code> option.</li> <li>2. The behavior with <code>-local link</code> is different with <code>install.sh</code> vs. <code>batch_install.csh</code>. Use the <code>-local linkext</code> with <code>install.sh</code> to get the equivalent of <code>-local link</code> with <code>batch_install.csh</code>. Read the usage syntax information via <code>install.sh -h</code> for full details.</li> </ol>
VOV-16140	Accelerator	CS0448878	A SystemD script <code>altair-vovtasker.service</code> was added to <code>common/etc/boot</code> that starts a Tasker named <code>mytaskername</code> in the <code>vnc</code> project as user <code>vovadmin</code> at startup.
VOV-16141	All	None	Implemented an event to Kafka on project stop.
VOV-16143	Accelerator, Accelerator Plus	CS0448778	Procedure for enabling client side logging using RabbitMQ has been added to the online help.
VOV-16147	Monitor	None	Display a success indicator when assigning a feature alias or cost in the web UI.
VOV-16150	Accelerator, Monitor	None	The online help has been updated to include the removal of the requirement of the init and update ports for RDS. The event service port is now being used.
VOV-16176	All	None	Updated the Altair License Server that is included with Accelerator Products packages to version 15.2.0. In addition, the Accelerator software has been built with version 15.2.0, and requires License Servers to be version 15.2.0 or higher. If you are using Altair floating licenses with Accelerator products, then this new version of Accelerator will require that the Altair license server be stopped, upgraded to the version 15.2.0 software included with Accelerator, and restarted.

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-12474	Accelerator	None	Fixed issue causing incorrect start time and duration of resource reservation.
VOV-13992	Accelerator	None	An issue was found when using the webserver with SSL enabled and when using host-specific certs, where self signed cert files were also generated even though they were not needed. vovserver would still use the correct cert files but creating the self-signed files added some confusion. This has been fixed.
VOV-14462	Accelerator, Accelerator Plus	CS0413928	PostgreSQL and SMTP notification passwords are returned in obfuscated form by <code>vtk_prop_get</code> if user is not a project owner.
VOV-15733	Accelerator	None	Fixed some cases where the incorrect HTTP status code was returned for codes other than success (200). Specifically, with "webprovider=internal", some incorrect HTTP requests would return code 500 rather than 400, or other appropriate codes.
VOV-15740	Accelerator	None	In recent releases Accelerator jobs launched with an explicit "-r percent/0" resource specification for "percent" were flagged as errors. Starting in this release, 0 of the "percent" resource will be the default. The "-r percent/0" specification on job launch will continue to be flagged as a command syntax error. Users should simply remove "-r percent/0" from the job launch if 0 percent resources are desired.
VOV-15757	FlowTracer	CS0404497	Added the buckettime and maxswap job fields to the list of fields that are persistent across restarts.
VOV-15806	Accelerator Plus	CS0410831	The fields REQSWAP, REQSLOTS and REQRAM now report a sum of all requested resources rather than the amount of the first request, e.g. "SWAP/10 SWAP/20" will report a REQSWAP field of 30, where it previously would have reported 10.
VOV-15822	Accelerator	CS0414459	Calls to <code>vovprop set</code> and <code>vovprop del</code> will now check object ACL's for proper authorization before modifying object properties.
VOV-15828	FlowTracer	CS0416354	Fixed issues related to the automatic zipping and unzipping of FILE, FILEX, and PHANTOM databases. <ul style="list-style-type: none"> <li>1. Automatic zipping and unzipping feature is implemented for FILEX and PHANTOM databases. Currently FILEX and PHANTOM end up with new FILE versions of the output file, with the old one disconnected. This issue cannot be fixed because it is not feasible to add the database option to the capsule which can avoid creating same file with different database.</li> </ul>

Internal Number	Products	Case Number	Description
			<ol style="list-style-type: none"> <li>2. FDL proc I and O are updated with the <code>-zippable</code> argument.</li> <li>3. Fixed issue with automatic zipping. It will be triggered in a routine task every 1 minute.</li> <li>4. Fixed issue with new "zip" jobs getting created over and over.</li> </ol>
VOV-15836	Monitor	None	Fixed an issue where the expiration of served licenses was not being displayed by Monitor in the <b>Current &gt; Features &gt; All</b> window of the web UI.
VOV-15851	All	CS0187053	For this release <code>vovdaemonmgr</code> has been modified to configure some environment variables internally to speed up interactions with <code>vovps</code> utility in situations where a UID may exist on the system without a user entry in the database being associated with the same UID on Linux based platforms.
VOV-15856	Monitor	CS0419423	In Monitor, when you click any config file to edit at Admin/System/Configuration Information, it opens a text box that now is again resizable in both dimensions (vertically and horizontally).
VOV-15877	Accelerator	None	Fix a Monitor life-support issue when RDS is active. The issue symptom was the zeroing out of out-of-queue (OOQ) usage numbers for license resources when Monitor went offline or went down. The problem only occurred for Altair License Manager (aka LMX) license servers being monitored by Monitor.
VOV-15885	Accelerator, Accelerator Plus	CS0418925	A DEQUEUE capability, similar to the STOP capability, has been added to the ACL system. The DEQUEUE capability is needed for permission to use <code>nc stop</code> to change a queued job into idle state.
VOV-15886	Accelerator Plus	CS0453249	It was possible for two <code>vovwxd</code> daemons to be started for an Accelerator Plus queue, with unpredictable results. This is now fixed, and enforcement is now in place to prevent a second <code>vovwxd</code> daemon from being started.
VOV-15893	Monitor	None	Fixed issue in Monitor in which the "View Widget Alone" button and the "Help" button were overlapping with the text placed above the graphs.
VOV-15913	Monitor	CS0428850	Updated FTLM parser to parse the server version in all formats.
VOV-15926	All	None	Fixed error message that was displayed in license violation messages.
VOV-15947	Accelerator	None	Fixed a bug that was causing a Tasker remain in BUSY state when it's reconnected after a network failure.
VOV-15962	Monitor	None	Fix a memory leak in Altair licensing libraries that had caused the <code>vovserver</code> process associated with Monitor projects to grow by as much as 750 MB per month when licensed with Altair License floating licenses. This fix was

Internal Number	Products	Case Number	Description
			accomplished by updating the Altair License management software SDK used to build Accelerator products software to version 15.2.0.
VOV-15968	Accelerator, Accelerator Plus	CS0435337	Added support for controlling the minhw server parameter in <code>policy.tcl</code> .
VOV-15978	Allocator	CS0440853	In Allocator Overview page: Added ordinal number to each row in the first column. When the text is longer than the space available, each table cell can be scrolled to see the whole content. By default, the Resource column is ordered as per the order in config file.  In Allocator Resources Summary page: Added ordinal number to each row in the first column. The Unassigned row has been fixed to be always the last one. Added ascending and descending sorting. By default, the Nickname column is ordered as per the order in config file.
VOV-15999	FlowTracer	CS0432304	Fixed issue in <code>.gz</code> file reading which is resulting in an empty file in the node editor.
VOV-16001	Accelerator Plus	CS0439073	Added VOVDIR parameter in <code>vovnc.tcl</code> , which allows you to specify the installation location for wxagent. This can be used in multi-platform setup.
VOV-16005	Allocator	None	Resolved a Tcl stack trace in <code>lamgr reset</code> due to earlier restructuring of the Monitor data stream.
VOV-16010	Accelerator	None	The command <code>vovtaskermgr reserveshow</code> and related commands, for example <code>vovshow -reservations</code> now support user group reservations and will display the code <code>S=&lt;groupname&gt;</code> in the "For" column of their output.
VOV-16013	Monitor	None	Fixed issue when changing the path location of the database in Monitor, in which the new changed path was not being saved.
VOV-16015	All	None	Added a post-installation script to automate the creation of a "portable" architecture directory for linux64, named <code>linux64p</code> . This portable architecture contains required system libraries and modified binaries that point to them instead of relying on those on the host. The intent of this is to provide an architecture that will run on Red Hat 6 or equivalent. The script, <code>\$(VOVDIR)/../scripts/install-portable-arch.sh</code> , requires the <code>patchelf</code> utility to be installed on the host running it. The reference configuration is based upon RHEL 7.9 or equivalent, and thus, the script will generate and utilize a configuration file ( <code>portable-arch.cfg</code> ) in the CWD that contains paths to required system libraries specific to that distribution. The configuration file can be adjusted to

Internal Number	Products	Case Number	Description
			<p>reflect differences in library locations and/or versions, but note that significant differences in versions may result in the portable architecture being unusable. The configuration file contains a full library path and an optional symlink name on each line. The optional symlink name is unused for the first entry and follows Linux library naming conventions for the remaining entries. To utilize the new linux64p architecture, you must set the VOV_PORTABLE_ARCH environment variable to 1 prior to sourcing the vovrc script that sets up your shell to work with a VOV installation. To summarize the process:</p> <ol style="list-style-type: none"> <li>1. Login to a RHEL 7.9 host or equivalent that has the patchelf utility installed and run the post-installation script: <code>\$VOVDIR/./scripts/install-portable-arch.sh</code>.</li> <li>2. Login to a RHEL 6.10 host or equivalent, set the VOV_PORTABLE_ARCH environment variable to 1, then source the vovrc script for your shell.</li> <li>3. If using with WX, be sure to add the following line to vovwxd's config.tcl: <code>set CONFIG(exeleaf) "wxagent"</code></li> </ol>
VOV-16016	Accelerator	None	A job now needs ATTACH permission on its fsgrout ACL in order to run. If the run command -G parameter command results in an fsgrout being created, the current user will be the owner of the fsgrout.
VOV-16025	FlowTracer	None	Fixed vovproject destroy error "can't read "vncConfigRegistry": no such variable".
VOV-16033	Accelerator	None	When an existing NC queue is upgraded from a 2020.x or prior version to a newer version, the doTestHealthCheckDownSlaves and doTestHealthCheckSlaveset vovnotifyd health checks will not be automatically replaced with the corresponding health checks in the "Tasker" lexicon. To enable these health checks with new names doTestHealthCheckDownTaskers and doTestHealthCheckTaskerst", navigate to the web UI under <b>Admin &gt; Daemons &gt; vovnotifyd</b> and disable each health check. Then wait a few seconds and reenale the health check.
VOV-16055	All	None	Fixed handling of the "create" provisioning method for the "local" directory when installing in batch mode.
VOV-16059	All	None	Fixes a potential crash when running a vovselect, vtk_select_loop or related query that selects from a named set that is subsequently deleted before the query finishes processing, that is, "vovselect id,status from temporarySet".
VOV-16144	Accelerator Plus	CS0435310	Accelerator Plus now ensures that the Accelerator Plus' version of the vov utilities are used in the job pipeline when dispatching to a different version

Internal Number	Products	Case Number	Description
			Accelerator queue. This prevents errors such as features being used that are not present in an older version base queue.
VOV-16146	Monitor	None	Fix an issue in the Monitor web UI <b>History &gt; Checkout Statistics</b> page, whereby the Cost column was being incorrectly calculated in some cases. The correct value of Cost is the "Total" column value multiplied by the hourly cost per token.
VOV-16154	All	None	Fixed an issue where the login link on the NC guest page did not honor the SSL setting and always used HTTP.
VOV-16160	Accelerator Plus	CS0453463	Taskers will no longer consider themselves "idle" for the purposes of max idle calculations when they only have suspended jobs.
VOV-16172	Accelerator	None	Fixed an issue that caused vovresourced to exit when configured to interface with a non-existent instance of Monitor.
VOV-16195	Monitor	None	The URL shown in batch reports has been fixed to point to the correct host and port per the web server configuration.
VOV-16211	FlowTracer	None	Keeping FT web UI login page as it is, linking the old UI with the new one with a button in the header (similar to NC dashboard is linked).
VOV-16220	Accelerator	None	Renamed <code>-mistral</code> to <code>-iopprofile</code> . To run a job with Mistral or use the GUI to see Mistral results, we need to add <code>-iopprofile</code> tag. Example: <pre>nc run -iopprofile &lt;job&gt; , nc gui -iopprofile &lt;jobId&gt;</pre>
VOV-16254	Monitor	None	Fixed an issue that prevented Tasker load graphs from being rendered on the Machine Load page that is located under the Network tab.
VOV-16261	FlowTracer	None	Fixed an issue that prevented arrows from being rendered in vovconsole node graphs.
VOV-16281	Accelerator, Accelerator Plus	CS0468254	Fixed a bug that's causing fatal errors in vovserver when servicing older version of vovxd clients configured for DirectDrive. This happens when FlowTracer projects or Accelerator Plus queues are configured with Direct Drive and an Accelerator base queue.

## 2023.1.2-p1 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-16264	Accelerator Plus	CS0464266	Implemented dequeue/stop of jobs contributing to the same file. This feature can be enabled using <code>nc run -forcedequeue</code> option.

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-16191	Hero	CS0457702	Significantly reduced the run time taken by the <code>vovemulmgr config</code> command on large configurations. Added the <code>emul.cfg</code> Zebu emulator specific option <code>CONNECTIVITY = "extended"</code> . Updated <code>vovemulmgr config</code> to allow scheduling to continue during the config operation.
VOV-16206	Accelerator, Accelerator Plus	CS0461223	Fixed a crash that happened when multiple parallel REST job run requests (with different resources) were submitted.
VOV-16236	Accelerator, Accelerator Plus	CS0464846	Fixed a potential log error when bogus vov protocol packets are sent to vovserver via a security scanning tool.
VOV-16340	All	None	ROLLOVERTS field has been added to property events in the vov-jobdata topic
VOV-16419	Allocator	CS0485605	Fixed issue that caused raw checkout data to be printed in the server log.
VOV-16433	Accelerator, Accelerator Plus	CS0487100	The <code>vovforget -allemptysets</code> option restored for admins of projects.
VOV-16439	Accelerator, Accelerator Plus	CS0473552	EINTR on system primitives will now retry and should not disconnect from server for Linux
VOV-16493	Accelerator Plus	None	Fixed a bug when displaying a job's wait reason in WX connected to a base queue for Classic and DirectDrive modes. The <code>vovsh</code> binary, <code>vtcl</code> directory, as well as <code>vovnc.tcl</code> or <code>vovaccel.tcl</code> used by <code>vovwxd</code> must be updated in swd in order to apply the fix. Fixed a bug of a missing

Internal Number	Products	Case Number	Description
			autoforget flag in DD agent jobs. The base queue server must be updated for the fix to take place.
VOV-16550	Accelerator, Accelerator Plus, Monitor	None	Fixed issue that prevented non-admin users from generating and viewing historical reports.

## 2023.1.2-p2 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-16191	Hero	CS0457702	Significantly reduced the run time taken by the <code>vovemulmgr config</code> command on large configurations. Added the <code>emul.cfg</code> Zebu emulator specific option <code>CONNECTIVITY = "extended"</code> . Updated <code>vovemulmgr config</code> to allow scheduling to continue during the config operation.

## 2023.1.2-p3 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-16239	Accelerator, Accelerator Plus	CS0464909, CS0464910	Fixed issue that prevented DNS lookups from succeeding when using the portable architecture on CentOS 6.
VOV-16250	Accelerator, Monitor	CS0452383	Fixed a per job memory leak in <code>vovtasker/vovtaskerroot</code> . In Accelerator, RSS growth of 1.2 - 4 KB per job was measured. In Monitor, RSS growth of 43-150 MB per day had been observed.
VOV-16448	Accelerator		The robustness of complex Distributed Parallel jobs with many components was improved. The <code>nc rerun</code> command now supports the <code>-after &lt;time&gt;</code> option. Jobs that exit with the special exit status values between

Internal Number	Products	Case Number	Description
			201-215 to be automatically rescheduled now have their logs appended to rather than overwritten. Added <code>vtk_prop_decr_and_get</code> to provide symmetry with <code>vtk_prop_incr_and_get</code> .
VOV-16563	Accelerator Plus	CS0507416	Fixed rare race condition that could result in a tasker crash when using autokill. Taskers from version 2024.1.1 and later that are connected to pre-2024.1.1 servers will use the default autokill signals and timing instead of job specific ones.
VOV-16632	Accelerator, Accelerator Plus	CS0513188	Fixed errors associated with Tcl packages when using the linux64p portable architecture.
VOV-16633	Accelerator, Accelerator Plus	CS0517250	Fixed the following bug: when the <code>VOV_DISABLE_SHARED_MEMORY_LOOKUP</code> environment variable was set to 1 in <code>vovtaskerroot</code> , the use of <code>/proc/PID/smaps</code> files to calculate CURRAM usage for jobs should have been disabled, but was not properly disabled.
VOV-16855	All, Accelerator Plus	None	Fixed a memory leak issue in the WX server related to the tasker reservation pack, specifically in the case of <code>vovwxd</code> .

## 2023.1.2-hf1 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-16644	FlowTracer	None	The reason passed to the <code>vovstop</code> command now appears in the <code>nc info</code> output.
VOV-16645	FlowTracer	None	Fixed 2023.1.2 GUI bug that missed RH mouse menu when clicked on tasker rectangle.
VOV-16960	FlowTracer	None	Fixed graph font size change slider.

## 2023.1.1 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-14464	Accelerator		Removed PERCENT/1 from the minimum resource requirements for a job. From this release onward, the PERCENT resource will need to be used explicitly to limit the number of jobs running on a tasker. Jobs will no longer request the PERCENT resource by default. This change allows more than 100 jobs to be run concurrently on a single tasker.
VOV-14703	All	None	SSL/TLS is enabled by default for VOV products Accelerator, Accelerator Plus, Hero, and FlowTracer. These products will open webports by default.
VOV-14705	Allocator	None	Added the ability for Allocator product instances to enable SSL, and enhanced lamgr start to support the -webport and -webprovider options.
VOV-15052	Monitor	None	Reworked the utilization plot tooltip to display the date/time and value at the mouse cursor's location.
VOV-15200	Accelerator	None	Implemented functionality to handle multiple active reservations, ordered by dominance.
VOV-15289	Accelerator	None	Modified SDS to handle the azure schema id (mix of numbers and alphabets).
VOV-15346	Accelerator	None	Added RDS match events to <b>SDS &gt; Kafka</b> stream.
VOV-15545	FlowTracer	CS0377941	The vovconsole welcome splashscreen has been eliminated.
VOV-15558	Accelerator	None	Improved help message for the vovac1 command to reflect all available agents and actions, and clarify some commands.
VOV-15595	Accelerator, Monitor	None	AVS formatted config files, such as resources.cfg, now accept C-style multi-line comments delimited by /* and */.
VOV-15601	All	None	Streaming Data Service now includes bucket metrics in the event data is published to Kafka.
VOV-15613	Accelerator	None	The use of Access Control Lists (ACLs) for resource maps are expanded to allow VOV user groups (USERGROUP) agents. See the vovac1 -h help screen for details.

Internal Number	Products	Case Number	Description
VOV-15648	Accelerator, Accelerator Plus	None	Fixed issue in the create/edit job class form in Accelerator web based UI. Names entered in the form are stripped of leading and trailing white space.
VOV-15657	Accelerator	None	The following CLI commands with "slave" lexicon are removed. Use the corresponding commands in the "tasker" lexicon instead. For example, instead of vovslavelaunch, use vovtaskeraunch.  <pre>vovslavelaunch vovslavelaunchd vovslavelist vovslaveloadutil vovslavemgr vovslaveowner vovslavestartup</pre>
VOV-15691	Accelerator	None	Implemented partial tasker reservations and partial lookahead reservations.
VOV-15761	Accelerator	None	Handled resource updated using tasker definition and vovtaskermgr configure.
VOV-15765	All	None	For some types of licenses, FlowTracer and Accelerator projects will want to communicate their license usage to an LM instance over the LM secure HTTPS web port. If the project cannot communicate with LM, a "Warning" alert will be posted and can only be cleared when LM communication has been established.
VOV-15777	Monitor	CS0404521	Added in Monitor Web UI Detailed Plots page a new checkbox option at treemap level. This new option is called 'Hide Legend' and is checked by default. It results in hiding by default the treemap legend, giving you the option to display it again by unchecking it. The purpose of this option is to reduce the treemap height, in order to have the Detailed Plot section visible without scrolling.
VOV-15783	Accelerator	None	Implemented partial tasker reservation creation based on multiple parameters like RAM, CORES, SWAP, and SLOTS. The <code>vtk_reservation_create</code> API has been updated with an option <code>-resources</code> to reserve a given number of resources on a tasker.
VOV-15801	Monitor	None	Added the ability to assign each named license feature an hourly, per-token cost value that will be shown in the Checkout Statistics report if the <b>Show Cost</b> option is selected. The cost can be specified via the <b>Admin &gt; Features &gt; Database</b> page, or via a new <code>ftlm_feature_admin</code> utility, which also provides the ability to delete and rename features.

Internal Number	Products	Case Number	Description
VOV-15815	Monitor	None	The <code>lmmgr loaddb</code> command can now take an option to supply a time that is used as the start date for loading database. The default is equivalent to <code>lmmgr loaddb -start 1y</code> , which will load data for the past year until now.
VOV-15925	All	None	Release 2023.1.1 of Accelerator products has dropped support for CentOS 6, SLES 12, Ubuntu 16.04, and Windows 7; and added support for Ubuntu 22.04. See the OS support matrix in the Release Notes for an up-to-date list of supported OSes.
VOV-15939	All	None	<code>vtk_preemptrule_create_or_modify</code> has been split into two commands: <code>vtk_preemptrule_create</code> and <code>vtk_preemptrule_modify</code> . The online help has been updated to reflect this change.

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-8797	Accelerator, FlowTracer	None	Previous versions of the software may have given conflicting information about full and overloaded taskers when requesting Why related information. This has been resolved in this release.
VOV-13284	Monitor	None	A syntax error was causing previous versions of the product to throw an error when reporting by feature/User in "usage trends." This has been resolved in this release.
VOV-13801	Accelerator	CS0204915	The RDS syntax for controlling License resources and SUM resources will not lead to SUM resources being generated with maps to nonexistent feature resources. This issue is fixed in the new RDS-based resource management.
VOV-14682	Monitor	CS0295704	When running in "Altair Monitor Basic" mode, no longer check out "user_licmon" features.
VOV-15063	FlowTracer	None	Fixed a FlowTracer issue on Windows, whereby the <code>vovconsole</code> tool was occasionally freezing when displaying a FlowTracer project.
VOV-15185	FlowTracer	None	Fixed some problems in <code>vovconsole</code> that were exposed by the use of site customizations to the <code>vovconsole</code> status bar. Added more comments so that <code>::VovGUI::configJobStatusBar</code> is used appropriately.
VOV-15470	Monitor	CS0358260	Improved performance of => Inserting data into Database from CHK and DEN files. => Trimming Database.

Internal Number	Products	Case Number	Description
VOV-15508	Accelerator	CS0438406	Adds support for VOV user groups in reservations. The <code>vtk_reservation_create</code> Tcl procedure now accepts a <code>-usergroup</code> option for specifying the name of a VOV user group.
VOV-15536	Monitor	None	Fixed an issue where version numbers were not parsed correctly by the LMX parser, and the License Version column for Altair License Manager checkouts were not properly displayed in the Monitor web UI under <b>Current &gt; Checkouts &gt; Complete View</b> .
VOV-15553	Accelerator	CS0376234, CS0404054	Previous releases did not properly incorporate ACLs when applying transition modifications, with the effect that only the owner could modify most properties regardless of which ACLs were set for a given object. Now with proper ACLs set, all the properties with the exception of USER, OSGROUP, NAME or command line, ENV, DIR, and SUBMITHOST are available for modification with appropriate ACL permission levels.
VOV-15562	FlowTracer	CS0380536	Modify <code>vovproject create</code> so that <code>default project setup.tcl</code> is sourced before the <code>vovserver</code> is started.
VOV-15605	All	None	Windows now supports a command-line interface (CLI) installer for Accelerator products via the new <code>-batch</code> option on <code>install.bat</code> . The corresponding Linux <code>install.sh</code> command has also been enhanced on Linux to accept the <code>-batch</code> option. Invoking <code>install.sh ... -batch</code> is now equivalent to invoking the CLI installer script <code>batch_install.csh</code> . The <code>install.batch</code> and <code>install.sh</code> utilities now have an <code>-h</code> option to display complete usage syntax.
VOV-15617	Accelerator Plus	CS0322667	Fixed an issue where invalid launcher jobs (with an ID of 000000000) would get added to the user and jobclass sets, and cause the WX console to crash.
VOV-15619	Monitor	CS0388358	A syntax error was causing previous versions of the product to throw an error when reporting by feature/User in "usage trends." This has been resolved in this release.
VOV-15643	Monitor	None	Fixed issue in Heatmap view in Monitor, where the <b>show numbers</b> option was not taken under consideration. If the box is unchecked, numbers are not displayed inside the rectangles.
VOV-15664	Monitor	None	Fixed a critical error that caused <code>vovdb_util upgrade ...</code> to malfunction on Windows. The root cause was related to locale.
VOV-15667	Monitor	None	Monitor help now opens in a new tab.
VOV-15669	All	None	RLM is no longer supported as a license management system for the Altair Accelerator product line.

Internal Number	Products	Case Number	Description
VOV-15670	All	None	The XYNTService wrapper is no longer supported as a means of running Accelerator products as a Windows service. The only supported method for running as a Windows service is via the Single File Distributable (SFD) model.
VOV-15677	Accelerator Plus	CS0392770	Added a new config <code>taskerDisconnResvCleanupTimeout</code> to postpone the cleanup of the reservations on the disconnected tasker due to connection error so that reservation can be restored if the tasker connects back within the timeout.
VOV-15720	Accelerator Plus	None	<code>vovwxd</code> notifies you when the driver script or <code>config.tcl</code> is deleted.
VOV-15721	Hero	None	The list of Zebu placements generated now includes all combinations of units as opposed to just contiguous placements as was the case previously. The previous behavior can be restored by updating the relevant section of the <code>emul.cfg</code> with the line <code>CONNECTIVITY = "sequential"</code> .
VOV-15725	All	None	Fixed an issue that prevented burst licensing from working with ALM.
VOV-15732	Monitor	None	Fix server response error when editing the content of the file in <code>cvs.cgi</code> page.
VOV-15736	Accelerator	None	In the past, Accelerator jobs launched via <code>nc run r cresource#N</code> for consumable resource "cresources" were allowed to use the "#" character even though the use of "#" is inappropriate for consumable resources like "cores" or "cpus". The "/" character should be used for specification of consumable resources, for example "r cpus/2". In this release the job submit commands enforce the use of the "/" character in job submissions with consumable resources.
VOV-15775	Accelerator	None	Developer related environment variable was removed from product documentation.
VOV-15781	Accelerator, Accelerator Plus	CS0403873	Fixed an issue that caused <code>vovreconciled</code> to incorrectly grab extra license resources in response to "also" matches, increasing over time.
VOV-15790	Allocator	CS0406786	Fixed issue that prevented subsequent <code>addSites</code> configuration lines from being processed if an invalid site was specified in a previous line.
VOV-15799	Accelerator	None	RDS Feature rules now accepts a TOTAL attribute that overrides the total available for the corresponding feature resource map rather than using the total available from Monitor. This value will also be used in the sum resource map total calculation unless that is also overridden.

Internal Number	Products	Case Number	Description
VOV-15807	Accelerator	None	Fixed issue with server-side tasker startup requests, prompted by the <code>-server</code> option to <code>vovtaskermgr start</code> .
VOV-15811	All	None	Call <code>vovwait4server</code> as part of the startup process for FlowTracer projects to ensure the <code>vovserver</code> is up and running before returning to the shell.
VOV-15819	Monitor	CS0392344	Fixed issues with <code>lmmgr loaddb</code> that would skip some subdirectories when loading denial data.
VOV-15827	All	CS0412949	Added robustness to code dealing with REST and web session key management.
VOV-15837	Accelerator	None	The source files information is removed from the binaries.
VOV-15838	Monitor	None	<code>lmmgr loaddb</code> will now pass a starting timestamp value to its internal call to <code>ftlm_capacity</code> , instead of defaulting to "1 year ago", but the default time frame is still equivalent to "1 year ago", unless <code>-start</code> is explicitly passed by the user to <code>lmmgr loaddb</code> .
VOV-15852	Accelerator	None	Fixed issue causing <code>vovserver</code> to hang with multiple partial tasker reservations.
VOV-15871	FlowTracer	None	Fix an issue whereby some complex REST object queries were crashing <code>vovserver</code> .
VOV-15886	Accelerator Plus	None	Only one instance of <code>vovwxd</code> daemon can be launched for an AAP queue. Other attempts to start a <code>vovwxd</code> process will fail with an error.
VOV-15916	Accelerator	None	Fixed an issue with NC removal of license based resources when the originating license server (eg. FlexNet) goes down. The NC licensed based resources should disappear automatically after the license server goes down, but they live on. The fix is in the new Resource Data Service (RDS) resource management service, which ensures automatic deletion of these resources. With classic resource management, a workaround for the issue is to restart the <code>vovresourced</code> daemon to effect the deletion of these resources.
VOV-15921	Monitor	CS0429534	The treemap plots now include an Export button that allows you to export the plot in a png, csv, or svg format. Aligned the functionality with the available plots in the Feature Detailed Plots. In contrast with other plots the Export buttons are located on the top of the plot instead on the right of the plot. This is done due to the fact that only treemaps are placed in a row next to each other. All the other plots are placed on top of another. As such, for the Export buttons to not interfere with the siblings plot the placement is migrated to the top. The resulting csv file will contain the

Internal Number	Products	Case Number	Description
			following two columns: - 'group': the name of the group according to the option under 'Usage treemap report by' and 'Denial treemap report by'. There is a possibility that this value will be truncated since the maximum length is set to 300 characters. - 'value': the value of the group.
VOV-15979	Accelerator Plus	None	Fixed issue that prevented autoreschedule from automatically activating for jobs that fail because they were dispatched to a tasker that was in the process of being shut down.
VOV-15991	All	None	Fixed issue that caused vovresourced to run with an elevated verbosity level, resulting in larger-than-normal log files.

### Version-Specific Patch Releases

## 2023.1.0 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-3411	Accelerator	None	<code>vovselect TURBOBOOST</code> from taskers is now available. Set to 1 if Intel Turbo Boost is enabled on this tasker host, or 0 if disabled (Linux only), otherwise set to NA.
VOV-7894	Accelerator	AAP21491	Added Jobclass and Autokill columns to the Running Jobs table in the web UI.
VOV-8024	Accelerator	AAP21343	Added the ability to specify a stop reason when stopping all running jobs for all users via the Running Jobs page.
VOV-8642	Monitor	None	The <code>ftlm_tag_admin</code> command line utility for Monitor is now described in the documentation.
VOV-9900	None	AAP24167	An enhancement has been made for the NC family of managers ( <code>ncmgr</code> , <code>vncmgr</code> , <code>wxmgr</code> and <code>hemgr</code> ) to show the queue name and command action in the log file name if logging to the <code>\$VOVDIR/local/logs/*</code> location.
VOV-12011	Accelerator	CS0120886	A new <code>ncmgr rehost</code> subcommand is added to migrate an Accelerator vovserver from one host to another. See <a href="#">ncmgr rehost</a> for details.
VOV-14032	All	CS0223251	<code>vncmgr/ncmgr stop</code> action now supports a <code>-freeze_nocpr</code> option to save the PR file without compression for a freeze to potentially save time when working with very large PR files.
VOV-14383	Accelerator Plus	None	The Direct Drive documentation topic has been clarified with more information regarding formatting of the driver script.
VOV-14395	Accelerator	None	The <code>vtk_server_config Tcl</code> command has a new <code>rds.reinitialize</code> parameter to allow reinitialization of the RDS system from the command line. This parameter requires no additional arguments.
VOV-14488	Accelerator Plus	CS0260943	Added new configuration parameters for fine-grained control of <code>vovwxd</code> .
VOV-14514	Accelerator, Accelerator Plus	CS0268091	Clients that interact with VOV subsystems are "immediately" terminated if they do not have sufficient security privileges (as defined in <code>security.tcl</code> ). The ANYBODY / READONLY security level is documented for users with minimum privilege.

Internal Number	Products	Case Number	Description
VOV-14577	All	None	The default HTTP server, or webprovider, used by vovserver is changing to the internal webprovider in place of "nginx". This applies to the URL used to access the vovserver "web port". The <code>-webprovider nginx</code> option is available on <code>ncmgr</code> and other vovserver start commands to select the nginx webprovider if that is preferred.
VOV-14701	Accelerator	CS0292715	You can now use <code>vovselect</code> to list tasker lists created with <code>vovtaskerlist</code> , and get information about tasker lists via the v3 REST API with the URL <code>http://hostname/api/v3/taskerlists</code> .
VOV-14718	Accelerator	None	Implemented backfilling resource reservation to handle conflicting jobs. This can be controlled by server config <code>backfillResReservation</code> , disabled by default.
VOV-14774	Accelerator, Monitor	None	Four new subcommands are added to the <code>vovdb_util</code> command for managing the Monitor or Accelerator PostgreSQL database: <code>exportconfig</code> , <code>exportpasswords</code> , <code>importconfig</code> , and <code>importpasswords</code> . See <code>vovdb_util</code> for details.
VOV-14789	Accelerator	AAP22106	The use of access control lists (ACLs) for resource maps are expanded to allow specified users or user groups to edit, reserve, and forget (delete) the resource map object. An example of an ACL-setting command that would be used for this objective is: <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>nc cmd vovacl -agent "USER user0001" -set -actions ALL \$id"</pre> </div> where <code>\$id</code> is the VOV id number for a resourcemap object. Supported only if the resourcemap is created with <code>rank=0</code> .
VOV-14806	Accelerator	None	Rapid Scaling 3.0 implemented in <code>vovwxd</code> and the Altair NavOps cloud connector. Supports in-cloud deployments of a cluster scheduled by the Accelerator workload manager with adaptive compute node allocation to adjust to job load.
VOV-14863	Accelerator Plus, Monitor	CS0312583	Enabled the <code>doTestHealthFailoverServerCandidates</code> health check for Accelerator Plus and Monitor.
VOV-15120	Accelerator	None	Implemented backfilling resource reservation with non-conflicting jobs. This can be controlled by server config <code>backfillResReservation</code> , disabled by default.
VOV-15352	Accelerator	None	Implemented dispatch of deadline jobs on lookahead reservation activation. Supported argument <code>-deadline</code> in <code>nc run</code> to submit the job with an expected duration of completion.

Internal Number	Products	Case Number	Description
VOV-15404	Monitor	None	Migrate replacing images from Monitor batch reports to node, only D3 based plots are now supported which are part of the new look and feel of Monitor.
VOV-15429	All	None	The default license manager for Accelerator products is changed to Altair License Manager in the 2023.1.0 release. To revert to RLM, set <code>alm.enable</code> to 0 in <code>policy.tcl</code> . This change does not affect licensing by the RTDA legacy keyfile license files, which are still supported.
VOV-15439	Accelerator	None	Implemented tasker property <code>hardbound</code> and <code>softbound</code> to restrict the scheduler to dispatch only autokill jobs on hardbound tasker, while autokill & <code>xdur</code> jobs may run on softbound tasker.  Implemented reservation property <code>hardfill</code> and <code>softfill</code> to restrict the scheduler to backfill hardfill reservation with only autokill jobs, while softfill reservation may be backfilled with autokill and <code>xdur</code> jobs.  Modified <code>vovtaskermgr</code> utility to support all 4 options.
VOV-15548	Allocator	None	Implemented Allocator Resource Summary page column 'Allocated' to show the "Number Of Resource Tokens Allocated Including OoQ Tokens To Each Site".
VOV-15588	Accelerator	None	An online help topic to describe AVS syntax has been added.
VOV-15618	Accelerator	None	DP component jobs now inherit the expected duration ( <code>-xdur</code> ) setting of the main job.
VOV-15653	Monitor	None	The PostgreSQL software included with Monitor and Accelerator products is upgraded to version 14.4. A database conversion to the new version is needed for projects that are upgrading and retaining an existing database. See Monitor and software installation documentation for database upgrade instructions.
VOV-15656	Accelerator	None	The "tasker" lexicon versions of Accelerator CLI commands were added in a recent software release to replace the "slave" lexicon versions. The "slave" lexicon commands have been available, but be advised of their deprecation. The following CLI commands are deprecated and will be removed in an upcoming release: <ul style="list-style-type: none"> <li>• <code>vovslavelaunch</code></li> <li>• <code>vovslavelaunchd</code></li> <li>• <code>vovslavelist</code></li> <li>• <code>vovslaveloadutil</code></li> <li>• <code>vovslavemgr</code></li> <li>• <code>vovslaveowner</code></li> </ul>

Internal Number	Products	Case Number	Description
			<ul style="list-style-type: none"> <li>vovslavestartup</li> </ul>
VOV-15661	Accelerator	None	<p>The following new server configuration parameters are added to control the new lookahead and backfill scheduling policies. See <code>policy.tcl</code> for descriptions:</p> <ul style="list-style-type: none"> <li>enableBackfillResReservation</li> <li>enableLookAheadReservation</li> <li>lookAheadSchedInterval</li> <li>lookAheadTimeResolution</li> <li>maxLookAheadReservationCount</li> <li>maxLookAheadSchedulingDuration</li> </ul>
VOV-15694	Accelerator	None	<p>Resource Data Service (RDS) is a replacement for <code>vovresourced</code>. RDS is provided as an opt-in preview feature. When the optional RDS operation mode is selected, Accelerator and Monitor communicate on new pub/sub channels. Resource management and license matching is performed by a new RDS thread of the <code>vovserver</code> process.</p>

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-11585	Accelerator Plus	AAP25265	Fixed a bug in <code>vovwxd</code> that caused incorrect "taskers max reached" alert.
VOV-12137	Accelerator	CS0120974	<code>nc modify</code> now accepts the syntax to change the FairShare group of a queued job, and will allow the user to be different than the job's original FairShare user so long as the client has the correct ATTACH ACL on the new <code>fsgroup</code> .
VOV-12766	FlowTracer	None	<p>Changes in functionality of <code>vovforget</code>.</p> <p>In Accelerator, Accelerator Plus, Hero:</p> <ul style="list-style-type: none"> <li>-allsets: not supported</li> <li>-allemptysets: not supported</li> <li>-emptysets: removes empty sets that are older than 60s</li> <li>-emptysets -hier: not supported</li> </ul> <p>In all other products:</p> <ul style="list-style-type: none"> <li>-allsets: deletes all non-system sets</li> </ul>

Internal Number	Products	Case Number	Description
			<ul style="list-style-type: none"> <li>-allemptysets: deletes all non-empty non-system sets</li> <li>-emptysets: removes empty sets that are older than 0s</li> <li>-emptysets -hier: removes empty sets and subsets that are older than 0s</li> </ul> <p>See <a href="#">vovforget</a> documentation for further details.</p>
VOV-13525	Accelerator, Accelerator Plus	CS0288823	Fixed an inconsistency in tasker status returned by <code>nc hosts</code> and <code>vovselect</code> .
VOV-13784	Monitor	CS0191792	The client systems may have a clock skew. Therefore timestamp reported by client should not be used for calculations. For consistency, from now on, we avoid client reported timestamps for job checkouts, checkins, matching, etc. With this fix, server-side timestamp are now prioritized.
VOV-14321	Accelerator	CS0246573	Resource requests attempted with #0 or /0 will now throw an error throughout the CLI,API, and UI, with the exception of CORES/0, or CPUS/0.
VOV-14356	Monitor	CS0247184	The display of incorrect status of LM Control Center Agents in Web UI has been fixed.
VOV-14501	All	CS0262252	<code>vovserver</code> config parameter <code>autoLogout</code> now allows admins to configure the maximum duration for which a given Web/REST session stays valid.
VOV-14505	Accelerator, Accelerator Plus	CS0263183	The <code>bjobs</code> implementation has been improved to significantly reduce the number of <code>vovserver</code> inquiries.
VOV-14628	Allocator	CS0270617	A tuning parameter was added to the LA distribution algorithm. It can be modified using the command <code>LA::SetUnhappyReserveFraction &lt;fraction&gt;</code> in <code>&lt;swd/vovlad/config.tcl</code> . The fraction must be a number between zero and one and defaults to zero. A value of zero corresponds to the behavior before this change as implemented.
VOV-14824	All	None	Fix a denial-of-service (DOS) vulnerability in <code>vovserver</code> 's base webserver from nefarious large HTTP requests.
VOV-14886	Accelerator Plus	CS0266302	Added support for a new server configuration param called <code>wx.setQueueEnv</code> to control how <code>NC_QUEUE</code> may be set in the job environment.  If not set, <code>NC_QUEUE</code> will be set on the job environment only if it's explicitly set in the job submission environment and the user is using <code>SNAPPROP</code> or <code>SNAPSHOT</code> .

Internal Number	Products	Case Number	Description
			<p>If <code>wx.setQueueEnv</code> is set to 1 and <code>NC_QUEUE</code> is not set in the submission environment, <code>NC_QUEUE</code> in the job environment will be the <code>WX</code> project name.</p> <p>If <code>NC_QUEUE</code> is set in the submission environment and <code>SNAPPROP</code> or <code>SNAPSHOT</code> is used, <code>NC_QUEUE</code> will be propagated from the submission environment to the job environment.</p>
VOV-14959	Accelerator Plus	CS0267206	Fixed a bug in <code>vovwxd</code> that caused an infinite loop due to a deleted "top job" of a bucket.
VOV-14985	FlowTracer	CS0324179	Introduced <code>vtk_set_operation MOVECONTENT</code> to transfer content from one set to another.
VOV-14990	Accelerator Plus	CS0336870	Fixed a bug causing a <code>vovDeprecated TCL</code> error in <code>vovwxd</code> .
VOV-15105	FlowTracer	00000	The output files of autoflow jobs are no longer marked missing by <code>vovcheckfiles</code> . Moreover, direct descendents of autoflow jobs are always considered valid provided the parent node is valid.
VOV-15112	All	None	Updated Kafka Job events with additional data.
VOV-15188	Monitor	None	The code management system used to manage license files has changed from CVS to fossil. New installations will use the fossil based system by default, existing installations will continue to use the CVS based system by default. If the user wishes to switch from the CVS based system to the CVS based system, some manual steps will be required. The user can choose start afresh and delete the existing CVS history, or choose from two recipes to migrate the CVS history to the fossil based system.
VOV-15195	FlowTracer	None	Fixed job name issue with <code>IFDEF FDL</code> procedure that prevented it from running successfully.
VOV-15257	All	None	OpenSSL version on Windows and Linux platforms is upgraded to 1.1.1p
VOV-15351	FlowTracer	CS0352183	<code>vovwxd</code> added support for the <code>CONFIG(slave,env)</code> parameter in DirectDrive mode.
VOV-15387	FlowTracer	CS0360469	The default values for <code>VOV_SEND_TIMEOUT_MS</code> and <code>VOV_RECV_TIMEOUT_MS</code> on Linux will now be set higher to 2 minutes connection timeout and 5 minutes for send/receive timeouts. This should mitigate <code>protocolErrorInBuf</code> type errors, with the default values under most conditions. If higher or lower values are desired the user can still override the default behaviors by setting <code>VOV_SEND_TIMEOUT_MS</code> and <code>VOV_RECV_TIMEOUT_MS</code> as desired for any particular scenario.

Internal Number	Products	Case Number	Description
VOV-15416	FlowTracer	CS0362761	The <code>vovproject archive</code> command no longer truncates the hostname.
VOV-15417	Monitor	None	Fixed issue that prevented the <code>lmmgr reset</code> operation from completing without error.
VOV-15482	Monitor	CS0332038	Monitor's batch reports are using the same version charts like the ones found in the browser setting by default. The use of the command line utility remains the same. However, in order to extract the charts and convert them to static images new requirements have been set in place. Node v14 or greater is required to have been installed on the machine and be available in the path environment variable. In addition, manually reverting the LM configuration parameter "lookAndFeel" to its previous value will result to image extraction failure.
VOV-15498	Monitor	None	Remove the "usage plot" and "plot queued results" checkboxes. The functionality of these checkboxes is replaced by: "plot usage details checkbox" and "plot usage capacity" checkbox for the usage plot and "plot queued request details" for the queued plot. The default behavior of the form remains the same. Visiting the page and submitting the form without editing any of the options will result to the exact same plots. New checkbox with the label of "plot average queued" that will enable the plotting of the average queued requests, thus decoupling the "show average" checkbox from controlling both plots. Any component/element of the two plots can be plotted irrespectively of the selection made in the checkboxes. For example for the usage plot, the average can be set to on without the need to have the details or the capacity on the plot. The checkboxes have been re-ordered and grouped to accordingly to the plot they have control over.
VOV-15515	Accelerator	CS0373997	Fixed a bug in tracking of resource usage by taskers that are in "DONE" state.
VOV-15541	Accelerator Plus	CS0376655	Using containers could cause some potential naming conflicts in scripts when based upon timestamp and pid alone, which unfortunately is not guaranteed to be a unique identifier with current configuration options for containers. There a true uuid has been added in utility scripts for commonly used scripts where such ambiguity might normally cause issues when used frequently inside multiple containers at the same time.
VOV-15560	Allocator	None	Fixed issue in Allocator resource summary page which is resulting in zero size csv file.
VOV-15620	Accelerator Plus	None	A <code>-dd</code> option was added to <code>vovwxconnect</code> that uses Direct Drive when connecting to NC queues. The <code>-dd</code> option can also be passed to <code>wxmgr start</code> to connect to existing queues, for example, <code>wxmgr start -basequeue vnc -dd</code> .

Internal Number	Products	Case Number	Description
VOV-15724	Accelerator, Accelerator Plus	CS0398311	Fixed a bug causing a slowness in processing foreign buckets in WX DirectDrive mode.
VOV-15735	Accelerator, Accelerator Plus	None	Fixed issue that resulted in permanently-used resource maps when the top job of a foreign bucket can not be created. The issue commonly showed up in NC base queues with a WX meta-scheduler using direct drive.
VOV-15741	Accelerator	None	Reject Accelerator jobs that consume no slots. The fix detects this case: <code>nc run -r slots/0 ...</code> and rejects the attempted job submission.

## 2022.1.1 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-7819	Accelerator	21323	Add to <code>vovselect</code> the capability to specify more <code>FIELD.X</code> items. Added <code>RESOURCES . &lt;RESNAME&gt;</code> to estimate the requested resource value of <code>RESNAME</code> . Added <code>GRABBEDRESOURCES . &lt;RESNAME&gt;</code> which returns the current value of <code>RESNAME</code> in a job's grabbed resources. Similarly, <code>SOLUTION . &lt;RESNAME&gt;</code> returns the value of <code>RESNAME</code> in a job's solution.
VOV-9389	Accelerator	AAP23445	The <code>doTestHealthTooManyOutOfQueueJobs</code> health check was enhanced to allow <code>@USER@</code> as a valid recipient.
VOV-11252	Accelerator Plus	AAP25064	<code>vovwxd</code> was modified to use the <code>CONFIG( slave , setName )</code> parameter instead of a constant <code>"WXTaskers:&lt;wxQueue&gt;"</code> set name.
VOV-13421	All	None	In an upcoming major release of Accelerator Products, the <code>vovselect *</code> wildcard select feature will be dropped. To prepare for this change, users should update scripts and REST requests to issue <code>vovselect</code> requests using a specified list of field names.  For example: <pre>nc cmd vovselect statusnc,id,command from jobs</pre> An easy way to find out what fields are in an object type is by using <code>vovselect fieldname</code> . For example: <pre>nc cmd vovselect fieldname from jobs</pre>
VOV-13912	All	CS0202834	Fixed an issue with daily log rotation of auto-started daemons.
VOV-14232	All	CS0238414	Clarified log messaging when the saving of trace database and/or metrics data is taking longer than expected.
VOV-14449	Accelerator Plus	CS0222621	Added <code>CONFIG( failedAgentsCooldownPeriod )</code> parameter for <code>vovwxd</code> that allows you to continue to request agents after the specified period for a bucket that had failed agent jobs. Format is a time specification, a value of 0 disables this feature.
VOV-14451	Allocator	CS0255747	<ol style="list-style-type: none"> <li>Resources - Plot: legend will not overlap the following plot. To solve this, will be displayed in more than one column if needed.</li> </ol>

Internal Number	Products	Case Number	Description
			<ol style="list-style-type: none"> <li>2. Overview: resource name and all sites columns are fixed in case there are horizontal scroll because the entries in the table are bigger than the visible screen</li> <li>3. Overview: table sorting in descending order</li> <li>4. Resources - Summary: Table sorting in descending order</li> </ol>
VOV-14978	Hero	None	The Licensing section of the online help has been updated and improved with recent Altair License Manager (ALM) licensing changes.
VOV-15010	Hero	None	The Altair Hero online documentation has been updated to reflect the changes in functionality and features.
VOV-15085	Monitor	None	Sorting the File Systems & Process Summary table in Monitor by clicking the header of each column, will sort the table in place in the current working tab, instead of creating a new browser tab with the table sorted.
VOV-15104	Accelerator, Accelerator Plus	None	The SDS Configuration documentation has been updated to reflect the newly added "enable_jobdata" feature.
VOV-15149	Hero	None	The following targets were added to the Palladium emulators: BRD144, BRD72, BRD48, BRD36, BRD24, BRD18, BRD16, BRD12, BRD9, BRD8, BRD6, BRD5, BRD4, BRD3, BRD2 and BRD1. These targets correspond to placements with the corresponding number of boards. For example, if the emulator is configured with a group named PZ1, then a job for a Palladium with 8 racks would use the resource HERO:PZ1_BRD144. The placement rules are restrictive and will evolve with experience.
VOV-15150	Accelerator, Accelerator Plus	None	The Accelerator and Accelerator Plus subserver feature has been retired. This feature provided one way of optimizing load on vovserver. Other modern optimization methods will be used for vovserver performance and scalability going forward.
VOV-15206	All	None	Added description of Security Level = ANYBODY in the online documentation.
VOV-15254	All	None	Implemented a new event to Kafka on job delete based on topic 'vov-jobdata' allowing these events to be correctly ordered with others for the same job.
VOV-15326	All	None	Bundled the Altair License Manager server components with the Accelerator Products installation media.

Internal Number	Products	Case Number	Description
VOV-15408	Accelerator	None	FAIRSHARE_WEIGHTS within job class definitions are no longer supported. Use <code>vovfsgroup modify FSGROUP.user weight W</code> instead.

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-13165	Accelerator	CS0127745, CS0172968	With <code>vovreconciled</code> active, there were cases when license usage counts that were growing during a job's execution, but the correct license grab counts were not being set for the job.
VOV-14407	Accelerator, Accelerator Plus	None	Fixed issue that prevented the preemption of <code>wxagent</code> jobs when using Direct Drive.
VOV-14533	Accelerator	None	Add more documentation about multiphase jobs and their dependency on <code>autoRescheduleCount</code> .
VOV-14557	Monitor	CS0282491	Fixed issue with removing a license checkout from within the web UI.
VOV-14586	Accelerator	CS0285073	The default values of the FairShare group "/" weight & window values were restored to the 2019.01 values.
VOV-14663	Accelerator, Accelerator Plus	None	Add documentation for the TLS 1.2 and 1.3 configuration parameters that affect the protocols supported by the internal webserver for REST and HTTP requests.
VOV-14822	Accelerator, Accelerator Plus	CS0309335, CS0314259	Fixed issue causing <code>nc wait -dir</code> to wait for jobs in other directories.
VOV-14824	All	None	Fix a DOS vulnerability in <code>vovserver</code> 's base webserver from nefarious large HTTP requests.
VOV-14874	FlowTracer	None	Fixed issue that affected the ability to stop jobs running on an indirect tasker: <ol style="list-style-type: none"> <li>Jobs may appear stopped, but will actually continue to run.</li> <li>A second stop request may cause the tasker to go into a BUSY state for several seconds while the tasker reconciles the fact that the job is still running.</li> </ol>

Internal Number	Products	Case Number	Description
VOV-14959	Accelerator Plus	CS0267206	Fixed a bug in vovwxd that caused an infinite loop due to a deleted "top job" of a bucket.
VOV-14969	All	None	Change description of fields in Admin licensing page when ALM is used.
VOV-14976	Accelerator	None	Fixed issue that caused the primary license feature to be blank on the licensing web UI page for the first hour after starting up a vovserver that is using node-locked ALM licensing.
VOV-15056	Accelerator, Accelerator Plus, FlowTracer	None	Fixed issue that prevented the -m option from being used to request a specific host in the bsub emulation command.
VOV-15064	All	None	Improved structure and clarity is added to the documentation about vovserver configuration parameters.
VOV-15088	Accelerator	CS0330199	Taskers that lose connection with their vovserver will no longer treat a hostname lookup error as critical and exit, but will continue trying to reconnect to the vovserver on a periodic basis. This adds resilience in networks where vovserver is hosted on a VM or a container that has been restarted, and where dynamic DNS removes hostname entries when the VM or container are down.
VOV-15092	Accelerator	None	All phases of multiphase jobs now correctly run at the same priority.
VOV-15093	Accelerator	None	A problem parsing -mpres1 XXX -mpres2 YYY -mpresN ZZZ was fixed when running multiphase jobs.
VOV-15099	Monitor	None	New feature introduced in Monitor Administrator page. In the actions column of the "Edit Monitors" table, a new action has been introduced. This action is only available for monitor definitions prescribed in the config.tcl file. Clicking the button with the icon file will bring up the config.tcl file in a browser environment. Any modifications made to this file through the browser will be persisted to the actual file as well. Monitors that were originally prescribed in the config.tcl can only be edited or removed, either by directly modifying the config.tcl through a text editor, or by using the "Edit config.tcl" action in the actions column of the table.
VOV-15100	Monitor	None	The new Monitor web UI front page is enhanced to display the Altair Monitor product name.
VOV-15106	Accelerator Plus	CS0325511	Fixed issue causing nc wait to exit with error "Failed subcommand wait: Illegal object id".

Internal Number	Products	Case Number	Description
VOV-15112	All	None	Updated Kafka Job events with additional data.
VOV-15122	Monitor	None	Fix a problem in the Monitor web UI in the <b>Network &gt; Process &gt; Details</b> page whereby sorting by some of the columns in the table would display an error.
VOV-15140	Monitor	None	Able to sort by the time related column in the processes table in LM web UI.
VOV-15144	Monitor	None	Change the look and feel of the Host details page in LM web UI to match the recent re-skin.
VOV-15148	Accelerator, Accelerator Plus	None	Fixed issue causing nc wait to exit with error can't read "jInfo(exit)": no such element in array.
VOV-15151	Accelerator, Allocator	None	Fixed issue with SetMinQuantity causing jobs to run despite no allocated licenses on NC site.
VOV-15152	FlowTracer	None	In some extraordinary circumstances, if a dialog box was closed by pressing "x" button, the entire vovconsole would crash. This has been fixed.
VOV-15172	Monitor	None	The number of columns in the grid view in Current Utilization Overview page will always be compliant with the preferred number of columns that the user has selected.
VOV-15174	Accelerator	None	Documentation is added in the REST Tutorial to explain when TLS 1.2 support must be enabled for REST python client programs running on CentOS 7.
VOV-15190	Allocator	CS0334264	Fixed issue server config 'maxResMap' update is not reflected in the resource map which is resulting following error messages: <pre>vovserver(54840) ERROR Jun 15 16:22:58 Resource map id not found for resource License:111. [mqllib/mqres:596] vovserver(54840) ERROR Jun 15 16:22:58 LA:countJobs:Resource License:111 020193489 without a resmap [trace/tracelicense:1114]</pre>
VOV-15194	Accelerator Plus	CS0341461	Job limits can now have periods in them. For example, if a user has a username of "test.user", a command such as this is now allowed: <pre>wx -q \$WXQ run -r Limit:@USER@_foo_1 -- sleep 0</pre>
VOV-15219	All	None	Auto-trimming of PostgreSQL database is disabled by default.

Internal Number	Products	Case Number	Description
VOV-15222	All	None	Fixed the <code>vovshow -licenses</code> output when ALM is enabled.
VOV-15245	Accelerator, Accelerator Plus	CS0325511	Updated <code>nc wait</code> to filter event by jobid when waiting on 10 or less jobs.
VOV-15283	Accelerator	CS0351032	Support was added for FIPS enabled hosts on CentOS and other RHEL based hosts.
VOV-15292	All	None	Some issues dealing with HTTP requests with headers larger than 4K have been addressed. The internal HTTP server now accepts HTTP requests with a total header size up to 16K.
VOV-15305	Accelerator	CS0349956	HTTP <code>x-www-form-urlencoded</code> POST data that's passed to CGI pages via temp files is now encrypted with a random key that changes for each request.
VOV-15310	Accelerator Plus	CS0355127	Fixed a crash where an ambiguous "vovquery select id from 9" results in an object lookup that vovquery doesn't support.
VOV-15315	Monitor	None	Fix wrongful description of action in alerts page of LM.
VOV-15332	Accelerator	CS0318230	Raw power calculations for taskers has been increased from 2.1 million to 2147483647. If the calculated raw power is greater than this number, it will be clipped to 2147483647 rather than being allowed to become negative due to an integer overflow. A warning will appear in the tasker's log indicating that the rawpower exceeded this value and was "clipped" to the max allowable value.
VOV-15334	All	None	Updated Kafka Job events with additional data.
VOV-15398	Monitor	None	In LM Detailed Plots fixed: <ol style="list-style-type: none"> <li>1. 1. In the treemap now all rectangles are visible, nothing is cut off.</li> <li>2. In the treemap legend nothing is cut off, everything is aligned and the records are ordered in decreasing order.</li> </ol>
VOV-15482	Monitor	CS0332038	Monitor's batch reports are using the same version charts like the ones found in the browser setting by default. The use of the command line utility remains the same. However, in order to extract the charts and convert them to static images new requirements have been set in place. Node v14 or greater is required to have been installed on the machine and be available in the path environment variable. In addition, manually reverting the LM configuration parameter "lookAndFeel" to its previous value will result to image extraction failure.

<b>Internal Number</b>	<b>Products</b>	<b>Case Number</b>	<b>Description</b>
VOV-15497	All	None	Fixed issue in single-mode license accounting.

## 2023.1.0 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-3411	Accelerator	None	<code>vovselect TURBOBOOST</code> from taskers is now available. Set to 1 if Intel Turbo Boost is enabled on this tasker host, or 0 if disabled (Linux only), otherwise set to NA.
VOV-7894	Accelerator	AAP21491	Added Jobclass and Autokill columns to the Running Jobs table in the web UI.
VOV-8024	Accelerator	AAP21343	Added the ability to specify a stop reason when stopping all running jobs for all users via the Running Jobs page.
VOV-8642	Monitor	None	The <code>ftlm_tag_admin</code> command line utility for Monitor is now described in the documentation.
VOV-9900	None	AAP24167	An enhancement has been made for the NC family of managers ( <code>ncmgr</code> , <code>vncmgr</code> , <code>wxmgr</code> and <code>hemgr</code> ) to show the queue name and command action in the log file name if logging to the <code>\$VOVDIR/local/logs/*</code> location.
VOV-12011	Accelerator	CS0120886	A new <code>ncmgr rehost</code> subcommand is added to migrate an Accelerator vovserver from one host to another. See <a href="#">ncmgr rehost</a> for details.
VOV-14032	All	CS0223251	<code>vncmgr/ncmgr stop</code> action now supports a <code>-freeze_nocpr</code> option to save the PR file without compression for a freeze to potentially save time when working with very large PR files.
VOV-14383	Accelerator Plus	None	The Direct Drive documentation topic has been clarified with more information regarding formatting of the driver script.
VOV-14395	Accelerator	None	The <code>vtk_server_config Tcl</code> command has a new <code>rds.reinitialize</code> parameter to allow reinitialization of the RDS system from the command line. This parameter requires no additional arguments.
VOV-14488	Accelerator Plus	CS0260943	Added new configuration parameters for fine-grained control of <code>vovwxd</code> .
VOV-14514	Accelerator, Accelerator Plus	CS0268091	Clients that interact with VOV subsystems are "immediately" terminated if they do not have sufficient security privileges (as defined in <code>security.tcl</code> ). The ANYBODY / READONLY security level is documented for users with minimum privilege.

Internal Number	Products	Case Number	Description
VOV-14577	All	None	The default HTTP server, or webprovider, used by vovserver is changing to the internal webprovider in place of "nginx". This applies to the URL used to access the vovserver "web port". The <code>-webprovider nginx</code> option is available on <code>ncmgr</code> and other vovserver start commands to select the nginx webprovider if that is preferred.
VOV-14701	Accelerator	CS0292715	You can now use <code>vovselect</code> to list tasker lists created with <code>vovtaskerlist</code> , and get information about tasker lists via the v3 REST API with the URL <code>http://hostname/api/v3/taskerlists</code> .
VOV-14718	Accelerator	None	Implemented backfilling resource reservation to handle conflicting jobs. This can be controlled by server config <code>backfillResReservation</code> , disabled by default.
VOV-14774	Accelerator, Monitor	None	Four new subcommands are added to the <code>vovdb_util</code> command for managing the Monitor or Accelerator PostgreSQL database: <code>exportconfig</code> , <code>exportpasswords</code> , <code>importconfig</code> , and <code>importpasswords</code> . See <code>vovdb_util</code> for details.
VOV-14789	Accelerator	AAP22106	The use of access control lists (ACLs) for resource maps are expanded to allow specified users or user groups to edit, reserve, and forget (delete) the resource map object. An example of an ACL-setting command that would be used for this objective is: <pre>nc cmd vovacl -agent "USER user0001" -set -actions ALL \$id</pre> where <code>\$id</code> is the VOV id number for a resourcemap object. Supported only if the resourcemap is created with <code>rank=0</code> .
VOV-14806	Accelerator	None	Rapid Scaling 3.0 implemented in <code>vovwxd</code> and the Altair NavOps cloud connector. Supports in-cloud deployments of a cluster scheduled by the Accelerator workload manager with adaptive compute node allocation to adjust to job load.
VOV-14863	Accelerator Plus, Monitor	CS0312583	Enabled the <code>doTestHealthFailoverServerCandidates</code> health check for Accelerator Plus and Monitor.
VOV-15120	Accelerator	None	Implemented backfilling resource reservation with non-conflicting jobs. This can be controlled by server config <code>backfillResReservation</code> , disabled by default.
VOV-15352	Accelerator	None	Implemented dispatch of deadline jobs on lookahead reservation activation. Supported argument <code>-deadline</code> in <code>nc run</code> to submit the job with an expected duration of completion.

Internal Number	Products	Case Number	Description
VOV-15404	Monitor	None	Migrate replacing images from Monitor batch reports to node, only D3 based plots are now supported which are part of the new look and feel of Monitor.
VOV-15429	All	None	The default license manager for Accelerator products is changed to Altair License Manager in the 2023.1.0 release. To revert to RLM, set <code>alm.enable</code> to 0 in <code>policy.tcl</code> . This change does not affect licensing by the RTDA legacy keyfile license files, which are still supported.
VOV-15439	Accelerator	None	Implemented tasker property <code>hardbound</code> and <code>softbound</code> to restrict the scheduler to dispatch only autokill jobs on hardbound tasker, while autokill & <code>xdur</code> jobs may run on softbound tasker.  Implemented reservation property <code>hardfill</code> and <code>softfill</code> to restrict the scheduler to backfill hardfill reservation with only autokill jobs, while softfill reservation may be backfilled with autokill and <code>xdur</code> jobs.  Modified <code>vovtaskermgr</code> utility to support all 4 options.
VOV-15548	Allocator	None	Implemented Allocator Resource Summary page column 'Allocated' to show the "Number Of Resource Tokens Allocated Including OOQ Tokens To Each Site".
VOV-15588	Accelerator	None	An online help topic to describe AVS syntax has been added.
VOV-15618	Accelerator	None	DP component jobs now inherit the expected duration ( <code>-xdur</code> ) setting of the main job.
VOV-15653	Monitor	None	The PostgreSQL software included with Monitor and Accelerator products is upgraded to version 14.4. A database conversion to the new version is needed for projects that are upgrading and retaining an existing database. See Monitor and software installation documentation for database upgrade instructions.
VOV-15656	Accelerator	None	The "tasker" lexicon versions of Accelerator CLI commands were added in a recent software release to replace the "slave" lexicon versions. The "slave" lexicon commands have been available, but be advised of their deprecation. The following CLI commands are deprecated and will be removed in an upcoming release: <ul style="list-style-type: none"> <li>• <code>vovslavelaunch</code></li> <li>• <code>vovslavelaunchd</code></li> <li>• <code>vovslavelist</code></li> <li>• <code>vovslaveloadutil</code></li> <li>• <code>vovslavemgr</code></li> <li>• <code>vovslaveowner</code></li> </ul>

Internal Number	Products	Case Number	Description
			<ul style="list-style-type: none"> <li>vovslavestartup</li> </ul>
VOV-15661	Accelerator	None	<p>The following new server configuration parameters are added to control the new lookahead and backfill scheduling policies. See <code>policy.tcl</code> for descriptions:</p> <ul style="list-style-type: none"> <li>enableBackfillResReservation</li> <li>enableLookAheadReservation</li> <li>lookAheadSchedInterval</li> <li>lookAheadTimeResolution</li> <li>maxLookAheadReservationCount</li> <li>maxLookAheadSchedulingDuration</li> </ul>
VOV-15694	Accelerator	None	<p>Resource Data Service (RDS) is a replacement for <code>vovresourced</code>. RDS is provided as an opt-in preview feature. When the optional RDS operation mode is selected, Accelerator and Monitor communicate on new pub/sub channels. Resource management and license matching is performed by a new RDS thread of the <code>vovserver</code> process.</p>

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-11585	Accelerator Plus	AAP25265	Fixed a bug in <code>vovwxd</code> that caused incorrect "taskers max reached" alert.
VOV-12137	Accelerator	CS0120974	<code>nc modify</code> now accepts the syntax to change the FairShare group of a queued job, and will allow the user to be different than the job's original FairShare user so long as the client has the correct ATTACH ACL on the new <code>fsgroup</code> .
VOV-12766	FlowTracer	None	<p>Changes in functionality of <code>vovforget</code>.</p> <p>In Accelerator, Accelerator Plus, Hero:</p> <ul style="list-style-type: none"> <li>-allsets: not supported</li> <li>-allemptysets: not supported</li> <li>-emptysets: removes empty sets that are older than 60s</li> <li>-emptysets -hier: not supported</li> </ul> <p>In all other products:</p> <ul style="list-style-type: none"> <li>-allsets: deletes all non-system sets</li> </ul>

Internal Number	Products	Case Number	Description
			<ul style="list-style-type: none"> <li>-allemptysets: deletes all non-empty non-system sets</li> <li>-emptysets: removes empty sets that are older than 0s</li> <li>-emptysets -hier: removes empty sets and subsets that are older than 0s</li> </ul> <p>See <a href="#">vovforget</a> documentation for further details.</p>
VOV-13525	Accelerator, Accelerator Plus	CS0288823	Fixed an inconsistency in tasker status returned by <code>nc hosts</code> and <code>vovselect</code> .
VOV-13784	Monitor	CS0191792	The client systems may have a clock skew. Therefore timestamp reported by client should not be used for calculations. For consistency, from now on, we avoid client reported timestamps for job checkouts, checkins, matching, etc. With this fix, server-side timestamp are now prioritized.
VOV-14321	Accelerator	CS0246573	Resource requests attempted with #0 or /0 will now throw an error throughout the CLI,API, and UI, with the exception of CORES/0, or CPUS/0.
VOV-14356	Monitor	CS0247184	The display of incorrect status of LM Control Center Agents in Web UI has been fixed.
VOV-14501	All	CS0262252	<code>vovserver</code> config parameter <code>autoLogout</code> now allows admins to configure the maximum duration for which a given Web/REST session stays valid.
VOV-14505	Accelerator, Accelerator Plus	CS0263183	The <code>bjobs</code> implementation has been improved to significantly reduce the number of <code>vovserver</code> inquiries.
VOV-14628	Allocator	CS0270617	A tuning parameter was added to the LA distribution algorithm. It can be modified using the command <code>LA::SetUnhappyReserveFraction &lt;fraction&gt;</code> in <code>&lt;swd/vovlad/config.tcl</code> . The fraction must be a number between zero and one and defaults to zero. A value of zero corresponds to the behavior before this change as implemented.
VOV-14824	All	None	Fix a denial-of-service (DOS) vulnerability in <code>vovserver</code> 's base webserver from nefarious large HTTP requests.
VOV-14886	Accelerator Plus	CS0266302	<p>Added support for a new server configuration param called <code>wx.setQueueEnv</code> to control how <code>NC_QUEUE</code> may be set in the job environment.</p> <p>If not set, <code>NC_QUEUE</code> will be set on the job environment only if it's explicitly set in the job submission environment and the user is using <code>SNAPPROP</code> or <code>SNAPSHOT</code>.</p>

Internal Number	Products	Case Number	Description
			<p>If <code>wx.setQueueEnv</code> is set to 1 and <code>NC_QUEUE</code> is not set in the submission environment, <code>NC_QUEUE</code> in the job environment will be the <code>WX</code> project name.</p> <p>If <code>NC_QUEUE</code> is set in the submission environment and <code>SNAPPROP</code> or <code>SNAPSHOT</code> is used, <code>NC_QUEUE</code> will be propagated from the submission environment to the job environment.</p>
VOV-14959	Accelerator Plus	CS0267206	Fixed a bug in <code>vovwxd</code> that caused an infinite loop due to a deleted "top job" of a bucket.
VOV-14985	FlowTracer	CS0324179	Introduced <code>vtk_set_operation MOVECONTENT</code> to transfer content from one set to another.
VOV-14990	Accelerator Plus	CS0336870	Fixed a bug causing a <code>vovDeprecated TCL</code> error in <code>vovwxd</code> .
VOV-15105	FlowTracer	00000	The output files of autoflow jobs are no longer marked missing by <code>vovcheckfiles</code> . Moreover, direct descendents of autoflow jobs are always considered valid provided the parent node is valid.
VOV-15112	All	None	Updated Kafka Job events with additional data.
VOV-15188	Monitor	None	The code management system used to manage license files has changed from CVS to fossil. New installations will use the fossil based system by default, existing installations will continue to use the CVS based system by default. If the user wishes to switch from the CVS based system to the CVS based system, some manual steps will be required. The user can choose start afresh and delete the existing CVS history, or choose from two recipes to migrate the CVS history to the fossil based system.
VOV-15195	FlowTracer	None	Fixed job name issue with <code>IFDEF FDL</code> procedure that prevented it from running successfully.
VOV-15257	All	None	OpenSSL version on Windows and Linux platforms is upgraded to 1.1.1p
VOV-15351	FlowTracer	CS0352183	<code>vovwxd</code> added support for the <code>CONFIG(slave,env)</code> parameter in DirectDrive mode.
VOV-15387	FlowTracer	CS0360469	The default values for <code>VOV_SEND_TIMEOUT_MS</code> and <code>VOV_RECV_TIMEOUT_MS</code> on Linux will now be set higher to 2 minutes connection timeout and 5 minutes for send/receive timeouts. This should mitigate <code>protocolErrorInBuf</code> type errors, with the default values under most conditions. If higher or lower values are desired the user can still override the default behaviors by setting <code>VOV_SEND_TIMEOUT_MS</code> and <code>VOV_RECV_TIMEOUT_MS</code> as desired for any particular scenario.

Internal Number	Products	Case Number	Description
VOV-15416	FlowTracer	CS0362761	The <code>vovproject archive</code> command no longer truncates the hostname.
VOV-15417	Monitor	None	Fixed issue that prevented the <code>lmmgr reset</code> operation from completing without error.
VOV-15482	Monitor	CS0332038	Monitor's batch reports are using the same version charts like the ones found in the browser setting by default. The use of the command line utility remains the same. However, in order to extract the charts and convert them to static images new requirements have been set in place. Node v14 or greater is required to have been installed on the machine and be available in the path environment variable. In addition, manually reverting the LM configuration parameter "lookAndFeel" to its previous value will result to image extraction failure.
VOV-15498	Monitor	None	Remove the "usage plot" and "plot queued results" checkboxes. The functionality of these checkboxes is replaced by: "plot usage details checkbox" and "plot usage capacity" checkbox for the usage plot and "plot queued request details" for the queued plot. The default behavior of the form remains the same. Visiting the page and submitting the form without editing any of the options will result to the exact same plots. New checkbox with the label of "plot average queued" that will enable the plotting of the average queued requests, thus decoupling the "show average" checkbox from controlling both plots. Any component/element of the two plots can be plotted irrespectively of the selection made in the checkboxes. For example for the usage plot, the average can be set to on without the need to have the details or the capacity on the plot. The checkboxes have been re-ordered and grouped to accordingly to the plot they have control over.
VOV-15515	Accelerator	CS0373997	Fixed a bug in tracking of resource usage by taskers that are in "DONE" state.
VOV-15541	Accelerator Plus	CS0376655	Using containers could cause some potential naming conflicts in scripts when based upon timestamp and pid alone, which unfortunately is not guaranteed to be a unique identifier with current configuration options for containers. There a true uuid has been added in utility scripts for commonly used scripts where such ambiguity might normally cause issues when used frequently inside multiple containers at the same time.
VOV-15560	Allocator	None	Fixed issue in Allocator resource summary page which is resulting in zero size csv file.
VOV-15620	Accelerator Plus	None	A <code>-dd</code> option was added to <code>vovwxconnect</code> that uses Direct Drive when connecting to NC queues. The <code>-dd</code> option can also be passed to <code>wxmgr start</code> to connect to existing queues, for example, <code>wxmgr start -basequeue vnc -dd</code> .

Internal Number	Products	Case Number	Description
VOV-15724	Accelerator, Accelerator Plus	CS0398311	Fixed a bug causing a slowness in processing foreign buckets in WX DirectDrive mode.
VOV-15735	Accelerator, Accelerator Plus	None	Fixed issue that resulted in permanently-used resource maps when the top job of a foreign bucket can not be created. The issue commonly showed up in NC base queues with a WX meta-scheduler using direct drive.
VOV-15741	Accelerator	None	Reject Accelerator jobs that consume no slots. The fix detects this case: <code>nc run -r slots/0 ...</code> and rejects the attempted job submission.

## 2022.1.0 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-7252	Accelerator	AAP20379	Added an email icon to the Job/Node Information page in the Accelerator web UI so the user can email the job description and execution information details to the owner of the job. The email action is by a "mailto:" link, so your browser needs to have "mailto:" link handling enabled.
VOV-9004	All	23042	<p>The system health and notification daemon, vovnotifyd, now has the ability to control the timing at which license expiration and other emails are sent. In vovhealthlib.tcl, you can define a TIMEVAR such as:</p> <pre> source \$env(VOVDIR)/tcl/vtcl/vovflexlmdlib.tcl package require vovurlutils  global HEALTHLIB_PRODUCT_MAP HEALTH_PROCS env  set HEALTHLIB_PRODUCT_MAP(doTestHealthMyFeature)     "nc" # registerHealthCheck doTestHealthMyFeature     -checkfreq 10 -forceCheckfreq -mailfreq 10 -     forceMailfreq lappend HEALTH_PROCS(list) doTestHealthMyFeature  proc doTestHealthMyFeature { args } {     global HEALTH_PROCS     set homeUrl \$HEALTH_PROCS(homeURL)     # VovMessage "now running     doTestHealthMyFeature"     set subject "TestMyHealthFeature"     set body "\nHi,\n\nWe ran     TestMyHealthFeature.\n"     doMailNotify doTestHealthMyFeature "@ADMIN"     \$subject \$body }  TIMEVAR doTestHealthMyFeature {     Tue {         suppressMail doTestHealthMyFeature 1     }     06:00-08:00 {         suppressMail ALL 0         suppressMail doTestHealthMyFeature 0     }     default {         suppressMail ALL 1         suppressMail doTestHealthMyFeature 1     } }                 </pre>

Internal Number	Products	Case Number	Description
			Where calling <code>suppressMail</code> with a "1" for the specified health check will suppress the mailings for that TIMEVAR. <code>suppressMail</code> accepts either the name of a specific health check, or "ALL" to control all defined health check routines.
VOV-9417	Allocator	23693	Added Totals row to Allocator Resource Summary Report page.
VOV-10250	All	AAP24412	If <code>nc wait</code> cannot find related job info the related message now more accurately describes the job as forgotten instead of vanished.
VOV-10545	All	24546	An additional option <code>-verify</code> has been added to the existing <code>vovversion</code> CLI which checks current client and server versions for mismatches. If a discrepancy is discovered, an error message is displayed and a non-zero exit value is returned, otherwise a verification message is displayed indicating the current version number and a zero exit value is returned.
VOV-11001	All	24808	The <code>cron.csh</code> scripts used by <code>vovcrontab</code> now log through <code>vovdailylog</code> .
VOV-11202	All	24995	Enhanced <code>? tip</code> help message on filter inputs and added clarification on filter inputs for 'Taskers' and 'Resource Statistics' UI.
VOV-11536	Accelerator	None	The Container Configuration help page has been updated for clarity and now provides newer, better examples.
VOV-11975	Accelerator	CS0120839	There is a new entry in <code>cleanup.config.tcl</code> to control when tasker startup logfiles get removed when running <code>vovcleanup</code> . <code>set config(cleanup,taskerStartup) 180d</code> . This controls clean-up of the tasker startup logs separate from the tasker logs. Users can use <code>vovcleanup</code> to prune tasker logs without accidentally removing the startup log if they wish to do so.
VOV-12006	Accelerator	CS0120876	Added auto-trim database option to Database Configuration web page.
VOV-12242	Accelerator	None	Added a new "shrink-to-fit" job submission option <code>-reconcilemem</code> to <code>nc run</code> . In shrink-to-fit mode, a job's memory resource usage will be reduced after a time if actual memory usage is less than requested RAM usage that was specified with <code>"-r ram/NN"</code> .
VOV-12400	Monitor	None	Updated HASP monitors to support the Sentinel LDK Admin version 8 API.
VOV-12858	Accelerator	CS0142679	Added ability to pass the <code>-cmp_remotefile</code> option when using Calibre.
VOV-13227	Accelerator, Accelerator Plus	AAP25139	Distributed Parallel support now allows <code>-dpres+</code> to append resources to either <code>-r</code> or <code>-dpres</code> resource specifiers on the command line or in jobclasses via <code>VOV_JOB_DESC()</code> .

Internal Number	Products	Case Number	Description
VOV-13505	FlowTracer	CS0182760	<p>Enhanced LSF driver script to allow jobs submission on execution host(s)/ cluster(s) based on the following configurations in LSF config.tcl.</p> <ol style="list-style-type: none"> <li> <p><b>1.</b> CONFIG(target) - specify the space separated list of cluster(s)/ execution host(s), jobs will be submitted using <code>bsub -m</code> option.</p> <p>CONFIG(targetName,env) - specify a different named environment per cluster/execution host.</p> <p>LSFtarget/LSFTarget - specify cluster/execution host per job in the resource string regardless of the CONFIG(target).</p> </li> <li> <p><b>2.</b> CONFIG(cluster) - specify the space-separated list of the cluster(s), jobs will be submitted using <code>bsub -clusters</code> option</p> <p>CONFIG(clusterName,env) - specify a different named environment per cluster.</p> <p>LSFcluster/LSFCluster - specify cluster per job in the resource string regardless of the CONFIG(cluster).</p> </li> </ol>
VOV-13788	Accelerator, Accelerator Plus	AAP24926	Added cleanup of /data/jobs for Accelerator and Accelerator Plus. The default cleanup interval is 10 years.
VOV-13795	Accelerator, Monitor	CS0186684	Eliminated unnecessary HTTP-requests made by <code>ftlm_lmproject</code> utility to Monitor since the non-FQDN-version of the hostname is always included in the FQDN request.
VOV-13851	Accelerator, Accelerator Plus	CS0208070	Added RabbitMQ logs for <code>nc wait</code> and <code>vovselect</code> command. Added config 'VOV_CLIENT_LOG_TLS' in <code>ncConfig/&lt;queue name&gt;.tcl</code> to enable TLS for RabbitMQ connection.
VOV-13900	Accelerator	None	A change was made to the upper right pane within the Accelerator dashboard page, whereby the server daemons status squares are removed. This pane will henceforth display only alerts.
VOV-13911	All	None	When stopping a job with <code>nc stop</code> , you can now specify <code>-skiptop [1 0]</code> to indicate whether or not to send the signal to the top process. The top process is usually a wrapper such as <code>vw</code> , unless the job was started without a wrapper.
VOV-13983	Accelerator	CS0121174, CS0209718	Changed the pre and post job environments to include the following variables: VOV_JOBID, VOV_JOBPROJ, VOV_JOBSLOT, VOV_GRABBED_RESOURCES, and for Accelerator specifically, NC_JOBID.

Internal Number	Products	Case Number	Description
VOV-14017	Accelerator Plus	CS0212504	Improved procedure of dequeuing Accelerator Plus jobs in case of a repeated agent failures. <code>vovnc.tcl</code> script will find the jobs of the current bucket more efficiently.
VOV-14026	All	None	Introduced a feature called VovScope, which provides insights into network activities (read/writes) of vovserver and clients.
VOV-14033	Monitor	None	Implemented a more modern look-and-feel for the Monitor web UI.
VOV-14098	Monitor	None	Added ability to generate Checkout Statistics report by user and host.
VOV-14139	Accelerator	None	<p>Preemption Plans can now take the form:</p> <pre> TIME:STATE:SIGNAL, includerx, excluderx, skiptop VovPreemptMethod can now take the form: VovPreemptMethod resource SIGNAL -signal SIGNAME     -include patternList -exclude patternList  nc preempt can now take the form: nc preempt -method     TIME:STATE:SIGNAL, includerx, excluderx, skiptop                 </pre>
VOV-14177	Accelerator	None	<p><code>nc stop</code> now supports setting either <code>NC_STOP_SIGNALS</code> or <code>VOV_STOP_SIGNALS</code> with an EXT like format that doesn't involve invoking <code>vovjobctrl</code> for its implementation.</p> <p>If you reference <code>NC_STOP_SIGNALS</code>, the EXT format is :</p> <pre>EXT: SIGNAL: INCLUDERX: EXCLUDERX: SKIPTOP</pre> <p>You can now use <code>:SIGNAL: INCLUDERX: EXCLUDERX: SKIPTOP</code> to do the same thing but without <code>vovjobctrl</code> getting invoked. Job control will be handled directly by the tasker. This also works with <code>VOV_STOP_SIGNALS</code>.</p>
VOV-14178	Accelerator	None	<p>When starting a job via the REST API, an additional field named <code>nowrapper</code> has been added. This is equivalent to the <code>-n</code> option on the CLI command <code>nc run</code>. The default value is <code>False</code>. If <code>nowrapper</code> is <code>False</code> and the <code>wrapper</code> field is blank or unset, it gets set by the API to <code>vw</code>.</p> <p>You must set <code>nowrapper=True</code> for a job to be run with no wrapper.</p> <p>When stopping a job via the REST API via a "PUT" request with <code>action='stop'</code>, the API now accepts an additional field named "skiptop". If <code>False</code>, the specified stop signal may also be sent to the top job. Normally the top job the is <code>vw</code> wrapper.</p> <p>When preempting a job via the REST API with a "PUT" request with <code>action='preempt'</code>, the API now accepts a syntax for the method field of:</p> <pre>TIME:STATE:SIGNAL, includerx, excluderx, skiptop.</pre>

Internal Number	Products	Case Number	Description
			This is similar to the updated preemption plan format.
VOV-14274	Accelerator, FlowTracer	CS0241168	Default value of <code>-singleuser</code> tasker option can be set with <code>vtk_tasker_set_defaults</code> .
VOV-14289	Monitor	CS0243425	Enhanced <code>ftlm_parse_flexlm</code> parser to handle additional data on checkout in the form <code>[user_data=&lt;value&gt;]</code> , and display the same under the project in Monitor reports.
VOV-14311	All	None	The new <code>-alm</code> option is added to the <code>batch_install.csh</code> script to allow the host and port of Altair License Manager to be specified at install time. This is useful when the Accelerator products are to be licensed via Altair License Manager licenses.
VOV-14315	Monitor	None	Increased performance of matching license checkouts to jobs for NRU cases.
VOV-14419	All	None	<p>Multiphase support is provided by two additional command arguments to <code>nc run</code>:</p> <p><code>-multiphase [1 0] -mpres "resource string"</code> <code>-multiphase 1</code> enables multiphase jobs.</p> <p><code>-mpres</code> sets the resources that will be used for each phase.</p> <p>The <code>'%'</code> is used as a delimiter for the resources of each phase. e.g. <code>-mpres "linux64 foo%linux64 bar:linux64 baz"</code> By specifying the resources of each phase and designating that certain resources are only allocated to certain taskers, one can run different phases of a job on different taskers.</p> <p>For example: I have two taskers named <code>tasker1</code> and <code>tasker2</code>. I want to run phase 1 and 3 on <code>tasker1</code>, and phase 2 on <code>tasker2</code>. My resources may look like:</p> <pre> vtk_resourcemap_set License:blue UNLIMITED License:blue_tasker1 vtk_resourcemap_set License:red UNLIMITED License:red_tasker2 vtk_resourcemap_set License:blue_tasker1 1 tasker1 vtk_resourcemap_set License:red_tasker2 1 tasker2                     </pre> <p>I could then run a multiphase job as:</p> <pre> nc run -multiphase 1 -mpres "linux64 License:blue%linux64 License:red%linux64 License:blue" -- -e BASE -D /home/jjmcwill/ testDir/testMultistage.sh                     </pre> <p>A multiphase job will have two new Job Properties set:</p>

Internal Number	Products	Case Number	Description
			<p><b>MPRESOURCES:</b> Contains the same resources passed in <code>-mpres</code>, and is used to reset the job resources for each phase.</p> <p><b>MPCURRENTPHASE:</b> Contains an integer indicating the current job phase. It starts at one, and has a max value of 9.</p> <p><b>What the job script sees:</b> The running job script will see an environment variable named <code>VOV_JOB_PHASE</code> which is set to the current phase. The script writer will need to use that to decide what work to do for that phase. If the script exits with an exit code of 216, Accelerator will increment the job phase, change the job resources, and reschedule the job to run again. If the script exits with an exit code of 0, the job is considered "Done", and <code>MPCURRENTPHASE</code> is reset to 1.</p> <p><b>Failed jobs:</b> If a job fails during a phase with a code other than 0 or 216, it is considered <code>FAILED</code> and <code>MPCURRENTPHASE</code> will not increment. If the job is invalidated and re-run (e.g. <code>nc rerun -f JOBID</code>), the job will re-run starting at <code>MPCURRENTPHASE</code> and further phases will run if the job exits with code 216, as described above.</p> <p><b>Logging:</b> After the first phase is run, subsequent phases of the job will have the command rewritten so that the wrappers are passed "<code>-a -A</code>", telling the wrappers to append to the job log. This is so that all phases of the job get their <code>stdout</code> and <code>stderr</code> logged to the same file. If this was not done, each phase of the job would overwrite the log, and the user would only see the output from the last phase that was run. If Accelerator does not detect one of the standard <code>vov</code> wrappers at the beginning of the command line, it will assume the command is not using a wrapper. In this case, it will look for the standard "<code>&gt;</code>;" redirect symbol in the command and replace it with "<code>&gt;&gt;</code>";".</p> <p><b>REST Support:</b> In the payload for submitting a job via rest, two new fields are allowed: <code>multiphase</code> and <code>mpres</code>. Setting <code>multiphase = True</code> enables multiphase job support. Setting the <code>mpres</code> field behaves the same as described for the command line argument described above. Re-running a multiphase job that has failed via the REST re-run API will behave similarly to re-running a failed multiphase job from the command line as described above.</p>
VOV-14420	Accelerator, Accelerator Plus	None	Updated <code>tblmq</code> library to (1.4.5) currently (1.3.8) to support TLS connection for RabbitMQ.
VOV-14477	All, Accelerator, Accelerator Plus	CS0257852	Taskers running as non-root will no longer get sent jobs unless the job's user matches the non-root tasker's <code>userid</code> . This is to address a situation where a job running on a non-root tasker gets access to the user's data on the filesystem. This policy can be disabled by setting the <code>allowForeignJobsOnUserTaskers</code> configuration parameter to 1.

Internal Number	Products	Case Number	Description
VOV-14488	Accelerator Plus	CS0260943	Added new configuration parameters for fine-grained control of vovwxd.
VOV-14490	All	None	The newly added VovScope feature has been added to the online help documentation.
VOV-14511	All	AAP25265	Increased maximum number of normal clients per user limit to 250K from the existing 100K.
VOV-14536	Accelerator Plus	None	<p>When using wx, the EXTLINKS property on the project will contain information about each base queue. Previously, the format of EXTLINKS was "queueName1 URL1 queueName2 URL2 ..."</p> <p>This has been changed so that the queueName also contains a status of whether or not vovwxd sees the status of the basequeue as ONLINE or DOWN.</p> <p>The new format of EXTLINKS is: "queueName1:status=STAT1 URL1 queueName2:status=STAT2 URL2 ..."</p> <p>When visiting the web UI for the wx project, the link for a base queue that is down will be shown in red instead of the customary gray.</p>
VOV-14561	Accelerator	CS0267219	Reduced process tree log frequency from every ~30 secs to once in 10 minutes.
VOV-14571	Accelerator	CS0266023	<p>In order to provide more control over the creation of FairShare subgroups, a new acl type named CREATE was added as well as a new server config param called <i>fairshare.strictNodeCreationChecks</i>. The default for <i>fairshare.strictNodeCreationChecks</i> is 0, which means a user only needs the ATTACH acl to create sub-groups or to run a job on an existing group. If <i>fairshare.strictNodeCreationChecks</i> is set to 1, however, a user will need the CREATE acl in order to create sub-groups. They still need the ATTACH acl to run jobs under an existing group. If you set the debug flags FairShareGroups and acl, server.log will contain messaging about the acl checks being made to allow or deny creating a FairShare sub-group.</p>
VOV-14587	Accelerator Plus	None	<p>In WX DirectDrive setup, the onBucketProcess Tcl procedure is enhanced to support parameters for the agent job in the base queue. The BUCKETINFO array will be initialized with the following fields.</p> <p>BUCKETINFO(AUXRESOURCES)</p> <p>BUCKETINFO(BUCKETID)</p> <p>BUCKETINFO(COUNT)</p> <p>BUCKETINFO(FSGROUP)</p>

Internal Number	Products	Case Number	Description
			BUCKETINFO(JOBCLASS) BUCKETINFO(JOBPROJ) BUCKETINFO(OSGROUP) BUCKETINFO(PRIORITY) BUCKETINFO(RESOURCES) BUCKETINFO(USER) BUCKETINFO(XDUR) BUCKETINFO(maxidle) BUCKETINFO(maxlife) BUCKETINFO(taskerAutokill) BUCKETINFO(taskerCmd) BUCKETINFO(taskerReservation) BUCKETINFO(taskerResources) The user can set values in <code>vovaccel.tcl</code> .
VOV-14589	All	None	For products other than Hero 2.0, parameters to the resource expression comma operator are required to be Monitor features. The resource expression processing no longer allows resource loops in resource maps.
VOV-14616	Accelerator	None	The output of <code>nc hosts</code> is changed slightly to make the information about running jobs per tasker clearer. The "JOBS" column has been replaced with 2 columns: "RUN/SWP" and "SLOTS".
VOV-14629	Hero	None	The command passed to <code>hero_adapter</code> is wrapped by <code>vtool -f Emul : &lt;emul-name&gt; &lt;leaf-count&gt;</code> so that the corresponding feature checkouts and checkins can be tracked using Monitor.
VOV-14704	Monitor	None	Improved the ability for <code>vovresourced</code> to auto-discover Monitor metadata, such as the SSL and web port settings.
VOV-14853	All	None	Implemented new events to Kafka on job status updates, property changes, and delete jobs. This functionality is controlled using config 'enable_jobdata' in <code>sds.cfg</code> and this is not supported for array jobs.
VOV-14871	Monitor	None	If there are alerts present on the system, the favicon of the tab will cycle between a red dot and the default icon. Additionally, presence of alerts are notified to the user by a "triangle alert" icon that gets prepended to the label of the Home tab in the main navigation bar. The color of this matches the alert level, the icon demonstrates a pulsation effect.

Internal Number	Products	Case Number	Description
VOV-14888	All	None	The Supported Platforms online help page has been updated to reflect the changes implemented for 2022.1.0.
VOV-14992	Accelerator	None	In the 2021.2.0 release and later, the processing of jobclass initialization has been taken over by the new autostart script <code>start_init_jobclasses.tcl</code> in <code>SWD/autostart</code> , and the new liveness script <code>live_init_jobclasses.tcl</code> in <code>SWD/tasks</code> .
VOV-15000	Accelerator	None	The <code>-reconcilemem</code> option of the <code>nc run</code> command was updated in the CLI help.
VOV-15002	Accelerator, FlowTracer	None	The parameter <code>allowForeignJobsOnUserTaskers</code> has been added to the online help.

## Resolved Issues

Internal Number	Products	Case Number	Description
VOV-8079	All	21734	Fixed issue with using Environment Modules from within a <code>sh/bash</code> shell. The "module unload" operation was failing.
VOV-8648	FlowTracer	22241	Added <code>-running</code> option to <code>vovstop</code> to provide the ability to stop running jobs without dequeuing queued jobs.
VOV-8752	Monitor	22547	Fixed use of LDAP Email addresses in Monitor reports when <code>VOVLM(ldapEmail)</code> is set to 1 in <code>&lt;SWD&gt;/config/web.cfg</code> .
VOV-8871	Monitor	AAP22766	Fixed legend spillover on Monitor usage comparison plot with many items.
VOV-9166	All	23318	Fixed issue where an invalid slave resource expression would result in a permanent error message on the Slaves web page.
VOV-9638	All	CS0288154	Added a <code>-nolog</code> option to the <code>vovgetnetinfo</code> utility that will prevent the creation of a log file in the SWD.
VOV-9776	Accelerator	24061	The form for submitting a slave reservation now checks that the data is valid before actually submitting the reservation.
VOV-9897	All	AAP24162	Initialize <code>VOV_JOB_DESC</code> variable to avoid errors when listing job classes.
VOV-10568	All	CS0120645	HyperThreading fieldname 'HT' on taskers previously reported incorrectly if HT was available. The field now properly reports if SMT threading (either Intel HyperThreading or AMD SMT) is currently available and enabled by checking value(s) of either the <code>/sys/devices/system/cpu/smt/control, /</code>

Internal Number	Products	Case Number	Description
			sys/devices/system/cpu/smt/active pair or /sys/devices/system/cpu/cpu0/topology/thread_siblings_list (or equivalent). directly. For /sys/devices/system/cpu/smt/control based files the values must now be both "on" and "1" or HT field will be reported as disabled. If you are having problems with tasker HT field values on a particular system please contact Altair support with details on your system information such as distribution name, release version, kernel version, method of HT/SMT configuration and expected values.
VOV-10904	Monitor	None	Fixed issue that prevented the <b>Network &gt; Processes &gt; Details</b> report from displaying the processes for the specified host(s) and/or user(s). Also fixed issue on this report that caused the UI to jump the batch reporting page if table sorting/filtering was used.
VOV-11292	Accelerator Plus	AAP25068	When submitting Accelerator Plus jobs where you are specifying the name of the base queue, vovwxd would incorrectly schedule the correct number of base queue jobs based on minQueuedPerBucketPerNCQueue and maxQueuedPerBucketPerNC, often scheduling more than allowed. This has been addressed.
VOV-11971	Allocator	None	New Altair Allocator procedures LA: :MarkVqAsOoq and LA: MarkResourceVqAsOoq have been added to the online help.
VOV-12137	Accelerator	CS0120974	nc modify now accepts the syntax -G /group.user to change the FairShare group of a queued job, and will allow the user to be different than the job's original FairShare user so long as the client has the correct ATTACH ACL on the new fsgroup.
VOV-12253	Monitor	CS0120851, CS0203350	Enhanced MathLM parser to handle space in feature name.
VOV-12510	Monitor	CS0265568	Initialization of the crypto signing key for web auth tokens was moved earlier in the vovserver initialization to address possible issues with trying to log into web pages while vovserver was still starting.
VOV-12852	Monitor	CS0132965	Fixed parser error "can't read "feature": no such variable" and incorrect capacity value due to usage info not available.
VOV-13088	Allocator, Monitor	CS0155322	Added an alert on server buffer overflow for all the products. Alert message will contain the client name if defined else unnamed client with fd would come.
VOV-13094	Monitor	CS0193004	Adjusted the Sentinel parser to handle features with unlimited capacity.
VOV-13142	Allocator	CS0160431	If a daemon is already running, starting a daemon from web UI is a no-op (in previous releases daemon was stopped and started).

Internal Number	Products	Case Number	Description
VOV-13150	Accelerator, Accelerator Plus	CS0160883	When visiting a URL in the web UI (such as for a newly created job), a user who has not been authenticated would sometimes not get properly redirected to their original URL after logging in. This has been fixed.
VOV-13165	Accelerator	CS0127745, CS0172968	vovreconciled kept on repeatedly adding "NRU resources with same handles" back to the job. This has been fixed.
VOV-13219	Monitor	CS0165626	Updated embedded LM widgets URL in lm_widgets.php.
VOV-13294	All	CS0170164	Updated support email address.
VOV-13348	FlowTracer	CS0172882	Fixed issue with vovconsole -fontsize option for not changing the node label font.
VOV-13389	All	None	Fixed an error when clicking the <b>Cleanup All Cached Files Used for Tasker Load</b> button on the web page for a tasker.
VOV-13418	Monitor	CS0175623	Fixed custom time range issue in Monitor Batch Reporting which is resulting in zero size report.
VOV-13422	All	CS0175205	The vovdaemonmgr command must be run on the vovserver host, and if not, will result in an error message.
VOV-13548	Accelerator	CS0185445	Fixed issue that caused the equal sign to be lost when copying negated resource requests from a preempted job to its resumer job.
VOV-13579	Accelerator	CS0187071, CS0213289	Fixed a web UI bug when viewing multiqueue preemption rules with watched resources.
VOV-13595	Allocator	CS0188280	Suppressed the log "Changing site ID of host..." which can be controlled by using the flag MicroCode.
VOV-13669	Monitor	CS0192634	Added support for renaming custom groups and custom group types that contain SQL-sensitive characters. Also added the ability to create and rename custom groups and custom group types via the ftlm_accounts CLI utility.
VOV-13671	Monitor	CS0193959, CS0244917	The ftlm_deobfuscate utility now resets the obfuscation count in the database for specific files that have been requested to be processed.
VOV-13698	Accelerator Plus	None	Fixed tasker premature idleness exit.
VOV-13704	Monitor	CS0190737, CS0237022	TLS 1.3 support is added in connections to the vovserver webport when the "internal" webprovider is active in this release, and TLS 1.2 is disabled by default. The enablement of TLS 1.2 and specific cipher suites is possible with the addition of new configuration parameters. 4 new configuration

Internal Number	Products	Case Number	Description
			<p>parameters have been added to allowing tuning of what SSL/TLS versions the internal webserver supports. You can view and modify these via <code>vovservermgr config</code> and make them permanent inside <code>policy.tcl</code>:</p> <p><code>http.minSSLVersion</code> - set the minimum TLS version supported. Defaults to "TLSv1.3". Valid values are TLSv1, TLSv1.1, TLSv1.2, and TLSv1.3</p> <p><code>http.maxSSLVersion</code> - set the maximum TLS version supported. Defaults to "TLSv1.3". Valid values are TLSv1, TLSv1.1, TLSv1.2, and TLSv1.3</p> <p><code>http.tls12Ciphers</code> - this is a list of ciphers that TLS 1.2 and earlier will be restricted to. The default is an empty string, but it can be set to a string such as "ECDH+AESGCM:ECDH+AES256:ECDH+AES128:DH+3DES:!ADH:!AECDH:!MD5"</p> <p>For an explanation of the string format, see "Cipher List Format" at <a href="https://www.openssl.org/docs/manmaster/man1/openssl-ciphers.html">https://www.openssl.org/docs/manmaster/man1/openssl-ciphers.html</a> for details on what's acceptable.</p> <p><code>http.tls13Ciphers</code> - This is a list of cipher SUITES that is used by TLS 1.3 (and presumably above if newer TLS versions are introduced in the future) See the description of <code>SSL_set_ciphersuites()</code> at <a href="https://www.openssl.org/docs/manmaster/man3/SSL_CTX_set_cipher_list.html">https://www.openssl.org/docs/manmaster/man3/SSL_CTX_set_cipher_list.html</a> for an explanation.</p> <p>By default the value is an empty string, which tells OpenSSL to use the default, which according to the documentation is <code>TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1305_SHA256:TLS_AES_128_GCM_SHA256</code></p> <p>Changing any four of these values via <code>vovservermgr config</code> while the server is running will cause the internal webserver to stop and restart with the new configuration. We recommend using a tool such as <code>ssllscan</code> that is part of RHEL 8 to verify your changes.</p>
VOV-13708	Accelerator	None	The Queued jobs numbers format has been modified to integer format.
VOV-13709	Accelerator	None	A fix has been added to address the browser refresh issue of the Set Details page.
VOV-13728	Accelerator	None	<p>In the web UI, the following changes have been made:</p> <ol style="list-style-type: none"> <li>1. The filter is most useful to sort out the jobs/Files. So, it has been moved to down to just above the Jobs/Files table and cause it to search only within the Jobs/Files list.</li> <li>2. The "Jobs" list has been renamed to "Jobs and Files" because sets contain jobs and files.</li> <li>3. Added the count of items (both the Jobs and Files) in the "Jobs and Files" list. eg: "Jobs and Files ( 237 )".</li> </ol>

Internal Number	Products	Case Number	Description
			4. For files in the Jobs and Files table, omit the Status column has been omitted (leave it blank) and fix has been added to the "Type" column to say "File" instead of the incorrect "Job."
VOV-13729	Accelerator	None	The Sets names listed in the Recently Visited and Favorites lists in the Set Browser at the left side were made into hot links so that it would be easy to see the corresponding Set Detail page. Added fix to the Jobs Running and Jobs Queued numbers, for the Sets names listed in the Recently Visited and Favorites lists in the Set browser at the left side.
VOV-13733	Accelerator, Accelerator Plus	CS0196065	Fixed Running jobs CGI error when taskers are missing.
VOV-13734	Accelerator	CS0189976	Fixed issue that prevented the VncPolicyValidateEnvironment procedure's results from being applied to the job environment when using the the -f option to process a command file.
VOV-13738	Accelerator Plus	None	Fixed a bug that caused a vovvxd error, when adding non existing base queues.
VOV-13783	Accelerator, Monitor	None	When selecting ports for the web port, vov port, and read-only port, vovserver now does additional checking to ensure the same port number isn't inadvertently used for multiple services. Also, vov client connections now have a default send and receive timeout of 30s, but this can be controlled by the environment variables VOV_SEND_TIMEOUT and VOV_RECV_TIMEOUT. These environment variables were supported on Windows in an earlier release but are also honored on Linux. This should prevent commands like vovwait4server from hanging indefinitely if it accidentally tries to connecting to an listening port that is NOT the vov port.
VOV-13790	Accelerator	CS0203368	PTY_ERROR property is set to YES for interactive job when its terminal of has been killed.
VOV-13798	Accelerator	CS0204909	Fixed the error "USER ERROR: Failed subcommand info: can't read "compatInfo(685614164,info)": no such element in array" for 'nc info -c <jobid associated with taskerlist>' .
VOV-13843	Monitor	CS0208377	Added a new option (-removelockfile) to lmmgr start. This instructs the script to remove the server lock file if it already exists.
VOV-13846	Accelerator	CS0202837	Added new -confirmafter option to the vovtaskermgr start operation that waits for a specified amount of time, then confirms whether each tasker that was requested to start did, in fact, start.

Internal Number	Products	Case Number	Description
VOV-13848	Accelerator Plus	None	The bottom line of the <b>Project Home &gt; Taskers</b> table was updated to indicate the actual number of taskers displayed and the total in the current selection.
VOV-13855	Accelerator	None	The <code>http.workerthreads</code> parameter has been marked as Obsolete in the online documentation.
VOV-13868	Accelerator	CS0209055	Fixed usage of <code>VOV_MAX_WAIT_TO_RECONNECT</code> and <code>VOV_MAX_WAIT_AFTER_CRASH</code> environment variables so that one does not override/affect the other.
VOV-13869	All	None	<code>vovtaskermgr/vovslavemgr</code> configure now supports <code>-maxwaittoreconnect</code> .
VOV-13874	Accelerator	None	The cycle length bullet has been modified from showing 'scheduler time' value to the inverse of 'cycle frequency' value.
VOV-13877	Accelerator, Accelerator Plus	None	<code>nc hosts -ALL</code> no longer shows duplicate consumables and extras. We added <code>-r1</code> option to show the legacy resource output. Note that <code>-r1</code> only shows the partial list of resources. <code>nc hosts -r</code> now shows a complete list of resources, including their status.
VOV-13910	Accelerator Plus	CS0213212, CS0303516	If a job is dispatched to a tasker that is in the process of exiting, the job will be refused by the tasker and automatically rescheduled for execution up to the maximum number of times allowed by the <code>autoRescheduleCount</code> server configuration parameter.
VOV-13914	Accelerator Plus	None	Added documentation of the <code>startWXLancher</code> configuration parameter to all <code>vovwxd</code> configuration file examples.
VOV-13925	Allocator	None	Corrected the resource map UI title to have only the resource name without extra parameters (like quantity).
VOV-13930	Allocator	None	Fixed error "no such element in array" on Allocator Resource Overview page.
VOV-13945	Accelerator, Accelerator Plus	CS0212259, CS0222585	Interactive jobs using the <code>vwi</code> script no longer change the SHELL environment variable.
VOV-13954	Accelerator	None	The footer of <code>nc -h</code> previously contained unsubstituted Tcl expressions. This has been fixed.
VOV-13961	Accelerator	CS0204211	<code>nc run -e "&lt;option&gt;"</code> now supports arbitrary length option, constrained only by the value of the <code>maxEnvLength</code> policy variable.
VOV-14005	Monitor	CS0219301	Fixed Expire column content for feature with version pools. Will show:

Internal Number	Products	Case Number	Description
			<ul style="list-style-type: none"> <li>"never" when times are: <ul style="list-style-type: none"> <li># specially formatted patterns</li> <li># over 12/31/2099 in the future</li> <li># causing errors when processing</li> </ul> </li> <li>"expired" - all times are in the past</li> <li>&lt;Actual Date&gt; - earliest expiration time in the future</li> </ul> <p>Will NOT show: "some expired" - deprecated</p>
VOV-14007	Accelerator, Accelerator Plus	CS0213217	The SNAPPROP environment now prepends relevant VOVDIR paths to PATH in a manner similar to the SNAPSHOT environment.
VOV-14011	FlowTracer	None	<p>Indirect tasker improvements:</p> <ol style="list-style-type: none"> <li>When using the tasker configuration path (<code>vtk_tasker_define</code>), ensure that the correct tasker-based procedures are defined and called.</li> <li>Define <code>NC_QUEUE</code> in the indirect tasker's execution environment using the queue name that is specified in the <code>vtk_tasker_nc</code> call, which removes the requirement to create a <code>taskerVNC.tcl</code> in <code>\$VOVDIR/local</code> that defines it.</li> <li>Fix major efficiency issue that prevented the indirect tasker from notifying the server that it is ready to accept another job once one has finished.</li> <li>Improve messaging to display the queue name that is being interfaced with for debuggability purposes.</li> </ol>
VOV-14012	Accelerator Plus	CS0221575	Accelerator Plus in direct drive mode will now detect wait reason changes from the base queues for buckets without incoming jobs.
VOV-14052	All	None	The URL shown in the <code>lmmgr</code> , <code>ncmgr</code> , and <code>vsi</code> outputs now reflect the value of <code>VOV_HOST_HTTP_NAME</code> , if set.
VOV-14073	Accelerator	None	Fixed issues with <code>bjobs -o</code> option that prevented the specified output format from being generated.
VOV-14077	Accelerator	None	The "Use Altair Accelerator's REST API to Submit and List Jobs" tutorial has been updated and improved.
VOV-14091	Accelerator	CS0227548, CS0296810	Queued Job is properly dispatched when one of the running jobs was suspended with <code>-manualresume</code> flag

Internal Number	Products	Case Number	Description
VOV-14095	Hero	None	New implementation of Hero leveraging the Accelerator job submission engine. Native support for calendar based reservations and a connector for metrics reporting via Monitor.
VOV-14112	Accelerator	CS0229221	Fixed logic to properly preempt Jobs with no requested License resources.
VOV-14128	All	None	Some minor typos were fixed in product help.
VOV-14153	Accelerator, Accelerator Plus	None	Fixed issue that prevented <code>vovtaskermgr stop -sick</code> from stopping sick taskers that still have a client attached to the server.
VOV-14156	All	CS0233956	The <code>vovcleanup</code> utility now removes empty directories which are not expected to be persistent. This includes job profile and wave directories under <code>SWD/data</code> . Additionally, a new configuration item has been added to independently control the cleanup of resource-based wave data files: <code>set config(cleanup,waves,resources) 90d</code>
VOV-14158	Accelerator	None	Fix truncated output from <code>vovversion -clients</code> .
VOV-14182	Monitor	None	LM checkout usage, denial statistics, usage comparison, and usage trends along with <code>ftlm_batch_report</code> with same options can be done now "by user/host" in addition to other available options.
VOV-14217	Accelerator Plus	CS0237217	An issue that prevented dp jobs from successfully being run via Accelerator Plus has been resolved.
VOV-14228	Accelerator	None	The documentation for logging interactive jobs has been improved to clarify which options are best suited for specific scenarios.
VOV-14290	All	None	The output format of of the <code>nc hosts</code> command has changed. Instead of showing suspended jobs as part of the count of running jobs, we now show suspended jobs as a separate category. For example, if a host has 8 running jobs and 1 suspended job with 8 total slots, the "JOBS" section of the output for that host would previously read "9/8". It will now read "1/8/8", formatted as <code>&lt;suspended count&gt;/&lt;running count&gt;/&lt;total slots&gt;</code> . This change also pertains to relevant sections of the HTML UI.
VOV-14307	Accelerator	CS0245432	Fixed bug where various web pages were sending lists of items with wrong delineator and also added delayed auto refresh to certain job and project based pages when starting/stopping/removing listed items.
VOV-14359	Accelerator, Accelerator Plus, FlowTracer	CS0160432	Fixed issue that could cause jobs that are dispatched to an indirect tasker to be spawned with <code>/tmp</code> as their working directory following a restart of the base queue to which the indirect tasker is connected. Note that this fix

Internal Number	Products	Case Number	Description
			applies to indirect taskers defined by <code>vtk_tasker_nc</code> only, with taskers defined by the legacy <code>vtk_slave_nc</code> call remaining the same.
VOV-14362	Accelerator, Accelerator Plus, Monitor	CS0248090	Fixes a bug where versions of LM prior to 2021.1.0 could not communicate properly with 2021.1.0 and later versions of NC, and versions of NC prior to 2021.1.0 could not communicate properly with 2021.1.0 and later versions of LM.
VOV-14369	Monitor	None	Fixed issue that caused <code>ftlm_batch_report</code> to hang when generating reports with static images or when extracting static images from a previously generated report that contains dynamic images.
VOV-14372	Accelerator	None	Fixed issue on Windows that prevented the specified job environment from being applied for execution.
VOV-14430	Accelerator, Accelerator Plus	CS0254035	VOV_JOB_DESC(jobclass) global variable is set for every job class when sourcing its TCL config file.
VOV-14435	FlowTracer	None	Fixed skip jobs timestamp issue due to which its valid outputs turned invalid.
VOV-14454	Accelerator	None	Fixed an issue where an SSL cert that contains a CA chain was not handled properly by the internal webserver, causing some SSL clients and libraries (curl, Python) to issue an error about the validity of the SSL certificate being offered by the webserver.
VOV-14455	FlowTracer	CS0257984	Fixed local resource accounting error when using array submission with FlowTracer and <code>vovwxd</code> with an LSF base queue that resulted in lingering tasker definitions that consumed local limits.
VOV-14459	All	None	Fixed issue where specifying an instance name was not being handled correctly by the <code>vovreadlic</code> utility, resulting in the instance not being found in the VOV registry. Also added support for ALM licensing.
VOV-14463	Accelerator Plus	CS0259047	Fixed error when tasker cannot reconnect to Accelerator Plus after server was frozen and restarted on different port
VOV-14468	Accelerator, Accelerator Plus	None	A defect was fixed where stopping and starting a daemon through the web UI could cause the web page to show an error rather than correctly reload the daemons status page. This only occurs when webserver is set to internal. The error was cosmetic in that the user could reload the daemons page or any other page, and <code>vovserver</code> also continued to operate normally.

Internal Number	Products	Case Number	Description
VOV-14470; VOV-14581; VOV-14639	Accelerator	None	Fixed a crash in the internal webserver when certain URI requests were received.
VOV-14487	FlowTracer	None	Fix a problem with FlowTracer when used with the <code>vovwxd</code> daemon. In certain cases, an insufficient number of demand jobs were launched to the base queue for a bucket.
VOV-14492	Allocator	CS0284342	Fixed issue causing double counting of NRU matched tokens, which is resulting in underutilization of licenses.
VOV-14494	Accelerator, Accelerator Plus, Allocator, Monitor	CS0259047	Set <code>VOV_SO_REUSEADDR</code> environment variable to set VOV server port option to be reused when VOV server is restarted.
VOV-14495	Accelerator	None	Restored an alert that is generated by <code>vovresourced</code> when there is no match to a license feature in LM that has been requested specifically by <code>vtk_flexlm_monitor</code> .
VOV-14497	Accelerator, Accelerator Plus	CS0262302	Fixed issue which is causing array SNAPPROP property error 'SNAPPROP environment: continue sentinel missing'.
VOV-14498	Accelerator	CS0261544	Handled temporary directory write permission error by creating a temporary script in the current directory when <code>/tmp</code> , <code>/var/tmp</code> , <code>/usr/tmp</code> don't have write permission.
VOV-14503	Accelerator, Accelerator Plus	CS0261567	Enhanced job modification through the web UI or NC GUI to append the <code>NC_MODIFY_LOG</code> property and log the modification details.
VOV-14535	Accelerator Plus	None	Fixed a bug in <code>vovwxd</code> that was causing it not to process new buckets in case when a base queue was inaccessible.
VOV-14563	All	CS0278895	Fixes an issue where large queries made using <code>vovselect</code> , <code>vtk_select_loop</code> or related commands may attempt to refresh their data infinitely, causing a slowdown in the responsiveness of the server.
VOV-14564	All	CS0276473	Removed an unwanted message from the server log that is printed when a license key file is processed.
VOV-14566	Monitor	None	Fixed an issue with the fatal error handler in <code>ftlm_parse_flexlm</code> that caused the parser to exit uncleanly instead of printing the error and generating an alert.

Internal Number	Products	Case Number	Description
VOV-14572	Accelerator	CS0265596	A bug was fixed that was responsible for errors being generated when running <code>vovnotifyd</code> .
VOV-14599	Accelerator	None	A bug was fixed that prevented job classes from being created via the web interface.
VOV-14611	Accelerator		In prior releases users were able to specify the "-r slots/N" resource spec on <code>nc run</code> with values of N that were not equal to 1. This behavior was not recommended in the past, and is no longer supported in this release. The SLOTS resource spec in -r will be ignored (set to SLOTS/1) going forward. If a job will use more than one processor, use the CPUS or CORES resource instead of SLOTS.
VOV-14614	FlowTracer	CS0277985	Added null pointer safety within the "vrt" job wrapper's instrumentation library.
VOV-14640	FlowTracer	CS0294142, CS0323287	Fixed a bug in <code>vovwxd</code> that was causing improper deletion of sick tasker objects
VOV-14683	All	None	Fixed issues with the <code>vsi</code> , <code>vovbrowser</code> , and <code>nc run</code> commands that prevented them from showing the correct URL to the web UI under certain configurations.
VOV-14693	All	None	Some web security vulnerabilities were fixed.
VOV-14712	All	None	The nginx webserver, which is used when the "webserver=nginx" configuration parameter is set, has been updated to the latest version 1.21.0.
VOV-14722	Accelerator	123	An issue with <code>partialTool</code> for DP jobs was identified, where it could incorrectly bind to just the IPV4 or the IPV6 port. It has been fixed to bind to both IPV4 and IPV6 ports simultaneously if the kernel has them enabled.
VOV-14724	FlowTracer	CS0301482	Update handling of state reported by <code>bjobs</code> to include PSUSP, SSUSP, USUSP & UNKWN.
VOV-14725	Hero	None	Hero 2.0 configuration updated to deal with Palladium Z2.
VOV-14735	Accelerator, Accelerator Plus	CS0220480	Changed the output of the <code>nc hosts</code> command to improve clarity. Fixed a bug where a tasker with more than (max capacity - capacity) suspended jobs would cause the server to erroneously mark queued jobs as running.
VOV-14737	Accelerator	None	Corrected some documentation about a distributed parallel job query command example.
VOV-14745	Monitor	None	Fixed issue that caused permanent server licenses to be reported as expired.

Internal Number	Products	Case Number	Description
VOV-14790	All	None	The openssl library used by various parts of Accelerator was upgraded to the latest version to incorporate the latest security patches.
VOV-14822	Accelerator, Accelerator Plus	CS0309335, CS0314259	Fixed issue causing <code>nc wait -dir</code> to wait for jobs in other directories.
VOV-14824	All	None	Fix a DOS vulnerability in vovserver's base webserver from nefarious large HTTP requests.
VOV-14830	FlowTracer	CS0310567	Removed the environment variable listing at the beginning of the tasker log file for WX taskers.
VOV-14840	Accelerator	None	The "group" array field for VOV_JOB_DESC erroneously listed both "-g" and "-G" as options. Only "-g" is appropriate. The "-G" option has been updated to reflect the appropriate field, "group,final."
VOV-14870	Monitor	CS0312659	If the output of batch reporting is set to multiple files, the tag filter should be taken under consideration.
VOV-14906	All	None	Fixed Altair License Manager license checkout failure due to version mismatch.
VOV-14907	Accelerator Plus, Hero	None	A crash was fixed where vovserver may refer to a bucket ID that's not a valid bucket.
VOV-14911	Accelerator	CS0304721	Changed the use of the disable file access parameter in Tcl to be in line with the cpp implementation. When file access is set to 1, no one has access to the contents of a file, including the owner of the queue. If the file access is set to 2, then only the owner of the queue has access to contents of files.
VOV-14960	Accelerator	None	The environment variable LD_LIBRARY_PATH is no longer set by the BASE environment.
VOV-14997	Monitor	None	Add a rule in LM CSS that hides any img child element. If the LM CSS is not loaded, that's the case for all other products the wrapping element has no effect as a result the img .gif will get displayed. Basically fallback to old icons if bootstrap is not loaded.

## 2022.1.0-p1 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14822	Accelerator, Accelerator Plus	CS0309335, CS0314259	Fixed issue causing <code>nc wait -dir</code> to wait for jobs in other directories.
VOV-15106	Accelerator Plus	CS0325511	Fixed issue causing <code>nc wait</code> to exit with error "Failed subcommand wait: Illegal object id".
VOV-15148	Accelerator, Accelerator Plus		Fixed issue causing <code>nc wait</code> to exit with error "can't read "jInfo(exit)": no such element in array"
VOV-15149	Hero		<p>The following targets were added to the Palladium emulators: BRD144, BRD72, BRD48, BRD36, BRD24, BRD18, BRD16, BRD12, BRD9, BRD8, BRD6, BRD5, BRD4, BRD3, BRD2 &amp; BRD1. These targets correspond to placements with the corresponding number of boards. For example, if the emulator is configured with a group named PZ1, then a job for a Palladium with 8 racks would use the resource HERO:PZ1_BRD144.</p> <p>The placement rules are restrictive and will evolve with experience.</p>
VOV-15245	Accelerator, Accelerator Plus	CS0325511	Updated <code>nc wait</code> to filter event by jobid when waiting on 10 or less jobs.

## 2021.2.0 Release Notes

### New Features

Products	Internal Number	Case Number	Description
Accelerator	VOV-12728	CS0133915	Added new usage options to <code>nc modify</code> to allow an Admin to increase/decrease grabbed resource maps for running jobs and to allow selection of jobs for all <code>nc modify</code> use cases by specifying a selection rule.
Accelerator	VOV-12822	None	The web UI dashboard page has a Counters section that shows the number of active Users for an NC queue. This counter had been 0 in past releases. This has been fixed to show the correct value.
Monitor	VOV-12955	None	Jobclass initialization has been moved into the liveness script <code>live_init_jobclasses.tcl</code> instead of <code>vovresourced</code> .
Accelerator	VOV-12956	None	Timevar definitions are now processed in two configuration files. Timevar definitions may be placed now in new configuration file <code>SWD/config/timevars.tcl</code> , where they are processed by the new VOV liveness script. This new config file is the preferred place for Timevar definitions going forward. Timevar definitions in <code>SWD/resources.tcl</code> will also continue to be processed by <code>vovresourced</code> for compatibility with prior releases.
Accelerator	VOV-13090	CS0141521	Support has been added to allow custom values to be used for PIPELOG related ports and range via <code>VOV_PIPELOG_FIRST</code> and <code>VOV_PIPELOG_RANGE</code> . Also <code>VOV_CONTAINER_NETWORK_PROXY</code> environment variable has been added to better support nested container resources, see example container config file <code>containers/c3-enter.sh</code> for more details.
Accelerator Plus, Hero	VOV-13136	None	Integrated Accelerator Plus and Hero with Altair License Manager for both node-locked and floating licenses.
Allocator, Accelerator	VOV-13137	None	Integrated Allocator and Accelerator with Altair License Manager for both node-locked and floating licenses.
Accelerator	VOV-13625	None	Added new <code>NUMUSERS</code> field to the <code>SERVER</code> object. The new field contains the count of users who are currently connected to <code>vovserver</code> with a web or CLI client or a running job. <code>Vovserver</code> updates this field every 10s.
Accelerator	VOV-13654	None	In Dashboard UI, the server vital signs widget will have the donut under the bullet graph bars.

Products	Internal Number	Case Number	Description
Accelerator	VOV-13774	None	By setting the new server configuration option, <code>vovservermgr config slave.childProcessCleanupExclusions someChildDaemon</code> in conjunction with setting <code>vovservermgr config slave.childProcessCleanup 1</code> , users can now specify by name named process exclusions to the child cleanup process. If set in conjunction with <code>slave.childProcessCleanup</code> , then slaves should kill all of a job's child processes when that job exits, except for those named here for <code>slave.childProcessCleanupExclusions</code> in a comma separated list. The default value if not set is empty string, "".
All	VOV-13806	None	The web server used to provide Accelerator products' web UI interface and HTTP interface to the main server is changed from the internal web server to nginx in this release. If the internal web server is preferred, it can be selected via the <code>-webprovider</code> option on the <code>ncmgr start</code> command. The impact to users will be that with the new default nginx web server, the REST v3 interface and the Accelerator administrator web UI dashboard page will not be available for use. If either of these capabilities are needed, you should select the internal web server option when the Accelerator queue is started.
Accelerator	VOV-13839	None	With the webport enabled and the webprovider set to "internal" to use the REST service, worker threads dedicated to servicing REST requests have a label of either "RETSERVICE" or "RESTRequestHandler" This can be seen by calling <code>ps -T -p PID</code> with PID being the process id of vovserver.
All	VOV-13841	None	Added new <code>liverecorder.mode</code> configuration parameter for taskers that can be used to specify whether the main tasker process, the subtasker process, or both processes should generate a LiveRecorder recording file. Note that recording files will be generated per job that is executed if subtasker recording is enabled. The default mode is for the main tasker process to be the only one to generate a recording.
All	VOV-13947	None	The Installation Guide has been updated to include the information for the Altair License Manager.
FlowTracer	VOV-13372	CS0182759	Enhanced Job status bar to show the colors for the valid and failed jobs based on their exit status. This functionality can be controlled by <code>::VovGUI::configJobStatusBar</code> in the <code>gui.tcl</code> file. All valid jobs with assigned color will appear before default valid (green color), same for failed jobs.
FlowTracer	VOV-13135	None	Integrated Altair License Manager with FlowTracer for both node-locked and floating licenses.
Hero	VOV-13138	None	Integrated Hero with Altair License Manager for both node-locked and floating licenses.

Products	Internal Number	Case Number	Description
Monitor	VOV-13133	None	Integrated Altair License Manager with Monitor for both node-locked and floating licenses. Added a config key <code>config(alm.enable)</code> in <code>policy.tcl</code> to enable the ALM licensing. The default license manager for Monitor remains the Reprise License Manager (RLM).
Monitor	VOV-13776	None	Implemented Grace Period for Altair License Manager.
Accelerator, Accelerator Plus	VOV-13778	None	Implemented licensing modes 'Full' and 'N' for Altair License Manager for Accelerator and Accelerator Plus. This can be set using config key <code>config(enterpriselicense)</code> in <code>policy.tcl</code> .
Monitor	VOV-13777	None	Enhanced license UI to show Altair License Manager status and make changes to the current license environment.
Allocator, Monitor, Accelerator	VOV-13134	None	Updated Allocator, Monitor, and Accelerator with the actual (new) features names for Altair License Manager.
All	VOV-13617	None	The SSL implementation has been upgraded using the latest third party libraries, OpenSSL version 1.1.1.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	VOV-12564	None	Changed default LiveRecorder log directory from <code>.</code> to <code>/tmp</code> . This mainly affects the default behavior for <code>vovserver</code> , whose working directory is the parent of the SWD, which is often stored in an NFS-based location.
Accelerator	VOV-12822	None	The web UI dashboard page has a Counters section that shows the number of active Users for an NC queue. This counter had been 0 in past releases. This has been fixed to show the correct value.
All	VOV-13180	None	Robustness changes to mitigate <code>vovsh</code> backtraces linked to query memory management.
All	VOV-12963	CS0143849	Fixed issue that could cause object IDs to improperly recycle after multiple rollovers.
All	VOV-13950	None	<code>test.check_TIMEVAR.sh</code> was primarily failing due to clock skew. This fixes that.
All	VOV-14075	None	Fix the internal web provider's HTTP responses to include security headers. Previously, the internal web provider did not correctly return the security

Products	Internal Number	Case Number	Description
			headers in the following case: when HTTP requests were made to the vovserver web port, responses did not include the standard HTTP security headers for URLs beginning with "/doc".
All	VOV-7887	21377	Clarified documentation of VOV_LIMIT_vmemoryuse.
All	VOV-14143	None	Added missing vovservermgr.bat and vovclientmgr.bat scripts to the Windows package.
All	VOV-13183	None	Fixed a potential memory leak when a client running a long-running query is unexpectedly terminated, causing vovserver to permanently mark a query as "in-use".
All	VOV-14061	None	Fixed HTTP security header setting which prevented some icons to not appear in the Altair online documentation.
Accelerator	VOV-13921	None	In the past, when you changed an initJobClass procedure, you had to restart vovresourced to put the change into effect. Restarting vovresourced is no longer necessary. The online help has been reflected to show this.
Accelerator	VOV-13764	None	Changing http.proxytimeout requires the REST service be restarted if it is already running. This can be done by setting the webport to 0, waiting 30 seconds, and then setting it back to the desired webport number.
Accelerator	VOV-13380	None	If the vovserver web interface is enabled by setting the web port, then under some high load conditions the web port interface would hang up. In the 2021.2.0 release, the default web server reverts to nginx, which is immune to this issue. As a result, the default vovserver configuration will not support REST v3 or the Accelerator dashboard UI page. To enable REST v3 and the dashborad UI page, a new web server option may be specified by the <code>-webprovider internal</code> option on the <code>ncmgr start</code> or <code>vovproject start</code> commands.
Accelerator	VOV-13167	None	Memory reporting within the tools has changed on Linux to reflect what's reported by the Linux kernel in VmRSS rather than VmSize. The vovserver memory usage information from commands such as <code>vsi</code> , <code>vovselect memorstats from server</code> as well as the memory web page at " <code>http://host:port/server?page=memory</code> " will also report consistent memory use totals based on VmRSS. Also, <code>vovselect memorstats from server</code> and the memory statistics webpage have been enhanced to account for more of the "chunk" based memory pool allocations used within vovserver.
Accelerator	VOV-13531	None	A minor appearance improvement to the web dashboard UI page was made within the Capacity sub-window.

Products	Internal Number	Case Number	Description
Accelerator	VOV-13326	None	Changed the VOV_DISABLE_SHARED_MEMORY_LOOKUP behavior to return the RSS.
Accelerator	VOV-13769	None	When using the internal REST server (as opposed to the nginx server), the vendor library used to implement it was changed from cpprestsdk to Oat++. The back end no longer allocates a static pool of worker threads to service requests, controlled by the variable <code>http.workerthreads</code> . That parameter is now ignored. The Oat++ backend creates a new thread to service each request and terminates the thread after sending the response to the HTTP/REST client.
Accelerator	VOV-13638	CS0191754	The <code>RESD(typeList)</code> parameter in the <code>vovreconciled/config.tcl</code> file can be used to modify the license types handled by <code>vovreconciled</code> . The parameter value is a list of names, by default the value is <code>{License}</code> . The following types are not supported and will be ignored if present: Limit, Policy, User, Group and Priority. The type of License will be added if not specified.
Accelerator	VOV-13549	None	Fixed script execution issue with <code>message.cgi</code> where user did not have proper permissions to modify the underlying file, UI will now display message indicating the issue and properly disable the submit button.
Accelerator	VOV-13561	None	Internal bug which may have caused some set statistics to not be reported accurately has been addressed in this release.
Accelerator	VOV-11780	AAP24453	This release contains OpenSSL 1.1.1j which does not exhibit the warning message of the previous packaged version OpenSSL 1.0.2q.
Accelerator	VOV-13720	None	The header section stays sticky at the top and always be visible to the user.
Accelerator	VOV-13672	None	In the Scheduler Vital Signs widget, the values under the horizontal bars are now in sync with the values shown in tooltips, respectively (tooltips appear on hover over the horizontal bars).
Accelerator	VOV-13791	None	The REST HTTP server has a new threading model that no longer uses a pool of worker threads to service client connections. It now creates a new thread for each connection and that thread terminates after transmitting a response to the client. The vov variable <code>http.workerthreads</code> is deprecated. It is visible but not changeable.
Accelerator	VOV-13739	None	The Set Browser link has been modified to point to the classic UI's Set Browser page.
Accelerator	VOV-13816	CS0205113	Address issue where license resources sometimes became unavailable when on life support.

Products	Internal Number	Case Number	Description
Accelerator	VOV-14110	AAP24923	Fixed bug where TaskerClass.table based resources did not display properly in web UIs extra resources column.
Accelerator	VOV-10345	24403, 24469, 24648	The following system taskers no longer consume a license: vovdbd, WXLauncher & maintainer.
Accelerator	VOV-12107	CS0120865	Added cleanup of unknown process IDs which also fixes the flooding of tasker logs with the following error messages: "Must kill late child Pid...", "rakeChildren: Child process...", "does not exist anymore: assuming it is done..."
Accelerator	VOV-13510	CS0182762	Fixed issue causing license checkout with empty shared (ISV) string which is resulting in duplicate license checkout.
Accelerator	VOV-13880	None	In the Scheduler vital signs widget, the values shown in the tooltip of the buckets bullet graph will be in-sync with the number jobs submitted.
Accelerator	VOV-13860	CS0208413, CS0208823	Fixed issue that caused the tasker to overload vovserver with messages when a job execution attempt failed due to not being able to successfully fork out the subtasker process that is used to shepherd the job.
Accelerator	VOV-9031	23103	A description on how to set up a tasker in Windows has been added to the online help.
Accelerator	VOV-13861	CS0210064	Fixed issue in which SIGALRM interrupted communications on interactive jobs using VOV_INTERACTIVE_PING keep alive method
Accelerator	VOV-13771	None	When making job related REST API calls, helpful error information is included in the REST response. If using the vov_rest_v3 Python API wrapper, the content of the error will be thrown inside VovRestException.
Accelerator	VOV-13849	CS0208895, CS0218919	Fixed bug where interactive (-I/-Ir) root privileged container jobs potentially resulted in a process group SIGINT being captured and accidentally being sent to systemd, following which bad things may happen, such as a system reboot on subtasker host.
Accelerator	VOV-14116	None	Fix a problem with changing the vovserver's webserver from "nginx" to "internal" using the vovservermgr config webprovider internal command. It was not possible to make this change without restarting vovserver, but with this fix, the transition from nginx to internal web server can be accomplished by a 3 step process: 1) shut down nginx with this command: vovdaemonmgr stop vovnginxd; 2) delay 5 seconds with sleep 5; 3) start the internal web server with vovservermgr config webprovider internal.

Products	Internal Number	Case Number	Description
Accelerator Plus	VOV-13956	None	Fixed race condition with Accelerator Plus that caused jobs to fail due to placement on taskers reserved for different buckets.
Accelerator Plus	VOV-13785	CS0142115	Fixed issue that prevented jobs using a jobclass with VOV_JOB_DESC(interactive,useXdisplay) from successfully launching agents when run via Altair Accelerator.
Accelerator Plus	VOV-13872	CS0211355	Fixed issue where SICK status Accelerator taskers were not removed after an appropriate amount of time. The underlying cause was that there were still related jobs running in the base queue, and was repaired by passing the <code>-forcerunning</code> option to the NC base queue forget command for taskers with a SICK status.
Accelerator Plus	VOV-14020	None	Fixed issue with Accelerator Plus in DirectDrive mode that prevented jobs from running when added to a bucket that was empty during a <code>vovwxd</code> daemon restart.
Accelerator Plus	VOV-13731	None	Fixed issue which prevented Accelerator Plus in Direct Drive mode from launching taskers for preexisting jobs when a base queue is restarted and no further jobs are incoming in the Accelerator Plus queue.
Accelerator Plus	VOV-13917	None	Improved logging to identify when Altair Accelerator Direct Drive feature is in use. On <code>vovwxd</code> startup, the <code>vovwxd.log</code> will contain: Initializing <code>vovwxd</code> with Direct Drive... .. <code>vovwxd</code> with Direct Drive initialization successful. During operation, the <code>vovwxd.log</code> will also contain the thread identifier "APPluginAccel" when running in Direct Drive mode.
Accelerator Plus	VOV-13890	None	Fixed issue which prevented WX taskers from reconnecting after server freeze/failover with <code>fastexit</code> enabled.
Accelerator Plus	VOV-13650	None	<code>vovserver</code> has a new config parameter <code>tasker.authorization.delay</code> that specifies the time in seconds that the server wait before authorizing new taskers. This parameter can be useful for WX, where it can reduce the latency of dispatching a job to a newly requested tasker.
FlowTracer	VOV-13749	None	Fixed issue in <code>vov_lsf_agent</code> that prevented it from launching a tasker.
Monitor	VOV-8715	22305	Send warning about nonexistent user to <code>stderr</code> instead of <code>stdout</code> when <code>ftlm_batch_report</code> with user filter is requested
Monitor	VOV-13464	CS0174914	Added ADJUST_CAPACITY periodic maintenance task ( <b>Admin &gt; System &gt; Configuration Information</b> ).
Monitor	VOV-13633	CS0188846	Logs containing, "Queued Programs" were not being recorded as queued requests properly for <code>ftlm_parse_lstc</code> .

Products	Internal Number	Case Number	Description
Monitor	VOV-13712	CS0195003	A denial plot showed incorrect data when the data binning size was 30s and the time span was several months.
Monitor	VOV-13927	None	Fixed issue that prevented ControlCenter jobs from executing on hosts that have an upper/mixed-case name.
Monitor	VOV-13929	None	Fixed issue that prevented the process monitoring facility from recording incoming running processes as checkouts.
Monitor	VOV-7800	21302, 23839	Fixed issue that caused the default bin interval for the denial plot to default to 30s instead of a dynamically calculated optimum value for the report time range. This caused the denials to be binned incorrectly for reports with time ranges that would result in more than 100k bins unless an explicit interval was specified in the report options. Protections were also added to prevent the acceptance of a bin interval that is too short for the report time range (any value that would result in more than 100k bins).
Monitor	VOV-9665	23904	Fixed issue that prevented the film_capacity load operation from finding the data files necessary for loading feature capacity information into the database.
None	VOV-10568	CS0120645	HyperThreading fieldname 'HT' on taskers previously reported incorrectly if HT was available. The field now properly reports if SMT threading (either Intel HyperThreading or AMD SMT) is currently available and enabled by checking value of either <code>/sys/devices/system/cpu/smt/control</code> or <code>/sys/devices/system/cpu/cpu0/topology/thread_siblings_list</code> (or equivalent), directly.
All	VOV-13611	CS0120932	Resolved issue with parsing and filtering via selection rules values that may contain uint64 fields compared with hardcoded integer values. Additionally, users may now explicitly declare uint64 hardcoded values such as <code>vovselect name,totalspace,freespace -from filesystems -where 'totalspace&gt;1U AND freespace&gt;1U'</code>
Accelerator	VOV-13689	None	The Running-jobs axis scale numbers have been placed with an even space.
Accelerator	VOV-14209	CS0236878	Fixed an issue with temporary loss of key file license registration by vovserver when the <code>enterpriselicense</code> configuration parameter was not explicitly set in <code>policy.tcl</code> . In these cases a <code>vovproject sanity</code> resulted in a temporary switch to RLM licensing. Some specific low level changes made were as follows: <ol style="list-style-type: none"> <li>1. Check for the presence of a license key file at server startup so that the default enterprise license mode will be "Off" if a key file is found and the <code>policy.tcl</code> file does not have an explicit setting for the mode.</li> </ol>

Products	Internal Number	Case Number	Description
			<ol style="list-style-type: none"> <li>2. Prevent the above check upon every request to check licensing so that the mode doesn't switch unless manually requested.</li> <li>3. Allow for switching the mode out of "Off".</li> <li>4. Restore the mode control and license request sections in <code>license.cgi</code> when the mode is "Off".</li> <li>5. Rename the mode selection in the <code>license.cgi</code> drop-down menu to "Off (use license key file)" so that the actual value is represented along with the intent.</li> </ol>
Accelerator, Monitor	VOV-14180		Fixed a bug that arose when SSL certificate files were added by the admin with file names correctly derived from the fully qualified host name from <code>VOV_HOST_HTTP_NAME</code> . The Accelerator products would not initialize the webport and the web UI URL properly when the "internal" webprovider was activated.
Accelerator	VOV-14220	None	Fixed issue that could result in a leak of a file descriptor in the tasker for an interactive job that has ended.
Accelerator	VOV-14221	CS0221756, CS0238663	Fixed issue that could result in a leak of a file descriptor in the tasker for an interactive job that has ended. The resulting build up of old file descriptors was making the tasker (vovtaskerroot process) go into a "sick" state.

## 2021.2.0-p5 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-15827	All	CS0412949	Added robustness to code dealing with REST and web session key management.
VOV-15886	Accelerator Plus	None	Only one instance of <code>vovwxd</code> daemon can be launched for an AAP queue. Other attempts to start a <code>vovwxd</code> process will fail with an error.
VOV-15617	Accelerator Plus	CS0322667	Fixed an issue where invalid launcher jobs ( with an ID of 000000000 ) would get added to the user and jobclass sets, and cause the WX console to crash.

## 2021.2.0-p4 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-15310	Accelerator Plus	CSO355127	Fixed a crash where an ambiguous "vovquery select id from 9" results in an object lookup that vovquery doesn't support.

## 2021.2.0-p3 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-15245	Accelerator, Accelerator Plus	CS0325511	Updated <code>nc wait</code> to filter event by jobid when waiting on 10 or less jobs.

## 2021.2.0-p2 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14362	Accelerator, Accelerator Plus, Monitor	CS0248090	Fixes a bug where versions of LM prior to 2021.1.0 could not communicate properly with 2021.1.0 and later versions of NC, and versions of NC prior to 2021.1.0 could not communicate properly with 2021.1.0 and later versions of LM.

## 2021.2.0-p1 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-13910	Accelerator Plus	CS0213212, CS0303516	If a job is dispatched to a tasker that is in the process of exiting, the job will be refused by the tasker and automatically rescheduled for execution up to the maximum number of times allowed by the autoRescheduleCount server configuration parameter.

## 2021.2.1 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-13249	All	CS0120865	A configuration parameter "logs,tasker,compress" (a boolean that defaults to 0) was added that, if set, will cause the daily logs to be compressed at the end of the day. This is similar to the existing "logs,server,compress" parameter. This parameter should be set in the policy.tcl configuration file.
VOV-14345	Accelerator Plus	None	Direct drive now supports vovwxd/config.tcl parameters slave,max and client,derate by pausing base queues when limits are reached. Note that due to the asynchronous nature of Direct Drive, these are soft limits and some overrun is expected.
VOV-14171	Accelerator Plus	None	vovwxd in direct drive mode can now use a driver script for bucket filtering. vovaccel.tcl is an example script and it can be specified in CONFIG(drive_script).

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14253	All	CS0145466, CS0240541	Fixes an issue where in some circumstances, vtk_select_loop would cause a crash in vovsh when requesting large result sets.
VOV-14279	Accelerator, Accelerator Plus	CS0241809	Fixed issue causing error 'child process exited abnormally' for forgotten jobs.
VOV-14287	Accelerator	None	Corrected the script name that is called by the vovclientmgr.bat wrapper script.
VOV-14286	Accelerator	None	Fixed vovlicensemgr errors with ALM licensing.
VOV-14218	Accelerator	None	Fixed a crash that occurred when the Internal webprovider's SSL configuration and/or webport was changed.
VOV-13510	Accelerator	CS0182762	Fixed issue causing license checkout with empty shared (ISV) string which is resulting in duplicate license checkout.

Internal Number	Products	Case Number	Description
VOV-13732	Accelerator	CS0134814	Fixed an issue with vovclientmgr closedeadinteractive where an error was thrown if jobs were forgotten while the command was running. Also added a -dry-run option to the above command.
VOV-14118	Accelerator	CS0230408	An issue was fixed where vovgetgroups would fail if VOV_USE_VOVGGETGROUPS was set to 1, and the user in question belonged to more than 128 groups.
VOV-14262	Accelerator	None	Some compatibility issues were found between the openssl library we use and the one provided on CentOS 8 that negatively affects our ability to validate user information on CentOS 8 when NIS is configured. The compatibility issue has been addressed.
VOV-14302	FlowTracer	None	Fixed a bug causing a TCL error in vovlsfd daemon when, for any reason, it cannot parse the output of bsub command.
VOV-14068	Monitor	CS0219474	Fixed incorrect summary calculation in Monitor tables.
VOV-13693	Monitor	CS0183043	Fixed license parser issue causing the error - Illegal number of args: vtk_feature_get_or_create daemon name total version isv

## 2021.2.1-p3 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14822	Accelerator, Accelerator Plus	CS0309335, CS0314259	Fixed issue causing nc wait -dir to wait for jobs in other directories.
VOV-15106	Accelerator Plus	CS0325511	Fixed issue causing nc wait to exit with error "Failed subcommand wait: Illegal object id".
VOV-15148	Accelerator, Accelerator Plus		Fixed issue causing nc wait to exit with error "can't read "jInfo(exit)": no such element in array"
VOV-15245	Accelerator, Accelerator Plus	CS0325511	Updated nc wait to filter event by jobid when waiting on 10 or less jobs.

Internal Number	Products	Case Number	Description
VOV-15310	Accelerator Plus	CS0355127	Fixed a crash where an ambiguous <code>vovquery select id from 9</code> results in an object lookup that <code>vovquery</code> doesn't support.

## 2021.2.1-p2 Release Notes

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14362	Accelerator, Accelerator Plus, Monitor	CS0248090	Fixes a bug where versions of LM prior to 2021.1.0 could not communicate properly with 2021.1.0 and later versions of NC, and versions of NC prior to 2021.1.0 could not communicate properly with 2021.1.0 and later versions of LM.

## 2021.2.1-p1 Release Notes

### New Features

Internal Number	Products	Case Number	Description
VOV-14477	All	CS0257852	Taskers running as non-root will no longer get sent jobs unless the job's user matches the non-root tasker's userid. This is to address a situation where a job running on a non-root tasker gets access to the user's data on the filesystem. This policy can be disabled by setting <code>allowForeignJobsOnUserTaskers</code> to 1.
VOV-14419	All	None	Multiphase support is provided by two additional command arguments to <code>nc run</code> : <code>-multiphase [1 0]</code> and <code>-mpres "resource string"</code> <code>-multiphase 1</code> enables multiphase jobs. <code>-mpres</code> sets the resources that will be used for each phase. The '%' is used as a delimiter for the resources of each phase, for example, <code>-mpres "linux64 foo%linux64 bar:linux64 baz"</code> .

Internal Number	Products	Case Number	Description
			<p>By specifying the resources of each phase and designating that certain resources are only allocated to certain taskers, you can run different phases of a job on different taskers.</p> <p>For example, I have two taskers named tasker1 and tasker2. I want to run phase 1 and 3 on tasker1, and phase 2 on tasker2. My resources may look like:</p> <pre data-bbox="683 541 1500 800">                     vtk_resourcemap_set License:blue UNLIMITED                     License:blue_tasker1                     vtk_resourcemap_set License:red UNLIMITED                     License:red_tasker2                     vtk_resourcemap_set License:blue_tasker1 1                     tasker1                     vtk_resourcemap_set License:red_tasker2 1                     tasker2                 </pre> <p>I could then run a multiphase job as:</p> <pre data-bbox="683 867 1500 982">                     nc run -multiphase 1 -mpres "linux64 License:blue                     %linux64 License:red%linux64 License:blue" -- -e                     BASE -D /home/jjmcwill/testDir/testMultistage.sh                 </pre> <p>A multiphase job will have two new Job Properties set:</p> <ul data-bbox="704 1052 1487 1199" style="list-style-type: none"> <li>• <b>MPRESOURCES:</b> Contains the same resources passed in -mpres, and is used to reset the job resources for each phase.</li> <li>• <b>MPCURRENTPHASE:</b> Contains an integer indicating the current job phase. It starts at one, and has a max value of 9.</li> </ul> <p>The running job script will see an environment variable named <b>VOV_JOB_PHASE</b> which is set to the current phase. The script writer will need to use that to decide what work to do for that phase.</p> <p>If the script exits with an exit code of 216, nc will increment the job phase, change the job resources, and reschedule the job to run again. If the script exits with an exit code of 0, the job is considered "Done", and MPCURRENTPHASE is reset to 1.</p> <p>Failed jobs:</p> <p>If a job fails during a phase with a code other than 0 or 216, it is considered <b>FAILED</b> and MPCURRENTPHASE will not increment. If the job is invalidated and re-run (for example, <code>nc rerun -f JOBID</code>), the job will re-run starting at MPCURRENTPHASE and further phases will run if the job exits with code 216, as described above.</p> <p>Logging:</p> <p>After the first phase is run, subsequent phases of the job will have the command rewritten so that the wrappers are passed "-a -A", telling the wrappers to append to the job log. This is so that all phases of the job get</p>

Internal Number	Products	Case Number	Description
			<p>their stdout and stderr logged to the same file. If this was not done, each phase of the job would overwrite the log, and the user would only see the output from the last phase that was run. If <code>nc</code> does not detect one of the standard vov wrappers at the beginning of the command line, it will assume the command is not using a wrapper. In this case, it will look for the standard <code>&gt;</code> redirect symbol in the command and replace it with <code>&gt;&gt;</code>.</p> <p>REST Support:</p> <p>In the payload for submitting a job via rest, two new fields are allowed: <code>multiphase</code> and <code>mpres</code>. Setting <code>multiphase = True</code> enables multiphase job support. Setting the <code>mpres</code> field behaves the same as described for the command line argument described above. Re-running a multiphase job that has failed via the REST re-run API will behave similarly to rerunning a failed multiphase job from the command line as described above.</p>

### Resolved Issues

Internal Number	Products	Case Number	Description
VOV-14465	All	CS0257852	Taskers running as non-root will no longer get sent jobs unless the job's user matches the non-root tasker's userid. This is to address a situation where a job running on a non-root tasker gets access to the user's data on the filesystem. This can be disabled by setting <code>allowForeignJobsOnUserTaskers</code> to 1.
VOV-14217	Accelerator Plus	CS0237217	An issue that prevented DP jobs from successfully being run via Accelerator Plus has been resolved.
VOV-13910	Accelerator Plus	CSO213212, CSO303516	If a job is dispatched to a tasker that is in the process of exiting, the job will be refused by the tasker and automatically rescheduled for execution up to the maximum number of times allowed by the <code>autoRescheduleCount</code> server configuration parameter.

## 2021.1.0 Release Notes

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Table 1:

Product	Issue Number	Case Number	Description
All	VOV-9454	23741	Most of the VOV Tcl files from the installation package now contain the proper Altair copyright statement and version number.
All	VOV-12801		Introduce the new "tasker" lexicon for Accelerator product environment variables. Environment variable names containing old term "SLAVE" will get new names containing "TASKER" in the place of "SLAVE". The old environment variable name will be honored unless the new name is being used. This compatibility measure will ease the transition for administrators.
All	VOV-12797		New Tcl VTK function names are added to move to the new "tasker" lexicon. Old VTK function names containing the string "slave" are deprecated, and new VTK function names containing the string "tasker" are added and should be transitioned to from this release forward.
All	VOV-9297		Support for SuSE Linux Enterprise Server (SLES) 15 has been added to the Altair Accelerator products.
All	VOV-12111		Support for CentOS and RHEL 8 has been added to the Altair Accelerator products.
All	VOV-13321		Support for Ubuntu 14.04 has been dropped.
All	VOV-13306		This release discontinues support for the SLES 11 operating system.
All	VOV-13127		All references to the term "slave" have been replaced with the new term "tasker" throughout the online help documentation.
Accelerator	VOV-12708		A REST API guide and tutorial document is added to the Accelerator documentation bookshelf reader.
Accelerator	VOV-12537		SlaveLists are deprecated and replaced with TaskerLists with the following additional functionality: <ul style="list-style-type: none"><li>• The Taskerlists now contain the tasker names instead of only NC-internal IDs. As a result, the taskerlist does not have to be recreated when a tasker is stopped and then restarted, as had been the case with slavelists in previous releases.</li><li>• The TaskerLists definition will be stored in the PR so they will survive vovserver stop-and-restart sequences.</li></ul>

Product	Issue Number	Case Number	Description
			<ul style="list-style-type: none"> <li>Added support for resource 'TaskerList:XXX' in <code>nc run</code></li> <li>'SlaveList:XXX' resources will be automatically replaced by 'TaskerList:XXX' resources.</li> </ul>
Accelerator	VOV-12458		Implemented "Dialpad" or "Waffle" menu for mobile screens and at high zoom levels on the dashboard UI page.
Accelerator	VOV-12743		Implemented Subsets table in Set Detailed View page.
Accelerator	VOV-12747		An actions dropdown menu has been added, enabling the actions (delete, run with priority) to be performed on selected jobs. Added a search bar, allowing the user to filter the jobs by entering search strings.
Accelerator, Accelerator Plus	VOV-12150		The documentation shown by " <code>ncmgr start -h</code> " is expanded to explain some additional features that require an Accelerator queue to have the webport enabled. In the 2020.1.0 release, the following new features require the webport: 1) REST v3 API and 2) the new administrator dashboard UI page.
Accelerator	VOV-12964		Fixed CSS issues in bulk actions drop down.
Accelerator	VOV-12812		Enabled client activity logging for <code>nc cmd</code> commands.
Accelerator	VOV-12744		Added a Details section for the selected set in the Set Detailed View page.
Accelerator	VOV-12739		Added UI functionality in the <b>Dashboard &gt; Set Browser</b> screen. Users can now perform actions like retrace, and delete on sets, and also filter the displayed list of sets by text string.
Accelerator	VOV-12460		Added NC queue color to the dashboard user interface.
Accelerator	VOV-12762		Implemented storybooks for the Table component user interface.
Accelerator	VOV-9778	23068, 23767, 23914, 24923	Irrelevant alerts are no longer generated. Addressed some implementation issues with <code>vtk_flexlm_exclude_tags</code> . Note that calls to <code>vtk_flexlm_exclude_tags</code> are cumulative and override any tags added with <code>vtk_flexlm_monitor</code> and <code>vtk_flexlm_monitor_all</code> . The <code>-nooq</code> parameter for <code>vtk_flexlm_monitor</code> has no impact at present, please use <code>vovresSetFlags</code> instead. The <code>-order</code> parameter to <code>vtk_flexlm_monitor</code> and <code>vtk_flexlm_monitor_all</code> only orders any specified tags, it no longer adds tags (use <code>-tags</code> to add tags). The optional parameters <code>vovResource</code> , <code>vovMap</code> to <code>vtk_flexlm_monitor</code> are now handled correctly.
Accelerator	VOV-12277		A new command option for <code>nc run</code> has been added called <code>-dpinitialport N</code> which allows the user to specify the starting port that partialTool will use to find an open port to communicate among the

Product	Issue Number	Case Number	Description
			subtasks in the cohort. This will be reflected in a new job property named DP_INITIAL_PORT that can be observed being set on the job.
Accelerator	VOV-12736		The React dashboard has now implemented a Sets List view.
Accelerator	VOV-12742		Implemented Jobs table in Set Detailed View page.
Accelerator	VOV-13292		Two new server configuration parameters have been added: <code>http.workerthreads</code> and <code>http.proxytimeout</code> . <code>http.workerthreads</code> specifies the number of worker threads that the new REST HTTP server will start when vovserver starts with a valid webport. <code>http.proxytimeout</code> enables you to specify the timeout in seconds, used when the main webserver forwards some requests, like CGI pages, to the older http server listening on the VOV port.
Accelerator	VOV-11930	CS0120821	A new command line parameter was added for <code>nc run</code> for dp jobs called <code>-nocohortwait</code> . This instructs <code>partialTool</code> for each cohort task to finish when its subtask process has finished rather than wait for the primary job to complete (which is the default behavior). Passing <code>-nochortwait</code> to <code>nc run</code> sets a new property named DP_COHORTWAIT to 0. By default, this is set to 1 when <code>-nocohortwait</code> is not passed, and <code>partialTool</code> will behave like it always has.
Accelerator, FlowTracer, Monitor	VOV-10198		Add support for Windows Server 2019.
Accelerator	VOV-12947		Added breadcrumb navigation to the Sets page, through which the user can navigate to the hierarchical sets.
Accelerator	VOV-12452		Add a sub-window for scheduler health monitoring and vital signs in the Accelerator admin dashboard web UI.
Accelerator	VOV-12733		Support is added for Accelerator on ARM64 systems running Centos 7, Centos 8, or Amazon Linux 2. This support is for execution hosts and submit hosts only. The "armv8" hardware resource name is added for this architecture.
Accelerator Plus	VOV-12295	CS0121114	<ol style="list-style-type: none"> <li>1. Fixed an issue where the NUMA_AFFINITY property on jobs always showed it as being bound to specific CPUs, even though it was bound to the entire NUMA node.</li> <li>2. Fixed an issue where WX vovtaskers were overriding the affinity set by the NC vovtasker, causing WX jobs to be bound to only a subset of the available CPUs.</li> </ol>
FlowTracer	VOV-12556		Add support for FlowTracer on Windows.

Product	Issue Number	Case Number	Description
Hero	VOV-12891		Added a <code>-P &lt;NAME=VALUE&gt;</code> parameter to the hero submit command (similar to the <code>NC -P</code> parameter).
Hero	VOV-12932		Added the <code>-modules</code> , <code>-stagein</code> , <code>-stageout</code> parameters to the hero <code>-zebu submit</code> command. The DeclareEmulator specification now includes the following parameters: <code>-type</code> (for future use), <code>-environment</code> , <code>z-zebu_system_dir</code> , <code>-zebu_root</code> . The commands specified in the <code>-stagein</code> , <code>-stageout</code> parameters depend on the resources <code>Limit:zebu_stagein_load</code> , <code>Limit:zebu_stageout_load</code> .
Monitor	VOV-5671		The <code>vtk_feature_add_or_create</code> API now expects an additional parameter for the associated ISV string. See the documentation for the new syntax. The <code>vtk_featureuser_*</code> APIs have had their names changed to <code>vtk_checkout_*</code> . The old <code>vtk_featureuser_*</code> names are still supported but <code>vtk_checkout_*</code> will be the official documented names.
Accelerator	VOV-6572		This should be fixed as a side effect of implementing the mutator API. See release notes for VOV-8899.
All	VOV-9298		Support for Ubuntu 18.04 and 20.04 is added.
All	VOV-13364		Starting with the 2021.1.0 release, the Accelerator Products images come with digitally signed certificates that can be used to reliably confirm authenticity of the installation media images.

## Resolved Issues

The following issues were resolved in this release.

Table 2:

Product	Issue Number	Case Number	Description
All	VOV-13252		<p>Web server improvements (when the web port is configured as non-zero):</p> <ol style="list-style-type: none"> <li>Added the following headers to all HTTP responses:                             <ul style="list-style-type: none"> <li>Strict-Transport-Security</li> <li>X-Frame-Options</li> <li>X-Xss-Protection</li> <li>X-Content-Type-Options</li> <li>X-Content-Security-Policy</li> <li>Content-Security-Policy</li> </ul> </li> <li>Added support for web ports higher than 32000.</li> </ol>

Product	Issue Number	Case Number	Description
All	VOV-13181		Some stability improvements were made in the Webserver code to avoid potential crashes of vovserver.
All	VOV-12989	CS0145649	Fixed an issue where stopping more than 1 vovtasker by name (vovtaskermgr stop <tasker1> <tasker2>...) was renaming only the last named tasker to <taskername>_stopped_<timestamp>.
All	VOV-9560	23740	Fixed an issue with vovnotifyd using only the first RAM value for jobs with multiple RAM requests (e.g.: -r+ RAM/100 -r+ RAM/200) to determine if the job is exceeding requested RAM usage (health check of requested RAM).
Accelerator	VOV-11388	25153	Fixed an issue with the vovserver failing to start when epoll is enabled (set config(useepoll) 1) in policy.tcl.
All	VOV-12582		The vovtaskermgr start command will now only utilize the configured rshcmd (one of: inetd/rsh/ssh/vovtsd) for starting remote taskers. Prior to this change, the inetd method was always attempted, and the vovtsd method would be attempted if the configured vovtsd port was non-zero.
All	VOV-12512		All references to PBS Works support have been updated to direct the user to the new Altair One website.
All	VOV-6287	20738	Fixed the issue in the error message "too many elements in array" where the max array was not getting updated as per the config(maxJobArray).
All	VOV-13247		Network security testing port scans had in certain cases caused vovserver to hang up in an infinite loop.
Accelerator, Accelerator Plus, Monitor	VOV-13009	CS0133888	In the help information displayed by nc cmd vovdaemonmgr -h, a note was added indicating that the -f (force) option applies only to the start subcommand, and only when a daemon list is specified.
Accelerator	VOV-12418	CS0121215	By default, interactive jobs will also write to a logfile just like normal jobs do. You can also specify the log file with the -l parameter to nc run like normal jobs. If you do not want an interactive job to write to the log file, use -nolog as a parameter to nc run
Accelerator	VOV-12135		The axis labels in the jobs histogram in the dashboard UI page showed repeated "1" labels with a small number of running or queued jobs.
Accelerator	VOV-13000	CS0128274	Fixed an issue where incrementing grabbed resources was not incrementing the count of used resources in some cases.
Accelerator	VOV-13039	CS0146315	The network data sent as a result of nc info was made more compact, which will make running the command more efficient.
Accelerator	VOV-13113		Fixed CSS issues in Set Browser page.

Product	Issue Number	Case Number	Description
Accelerator	VOV-13026	CS0149221	Handle window/weight inheritance for new FairShare groups that are being created during job submission. The window will be inherited from the parent. Both the window and weight will be inherited from a sibling group named "default".
Accelerator	VOV-12714		Fixed the following issues with job container support: <ol style="list-style-type: none"> <li>1. The VOV_CONTAINER_&lt;resource&gt; (where &lt;resource&gt; is CORES, RAM, or TMP) environment variable was not being set in the hook environments for containers that were configured to use the job's resource specification as container limits.</li> <li>2. The VOV_CONTAINER_JOB_RUNDIR environment variable was not being set in the hook environments if the job's run directory had been configured as an equivalence, as would be the case for jobs submitted from within the user's home directory.</li> </ol>
Accelerator	VOV-13108		As per the new API response, changes made to the footer version text.
Accelerator	VOV-13272		Increased virtual memory limit for <code>nc run</code> .
Accelerator, FlowTracer	VOV-12908		The Accelerator new dashboard UI for administrators, when accessed, will increase the vovserver memory "Size" metric printed by the <code>vs i</code> command. The large reported memory size is virtual memory address space size, with only modest associated increase in actual memory usage. The number of worker threads used by the web server can be controlled with <code>config(http.workerthreads) N in policy.tcl</code> . Changing this value will require a vovserver restart, because it can only be set once before the multithreaded webserver is initialized. Also, a timeout value for when the multi-threaded webserver has to delegate some requests, such as CGI pages, to the old vovserver web server, can be configured by setting <code>config(http.proxytimeout)</code> . This value can be changed at any time.
Accelerator	VOV-12977	CS0143428	Fixed an issue with interactive jobs ( <code>nc run -I</code> ) failing with the error message "Job has problems with PTY. Bad pipes".
Accelerator	VOV-12811	CS0129987	<code>vtk_resourcemap_set</code> now requires that the user either own the resource, or the user have ADMIN security rights for it to take effect.
Accelerator	VOV-10921	24781, 24803	To better clarify jobs that have been queued due to reserved taskers, additional information has been added to the output of the <code>nc why</code> command. Under the "Per-slave/per-tasker analysis" section, a count of taskers that would have been compatible but are reserved will be shown as: 'n is currently reserved by others'

Product	Issue Number	Case Number	Description
Accelerator	VOV-5980	21105	The <code>nc modify</code> command has been modified to exit with a status of 1 if any part of the modification request fails.
Accelerator	VOV-12892		With certain types of product install methods, the Accelerator documentation bookshelf link in the Web UI had not been functional. This only impacted customers who download and un-tar both <code>common.tar</code> and <code>win64.tar</code> with the intent of installing both <code>linux64</code> and <code>win64</code> into the same master installation directory. The workaround was to un-tar and install <code>win64</code> first, then go back and un-tar <code>common.tar</code> and <code>linux64.tar</code> , and then install <code>linux64</code> only. If you had an existing installation the workaround was to un-tar <code>common.tar</code> and reinstall <code>linux64</code> only.
Accelerator	VOV-12547		Fixed an issue with the <code>-Il</code> option for interactive jobs that prevented the user from typing in the terminal window and interacting with the job.
Accelerator	VOV-11452		Added <code>-orphanreservations</code> option to the <code>vovforget</code> command for forgetting the reservations not attached to any tasker. Behaviour is modified to allow overlapping reservation in the system, but it will never be in effect unless the dominant reservation is deleted. Fixed an issue where the tasker reservation gets duplicated after server restart. Also, changed the tasker instance reservation (created using <code>vtk_tasker_define(-reserve)</code> option) or by passing the <code>-e</code> option to <code>vovtasker</code> ) to be non-persistent by default. No change in behavior for tasker reservations created using <code>vtk_reservation_create</code> .
Accelerator	VOV-11662	29869	Fixed "no such variable 'killTimePP'" alerts when health checks are enabled for stuck jobs with <code>-stuckKillTime</code> .
Accelerator	VOV-9254	23430	Fixed issue that prevented child FairShare groups from being displayed when viewing the top-level group via <code>vovfsgroup show</code> .
Accelerator	VOV-11261		Addressed issue where delays were encountered due to <code>vovserver</code> not being immediately notified of an update.
Accelerator	VOV-7490	20070, 24363	Fixed an issue leading to "URGENT vovnotifyd Cannot send mail. can't read 'code': no such variable" alerts. Reduced the severity to WARN, in case of failures to send mail. Also, added an alert if the list of recipients for notification emails is empty.
Accelerator	VOV-12464	CS0122942	Requests for <code>CGROUP:RAM</code> with more than 1 RAM specification will now limit RAM usage to the total amount requested by all RAM specifications rather than the last one. For example the command: <code>nc run -r CGROUP:RAM RAM/60 RAM/40 -- sleep 0</code> will limit ram usage to 100 megabytes rather than 40.

Product	Issue Number	Case Number	Description
Accelerator, Accelerator Plus	VOV-13030	CS0149277	Fixed an issue with Ctrl-C not working as expected with interactive jobs (nc run -I/-Il/-Ir).
Accelerator, Accelerator Plus, FlowTracer	VOV-4998	CS0143832	<p>For all products, strict job name checking has been enabled and invalid job name characters will cause an error. For Accelerator and Accelerator Plus, this can be overridden by putting the following in \$VOVDIR/local/vncrun.config.tcl</p> <pre>set ::jobname_lexicon legacy</pre> <p>or</p> <pre>set ::jobname_lexicon replace</pre> <p>Legacy will use the more lax job naming rules from earlier releases. Replace will identify invalid characters in the job name, replace them with "_", and issue a warning to the console An issue with vsm being enabled to handle some invalid job name characters was addressed.</p>
Accelerator, Accelerator Plus	VOV-13051	CS0121039	Fixed an issue with interactive jobs (nc run -I) failing with error messages similar to "Error=98: Address already in use [vovttyserver2:244]" and "FATAL ERROR: Cannot open PTY port (with remote signal handling): Cannot open pty server sockets [vncrun.tcl:2257]". This is accompanied by job errors similar to "Cannot connect to PTY server on submission host lava1 13316 Z@:x=XGa56cT_Hd6 from lava5".
Accelerator	VOV-12519		<p>For consistency across CLI and web UI, the default values for the following VovPreemptRule options have changed in some cases from previous versions.</p> <ul style="list-style-type: none"> <li>The option <code>-resumedelay</code> default is now 5 seconds previously the CLI default was 10 seconds.</li> <li>The default pool name is now <code>mainpool</code>, previously the web UI default was <code>MainPool</code>.</li> <li>The default for <code>-mqthresh</code> is now 0.1=10%, before the web UI default was 0.01.</li> <li>The <code>-killage</code> option default is now 60, previous version of the web UI had a default of 0.</li> <li>For <code>-skipresumedjob</code> option default is 120, previous versions of the web UI had a default of 0.</li> <li>For <code>-preemptslavenum</code> new default will always be 1, some variants of CLI had a default value of 2 previously.</li> </ul>
Accelerator	VOV-10558	23924	Empty job class sets are not deleted, thereby preserving all properties for future submissions.

Product	Issue Number	Case Number	Description
Accelerator	VOV-12807		When you hover the mouse over the job graph line in the dashboard UI window, a small pop-up displays the Y unit, the Y number, and a time. The Y number is actually an average over a surrounding time window, and not an instantaneous value as implied by the information shown.
Accelerator	VOV-13169		When vovserver was configured with webport and failover was configured, it was found that vovserver could lose access to the webport and get restarted with the webport disabled. This has been fixed. Also, if Accelerator was configured to use License Monitor, it was observed that failover could leave an extra copy of the voveventmon process launched by vovresourced running every time vovserver crashes and restarted. vovresourced has been modified to properly shut down voveventmon in the case where vovserver has crashed.
Accelerator	VOV-13036		Fixed a server crash caused by memory corruption when running queries from a 2016.09 client.
Allocator	VOV-10997	CS0156459	Suppressed the log, "Could not add FTResJob...", as it is not impacting the functionality.
Allocator	VOV-12724	CS0130000	Fixed issues with the allocation of resource groups in Allocator. Prior implementations based the allocation on demand for the component resources only. The new implementation bases the allocation on demand for the resource group and all of its component resources.
Allocator	VOV-11883	CS0120726	Fixed issue when the same feature serviced by different daemons with different tags which makes <code>-ExcludeTagRx</code> ignored.
Allocator	VOV-11894	CS0120781	Fixed CSV export of the <b>Home &gt; Overview</b> and <b>Home &gt; Resources &gt; Matches</b> tabular reports.
Allocator	VOV-11224	24981	Fixed an issue with Allocator showing incorrect "Distributable" values when 'SetReserverForUser' is used with * (all users).
Allocator	VOV-13025	CS0145466	Added a config key <code>MQ(pjProbeKillTimeout)</code> for the maximum time that the <code>vovlad</code> daemon should wait for existing probes to be killed at startup.
FlowTracer	VOV-7956	21595	Addressed issue that prevented alert text from being displayed in the vovconsole alerts window.
FlowTracer	VOV-12960	CS0143848	Fixed issue with keyword substitution for array job submissions that caused arbitrary matches to the array reference job's ID and IDINT values to be substituted with the ID and IDINT values from the individual array jobs in the job metadata. For example, an array job submission of "echo 000001070" where the reference job was coincidentally job 1070 would result in the command being changed in each individual array job to reflect

Product	Issue Number	Case Number	Description
			its own ID, such as "echo 000001072" for job 1, "echo 000001074" for job 2, and so on.
FlowTracer	VOV-12815	CS0137268	Evaluation of resources when used with an indirect tasker (taskerVNC) now applies the jobclass followed by the resource list which is the opposite of what was done previously.
FlowTracer	VOV-12203	CS0120999	Re-evaluation of a job class to compute the union of resources when used with an indirect tasker(taskerVNC) is no longer done. This is typically relevant for FlowTracer integration with either Accelerator (NC) or Accelerator Plus (WX). To restore the old behavior, please contact Altair support.
FlowTracer	VOV-12901		Fixed an issue where the user may see PIPELOG related errors in the console on Windows, when running a FlowTracer job directly from the command line, such as : vov cmd.exe /c echo "Hello"
FlowTracer	VOV-12918	CS0142609	Improved the behavior of the <b>Taskers &gt; NC Interface</b> : vovvxd vovconsole menu option, which configures and starts the vovvxd daemon. The daemon will be configured to use the default queue name (vnc) unless the NC_QUEUE environment variable is present.
FlowTracer	VOV-10189		Schedule priority and execution priority are now saved in the persistent representation.
FlowTracer	VOV-12813	CS0137660	systemjob state is now saved in the representation so that it's persistent across FlowTracer restarts.
Hero	VOV-12931		Wrapper daemon now runs on the emulator vovtasker associated with the emulator. Previously it ran from wherever the autostart command was executed. Fixed an issue that prevented the command hero -zebu stop_all_wrappers from working correctly in some instances.
Monitor	VOV-9774	24058, CS0121121	Fixed problem parsing MathLM licenses when one of HH MM SS time values starts with 08 and 09.
Monitor	VOV-12253	CS0120851	Fixed MathLM parser for features with "Sub" and space prefix.
Monitor	VOV-12634	CS0126701	Fixed Altair Monitor GUI to correctly show expiration date if one of the licenses expired.
Monitor	VOV-12324	CS0121132, 21139	The output format for more recent versions of Sentinel RMS has changed. The new format caused ftlm_parse_sentinel to incorrectly calculate capacity. It now recognizes the new format and only counts instances of capacity appearing inside a feature block. Support for older formats has been retained.

Product	Issue Number	Case Number	Description
Monitor	VOV-9100	23225	Fixed LM report plotting with "Breakdown By Feature" option.

## 2021.1.1 Release Notes

### New Features

Products	Internal Number	Case Number	Description
Accelerator	VOV-13210	None	Added functionality to perform actions on sets in the Set Browser page.
Accelerator	VOV-12810	None	The dashboard UI job graph shows actual Y values when user hover the mouse over the graphed lines, and at the intersection points of the graph lines in job plot graph, the tooltip will show the Y-axis values which are intersected.
Accelerator	VOV-12780	24397	The commands <code>nc run</code> , <code>vovset resources</code> , and <code>nc modify -res</code> support binary unit conversion for all memory based resources as a convenience from Petabytes (PB), Terabyte (TB), or Gigabyte (GB) to Megabytes (MB), which is still used internally and reported by all commands. The input conversion will accept either decimal or integer form and are all case-insensitive, so for example both <code>nc run -r SWAP/1GB sleep 0</code> , and <code>nc run -r RAM/0.1Tb sleep 0</code> are supported. The currently supported parameter names for which this conversion is supported are <code>RAM/</code> , <code>RAM#</code> , <code>RAMFREE#</code> , <code>RAMFREE/</code> , <code>RAMTOTAL#</code> , <code>RAMFREE/</code> , <code>SWAP/</code> , <code>SWAP#</code> , <code>SWAPFREE#</code> , <code>SWAPFREE/</code> , <code>SWAPTOTAL#</code> , <code>SWAPTOTAL/</code> and <code>TMP#</code> or <code>TMP/</code> . By default the unit is MB (Megabytes), where 1MB is $1 \ll 20$ bytes.
Accelerator Plus, FlowTracer	VOV-12409	None	Elastic taskers launched via <code>vovwxd</code> will detect and exit mote quickly when their designated bucket is empty or deleted. Accelerator Plus queues using Direct Drive will detect empty queues and stop launching taskers for those buckets more quickly. This functionality can be disabled by setting <code>vovwxd.fastexit</code> server parameter to 0. This is on by default.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	VOV-13517	None	Fixed issue that prevented the Property Editor GUI utility in vovconsole from launching successfully.
All	VOV-13183	None	Fixed a potential memory leak when a client running a long-running query is unexpectedly terminated, causing vovserver to permanently mark a query as "in-use".
All	VOV-7887	21377	Clarified documentation of VOV_LIMIT_vmemoryuse.
All	VOV-13523	None	Fixed an issue that caused vovshow -queries to fail when trying to access a non-existent array element.
All	VOV-13568	None	Fixed an issue where comma list resource maps were not selectable in the Web UI.
All	VOV-13743	None	Corrected format of output for vtk_time_psp that was returning hh:mm format when the given date/time was on a different day/year. Now returns hh:mm only for current day, otherwise month abbreviation and day (Apr 14) for the same year, else Year month abbreviation (Dec 2020).
All	VOV-13706	None	The vovtasker binary was missing from 2021.1.0. As a workaround, in previous product versions where it may be missing in the installation, copy vovslave to vovtasker.
All	VOV-13610	None	Fixed issue with displaying working taskers in Altair Accelerator 2021.1.0
All	VOV-13351	CS0173855	Fixed some cases where the Server Working Directory (SWD) contained slaveClass.table or taskerClass.table, and these configuration files were ignored by taskers/slaves. Scenarios that had been broken were: <ul style="list-style-type: none"> <li>• slaves.tcl and slaveClass.table present in SWD</li> <li>• slaves.tcl and taskers.tcl and taskerClass.table present in SWD</li> <li>• taskers.tcl and taskerClass.table present in SWD</li> </ul>
All	VOV-13439	CS0175205, CS0187053	Code related to vovps has been modified to be more robust in handling of non-fatal errors emanating from vovps command and to be more inline with typical ps command output.
All	VOV-12897	CS0140687, CS170776	On some network configurations, a warning about IPV6 could be issued when running an INTERACTIVE job that could not be filtered out by turning down the verbosity. This has been fixed. The -v switch to nc run on an interactive job will turn off the warning.

Products	Internal Number	Case Number	Description
All	VOV-13014	None	With multi-platform product installs, the Accelerator documentation bookshelf link in the Web UI was nonfunctional. This only impacted customers who download and un-tar both <code>common.tar</code> and <code>win64.tar</code> with the intent of installing both <code>linux64</code> and <code>win64</code> into the same master installation directory.
All	VOV-13171	CS0164654	The timeout duration for PR saves can now be controlled via a server configuration parameter.
All	VOV-13837	None	Fixed issue that caused some <code>vtx-wrapper</code> links to point to an incorrect absolute path.
All	VOV-13502	None	This fix provides for mitigation of a hang in the <code>http(s)</code> service. It reinstates the <code>nginx</code> service found in earlier releases. The use of the patch is required for production systems using the <code>https</code> service - typically Accelerator. The patch prevents the use of the REST v3 API and the new web based Dashboard, which is dependent on the REST v3 API. A subsequent release will address this shortcoming. The use of <code>nginx</code> should be seen as temporary and a subsequent release is expected to provide integrated <code>https</code> within <code>vovserver</code> . To start <code>nginx</code> , pass <code>-webprovider nginx</code> to <code>ncmgr start</code> , <code>lmmgr start</code> , etc. You should see <code>vovnginxd start</code> as one of the <code>vov</code> daemons. <code>vovservermgr config</code> will also show the <code>webprovider</code> setting as being either 'internal' or 'nginx' depending on how you have configured the system.
All	VOV-13416	None	Added configuration section to the <code>sds.cfg</code> file to allow inclusion kafka producer configuration properties such as those needed to enable <code>ssl</code> communication.
Accelerator	VOV-13162	None	The "Match Jobs to Handles" HTML topic now reflects the code colors that coincide with the software.
Accelerator	VOV-9353	23568	In the past, a stopped tasker and a newly started tasker were not aware of each other's NUMA usage, and so could assign CPU or Node affinity that overlaps. Taskers using NUMA on the same machine, with the same <code>vovhost</code> and queue name, will now share NUMA usage to avoid over allocating NUMA resources on the same machine.
Accelerator	VOV-7487	20455, CS0120837	Passing bash functions through <code>snapprop</code> is a fragile operation that only works when the following conditions hold: <ol style="list-style-type: none"> <li>1. The function must have been explicitly exported, for example <code>export -f f</code>.</li> <li>2. The bash and sh shells must be the same on the submission and execution sides (this holds on CentOS 6-8 but not on Ubuntu).</li> </ol>

Products	Internal Number	Case Number	Description
			<p>3. The bash function encoding must be the same on the submission and execution sides (this depends on the bash version, CentOS 6,7 have the same encoding, but CentOS 8 has different encoding).</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p> <b>Note:</b> Bash encodes functions in two ways (subsequent to the 2014 shellshock vulnerability):</p> <ol style="list-style-type: none"> <li>1. BASH_FUNC_&lt;function-name&gt;()=() (CentOS 6,7)</li> <li>2. BASH_FUNC_&lt;function-name&gt;%%=() (CentOS 8, MacOS, Ubuntu, albeit the latter does not satisfy 2. above)</li> </ol> </div>
Accelerator	VOV-7736	21176	Fixed building of resource maps from resources with OR and AND words in resource names.
Accelerator	VOV-13629	CS0178114, CS0186671, CS0192772, CS0194045, CS0196466	Fixed an issue where a failed PTY connection for a job would cause subsequent jobs on the tasker to fail as long as the original job was still running, and in some cases, the tasker could become unresponsive.
Accelerator, Accelerator Plus	VOV-13651	None	Fixed issue in node.cgi which resulted in the CPU Time displayed for job being multiplied by 1000.
Accelerator, Accelerator Plus	VOV-13152	CS0159375	Fixed spurious error message when receiving (RESMAP,CHANGE) events in some clients.
Accelerator, Accelerator Plus	VOV-13293	CS0169911	Added check for ADMIN privilege which blocks the regular user from stopping the job using NC command <code>nc stop -allusers</code> if the requesting user is not ADMIN.
Accelerator	VOV-13161	CS0163181	Fixed issue where setting a project or site message in <code>/cgi/messages.cgi</code> would not result in a message being registered.
Accelerator	VOV-13324	None	Tasker based support has been added for the following vovselect fieldnames: CHOSENTASKERID, LASTTASKERID, LASTTASKERNAME, TASKERGROUP, TASKERID, TASKERLIST, TASKERNAME, TASKERSLOTSSUSPENDABLE, TASKERSLOTSSUSPENDED, TASKERSLOTSUSED, TASKERSTATUS for jobs, TASKERID for clients, TASKERGROUP, TASKERHOST, TASKERNAME, TASKERSLOTSSUSPENDABLE, TASKERSLOTSSUSPENDED, TASKERSLOTSUSED, TASKERTYPE for slaves or taskers.

Products	Internal Number	Case Number	Description
			The same are available for use as symbolics such as @LASTTASKERID@ or @TASKERNAME@, etc.
Accelerator	VOV-13398	None	An error in the online help regarding <code>vtk_server_config suddenshutdown &lt;server-pid&gt;</code> has been addressed.
Accelerator	VOV-13388	None	Fixed issue that can cause vovserver to crash upon receipt of a REST request when <code>thread.service.max</code> and <code>thread.service.enable.query</code> are both greater than zero in the vovserver policy.
Accelerator	VOV-13363	None	Fixed <code>ncupgrade abort</code> by changing the vovserver stdout message to <code>Vovmessage ( stderr )</code>
Accelerator	VOV-13346	CS0120637, CS0164333, CS0186238	Fixed an issue where a redirect in the nginx configuration would cause vovresourced to crash
Accelerator	VOV-13413	CS0175672	Fixed issue where <code>vwn</code> incorrectly attempted to contact the server after the <code>VOV_VW_PING</code> interval.
Accelerator	VOV-13438	None	Removed <code>vovproject enable</code> command from <code>ncupgrade</code> so that it can read from stdin and can be used for testing automation.
Accelerator, Accelerator Plus	VOV-13424	CS0176272	The handling of the resource parameter to <code>vtk_flexlm_monitor</code> has been improved. If the a resource name is specified then this name is the actual resource name used (in a previous release it was always prepended by <code>License:</code> ). If a resource name is not specified, it defaults to <code>License:&lt;feature&gt;</code> . This is consistent with <code>vtk_flexlm_monitor_all</code> behavior.
Accelerator, Accelerator Plus	VOV-13465	CS0180449	Resolved issue when using <code>vtk_tasker_define</code> with <code>-tsdport</code> .
Accelerator	VOV-13458	CS0180796	During jobclass initialization the <code>VovUserError</code> proc does not exit or generate any output.
Accelerator Plus	VOV-13563	CS0186685	Fixed an issue which resulted in stalled WX buckets reporting a waitreason of <code>License:xyz</code> when really just waiting on HW in the base queue. Fixed an issue which prevented the setting of <code>resmap.sw.types</code> in the <code>policy.tcl</code> file.
Accelerator Plus	VOV-13560	None	The custom <code>vnc_policy.tcl</code> file for PBS integration is no longer required and should be removed upon upgrading to 2021.1.1. This file is located in <code>\$SWD/vnc_policy.tcl</code> and was originally

Products	Internal Number	Case Number	Description
			copied from \$VOVDIR/./common/etc/config/vovwxd/vnc_policy_pbs.tcl.
Accelerator Plus	VOV-13484	None	Fixed an issue which could result in some slaves not being recognized as vovwxd slaves resulting in them not being counted toward max , slaves. Optimized scheduling for WX/PBS jobs by enabling the bucket shortcut and removing per slave resources.
Accelerator Plus	VOV-13772	None	The Accelerator Plus online help has been updated to reflect the addition of the Direct Drive functionality.
Allocator	VOV-13562	CS0187051	Fixed a race-condition in Allocator that resulted in random crashes in complex configurations.
FlowTracer	VOV-10426	24499	NodeEditor has renamed 'In Queue' to 'Queue' and times shown are now based upon buckettime to give more accurate breakdown of the job's timeline.
FlowTracer	VOV-12348	None	A threshold of 4 is now applied before issuing warnings about WXLancher is not running.
FlowTracer	VOV-13419	CS0172898	Fixed vovconsole performance degradation for drawing the sets and switching between horizontal and vertical view.
Monitor	VOV-13323	None	Fixed issue that caused remote LM parser to fail and return no data.
Monitor	VOV-13066	CS0151123	The registering of multiple hosts defined through env variable VOV_LICMON is now handled correctly. However its use should be minimized due to the additional overhead involved and consequential impact on job start up time.
Monitor	VOV-13390	None	Fixed an issue that prevented licenses provided by Altair license key files from being monitored.
Monitor	VOV-13446	None	Fixed rare issue that caused an "Unexpected return -90" message in the vovserver log when the top job of a bucket cannot be dispatched to a tasker at the time the dispatch function is called.
Monitor	VOV-13440	None	Fixed issue that prevented licensing detail tables from being displayed on the licensing administration web UI page on Windows.
Monitor	VOV-13426	CS0154262	Some valid Accelerator and Monitor license key files with vovversion set for the early part of year 2021 were not working because of a bug in license keyfile validation code.

Products	Internal Number	Case Number	Description
Monitor	VOV-12980	CS0144723	Fixed ftlm_batch_report for checkouts that have not been moved yet to Altair Monitor database.

## 2021.1.1-p1 Release Notes

### Resolved Issues

Products	Internal Number	Case Number	Description
Accelerator	VOV-13861	CS0210064	Fixed issue in which SIGALRM interrupted communications on interactive jobs using VOV_INTERACTIVE_PING keep alive method.
Accelerator	VOV-13860	CS0208413, CS0208823	Fixed issue that caused the tasker to overload vovserver with messages when a job execution attempt failed due to not being able to successfully fork out the subtasker process that is used to shepherd the job.
Accelerator	VOV-13816	CS0205113	Addressed an issue where license resources sometimes became unavailable when on life support.
Accelerator	VOV-13849	CS0208895, CS0218919	Fixed bug where interactive (-I/-Ir) root privileged container jobs potentially resulted in a process group SIGINT being captured and accidentally being sent to systemd, following which bad things may happen, such as a system reboot on subtasker host.
Accelerator Plus	VOV-13890	None	Fixed issue which prevented wx taskers from reconnecting after server freeze/failover with fastexit enabled.
Accelerator Plus	VOV-13872	CS0211355	Fixed issue where SICK status Accelerator taskers were not removed after an appropriate amount of time. The underlying cause was that there were still related jobs running in the base queue, and was repaired by passing the -forcerunning option to the NC base queue forget command for taskers with a SICK status.

## 2021.1.0-rs1 Patch Release Notes

The following new features and resolved issues were introduced this software release:

Product	Issue Number	Case Number	Description
Accelerator	VOV-13399		Added Rapid Scaling - a feature that provides high-throughput, cost-conscious scheduling in the cloud.
Accelerator	VOV-13470		The Rapid Scaling PDF has been updated to reflect the changes relative to the 2021.1.0-rs1 patch.

## 2021.1.0-p1 Patch 1 Release Notes

### New Features

Products	Internal Number	Case Number	Description
All	VOV-13502	None	This fix provides for mitigation of a hang in the http(s) service. It reinstates the nginx service found in earlier releases. The use of the patch is required for production systems using the https service - typically Accelerator. The patch prevents the use of the REST v3 API, a subsequent release will address this shortcoming. The use of nginx should be seen as temporary and a subsequent release is expected to provide integrated https within vovserver. To start nginx, pass <code>-webprovider nginx</code> to <code>ncmgr start</code> , <code>lmmgr start</code> , etc. You should see <code>vovnginxd</code> start as one of the vov daemons. <code>vovservermgr config</code> will also show the <code>webprovider</code> setting as being either 'internal' or 'nginx' depending on how you have configured the system.

## 2020.1.0 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Product(s)	Internal Number	Case Number	Description
All	VOV-11377		A new document viewer for the Accelerator product family is provided in the web UI. This document viewer provides a modernized interface with new client-side search capability.
All	VOV-11059		Field descriptions have been populated for all supported fields. These can be queried via the "fieldesc" metadata field, available for each object.
Accelerator, Accelerator Plus	VOV-12279	CS0121103	The output of <code>nc info</code> and <code>wx info</code> now includes the project/queue name.
Accelerator	VOV-11378		A modernized web UI dashboard page has been added to the Accelerator web UI. To access the page, browse to the URL generated by this command: <code>nc cmd vovbrowser -url /dashboard</code> . ADMIN privileged users may access this dashboard.
Accelerator	VOV-10124	24397	The following commands <code>nc run</code> , <code>vovset resources</code> , <code>nc modify -res</code> , now support binary unit conversion for all memory based resources as a convenience from Petabytes (PB), Terabyte (TB), or Gigabyte (GB) to Megabytes (MB), which is still used internally and reported by all commands. The input conversion will accept either decimal or integer form and are all case-insensitive, so for example both <code>nc run -r RAM/0.1Tb - sleep 0</code> and <code>nc run -r SWAP/1GB - sleep 0</code> are supported. The currently supported parameter names for which this conversion is supported are RAM/, RAM#, RAMFREE#, RAMFREE/, RAMTOTAL#, RAMFREE/, SWAP/, SWAP#, SWAPFREE#, SWAPFREE/, SWAPTOTAL#, SWAPTOTAL/ and TMP# or TMP/. By default the unit is MB (Megabytes), where 1MB is 1<<20 bytes.
Accelerator	VOV-9830	24092, 24093	Added confirmation WebUI dialogs for MakeDefault and ClearDefault job class - Writing MakeDefault and ClearDefault job class events to server log
Accelerator	VOV-9778	23068, 23767, 23914, 24923	Irrelevant alerts are no longer generated. Addressed some implementation issues with <code>vtk_flexlm_exclude_tags</code> . Note that calls to <code>vtk_flexlm_exclude_tags</code> are cumulative and override any tags added with <code>vtk_flexlm_monitor</code> and <code>vtk_flexlm_monitor_all</code> . The <code>-nooq</code> parameter

Product(s)	Internal Number	Case Number	Description
			for <code>vtk_flexlm_monitor</code> has no impact at present, please use <code>vovresSetFlags</code> instead. The <code>-order</code> parameter to <code>vtk_flexlm_monitor</code> and <code>vtk_flexlm_monitor_all</code> only orders any specified tags, it no longer adds tags (use <code>-tags</code> to add tags). The optional parameters <code>vovResource</code> , <code>vovMap</code> to <code>vtk_flexlm_monitor</code> are now handled correctly.
Accelerator	VOV-8055	21777	Added a new capability to limit the number of interactive jobs that can run concurrently, both at the global and user levels. This is accomplished by creating a limit resource and setting it as the interactive job limit in the <code>vncrun.config.tcl</code> configuration file. For example: <code>set VOV_JOB_DESC(interactive,limit) Limit:interactive</code> or for per-user a limit: <code>set VOV_JOB_DESC(interactive,limit) Limit:interactive_@USER@</code> The resource must exist prior to adding these lines to the file.
Accelerator	VOV-9017	23067	<code>MAXCPUPROGRESS</code> now provides the maximum sampled percentage of CPU time as an integer used by a job, including all its children, which can be greater than 100 if the job is utilizing multiple cores.
Accelerator	VOV-9130	23265	Added the <code>-sickslave</code> parameter to the <code>vovinvalidate</code> command, to invalidate running/retracing jobs that are no longer attached to a slave.
Accelerator	VOV-7811	21342	Added ability to provide a stop reason when stopping jobs via the web UI.
Accelerator	VOV-12458		Implemented Dialpad menu for mobile screens.
FlowTracer	VOV-10618		Added the <code>NODEGRAPH</code> , <code>JOBGRAPH</code> , <code>NODEGRAPHHIER</code> and <code>JOBGRAPHHIER</code> fields for <code>vovselect</code> or REST to return node dependency information for Set objects. The information can be used to construct a FlowTracer flow graph of nodes.
All	VOV-11323		<code>vovdoc</code> CLI utility is retired
All	VOV-11454		<code>vov_rest_v3.py</code> is the new Python module used to make v3 REST API requests against <code>vovserver</code> .
All	VOV-11251		Accelerated processing of Crash Recovery file.
All	VOV-10844		Provide a REST API addition to allow job control. The following operations can be performed via the v3 REST API: 1. Dispatch 2. Forget 3. Preempt 4. Rerun 5. Resume 6. Suspend
All	VOV-10964		Job attributes can now be modified via the v3 REST API in ways that are also possible via the command line with <code>nc modify</code> .

## Resolved Issues

The following issues were resolved in this release.

Product(s)	Internal Number	Case Number	Description
All	VOV-5570		Fixed behavior of the ROWCOUNT field used by <code>vovselect</code> and related commands; <code>vovselect</code> will print "0" instead of an empty string when there are no rows in the query, and will print a correct count instead of 0 for " <code>vovselect rowcount from objects</code> ".
All	VOV-12721		Fixed an issue with the 2020.1.0 beta that caused a user to be logged out of a web session for one product when the user logged into a different product session in the same browser.
All	VOV-9853	24114	When determining if a shell is configured for a project, the environment variables <code>VOV_PROJECT_NAME</code> and <code>VOV_HOST_NAME</code> must be set. New checks were added to ensure the values of these variables may not be empty strings and may not be set to "unknown".
All	VOV-12027	CS0120819	Add the previously missing documentation for the <code>vovlicensemgr</code> command.
All	VOV-12583		Fixed an issue where querying for "maxnumacores" was returning the total number of cores in the system instead of the maximum number of cores in a NUMA node.
Accelerator	VOV-11515	25220	Added a new server configuration parameter, <code>tasker.uninterruptableSignalCascades</code> , that controls whether taskers should process incoming job control requests when there is an existing signal cascade being processed. If TRUE, taskers will ignore incoming job control requests if an existing request is in-process and a message will be printed to the slave log indicating as such. Default is FALSE.
Accelerator	VOV-10850		NUMA support has been updated to work correctly on systems configured with the number of sockets unequal to the number of NUMA nodes (Click <a href="#">here</a> for an example). On such systems, the earlier implementation would report the number of NUMA nodes and associated memory incorrectly. The earlier implementation could also result in degraded memory performance if a socket has more than 1 NUMA node.
Accelerator	VOV-7947	21578, 24177	Fix a failure to remove an Accelerator job's pre-command and post-command script log files by the command <code>nc clean</code> .
Accelerator	VOV-8975	22946, 29901	The output of <code>nc getfield JOB cputime</code> with a lowercase <code>cputime</code> is changed to be the integer accumulated CPU time for a job

Product(s)	Internal Number	Case Number	Description
			scaled in milliseconds. This is now consistent with the output of <code>nc getfield JOB CPUTIME</code> with an uppercase CPUTIME field name.
Accelerator	VOV-5439	21073	Execution information shows, "job has never run" instead of epoch dates for jobs that have not run yet.
Accelerator	VOV-11041	24894	Large v2 REST queries that produced no results have been fixed in the v3 REST API.  <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> The problem still persists with v2, the fix is in v3 only.</p> </div>
Accelerator	VOV-11261		Addressed issue where delays were encountered due to vovserver not being immediately notified of an update.
Accelerator	VOV-12337		Fixed timing issue with <code>nc wait</code> command when run immediately after submitting multiple jobs in background mode using <code>nc run</code> command
Accelerator, Accelerator Plus	VOV-12305	CS0120716	Fixed issue that prevented the <code>wxagent</code> job in an Accelerator base queue from reflecting the job placement policy and priority of the user's job in an Accelerator Plus queue.
Accelerator	VOV-11657	25247	Performance of <code>vovselect</code> and related Tcl commands has been improved in general, as well as specific enhancements for the ID field in all tables, and the WHY and FairShare-related fields in JOBS.
Accelerator	VOV-12023	CS0120864	Jobs that have been autokilled no longer show duplicate autokill reasons in the job status explanation.
Accelerator	VOV-12032		The integrated REST HTTP server now has a separate log under <code>SWD/logs/httpserver.log</code> .
Accelerator	VOV-12030	CS0120906, CS0121020	Fixed issue that caused taskers to be killed with the message "Tasker instructed to exit brutally". This also fixes server messages like "Cannot find tasker rdc-cad-svr12 (illegal id 365667285) pid=32830"
Accelerator	VOV-12560		Fixed <code>nc stop -after</code> option, which was not waiting for the specified number of seconds before issuing the stop request.
Accelerator	VOV-12628	CS0127402	Fixed a bug where <code>License:</code> was prepended the resource name if the resource parameter was specified in <code>vtk_flexlm_monitor</code> , even if the resource name already started with <code>License:</code> .
Accelerator	VOV-12543		Fixed a crash in vovserver caused by trying to select a job graph or node graph field from a set by name, e.g. " <code>vovselect NODEGRAPH from System:jobs</code> ".

Product(s)	Internal Number	Case Number	Description
Accelerator, Accelerator Plus, Monitor	VOV-10682	24282	Features names such as set via <code>vtkle_feature_set</code> can now include the '+' character and will be handled properly via the web UI.
Accelerator, Accelerator Plus	VOV-12403	CS0121177	Fixed an issue where NUMA jobs that span multiple NUMA nodes would not return all cores used by the job to the free pool on job completion.
FlowTracer	VOV-10362	24393	Fix to retrace all the jobs of selected sets in <code>vovconsole</code> hierarchically.
FlowTracer	VOV-12090		The default product name is now "ft" and is no longer determined by a prefix of the project name. The product name "auto" is no longer supported.
FlowTracer	VOV-12203	CS0120999	When a job is submitted by FlowTracer to an indirect tasker and the job is associated with a class, the resource list could contain duplicate entries because it was constructed as a union of two resource lists. Construction of the resource list now ensures duplicates are avoided.
Monitor	VOV-9100	23225	Fixed LM report plotting with "Breakdown By Feature" option.
Monitor	VOV-12627	CS0122686	A defective hypertext link in the Monitor Administrator Guide labeled "Advanced Control of the Product Ports" has been repaired.
None	VOV-11221	25011	Monitor email notifications set in the Admin->Notifications UI page using legacy mode email delivery had failed to successfully deliver email to the recipient.
All	VOV-10844		Provide a REST API addition to allow job control. The following operations can be performed via the v3 REST API: 1. Dispatch 2. Forget 3. Preempt 4. Rerun 5. Resume 6. Suspend
All	VOV-10913		Fixed a bug that caused <code>vovselect</code> to issue an error when requesting the field "env" in all lowercase.
All	VOV-9988		Made the WHY property more prominent in the Main Reasons section of the output of <code>vsv</code> and related commands for FAILED jobs.
Accelerator	VOV-8599	22097	See VOV-11848.

## 2019.01 Release

### Enhancements

The following new features and enhancements were introduced this software release:

Product	Internal Number	Case Number	Description
All	VOV-8981	22923	Slave objects have a new hardware resource HT that specifies whether hyper-threading is enabled on the host where the slave is running (query example: <code>vovselect ht from slaves</code> ).
All	VOV-8823	22590	The <code>-O</code> option on <code>nc hosts</code> has been enhanced to support display of the <code>@RAMUSED@</code> hardware resource.
All	VOV-8808		Added the field "SLOTS-AVAIL" to the SAllocatorVES table for use with <code>vovselect</code> and the <code>vtk_select</code> APIs.
All	VOV-8809		The following queryable fields have been added to the RESOURCEMAPS object: PREEMPTION, OTHERS, RESRES, NOLOG, NOOOQ, NOMATCH, MATCHRECENT, LEFTTOEXPIRE, UTILIZATION, OOQDUMP, RESDUMP, and JOBDUMP.
All	VOV-8320		CLI <code>lmmgr</code> , <code>ncmgr/wxmgr</code> now allows you to specify the database port option when start a new project (in consistence with the web UI database configuration tool and the CLI <code>vovdb_util</code> configure tool).
All	VOV-8810		Several new queryable fields have been added to the JOBS and FILES objects; see the output of <code>vovselect fieldname from JOBS</code> and <code>vovselect fieldname from FIELDS</code> . In addition there is a new queryable object named "IOS". This object allows querying from the inputs and/or outputs of a specific node. For example to get the ID field from all of the inputs of node 12345, the query would be <code>vovselect id from ios.12345 where isinput</code> .
All	VOV-7917	20080	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">  <b>Important:</b> The license grace period functionality has been removed due to a technical limitation.                 </div> <p>The software issues alerts 30/14/7/1d prior to the earliest expiration detected (in case there are multiple lines of the same license feature in the same license file).</p> <p>Licensing robustness and network fault-tolerance have been significantly improved. The software can operate in "disconnect mode", which means that it connects, gets a checkout, then disconnects from the license server. Checkout is refreshed every hour. The software will not fail for until 5 full</p>

Product	Internal Number	Case Number	Description
			<p>days have passed since the last successful checkout. Alerts are issued for this as well.</p> <p>As before, license servers may be specified as a colon-separated list via the RMonitor_LICENSE environment variable</p>
All	VOV-8766		<p>When copying the &lt;swd&gt;/vovnginxd/conf/nginx.conf.template file to an nginx.conf file, a message is output to the server log indicating that a copy is being made, and also specifying the source and destination files.</p>
Accelerator Plus	VOV-8838		<p>Add support for PBS as a base scheduler to Accelerator Plus.</p>
Allocator	VOV-8130	21897	<p>If a license features expires in the Monitor connected to this Allocator, then Allocator will stop allocating tokens of that feature after a specific period of time, default 1 hour. This threshold can be modified using the policy variable: <i>la.feature.expirationThreshold</i></p>
Allocator	VOV-8726		<p>Allocator now supports PBS, that it is can allocate licenses to a mix of NC and PBS clusters.</p>
FlowTracer	VOV-8678	22270	<p>Add support for the substitution of the @JOBID@, @ARRAYID@, and @INDEX@ keywords in job resource requests. Due to the risk of overloading the system with job queue buckets, these are opt-in, using the following settings in <i>policy.tcl</i>:</p> <pre style="background-color: #e6f2ff; padding: 5px;"> substituteArrayIdInResources substituteArrayIndexInResources substituteJobIdInResources                     </pre> <p>For each, 0 is disabled (default) and 1 is enabled.</p>
FlowTracer	VOV-9005	22742	<p>In FlowTracer, <i>vovlsfd</i> will "bsub" buckets based on priority; earlier it used to be rank followed by priority.</p>
FlowTracer	VOV-3186		<p>Some pre-defined sets that are created on-demand were not getting created (if nonexistent) by the web UI. This issue is now fixed. The sets impacted by this change are Isolated nodes, Missing files, Blocking files, Failed jobs, Jobs with no inputs, Jobs with no outputs, Autoflow, Tainted. Removed the "High Level Flows" set from the web UI.</p>
FlowTracer	VOV-7968	21613	<p><i>vovwxd</i> slave log deletion is done in a separate process.</p>
FlowTracer	VOV-7920	21534	<p><i>vovwxd</i> will not delete the log file of a running slave during the logs cleanup routine.</p>

Product	Internal Number	Case Number	Description
FlowTracer	VOV-8844	22622	<code>vovfilerready</code> has been re-implemented to eliminate the side-effects present in the earlier implementation. Consequently, it is no longer necessary to call <code>vovfilerready -clean</code> . Also, <code>vovfilerready</code> no longer creates phantom barriers and non-executable jobs during its operation.
FlowTracer	VOV-7069	21501	"STOP" action on a running job will check the ACL permissions for the user attempting to stop the job. A LEADER will no longer be allowed to stop other people's jobs if LEADER does not have STOP permission in ACL.
FlowTracer	VOV-5668	20732	<p>The following new features are supported for stopping and suspending jobs:</p> <p>The <code>-signals</code>, <code>-include</code> and <code>-exclude</code> options to <code>nc stop</code> and <code>vovstop -f</code> are now functional.</p> <p>The trace parameters <code>defaultStopSignalCascade</code> and <code>defaultSuspendSignalCascade</code> have been added to specify default behavior when requesting to stop or suspend a job, respectively.</p> <p>The job property <code>STOP_SIGNALS</code> can now be used to set stop-signal cascades on a per-job basis.</p>
FlowTracer	VOV-5148	20735	Enhanced 'Forget set & elements' menu option to forget the set and subsets hierarchically.
FlowTracer	VOV-4898	20139, 20142	<p>Added node status change logging capability with GUI hooks in the HTML and Tk interfaces to change the type of logging. Added reasons for all node status changes that are queryable using the <code>@WHYSTATUS@</code> field of nodes.</p> <p>Internally, all commands that change node status now pass along a reason for the change, which is logged in the journal if node status logging is enabled. The most recent reason is in the <code>@WHYSTATUS@</code> field.</p> <p>In vtk API commands that change status, a new <code>"-why REASON"</code> option has been added. Any reason can be passed, and it will get added to the <code>@WHYSTATUS@</code> field, which sometimes gets stored as the <code>@WHYSTATUS@</code> property on nodes (if the text reason is not in the internal list of known reasons). Client information is also included (user, executable name, security level, etc).</p> <p>Node status logging can be enabled server-wide using a global setting (see <code>vtk_node_status_logging</code> command), or individually on jobs or files. It can also be enabled on sets, which apply only to the nodes in the set at the time the command is called (it applies it to the nodes in the set, not to the set itself).</p> <p>Node status logging can be changed (enabled/disabled) using <code>vtk_node_status_logging</code>, through the node editor GUI (<code>nc gui</code></p>

Product	Internal Number	Case Number	Description
			<p>or vovconsole), or through the HTML interface on the <b>Sets</b> page, the <b>Job Edit</b> page, or the journal viewer (for jobs). There are 5 settings for node status logging:</p> <ul style="list-style-type: none"> <li>• UNSET - use the default server setting</li> <li>• DISABLED - logging turned off</li> <li>• ALL - all changes of all types are logged</li> <li>• INVALIDATIONS - changes logged only if node invalidated</li> <li>• DOWAcceleratorONE INVALIDATIONS - changed logged only for downcone invalidations (when the entire downcone of a node is invalidated).</li> </ul> <p>See documentation for more details.</p>
Accelerator	VOV-8789		<p>The ncupgrade script has been implemented at beta level. This script allows customers to upgrade their Accelerator installation to a different (newer) version of software without taking down the queue. The script prompts users for decisions (such as queue name, location of the new version, etc.) and is intended to perform the upgrade without losing any jobs, and without having client job submissions fail (they just take longer to register).</p> <p>Please provide feedback on this feature during the beta period.</p>
Accelerator	VOV-7408	20586	<p>FairShare configure page now displays actions for a group based on user's permission on that group.</p>
Accelerator	VOV-7239	20343	<p>When vovserver issues errors or alerts about running out of disk space and having trouble writing a file, always tell the full path of the file.</p>
Accelerator	VOV-8536	22170	<p>The nc why command output for a queued job now includes a count of dependent jobs, if any, that must finish before the queued job runs.</p>
Accelerator	VOV-7529	20618	<p>Reservation is now a VovObject, which means reservations can be queried with vovselect, are saved persistently(PR), and go into crash recovery as well(CR). One slave can have multiple reservations where previously there could be only one reservation per slave. vovslavemgr reserveshow is improved. vovshow -reservations, vovforget -allreservations, vovforget reservationId could be used to see and handle reservations. vtk_reservation_create, vtk_reservation_delete, vtk_reservation_get, vtk_reservation_update APIs are added as well.</p>

Product	Internal Number	Case Number	Description
Accelerator	VOV-8419	22067	<p>Resourcemap now use ACLs for access control. The default access control permissions for a resourcemap are:</p> <pre>OWNER:      ATTACH DETACH EDIT VIEW FORGET DELEGATE EXISTS ADMIN:      ATTACH DETACH EDIT VIEW FORGET DELEGATE EXISTS EVERYBODY: ATTACH DETACH VIEW EXISTS</pre>
Accelerator	VOV-9049		Accelerator can now be configured to automatically determine the timeout for license usage data gathered from Monitor based on the time it takes to gather the data.
Accelerator	VOV-9494	23807	EXT JobControl signals are now logged in the slave log
Accelerator	VOV-9293	23475	Added field for job called SLAVESTATUS; this field can be used for example in preemption rules to avoid preempting jobs that are running on suspended slaves (slaves with status SUSP).
Accelerator	VOV-8655	22254	Added support for the '-noheader' option in bjobs (LSF emulation). This removes the column headings from the output.
Accelerator	VOV-8897		Added a new environment variable VOV_GROUP_PURGE_PERIOD that can be used to instruct vovslave to periodically purge its internal cache of UNIX group information, including gid/name maps and user group lists. Specified in seconds (minimum 60). Default: 0 (disabled).
Accelerator	VOV-8501		Slaves and resource maps can be reserved on the web page representing a corresponding object. The list of reservations for an object will be shown on the page.
Accelerator	VOV-8331	22802	Added -xdur flag to nc run for specifying the expected duration of the job. This is identical to the -x flag.
Accelerator	VOV-7888	21475	The vovslave now defaults to using the vovgetgroups utility for obtaining user group information from UNIX-based operating systems. Previously, this was enabled by setting the VOV_USE_VOVGETGROUPS environment variable to 1.
Accelerator	VOV-7886	21455	Improved readability of messages generated with vov_diagnostic_no_start.
Accelerator	VOV-7198	20252	Added new "STARTTIME" field for slaves that contains the UNIX timestamp of the slave's start time.
Accelerator	VOV-7207	20224	In Accelerator it is now possible to use nc wait -start to wait for jobs to start running.

Product	Internal Number	Case Number	Description
Accelerator	VOV-8784		Improved RESERVE_SAllocatorVES preemption ruletype to take -preemptslavespec parameters to take a slavelist and slave spec. The preemption puts reservations on slaves that are compatible with preempting jobs.
Accelerator	VOV-7388	20587	nc hosts and vovslavemgr reserveshow commands are upgraded according to the new reservation features.
Accelerator	VOV-5392	20367	Resource expressions now support lists of typed resources in place of OR, e.g.: nc run -r User:abc,User:def -- sleep 10 . Additionally the AND, OR and NOT keywords are now case-insensitive.
Accelerator	VOV-5455		The number of cpus(cores) is configurable through vovslavemgr configure -cpu.
Accelerator	VOV-4823	20583	Added new hog protection for users with more currently-managed jobs than a configurable threshold, that when breached, will result in a configurable service delay for that user. Currently-managed jobs are those younger than the autoforget thresholds, as defined in the policy.tcl. All job states are considered.  This protection can be enabled and configured via the following server configuration parameters defined in the policy.tcl file:
			<pre>hog.protection.enable (default=0, which is off) hog.protection.jobcountthreshold (default=100000, min=1000, max=999999) hog.protection.clientdelay (default=1, min=1, max=600, specified in seconds)</pre>
Accelerator	VOV-8973	22958	Accelerator now correctly generates an alert if the Monitor instance being tracked by vovresourced is not available at first contact attempt. Previously this alert would appear only if contact was made and then lost.
Accelerator	VOV-9763		A new vovshow command option -innerlooptimers provides profiling information about the vovserver innerloop. It can help identify performance issues or performance effects of certain job workloads.
Accelerator	VOV-9720	23696	The severity level of vovwxd alerts can be configured. Please refer to \$VOVDIR/./common/etc/config/vovwxd/config.tcl for details about each alert. Look for parameters CONFIG(alert,*)
Accelerator		23619	Users can now specify the NUMA-related resources MAXNUMACORES and MAXNUMAFREECORES when running jobs. The former refers to the maximum number of NUMA cores in a single node on the slave, the latter to the maximum number of free NUMA cores on the slave. For example: nc

Product	Internal Number	Case Number	Description
			<p>run -jpp pack -r+ MAXNUMAFREECORES#4 will request a job on any slave with at least 4 free NUMA cores on the same node.</p> <p>In addition, the fields <i>MAXNUMACORES</i> and <i>MAXFREENUMACORES</i> have been added to the SAllocatorVES object for the purposes of vtk_select_loop, vovselect and related commands.</p>
Accelerator	VOV-8703	23470	<p>Added support for Linux container integration (beta). See the Accelerator Administrator Guide for information on configuring container support, and the Accelerator User Guide for information on requesting container support in job submissions. Example configurations and hook scripts are provided in \$VOVDIR/etc/config/containers.</p>
Monitor	VOV-9062		<p>A license monitor can be setup to parse the flexlm option files and create proper reservation related user/post groups.</p>
Monitor	VOV-9068	23166	<p>Monitor now includes support for software using Wibu CodeMeter as a licensing mechanism.</p>
Monitor	VOV-7763	21900	<p>Implemented using PostgreSQL materialized view for storing the daily checkouts/denials records so the nightly batch reports will run fast by retrieving data from much smaller set in view than from the huge checkouts/denials table. For now it's beta as we will tested against a large data set to see how much improvement on the performance. After upgrade, user needs to enable it by set VOVDBD(lm,useDataView) 1 from \$SWD/vovdbd/config.tcl and start Monitor project.</p>
Monitor	VOV-6970	20354	<p>Allow for failover of Monitor when used with Accelerator. The Accelerator vovresourced daemon will now locate the host and port of Monitor by using the product registry if configured to do so.</p> <p>This is done by setting the LM(licmon) setting in the vovresourced configuration file to the name of the Monitor instance, and making sure that the LM(flexlmd) setting that normally contains the Monitor host and port information is not set. If LM(flexlmd) is set, the location specified therein will be honored as before.</p> <p>Additionally, a new configuration parameter, <i>LM(enabled)</i>, has been added to provide the ability to disable communications between vovresourced and Monitor altogether. The data type of this parameter is boolean and the default value is true.</p>
Monitor	VOV-5724	20839	<p>Increased the vovserver almost-full free disk space threshold from 1MB to 1GB. Added a new percentage-based check as well, which defaults to a 1% threshold. Both thresholds are configurable via the following server configuration parameters defined in the policy.tcl file:</p>

Product	Internal Number	Case Number	Description
			<ul style="list-style-type: none"> <li>• diskspacecheck.minfreemb (default=1000, min=1, max=50000)</li> <li>• diskspacecheck.minfreepercent (default=1, min=1, max=50)</li> </ul> <p>Increased the vovslave almost-full free disk space threshold from 5MB to 100MB. This can be overridden via the -mindisk option to <code>vtk_slave_set_defaults</code> and/or <code>vtk_slave_define</code>. Added a new notification health check (<code>doTestHealthServerDiskSpace</code>) so that email notifications will be sent in addition to the alerts and log messages that are generated.</p>
Monitor	VOV-6037		CodeMeter license support is now added to Altair Monitor: CodeMeter log parser and license monitor setup tools (thru <code>\$SWD/vovlmd/config.tcl</code> or Web UI) are available.

## Resolved Issues

The following issues were resolved in this software release:

Product	Internal Number	Case Number	Description
All	VOV-9363		Fixed server crash when the <b>Detach slave from server</b> " link was clicked on the Slave Details page in the web UI.
All	VOV-9333		Fixed an issue with vovserver failover that could lead to a corrupt <code>VOV_HOST_HTTP_NAME</code> setting if that value did not already contain a fully-qualified domain name.
All	VOV-9333	23318	Fixed issue where an invalid slave resource expression would result in a permanent error message on the "slaves" web page.
All	VOV-8578	21858	The following queryable fields have been added to the <code>SAllocatorVES</code> table for consistency with the <code>vovslavemgr configure</code> command: <code>RAMSENTRYFAllocatorG</code> , <code>MINRAMFREE</code> , <code>EFFlowTracerOTALRAM</code> , <code>RETRYCHDIR</code> , <code>RETRYCHDIRSLEEP</code> , <code>RETRYCHDIRSLEEPBACKOFF</code> , <code>MAXWAITNOSTART</code> , <code>ALLOWCOREDUMP</code> , <code>DEBUGJOBCONTROL</code> , <code>AUTOKILMonitorETHOD</code> , <code>MINDISKSPACE</code> .
All	VOV-8685	22253	Fixed issues in D and U environments (which are used to Define and Undefine specific env vars) when they are both used, or they are nested (such as having multiple D calls in the env). Previously, it was possible to define something in the environment but have that item undefined in the "END" environment script. Now, it preserves the state using temporary

Product	Internal Number	Case Number	Description
			environment variables so that each "START" and "END" environment script has consistent environment variables defined.
All	VOV-9501	23821	Rebuilt binaries dependent on OpenSSL to remove a bad default OpenSSL configuration path.
All	VOV-9485	23695	Fix a rare crash during slave startup caused by an intermittent failure in the Linux proc filesystem.
Accelerator Plus	VOV-9216	23382	Fix an error in the "Why" information for a job that occurred when the associated job bucket was no longer present.
Accelerator Plus	VOV-9579		Fixed a bug that caused vovwxd to dequeue old launcher jobs which itself can result in skipping some of the buckets when there is a large number of slave requests and the Accelerator PlusLauncher slave is not able to process them quickly
Accelerator Plus	VOV-8598	22485	Pass the bucket priority to the launcher so that the priority of the resulting slave job in Accelerator will match that of the originating bucket in Accelerator Plus. This enables the slave jobs to be selected by the job modulation preemption rule in Accelerator. When the base queue is saturated, job modulation preemption will close and gracefully stop Accelerator Plus slaves that are running with lower priority so that queued higher priority slave jobs can run, in turn servicing the higher priority buckets in Accelerator Plus.
Accelerator Plus	VOV-8074	21654, 21997	Resource expressions with   operator in job classes should be combined without spaces. e.g. set VOV_JOB_DESC(resources) "(general PD) Limit:..."
Allocator	VOV-9412	23662 23891	Improved performance of NRU matching. This reduces skipping of NRU matching due to hitting the resmap.max.nru.time limit. Consequently, it reduces misclassification of NRU jobs as OOO.
FlowTracer	VOV-9253		Added documentation for vovlogchecker
FlowTracer	VOV-9263		The vovconsole Alerts dialog now wraps lines, permitting very long alerts to be read in their entirety.
FlowTracer	VOV-8512		Readonly user is not allowed to recompute a set
FlowTracer	VOV-8100	21852	LEADERS can also add alerts and echo logs, not just ADMINs
FlowTracer	VOV-7966	21609	The API will detect an invalid ACTION such as START and give an error message, instead of silently returning incorrect result.

Product	Internal Number	Case Number	Description
FlowTracer	VOV-7536	20835, 21521	Fixed issue with too many arrows between sets when building or re-building the flow while viewing the parent set. Now it recomputes the arrows between sets when events that could modify those arrows occur.
FlowTracer	VOV-7355	20549	Increased the maximum number of dependency levels in a FlowTracer flow graph from 1024 to 4096.
FlowTracer	VOV-8418	22102	The effect of an md5 barrier, if present, is now taken into account in all cases that a regular barrier would have had an effect.
FlowTracer	VOV-8143	21920	vovdaemonmgr show will show the status of all instances of vovlsfd connected/configured against the current project, across all users of the project.
FlowTracer	VOV-8033	21722	When starting an xterm, we want to have the project enabled but also pick up aliases and such from the users <code>.cshrc</code> or <code>.profile</code> (bash) file in their home dir. We also want <code>.Xauthority</code> from their home dir to make sure we can bring up the xterm. To do this, we fake the HOME dir temporarily. For this to work with multiple users, I create a subdirectory in the \$SWD for each user ( <code>\$SWD/.xterm_home/\$USER</code> ). There, I symlink the default <code>.cshrc</code> or <code>.profile</code> from the \$SWD and also the <code>Xauthority</code> from the home dir. The default <code>.cshrc</code> (or <code>.profile</code> ) sources the user's home dir version, then sources the VOVDIR setup file and enables the project. This leaves the user with a full login shell, complete with aliases, but ensures the correct VOVDIR and VOV_PROJECT_NAME are set up and enabled. Previously, the fake HOME dir was set to the SWD dir but since the <code>Xauthority</code> is linked, that did not work for multi-user. Hence, the added layer of subdirectories per user.
FlowTracer	VOV-8733	22510	When a job finishes, any stdout or stderr given to the wrapper on the command line with the <code>-O</code> or <code>-E</code> option is removed if it is zero length. If the stdout/stderr file has contents but was not written during job execution, it is disconnected from the job unless it is the input to another job. These changes prevent a job from failing when multiple stdout files are found (from the <code>-O</code> option or parsing the command), but not all of those files are written during job execution.
FlowTracer	VOV-8484		Suspend vw process upon receiving SIGTSTP when VOV_VW_PAUSE_ON_TSTP is set.
FlowTracer	VOV-7610	20976	Fixed labels on jobs and files in FlowTracer and <code>nc_gui</code> so the text does not overflow the borders of jobs or files.

Product	Internal Number	Case Number	Description
FlowTracer	VOV-8453		vovwxd now supports LSF queues. Please refer Accelerator Plus documentation for configuring Accelerator PlusLauncher slave. CONFIG(driver_script) should be set to vovlsf.tcl.
FlowTracer	VOV-7825	8453	Fixed issue where some subslave warning and error messages were getting lost (not printed to any logs). Now, these issues get propagated to the WHY property of the job.
FlowTracer	VOV-6396	20729	vtk_select_get and vtk_select_loop is improved to retrieve query results in dynamic sizes of chunks to prevent buffer overflow.
FlowTracer	VOV-4100	20840	Added FDL flag for jobs ("FAllocatorGS distributed") that sets the new "@ISDISTRIBUTED@" flag on the job. This flag automatically enables NFS protection in the wrapper for that job, equivalent to using the "vw -N" option or setting VOV_VW_NFS_PROTECTION=2 when running the job. This can also be set or unset with vtk_transition_set. Use this flag for jobs that launch processes or sub-jobs on hosts other than the submission host.
FlowTracer	VOV-9158	23297	Fixed vovlsfd issue where all occurrences of -R was getting removed from BSUB_OPTIONS.
FlowTracer	8002	21684	When VOV_FT_MULTUSER environment variable is set before launching a slave, the slave will only accept jobs owned by the same user who started the slave. Jobs owned by other users will be refused.
Accelerator	VOV-9423	23709, 24842	Modified nc_list core algorithm to cap output at 2GB. The command will return error if output string gets over limit.
Accelerator	VOV-9498	23813	Fixed behavior of vovstop and related commands with regard to EXT:KILL - include and exclude specifications should work as expected now.
Accelerator	VOV-9246		Improve vovserver memory allocation for better performance
Accelerator	VOV-9245		On Linux-based systems, there are now two client servicing modes from which to choose: poll (default) and epoll. The mode chosen specifies which POSIX mechanism the vovserver will use to determine which client file descriptors are ready for use. The mode can be specified by setting config(useepoll) to 0 (poll, default) or 1 (epoll) in the SWD/policy.tcl file. Generally, the epoll mode should result in more efficient processing of service requests. As of this version, epoll mode is a new feature and is therefore disabled by default.
Accelerator	VOV-9098		For nested FairShare groups with same string pattern in the name for example: "/somename" and "/topgroup/somename". The latter one is nested, child of topgroup. When user went on fairshare.cgi web page and clicked

Product	Internal Number	Case Number	Description
			to show info for "/somename" group they saw list of both above groups: "somename" and "topgroup". Fixed: second group does not show up when "/"somename" is selected
Accelerator	VOV-5892	22302	WX jobs occasionally use global Tcl libraries for environment instead of VOVDIRs Tcl.
Accelerator	VOV-9163		Improved FreeSlave rule type to update existing reservations if the rule still fires for a waiting bucket. ReserveSlave rule type is improved to skip slaves in bad status such as SUSPENDED.
Accelerator	VOV-9076	23182	No longer print a file sourcing error when issuing an unknown nc subcommand.
Accelerator	VOV-8041	21757	<p>Eliminated the need for host-based equivalence cache files. The vovserver now caches equivalence entries and sends them to clients when needed.</p> <p>For this reason, when using this new default behavior, equivalences that reference an environment variable should not resolve the variable in this file, in environments that will have both Unix and Windows clients. Instead, they will need to be resolved by the client upon receipt. This is done by enclosing the equivalence value inside curly braces and referring the environment variable as \$VARNAME as opposed to the Tcl format of \$env(VARNAME).</p> <p>The previous behavior can be restored by setting VOVEQUIV_CACHE_FILE to "legacy" in the \$\$SWD/setup.tcl file for a given instance or globally for all instances via a \$VOVDIR/local/vovsetup script (vovsetup.csh or vovsetup.sh).</p> <p>Older clients connecting to a new vovserver will work without any changes as long as the \$\$SWD/equiv.caches directory exists and has world-write permissions. Variables in the new form will resolve correctly.</p> <p>New clients connecting to an older vovserver will require legacy mode to be enabled.</p>
Accelerator	VOV-7407	20607	Corrected the logfile field value in the nc getField output when a job is submitted with the -nolog option. The logfile field now displays /dev/null in this scenario.
Accelerator	VOV-9028	23100, 23463, 23464	Increase performance of vtk_resourcemap_set_limit, the Tcl API command that is used to set limit resources by expanding a @KEYWORD@ to find matches to the main resource being passed in.
Accelerator	VOV-7242	20265	FairShare groups now have a "flatten" setting. When a group is flattened, all of its child groups will be treated as though they were on the same level of hierarchy; that is, all leaf-level groups will be assigned weights as

Product	Internal Number	Case Number	Description
			though they were direct children of the top-level flattened group, ignoring weights assigned to any non-leaf-level groups in between. This setting can be enabled by the <code>vovfsgroup modify</code> command. Note that disabling this setting for a group that has a flattened parent will have no effect; the group will still be flattened.
Accelerator	VOV-8533	21902	Allow for the preemption debug property to exceed the currently configured max value length, up to the highest possible length that can be configured. Also, for all properties that exceed the max value length, instead of setting the value to an error message only, the value is now set to the same error message as before, followed by a truncated version of the value intended, ending with a truncation indicator.
Accelerator	VOV-9064	23004	Added ability to query slave resources individually using the <code>vovselect</code> utility.  <pre style="background-color: #e6f2ff; padding: 5px;">% vovselect resources.X from slaves % vovselect resources.X from 012345678 where 'resources.X&gt;100'</pre> <p>This works for both standard and user-defined resources.</p>
Accelerator	VOV-8233	21983	Messaging in <code>vsy, nc info</code> and related commands has been changed to clarify which resources are actually missing when the user specifies OR clauses in the resource request.
Accelerator	VOV-7946	21549	Prevent the server from checking the existence of SNAPSHOT environment files for Accelerator and Accelerator Plus to prevent long file access times from affecting server performance.
Accelerator	VOV-7882	21473	Fixed issue that caused hosts to lose information such as frequency, cores, and RAM after doing a sanity. Now the data is recomputed after sanity when needed. Sanity still removes hosts older than 30 minutes (sort of like a 30-minute cache on host info), but now it gets the information back properly.
Accelerator	VOV-7630	21021	<code>&lt;br /&gt;</code> in the Accelerator jobs for user page is for a separate line for each tool info, now is made work as intended.
Accelerator	VOV-8352	22090	A case where the <code>partialTool</code> script could exit unexpectedly has been fixed.
Accelerator	VOV-8198	21965	Improved the "why" message for jobs that are invalid or failed due to a dependency to be more meaningful. For Accelerator, it now includes information about the dependent job instead of the PHANTOM file used to create the dependency. For FlowTracer, it includes information about the input file as well as the upcone job which has the file as an output.

Product	Internal Number	Case Number	Description
Accelerator	VOV-7509	20789	The <code>vovclientmgr</code> utility now has a "closedeadinteractive" action, which allows the user to close clients that have interactive jobs that are no longer running. Measures have also been implemented to prevent such clients and their matching <code>vovsh</code> processes from lingering in the first place. Now, when an interactive job is either spawned or placed in the background, both the client and <code>vovsh</code> process will close upon job exit.
Accelerator	VOV-8730	22315	Fixed an error where editing a queued interactive job in the Accelerator web interface could potentially cause the job to fail.
Accelerator	VOV-8059	21780	Cancel creating new preemption rule goes back to the main preemption page.
Accelerator	VOV-7639	20590	The command line tool <code>vovslavemgr</code> no longer attempts to start a slave that is already running.
Accelerator	VOV-8170	21929	Added parameter <code>resmap.sw.types</code> with default value "License Limit Policy User Group Priority"
Accelerator	VOV-6186	20995	The <code>nc getfield</code> command now works correctly with properties that have lower-case letters in their names.
Accelerator	VOV-3765	20136	The <code>nc run</code> command now supports an option to control the number of times a job can be rescheduled. Thus: <code>-maxresched &lt;N&gt; --</code> Maximum number of times the job can be rescheduled. Must be $\geq 1$ and $\leq 10$ (default 10). This implemented via the <code>MAX_RESCCHEDULE</code> property on the job.
Monitor	VOV-9165	23315	The parser <code>film_parse_dsls</code> now can handle more general pattern of "granted since: date time [AP]M ..." in the license usage output lines, and with option "-robust", user can ignore unparseable lines in license usage output.
Monitor	VOV-9080		With <code>-staticImages</code> option, the <code>film_batch_report</code> now extracts the client-side plotting to static images served by the Monitor http server, thus potentially reducing the HTML report file size (as the report file does not store data and jquery library and function code to render the images).
Monitor	VOV-7836	21400	Action button "Stop" will now show when the report is in any of the following status: RETRACING, RUNNING, SCHEDULED, SUSPENDED.
Monitor	VOV-7269	20324	Sanitize single quote characters found in strings obtained by license server parsers. The following SQL command can be used to sanitize records already in the database: <code>vovsql_query -rw -x "update hosts set name='joes-host' where name='joe''s-host'"</code>

Product	Internal Number	Case Number	Description
			The key to this statement is escaping each single quote with another single quote in the where clause (joe's-host becomes joe"s-host).
Monitor	VOV-7851	21399	Provide control over whether the -r option is used for the DSLS parser, since it appears to not work in certain versions of the DSLicSrv client. This option is used to indicate that the server is running in restricted mode.
Monitor	VOV-8962	22908	Set the VovOutputConflictHandler to Retry instead of the default Abort for vovlmd to avoid crash on output conflict.
Monitor	VOV-8402		The duration pie-chart now rendered correctly, removed extra duration out of the selected range from the live checkouts.
Monitor	VOV-9518	23736	The Tcl HTTP client library has been updated to fix a timeout and data truncation issue that occurred when downloading very large Monitor license checkout data over an SSL connection.
Monitor	VOV-9041	23092	Batch report for utilization plot - detailed plot for token used can be saved as csv

## Errata

The following issues and defects are known to exist in this software release.

Product	Internal Issue	Description
All	VOV-9759	The <code>config</code> subcommand of <code>vovservermgr</code> misprints confirmation messages
All	VOV-9827	The <code>vtk_slave_define</code> Tcl command no longer supports automatic resources based on the <code>vovslave</code> name.
All	VOV-9419	Setting <code>config(useepoll) 1</code> in the <code>policy.tcl</code> config file has no effect.
All	VOV-9771	The <code>vtk_select_get</code> command is not honoring the case of field names.
All	VOV-9742	There is a new <code>vovservermgr</code> command that has been added for system administrators. This command has several subcommands that provide an easier way to set <code>vovserver</code> configuration and environment variables, and interface to memory chunking and scheduler tuning controls.

Product	Internal Issue	Description
All	VOV-9623	eventserver and epoll ( ) are not starting with vovservermgr
All	VOV-9748	Elaborate the vovservermgr -h help screen with more complete usage information.
Accelerator Plus	VOV-9784	qdel1 misspelling makes the Accelerator Plus cleanup process fail.
Accelerator Plus	VOV-9785	qdel path in vovpbs.tcl is not completely specified.
FlowTracer	VOV-9805	Priority based scheduling with vovwxd: vovlsfd should take a job's priority setting into account when submitting jobs.
FlowTracer	VOV-9761	vovwxd ignores the setting of the VOV_FT_MULTIUSER environment variable.
FlowTracer	VOV-9581	Take Ownership in the Node Editor is broken.
Accelerator	VOV-9792	Containers should allow user IDs from NIS or LDAP.
Accelerator	VOV-9793	Containers hooks can be made more portable for Centos host OS.
Accelerator	VOV-9806	A container resource shows up 2 times in vovslavemgr show -resourceonly output.
Monitor	VOV-9764	The Monitor agent page no longer starts slaves.

## 2019.01 Update 7 Release Notes

Product(s)	Internal Issue	Case Number	Description
All	VOV-12584		Session and process group IDs 0 and 1 will

Product(s)	Internal Issue	Case Number	Description
			not cause cause all process with those ids to be included in the process graph used for job statistics.
All	VOV-13023		<ul style="list-style-type: none"> <li>• Prevent vovs from growing beyond the configured maximum capacity when job in the last slot becomes suspended.</li> <li>• Allow for maximum capacity to be configured on</li> </ul>

Product(s)	Internal Issue	Case Number	Description
			a runni slave even when theca value is not chan <ul style="list-style-type: none"> <li>• Supp                              the                              full                              capac                              speci                              form                              in                              wxag                              via                              the                              CON                              paran</li> <li>• Do                              not                              autom                              mark                              a                              wxag                              job                              as                              suspe                              if                              one                              of                              its                              child                              proce                              beco                              suspe</li> </ul>
Accelerator	VOV-12707	CS0131356	Curly braces can now be

Product(s)	Internal Issue	Case Number	Description
			used in environme specificati as a means of supporting characters that would normally be sensitive to the processing of the specificati For example, to pass a comma into an environme variable value using the D environme use D(FOO={ or via the alternative syntax of D,FOO={

Product(s)	Internal Issue	Case Number	Description
Accelerator	VOV-12628	CS0127402	Fixed a bug where License: was prepended the resource name if the resource parameter was specified in vtk_flexlm even if the resource name already started with License:.
Accelerator	VOV-12726	CS0133891	The vovcleanup utility has been updated to work with resource data files using the .res suffix.

Product(s)	Internal Issue	Case Number	Description
Accelerator	VOV-12489		Fix for cleaning up the files created today when vovcleanup is run before noon and cleantime is < 24h. Previously these files were not being removed by vovcleanup
Accelerator	VOV-12977	CS0143428	Fixed an issue with interactive jobs (nc run - I) failing with the error message "Job

Product(s)	Internal Issue	Case Number	Description
			has problems with PTY. Bad pipes".
Accelerator	VOV-12030	CS0120906,CS0121020	Fixed issue that caused slaves to be killed with the message "Slave instructed to exit brutally". This also fixes server messages like "Cannot find slave rdc-cad-svr12 (illegal id 365667285 pid=32830
Accelerator	VOV-12396	CS0121165	Multiple CORES, RAM, and TMP resources

Product(s)	Internal Issue	Case Number	Description
			requested for NC job are properly combined when passed to container. For example "nc run - r + RAM/100 - r + RAM/200 will result in setting "VOV_CC available from Container Hook scripts.
Accelerator	VOV-9776	24061	The form for submitting a slave reservation now checks that the

Product(s)	Internal Issue	Case Number	Description
			data is valid before actually submitting the reservation
Accelerator	VOV-8012	21662, CS0121063	VOV_LM functionality will now be available for interactive jobs and will support multiple license servers in colon or semicolon (windows) separated list instead of space separated list.
Accelerator, Accelerator Plus	VOV-13051	CS0121039	Fixed an issue with interactive jobs (nc run -

Product(s)	Internal Issue	Case Number	Description
			D) failing with error messages similar to "Error=9 Address already in use [vovttyser and "FATAL ERROR: Cannot open PTY port (with remote signal handling): Cannot open pty server sockets [vncrun.tcl This is accompani by job errors similar to "Cannot connect to PTY server on submission host

Product(s)	Internal Issue	Case Number	Description
			lava1 13316 Z@:x=XG from lava5".
Accelerator, Accelerator Plus	VOV-13038	CS0145428	<ul style="list-style-type: none"> <li>Fixed issue that prevented sharing member lookups from being disabled if the VOV environment variable was set.</li> <li>Supported configuration of job statistics calculation via the pre-existing value - U option to vovs as well as the vtk_s</li> </ul>

Product(s)	Internal Issue	Case Number	Description
			calls. The comp value form is a CSV list of times in order of resou upda (slav heart slave statis and job statis • Supp the comp value for the - U optio in the vovw confi via the CON paran
Accelerator, Accelerator Plus	VOV-13030	CS0149277	Fixed an issue with

Product(s)	Internal Issue	Case Number	Description
			Ctrl-C not working as expected with interactive jobs (nc run -I/-II/-Ir).
Accelerator	VOV-11226	24205, CS0128626	Fixed issue that prevented pre and post commands from running as the job user in containerized jobs that make use of container hooks that run as root.
Accelerator, Accelerator Plus	VOV-12629	CS0127516	Removed duplicate

Product(s)	Internal Issue	Case Number	Description
			detection logic from - r + and - dpres + submission options. As a result, the - r + option now properly handles more complex resource specificati
Accelerator	VOV-11000	24853	This change allows DP jobs to assign a separate jobclass to the master and componen jobs. It

Product(s)	Internal Issue	Case Number	Description
			works by setting VOV_JOE to a comma separated list of jobclass names the same way that VOV_JOE can be set to specify resources. The jobclasses are treated as strings. They are not evaluated as you are already setting these from within a jobclass definition. See

Product(s)	Internal Issue	Case Number	Description
			the updated Accelerator documentation for further explanation and examples.
Accelerator Plus	VOV-12635	CS0128164	Fixed a bug causing a memory access violation in vovserver when multiple slaves are being stopped with running jobs.
Accelerator Plus	VOV-12658	CS0124441	vovwxd will no longer print warnings about slaves being in "state 1" (pending)
Accelerator Plus	VOV-11836	CS0120725	nc forget using

Product(s)	Internal Issue	Case Number	Description
			the options - mine, - dir, or - subdir, will no longer forget system jobs bydefault. A new option, - system, will include system jobs to match old behavior. In general, the option - system should not be used when forgetting user jobs in a

Product(s)	Internal Issue	Case Number	Description
			WX setting because forgetting launcher jobs for slave agents that are not runnable in the batch system before they are processed by vovwxd could result in lingering queued agent jobs. Using nc forget - minewitho the - system flag will forget the user submitted jobs

Product(s)	Internal Issue	Case Number	Description
			and allow vovwxd to more efficiently up slave agents.
Accelerator Plus	VOV-12316	AAP25172	Fixed an issue that caused vovserver memory to grow over time as "nc wait" and "nc run -w" commands were issued.
Accelerator Plus	VOV-13037	CS0147601	<ul style="list-style-type: none"> <li>• Prevent vovs from growing beyond the configured maximum capacity when job</li> </ul>

Product(s)	Internal Issue	Case Number	Description
			<p>in the last slot beco suspe</p> <ul style="list-style-type: none"><li>• Allow for maxi capac to be confi on a runni slave even wher theca value is not chan</li><li>• Supp the full capac speci form in wxag via the CON paran</li><li>• Do not auton mark a wxag job as suspe</li></ul>

Product(s)	Internal Issue	Case Number	Description
			if one of its child
FlowTracer	VOV-12571		vovwxd configurati parameters CONFIG( and CONFIG( will now work regardless of the CONFIG( setting. The defaults for these settings has been changed to "0s". Either of these values should only be set to non- zero when debugging slave launch

Product(s)	Internal Issue	Case Number	Description
			issues to avoid additional server overhead.
FlowTracer	VOV-12570		Using local resources in FlowTracer with an LSF Base queue will now correctly account for local resources when using array launcher submission
FlowTracer	VOV-12569		FlowTracer Local resources will now be properly released in the case of an LSF

Product(s)	Internal Issue	Case Number	Description
			launch failure.
FlowTracer	VOV-12455	CS0121195	This fix addresses issues handling files larger than 2G in size in the flow.
FlowTracer	VOV-12620		vovwxd now supports LSF array jobs when getting the status of launcher jobs submitted to the queue.
FlowTracer	VOV-12261		License:*r will now be properly passed to the base queue

Product(s)	Internal Issue	Case Number	Description
			when using FlowTracer with vovwxd.
FlowTracer	VOV-12203	CS0120999	Re-evaluation of a job class to compute the union of resources when used with an indirect slave (slaveVNC) is no longer done. This is typically relevant for FlowTracer integration with either Accelerator (NC) or Accelerator (WX). To restore

Product(s)	Internal Issue	Case Number	Description
			the old behavior, please contact Altair support.
FlowTracer	VOV-11873		To enable resources to be managed locally by FlowTracer when using an LSF backend via vovwxd enable the vovwxd.local parameter in the policy file and create the resources in FlowTracer using the vtk_resource - local parameter.

Product(s)	Internal Issue	Case Number	Description
Monitor	VOV-12575		Fixed handling of mixed-case user names on Windows to always honor the case reported by the OS. On Windows, the case used at login time will be the case used when obtaining the active user from the OS and when applying security. It is therefore

Product(s)	Internal Issue	Case Number	Description
			recommen for users to always use the same case when logging into Windows. Otherwise, a separate vtk_securi entry will be required for each case used (such as for joe, Joe, and JOE), and those user names will be considered as different users. Prior to this

Product(s)	Internal Issue	Case Number	Description
			change, for a mixed-case username, the default security entry was for the user name in lower-case only, resulting in a security mismatch if the user logged into the web UI with the same case used to login to Windows itself.
Monitor	VOV-12294	CS0121092	Suppressed below

Product(s)	Internal Issue	Case Number	Description
			server log for loopback IP addresses. vovserver( ERROR Jun 1200:04:2 Found host with different ip: 127.0.0.1 instead of 10.10.1.34 [host:903]

## 2019.01 Update 7 Patch 4

Product(s)	Internal Issue	Case Number	Description
All	VOV-14220		FIFO read pipes accumulate in vovtasker root when interactive jobs terminate.

## 2019.01 Update 7 Patch 3

Product(s)	Internal Issue	Case Number	Description
All	VOV-13872	CS0211355	Fixed issue where SICK status Accelerator slaves were not removed after an appropriate amount of time. The underlying cause was that there were still related jobs running in the base queue, and was repaired by passing the -forcerunning option to

Product(s)	Internal Issue	Case Number	Description
			the NC base queue forget command for slaves with a SICK status.
All	VOV-13861	CS0210064	Fixed issue in which SIGALRM interrupted communication on interactive jobs using VOV_INT keep alive method.
All	VOV-13816	CS0205113	Address issue where license resources sometimes became unavailable when on life support.
All	VOV-13860	CS0208413, CS0208823	Fixed issue that caused

Product(s)	Internal Issue	Case Number	Description
			the slave to overload vovserver with messages when a job execution attempt failed due to not being able to successful fork out the subslave process that is used to shepherd the job.
All	VOV-12989	CS0145649	Fixed an issue where stopping more than 1 vovslave by name (vovslaver

Product(s)	Internal Issue	Case Number	Description
			stop <slave1> <slave2>.. was renaming only the last named tasker to <slavenam
All	VOV-12812		Enabled client activity logging for nc cmd commands

## 2019.01 Update 7 Patch 2

Product(s)	Internal Issue	Case Number	Description
All	VOV-13629	CS0186671, CS0192772, CS0194045	Fixed an issue where a failed PTY connection for a job would cause subsequen jobs

Product(s)	Internal Issue	Case Number	Description
			on the slave to fail as long as the original job was still running, and in some cases, the slave could become unresponsi
All	VOV-13346	CS0164333, CS0186238	Fixed an issue where a redirect in the nginx configurati would cause vovresourc to crash.
All	VOV-13553	CS0185082, CS0191010	Remove the need to call vtk_flexlm

Product(s)	Internal Issue	Case Number	Description
			- reset). No longer make redundant calls to process license data. No longer start voveventm when vovresourc is called with the - initjobclas parameter.

## 2019.01 Update 7 Patch 1

Product(s)	Internal Issue	Case Number	Description
All	VOV-12714		Fixed the following issues with job container support: 1. The VO

Product(s)	Internal Issue	Case Number	Description
			(wh <re is CO RA or TM env vari was not bein set in the hoo env for con that wer con to use the job reso spe as con lim  2. The VO env vari was not bein set in the hoo env if the

Product(s)	Internal Issue	Case Number	Description
			job run dire had bee con as an equ as wo be the case for job sub from with the use hon dire
All	VOV-13025	CS0145466	Added a config key "MQ(pjPro for the maximum time that the vovlad daemon should wait for existing probes to be killed

Product(s)	Internal Issue	Case Number	Description
			at startup.

## 2019.01 Update 6 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Product	Internal Number	Case Number	Description
All	VOV-9777	24039	Added "Last Dispatch" into the page <code>jobqueue?page=buckets&amp;</code> . Prior to fix, it was showing "age", which is confusing as it gets updated on submission and job dispatch.
Accelerator	VOV-11617		Added support for SIGTSTP to <code>vtool</code> . When <code>vtool</code> receives SIGTSTP, it releases its license tokens and suspends itself. Upon receiving SIGCONT, <code>vtool</code> resumes and eventually checks out the tokens again.
Accelerator	VOV-10801	24711	Added support for keeping an interactive job's ( <code>nc run -I, -Ir, etc.</code> ) network connection with the remote job alive by periodically "pinging" the remote job. This option is enabled by setting the <code>VOV_INTERACTIVE_PING</code> environment variable to the desired ping interval (timespec format).
Accelerator	VOV-11740	25241	Duplicate quantitative resource requests are no longer rejected when using the <code>-r+</code> submission option. For consumable resource requests, the sum duplicate values is used. For all others, the maximum value is used. Examples: <pre style="border: 1px solid #ccc; padding: 5px;">"-r+ RAMFREE#100 -r+ RAMFREE#200" = RAMFREE#200 "-r+ RAM/100 -r+ RAM/200" = RAM/300</pre> Note that <code>nc info</code> shows the resource string that was specified in the submission. The solution field and property of the job will contain the final result.
Accelerator	VOV-11025	23337, 24800	Enhance Accelerator's tracking of the user processes that are part of a job by using UNIX session IDs and also by examining the process environment for the <code>VOV_JOBID</code> variable to associate it with the right NC job.

Product	Internal Number	Case Number	Description
Accelerator	VOV-11640	24715	Fixed issue where more than 10 rows of running jobs cannot be exported as CSV.
Accelerator	VOV-11694		Fixed issue with parsing of -dpresN option in nc run
Accelerator	VOV-5418	21072	In the output of the nc info command, if the slave for the job being inspected has a current status of SICK, the status will be indicated in parentheses after the name of the slave.
Accelerator	VOV-11351	25139	The -dpres+ option is now supported in DP jobs.
Accelerator	VOV-11155		The ALLPIDS property has been added to the online help.
Allocator	VOV-9994	24210	Added an option to retain resource criticality up to a given number of cycles, which is configurable in vovlad/config.tcl using the variable <i>MQ(criticalResCycle)</i> . By default this feature is disabled and will be enabled only for positive numbers.
Allocator	VOV-10657	24264	Modified the behavior when only one queue (or a subset of queues) requires a shared license, such that leftover licenses are allocated to all queues based on weights. The earlier behavior was to allocate all available licenses to only the queue(s) that requires the shared license.
Allocator	VOV-11540	25227	There is a change in how Allocator allocates tokens when a resource is critical on some queues, but not on others. Allocator will now try to allocate tokens to a queue where the resource is critical, in preference to a queue where it is not critical even if this leads to the allocation on the non-critical queue falling below the level needed to run all the queued jobs.
FlowTracer	VOV-11793	25217	<p>A new server parameter <i>seatlic_max</i> has been added that places an upper limit on the number of seat license features that can be used by a project.</p> <p>The parameter can be set either in <i>policy.tcl</i>:</p> <pre>set config(seatlic) &lt;max-seat-features&gt;</pre> <p>or as a server configuration:</p> <pre>vtk_server_config seatlic_max &lt;max-seat-features&gt;</pre> <p>By default the value is unlimited.</p>
FlowTracer	VOV-12004	CS0120860	Set the provided shell variable value to zero, (export VOV_LICENSE_SHOW_VIOLATION=0), to suppress the license violation preamble when invoking vovsh commands.

Product	Internal Number	Case Number	Description
FlowTracer	VOV-12356		FlowTracer local resources may be created/updated using the <code>vovresourcemgr</code> command.  <pre>vovresourcemgr create foo -max 10 -local, vovresourcemgr set foo -max 10 -nolocal</pre>
Monitor	VOV-11750	120618	Fixed an issue in Monitor where the <b>Admin &gt; System &gt; Security</b> page would display an error (can't read "policyInfo(readonlyPort)": no such element in array...) in some cases.

## Resolved Issues

The following issues were resolved in this release.

Product	Internal Number	Case Number	Description
All	VOV-12236		Fixed an issue leading to the following server logs:  <pre>"vovserver(3260) ERROR May 24 00:00:53 Found host with different ip: 10.102.50.114 instead of 10.102.50.114 [host:903]"</pre>
All	VOV-11253	25045	Improved the error messaging for the <code>vtk_resourcemap_forget</code> API command.
Accelerator, Monitor	VOV-11487		A bug fix in 2019.01u5 could result in issues when starting a server with the same requested port id specified in rapid succession, or when requesting a range of ports such as <code>-port 500:501:502</code> .
Accelerator	VOV-11223		A typo in the example of the <code>vovreconciled/config.tcl</code> in the Altair Accelerator Administrator's Guide has been fixed.
Accelerator	VOV-11515	25220	Added a new server configuration parameter, <code>tasker.uninterruptableSignalCascades</code> , that controls whether slaves should process incoming job control requests when there is an existing signal cascade being processed. If TRUE, slaves will ignore incoming job control requests if an existing request is in-process and a message will be printed to the slave log indicating as such. Default is FALSE.
Accelerator	VOV-11650	29856	Added an alert with error message to notify user when create reservation fails due to reservation period overlap with an existing reservation.

Product	Internal Number	Case Number	Description
Accelerator	VOV-12043	CS0120714	<p>Calling <code>vtk_slave_reserve</code> will now cause a purge of all existing reservations for the given slave prior to new reservation creation.</p> <p>Any <code>vovslave</code> or <code>vovslavemgr start/restart</code>, <code>vtk_slave_define</code>, etc invocation involving <code>-e</code> will also apply the same purge of all existing slave reservations before creation of a new reservation on the slave.</p> <p>Users must use <code>vtk_reservation_create</code> to create multiple reservations on a slave, or via the web based UI.</p>
Accelerator	VOV-7591	20937	Documentation has been updated to not use <code>RAM#</code> in redundant quantitative resources example.
Accelerator	VOV-4514	20957	Duplicate values in resource requests for consumables do not cause the job to be rejected in <code>nc run</code> .
Accelerator	VOV-12003	CS0120875	Fix for cleaning up files under <code>data/slaveload</code>
Accelerator	VOV-12095	AAP24206	<p>Fixed "passing env variable to NC job inside container" issue.</p> <p>User can call <code>env FOO=BAR nc run ...</code> and get correct value of <code>\$FOO</code> inside the job.</p>
Accelerator	VOV-11892	CS0120652, CS0120732	Fixed a bug in <code>vtk_flexlm_monitor</code> when it would not create a summary resource map for a feature with multiple tags. The <code>-order</code> parameter to <code>vtk_flexlm_monitor</code> only orders tags, it no longer adds tags (use the <code>-tags</code> to add the tags).
Accelerator	VOV-11014	24851	Fixed a timing issue where NC failed to properly reconnect to LM after an LM failover.
Accelerator	VOV-11469	25174	Fixed an error that affected containerized jobs where at least one of the container hook scripts required root privileges. In this case, non-root privileged scripts as well as the job itself could potentially elevate themselves to root.
Accelerator	VOV-11485	24206	Fixed an issue in the OS container support that could trigger an error message in the <code>vovslave</code> log about it being unable to "clear environment."
Accelerator, Accelerator Plus	VOV-12200		Fixed issue with job arrays that are dependent upon a job or set, where the array jobs will not run due to an invalid input.
Accelerator	VOV-11543	25205	Fixed issue with plotting workload wait reasons

Product	Internal Number	Case Number	Description
Accelerator	VOV-11699	29895	Fixed the issue where jobs are staying forever in pending state waiting for Limit:@USER@_N resource when both 'CGROUP' and 'limit' options are given in the job's input resource list.
Accelerator	VOV-6077	21235	Fixed vovslavemgr restart issue when slave has jobs running.
Accelerator	VOV-11895	AAP24898, CS0120786	Inequality comparisons using at-delimited field names in preemption rules (e.g. "PRIORITY<@PRIORITY@") will no longer give an error message about non-numeric comparisons.
Accelerator	VOV-12125	CS0120945	Moved processing of interactive jobs (nc run -I, -Ir, etc.) to a separate thread for each job. This should improve the responsiveness of interactive jobs.
Accelerator	VOV-11805	29905	Reported intermittent slowness in NC queue has been addressed in an earlier release.
Accelerator	VOV-10356		Stderr will now be included in the output log for default windows jobs.
Accelerator	VOV-11923		Stopping a job while using VOV_SLAVE_SID_DISABLE should no longer result in stopping processes in the same SID that are not part of the job.
Accelerator	VOV-11298		The nc getfield command previously reported lowercase fields "curram", "slaveid", and "retracingid" with 0 values although the corresponding uppercase fields "CURRAM", "SLAVEID", and "RETRACINGID" were correctly reported. This fix corrects the reporting of the lowercase field values.
Accelerator	VOV-12016	CS0120897	The duration of the reservation for the vovdbd vovslave is changed from 365d to 'forever', so that no regular jobs may be placed on it after expiration.
Accelerator	VOV-8026	21721	The issue where vovslavemgr start needs to wait until vovfoster jobs has completed was addressed in an earlier release.
Accelerator	VOV-6082	24694	This fix improves reliability of the -wl option to nc run by avoiding timing-sensitive collisions with other jobs on the ports used.
Accelerator	VOV-12046	CS0120935	vovserver will manage the availability of resources on a slave without vovfoster jobs. When slave is requested to exit while it has a running job, it changes its state to DONE and renames itself to "name_stopped_id". Starting the same slave, at this moment, will result it to adjust the numbers of available resources based on their consumption in the previous instance.
Accelerator Plus	VOV-11928	CS0120712	Added a safeguard mechanism to prevent a base queue job status query from blocking vovwxd operation. The mechanism is configurable by setting CONFIG(jobstat,timeout) in the SWD/vovwxd/config.tcl file to a

Product	Internal Number	Case Number	Description
			valid timespec (eg 30s, 30m 30h) or number of seconds. The default timeout is 5m.
Accelerator Plus	VOV-12220	CS0121046	Fixed a bug in vovwxd that was causing it to lose track of the slaves list and print redundant "Metrics for..." log messages
Accelerator Plus	VOV-11715	AAP29909	Fixed an issue where an interactive job's (-I, -Ir, etc.) TERM environment variable would be incorrectly set to the user's TERM environment variable when the job's output is redirected (for e.g., piped). The job's TERM environment variable will now always be set to 'network' if the interactive job's output is redirected (for e.g., piped). This issue used to manifest itself only in jobs run by vovtaskerroot (not vovslave).
Accelerator Plus	VOV-12267	AAP29909	Fixed an issue with interactive jobs (nc run -I/-Ir etc.) where the user is unable to interact with the job (including arrow keys, control key, etc. not working) when the output is piped to tee. Also, added an option (-forceterm) to disable setting the interactive jobs's TERM environment variable to "network" when the output is piped. This fix requires an update of vovsh and vovslave and a restart of any running vovslaves after the update.
Accelerator Plus	VOV-11910	CS0120797	Fixed issue with WX slaves that prevented them from starting with a max life override of unlimited. Added log messages that denote when the override is activated during startup, and also the adjustment of unlimited max life to the greater of: a) the expected duration of the first job routed to the slave or b) the default slave max life as specified per the vovwxd configuration file.
Accelerator Plus	VOV-11868	CS0120760	Improved the performance of checking the status of all pending ("requested") slaves when vovwxd is querying the status from the base queue(s).
Accelerator Plus	VOV-11236	24875	Stack trace generation reworked to provide correct symbols and core generation thus providing the correct source of a fatal error.
Allocator	VOV-11353	25000	Better handling of auxiliary save proc cleanup.
Allocator	VOV-11625	AAP25280	Made LA behaviour of marking vendor-queue tokens as out-of-queue tokens configurable using the config settings 'LA::MarkVqAsOoq' and 'LA::MarkResourceVqAsOoq' in vovlad/config.tcl. The default behaviour is same as existing behaviour.  'LA::MarkVqAsOoq' can be used to modify LA-wide behaviour while 'LA::MarkResourceVqAsOoq' can be used to modify the behaviour for a specific given resource.

Product	Internal Number	Case Number	Description
FlowTracer	VOV-11835	AP29893	Fixed an issue where indirect slaves were consuming seat licenses under FlowTracer.
FlowTracer	VOV-11834	CS0120713	Fixed an issue which resulted in an indirect slave being stopped or hung when a job running on it was stopped.
FlowTracer	VOV-11874		Fixed an issue with FlowTracer and <code>vovwxd</code> on LSF where alerts of the form "Number of allowed slaves has reached limit... Consider increasing <code>maxNormalClients</code> in <code>WX</code> server, or <code>max. slaves</code> in <code>vovwxd</code> config..." would be continually generated.
FlowTracer	VOV-10934	24730	Fixed the issue with custom color set in <code>gui.tcl</code> using <code>vtk_transition_color_control</code> are not getting reflected in <code>vovconsole</code> when node status changes to Failed or Valid.
FlowTracer	VOV-11920		Fixed the issue with custom node color not getting reflected under set view when the color is set using <code>vtk_nodestatus_set_color</code> in <code>gui.tcl</code>
FlowTracer	VOV-11890	CS0120807, CS0120788	If the <code>vovserver</code> receives a SIGTERM signal it will perform a graceful shutdown in a manner similar to <code>autostop</code> .
FlowTracer	VOV-12420		In <code>vovwxd</code> , the user can set <code>CONFIG(dequeueExtraSlavesEnable) 0</code> parameter in <code>config.tcl</code> which will stop the creation of "bkill" jobs for any pending slaves.  The user can also undefine the <code>GetJobKillCmd</code> procedure from <code>vovlsf.tcl</code> for the same purpose.
FlowTracer	VOV-11873		To enable resources to be managed locally by FlowTracer when using an LSF backend via <code>vovwxd</code> enable the <code>vovwxd.localresources</code> parameter in the policy file and create the resources in FlowTracer using the <code>vtk_resourcecmap_set -local</code> parameter.
FlowTracer	VOV-11921		<code>vovconsole</code> behavior has been modified for stop/invalidate menu options so that all selected jobs and down-cone along with the jobs in nested sets will be stopped/invalidated hierarchically.
FlowTracer	VOV-11837		<code>vovwxd</code> no longer uses reservations for resources. Instead, to enable resources to be managed locally by FlowTracer when using an LSF backend via <code>vovwxd</code> enable the <code>vovwxd.localresources</code> parameter in the policy file and create the resources in FlowTracer using the newly added <code>vtk_resourcecmap_set -local</code> option.
FlowTracer	VOV-11869	CS0120761	<code>vovwxd</code> should be used instead of <code>vovlsfd</code> . <code>vovwxd</code> no longer uses reservations. Instead, to enable resources to be managed locally by FlowTracer when using an LSF backend via <code>vovwxd</code> , enable the <code>vovwxd.localresources</code> parameter in the policy file and create the

Product	Internal Number	Case Number	Description
			resources in FlowTracer using the <code>vtk_resourceemap_set -local</code> parameter.
Monitor	VOV-7501	20772	Duplicate of VOV-7082, VOV-9346 tracked by CSG cases 20029, 20772, 23535, 24288
Monitor	VOV-12068	CS0121142	Fixed an issue on Windows-based platforms where accessing CGI-based web UI pages via the read-only guest access port resulted in the administrative privilege for the product instances instead of the intended read-only privilege.
Monitor	VOV-12214		<code>loadremotedata</code> sub-command for <code>lmmgr</code> had mistakenly been disabled. The sub-command has been restored.
Monitor	VOV-11586	25124	Fixed an issue where configuring Altair Monitor to monitor its own usage of a keyfile license was not working correctly.
Monitor	VOV-9346	23535, 24288	SafeNet Sentinel HASP monitors now support the latest Admin API version.

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Internal Number	Products	Case Number	Description
VOV-12261	FlowTracer		License:* resources will now be properly passed to the base queue when using FlowTracer with <code>vovwxd</code> .
VOV-12620	FlowTracer		<code>vovwxd</code> now supports LSF array jobs when getting the status of launcher jobs submitted to the queue.
VOV-12570	FlowTracer		Using local resources in FlowTracer with an LSF Base queue will now correctly account for local resources when using array launcher submission.
VOV-12569	FlowTracer		FlowTracer Local resources will now be properly released in the case of an LSF launch failure.
VOV-11873	FlowTracer		To enable resources to be managed locally by FlowTracer when using an LSF backend via <code>vovwxd</code> enable the <code>vovwxd.local</code> resources parameter in the policy file and create the resources in FlowTracer using the <code>vtk_resourceemap_set -local</code> parameter.

Internal Number	Products	Case Number	Description
VOV-12030	Accelerator	0120906, 0121020	Fixed issue that caused slaves to be killed with the message "Slave instructed to exit brutally". This also fixes server messages like "Cannot find slave rdc-cad-svr12 (illegal id 365667285) pid=32830".
VOV-12628	Accelerator	0127402	Fixed a bug where License: was prepended the resource name if the resource parameter was specified in vtk_flexlm_monitor, even if the resource name already started with License:.
VOV-12647	Accelerator	0128385	Fixed issues with interactive jobs failing with the following log message "Timed out waiting for authentication request from pty server". Also, added a new environment variable, VOV_INTERACTIVE_AUTH_TIMEOUT, to configure the authentication timeout on the vovslave.
VOV-12679	Accelerator	0124318, 0128385	Fixed an issue with interactive jobs failing with the incorrect message "Client has responded to authentication request... with key &apos; &apos;". This happens when the client has closed the connection. This is also accompanied with the following vovslave log message "Timed out waiting for authentication request from pty server".
VOV-11836	Accelerator Plus	0120725	nc forget using the options -mine,-dir, or -subdir, will no longer forget system jobs by default. A new option, -system, will include system jobs to match old behavior. In general, the option -system should not be used when forgetting user jobs in a WX setting because forgetting launcher jobs for slave agents that are not runnable in the batch system before they are processed by vovwxd could result in lingering queued agent jobs. Using nc forget -mine without the -system flag will forget the user submitted jobs and allow vovwxd to more efficiently clean up slave agents.
VOV-12635	Accelerator Plus	0128164	Fixed a bug causing a memory access violation in vovserver when multiple slaves are being stopped with running jobs.
VOV-12316	Accelerator Plus		Fixed an issue that caused vovserver memory to grow over time as "nc wait" and "nc run -w" commands were issued.
VOV-12647	Accelerator Plus	0128385	Fixed issues with interactive jobs failing with the following log message "Timed out waiting for authentication request from pty server". Also, added a new environment variable, VOV_INTERACTIVE_AUTH_TIMEOUT, to configure the authentication timeout on the vovslave.
VOV-12679	Accelerator Plus	0124318, 0128385	Fixed an issue with interactive jobs failing with the incorrect message "Client has responded to authentication request... with key &apos; &apos;". This happens when the client has closed the connection. This is also accompanied with the following vovslave log message "Timed out waiting for authentication request from pty server".

## 2019.01 Update 5 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Table 3:

Product	Internal Number	Case Number	Description
All	VOV-11299	25102	Fixed error that resulted in a "Server is operating on a non-internal object" error to be printed in the server log. This error is linked to querying for the "why" status of a job that has an input dependency.
All	VOV-11350		Fixed statistics for some hierarchical sets.
Accelerator	VOV-7535	20833	The proc <code>VovGetRevokeDelay { }</code> can now be added and customized by redefining it in <code>vovresourced/config.tcl</code> under the SWD directory to allow users to customize the revoke delay to be used in <code>vovreconciled</code> . This allows users to have the revoke delay from their job classes override the default value of <code>RESD(revokeDelay)</code> . The proc definition has been added to the <i>Altair Accelerator Administrator Guide</i> . In addition, the verbosity levels of various messages have been modified per customer requests.
Accelerator	VOV-3765	20136	The <code>nc run</code> command now supports an option to control the number of times a job can be rescheduled. Thus: <ul style="list-style-type: none"> <li>• <code>maxresched &lt;N&gt;</code> -- Maximum number of times the job can be rescheduled.</li> <li>• Must be <code>&gt;= 1</code> and <code>&lt;= 10</code> (default 10).</li> </ul> This is implemented via the <code>MAX_RESCCHEDULE</code> property on the job.
Accelerator Plus	VOV-11260	24568, 24890, 25001, 25249	Added policy parameter <code>fairshare.overshoot.damping 0/1</code> ; 1=enabled, 0=disabled, controls whether or not FairShare restricts the number of jobs scheduled for groups that are over budget.
Accelerator Plus	VOV-11337		Added accounts option (-A) for PBS Pro resource list for Accelerator Plus.
Accelerator Plus, FlowTracer	VOV-11188		A configuration value for the Accelerator Plus configuration file, <code>SWD/vovwxd/config.tcl</code> , has been added allow the user to specify a limit on how many consecutive failures of a slave job in the base queue will be allowed before we no longer attempt to create slaves for a bucket. The

Product	Internal Number	Case Number	Description
			default value is 0 (no limit). This is to prevent a malformed job from causing churn in the system.
Allocator	VOV-9411	23688	<p>Added support for hierarchical Altair Allocators. Please see documentation for details.</p> <p>Resource plots in the child LA are identical to the plots in the top-most parent LA. In other words, they show the data for the entire resource pool, and not the sub-set of the resource corresponding to the child LA.</p> <p>The slave definition in the child LA (in the &lt;swd&gt;/slaves.tcl file) should use the hostname of the slave, and not localhost.</p> <p>For example, 'jaguar' is the hostname here:</p> <pre>vtk_slave_define jag -host jaguar\ -resources "runMq" \ -maxload 20.0 \ -mindisk 0 -disablejobstats 1</pre> <p>This hostname must match the hostname used when adding the child LA to the parent LA (in &lt;swd&gt;/vovlad/config.tcl). For example:</p> <pre>LA::AddSite child_la@jaguar child_la {} -host jaguar -port 8787 -la 1 -version SAME</pre>
FlowTracer	VOV-11462		<p>This update brings feature parity with vovlsfd. For example, <i>LSFjobname</i> can now be overridden on a per job basis. Bucket reservations are now used to map jobs to batch submitted vovslave, rather than resource strings. Code to address jobs that have an xdur greater than maxlife has moved into the vovslave itself.</p>

## Resolved Issues

The following issues were resolved in this release.

Table 4:

Product	Internal Number	Case Number	Description
All	VOV-10110		vovwxd cleaner log files will be preserved for the time spec specified by the <i>delCleanerLog, older</i> config parameter in vovwxd/config.tcl.

Product	Internal Number	Case Number	Description
All	VOV-11326		Slave slot licenses will be released when a slave exits in Auto Licensing mode.
All	VOV-11294		The /local/registry/system-accelerator folder may have not always been writable because it was created with user's umask permissions. Now created with 777.
All	VOV-11350		Fixed statistics for some hierarchical sets.
Accelerator	VOV-8012	21662	VOV_LM_VARNAMES functionality will now be available for interactive jobs.
Accelerator	VOV-11347	25138	Fixed an issue in <code>vovfsgroup loadconfig</code> where the weight and window values of the FairShare group were not getting set to the values in the config file.
Accelerator	VOV-11242	25036	Broken HTML links in the Altair Accelerator Training Guide have been fixed.
Accelerator	VOV-10926	24819	Fixed issue with interactive jobs ( <code>nc -I</code> ) failing when run with a PRECMD that reschedules the job. This also fixes the issue of the PTY overriding the exit code from the PRECMD.
Accelerator	VOV-11307	25103	Fixed a race condition in the job fostering system, which is used to properly account for jobs running on a host that has had its vovslave restarted, that could cause the foster jobs to fail and the restarted vovslave to refuse any future stop requests.
Accelerator	VOV-11305	25109	Prevent a new autokill sequence from initiating if an existing sequence is already being processed. Prior to this change, an autokill sequence that took more than 5m to process would result in a new sequence starting without the existing one completing. This would result in the slave entering a looping condition that may never end.
Accelerator	VOV-11296	25093	A change to the command <code>nc hosts</code> that displayed all reservations a slave may have was backed out due to adverse performance effects on the server. The command <code>nc hosts</code> will now only show the "dominant" reservation", i.e. the oldest unexpired reservation.
Accelerator, Accelerator Plus	VOV-11338	25079	Fixed issues with job resource usage reporting by including detached processes with unique gpids and session ids by matching VOV_JOBID and VOV_SLAVE_PID. The VOV_JOBID to be matched will be taken from the transaction object rather than depending on the subslave environment. Also added NC_JOBID and NC_SLAVE_PID env variables so that WX and NC slaves can both correctly track processes.

Product	Internal Number	Case Number	Description
Accelerator	VOV-11358		Fixed an issue where running Altair Accelerator in interactive mode ( <code>nc run -I</code> ) with both the input and output redirected would result in lost output.
Accelerator	VOV-11336	CS0120656, CS0120663	Fixed issue where preempted jobs may have been prematurely resumed preventing the preempting job from running.
Accelerator	VOV-11180		Handled invalid values for these 3 resources: "RAM" "CORES" "SLOTS". Numeric within this range [0 - 2147483647] is allowed.
Accelerator	VOV-11160		The output of <code>nc getfield JOB CPUTIME</code> with an uppercase "CPUTIME" will now accurately show time in milliseconds instead of 0.
Accelerator	VOV-11210		Changed 'cputime' type from integer to integer64 in <code>vovshow -fields</code> command output
Accelerator	VOV-11222		Underscores have been removed from the Node Field Names help topic to reflect the updated behavior.
Accelerator	VOV-11799	CS0120663	Fixed issue where preempted jobs may have been prematurely resumed preventing the preempting job from running.
Accelerator	VOV-11828	CS0120715	The output of " <code>nc getfield JOB CPUTIME</code> " with an uppercase "CPUTIME" will now accurately show time in milliseconds instead of 0.
Accelerator Plus	VOV-11276	24834, 25080	Fixed an issue with array submission in WX that would lead to "Illegal set id" errors. This also fixes an issue that resulted in log file conflicts with the error messages "Error: OnLaunchError for <queue>,time: <timestamp>, err: Launcher job failed:" and "FATAL ERROR: Cannot use FILEX <log_filename>"
Accelerator Plus	VOV-11234		Fixed issue with core file generation on signals SIGSEGV and SIGBUS
Accelerator Plus	VOV-11115		Internal optimization of the WX slave creation process.
Accelerator Plus	VOV-11191		<code>vovwxd</code> will no longer create extraneous slave objects and/or processes when launching slaves using the <code>vovlsf.tcl</code> driver.
Accelerator Plus, FlowTracer	VOV-11646		<code>vovwxd</code> should no longer attempt to provision extra slaves when the number of pending slaves is sufficient to handle the currently queued load.
Accelerator Plus	VOV-11677		Fixed issue which prevented <code>vovwxd</code> from launching more slaves when the limit was increased in the <code>SWD/vovwxd/config.tcl</code> file without requiring a <code>vovwxd</code> daemon restart.

Product	Internal Number	Case Number	Description
Accelerator Plus	VOV-11645		Fixed issue that caused the PBS_JOBID environment variable to be modified to contain the numeric part of the job ID only.
Accelerator Plus	VOV-11630		Modified PBS driver script to use the -V submission option for launcher jobs to ensure that all environment variables required for slave operation are set in the slave's environment. Also added a new configuration item, CONFIG(pbsBin), in the vovwxd configuration file that can be used to specify the location of the PBS binaries (default: /opt/pbs/bin).
Allocator	VOV-11306	25123	Fixed a crash that was introduced in 2019.01 u4. The call stack for the crash would have entries similar to the following: <pre>                     Received signal: SIGSEGV 11 3/15                     vovserver(_Z25vovGenFirstAttachmentFASTPK9VovObjectj1                     +0x21) [0x753bd1]                     Received signal: SIGSEGV 11 4/15                     vovserver(_ZN14VovResourceMap22matchFalse00QJobsForMQERSt6                     TResJobSaIS2_EEPNS_19MatchFalse00QResultE+0x312)                     [0x79ecb2]                     Received signal: SIGSEGV 11 5/15                     vovserver(_ZN8VovMQRes12matchHandlesERSt6vectorIP11VovFTRE                     +0x140) [0x7bd420]                     Received signal: SIGSEGV 11 6/15                     vovserver(_ZN12VovMQManager27matchAndDistributeResourcesER                     +0x3ab) [0x7b011b]                     </pre>
FlowTracer	VOV-10095		vovslaves running under WX or FT with vovwxd will have the environment variable VOV_SLAVE_NAME set to the name of the FT slave spawned by vovwxd. The VOVSLAVE environment variable will no longer be set. CONFIG(slave, timeout) will be passed to the vovslaves launched by vovwxd as the -t option, setting the time allowed for the new vovslave to connect to vovserver.
FlowTracer	VOV-11259		Supported Force Validation of 'PHANTOM' files.
FlowTracer	VOV-11187		Allow for a prescripts subdirectory to be placed inside the vovwxd/launcher directory and be immune from periodic cleanup by the vovwxd stale file cleaner. Also change the LSF:pre special resource to use this directory as the base directory for a specified prescript.  Example: LSFpre:mypre.sh results in an LSF submission option of -E ./prescripts/mypre.sh.
FlowTracer	VOV-1171		Fixed problem which prevented vovwxd from launching additional slaves as expected when more jobs are added to a bucket that has active jobs.
Monitor	VOV-11366		Fixed an issue with the Detailed Plots report that resulted in a Tcl error when generating a report for a feature with no usage for the specified time

Product	Internal Number	Case Number	Description
			range. Also fixed an issue with the Usage Trends report that resulted in a Tcl error when generating a report for a feature with a capacity of 1000 or more tokens.
Monitor	VOV-11467		Fix an issue with all SFD packages for Windows where in some Windows configurations, the controls for installing and controlling a Windows Service were disabled due to administrative rights not being detected properly.

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### Resolved Issues

The following issues were resolved in this software release:

Table 5:

Product	Internal Number	Case Number	Description
All	VOV-12236		Fixed an issue leading to the following server logs: <pre>vovserver(3260) ERROR May 24 00:00:53 Found host with different ip: 10.102.50.114 instead of 10.102.50.114 [host:903]</pre>
FlowTracer	VOV-11835	29893	Fixed an issue where indirect slaves were consuming seat licenses under FlowTracer.
Accelerator	VOV-10801	24711	Added support for keeping an interactive job's (nc run -I, -Ir, etc.) network connection with the remote job alive by periodically "pinging" the remote job. This option is enabled by setting the VOV_INTERACTIVE_PING environment variable to the desired ping interval (timespec format).
Accelerator	VOV-11895	0120786	Inequality comparisons using at-delimited field names in preemption rules (e.g. "PRIORITY<@PRIORITY@") will no longer give an error message about non-numeric comparisons.
Accelerator	VOV-12030	0120906, 0121020	Fixed issue that caused slaves to be killed with the message "Slave instructed to exit brutally". This also fixes server messages like "Cannot find slave rdc-cad-svr12 (illegal id 365667285) pid=32830".
Accelerator	VOV-12200		Fixed issue with job arrays that are dependent upon a job or set, where the array jobs will not run due to an invalid input.

Product	Internal Number	Case Number	Description
Accelerator Plus	VOV-11868	0120760	Improved the performance of checking the status of all pending ("requested") slaves when vovwxd is querying the status from the base queue(s).
Accelerator Plus	VOV-11910	0120797	Fixed issue with WX slaves that prevented them from starting with a max life override of unlimited. Added log messages that denote when the override is activated during startup, and also the adjustment of unlimited max life to the greater of: a) the expected duration of the first job routed to the slave or b) the default slave max life as specified per the vovwxd configuration file.
Accelerator Plus	VOV-12220	0121046	Fixed a bug in vovwxd, that was causing it to lose track of the slaves list and print redundant "Metrics for..." log messages.
Accelerator Plus	VOV-10557	24557	The Linux priority/"nice level" of jobs running via Accelerator Plus will now have the same priority as jobs running directly on Accelerator for the same Accelerator/Accelerator Plus designated execution priority. Example: Use <code>nc/wx run -p . ...</code> to set the execution priority. (u5-1) The wxagent job while no longer carry the LauncherClass job class so that the user's job class will be prevalent.
Accelerator Plus	VOV-12200		Fixed issue with job arrays that are dependent upon a job or set, where the array jobs will not run due to an invalid input.

## 2019.01 Update 4 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Product	Internal Number	Case Number	Description
All	VOV-10969		The command <code>vovclientmgr show</code> no longer incorrectly labels clients without "nicknames" as HTTP clients. In addition, the <code>nc</code> command now properly sets a client nickname in all scenarios to allow it to be more easily identified in the output of both <code>vovclientmgr show</code> and <code>vovshow -clients</code> .
All	VOV-10864		Added a new trace parameter, <code>enterpriselicense.burst</code> to enable burst licensing for NC/WX in Auto mode. 1=enabled 0=disabled, defaults to disabled.

Product	Internal Number	Case Number	Description
			<p>Cleanup of various presentation errors in web UI license page when switching modes and show more details on current usage/availability for all modes.</p> <p>Disabled choices for Full and N for the licensing mode in the web UI for non-NC/WX servers.</p>
Accelerator Plus	VOV-9520	23779	<p>wxmgr stop -freeze will now force shutdown of WXLancher if it does not complete a graceful shutdown within 60s to support upgrade operations which require WXLancher to restart.</p>
Accelerator Plus	VOV-10444		<p>The behavior of crash recovery timing has changed. In previous updates, a single server parameter <i>crashRecoveryPeriod</i> dictated the crash recovery period. Crash recovery completed after the <i>crashRecoveryPeriod</i> and the server began normal operation.</p> <p>Three changes were made:</p> <ol style="list-style-type: none"> <li>1. A bug was fixed that prevented crash recovery ending when all jobs were recovered.</li> <li>2. The upper limit on the <i>crashRecoveryPeriod</i> parameter was changed to 30m.</li> <li>3. Two new server parameters were added to enable a more flexible approach to crash recovery timing.</li> </ol> <p>At any stage, if all jobs are recovered, crash recovery will end.</p> <p>If a vovslave reconnects during a 'quiet time' before crash recovery ends, the crash recovery deadline will be extended by this 'quiet time'. The quiet time is specified by the <i>crashRecoveryQuietTime</i> server parameter.</p> <p>The <i>crashRecoveryMaxExtension</i> server parameter specifies an upper limit on the amount by which the deadline is extended. The parameters can be set in <i>policy.tcl</i>. The ranges and default values are as follows:</p> <pre># min 30s, max 1800s VovServerConfig crashRecoveryPeriod 60 # min 0, max 300 VovServerConfig crashRecoveryQuietTime 30 # min 0s, max 1800s VovServerConfig crashRecoveryMaxExtension 60</pre> <p>If desired, the original crash recovery behavior can be restored by setting the <i>crashRecoveryMaxExtension</i> parameter to zero. Appropriate</p>

Product	Internal Number	Case Number	Description
			settings for these parameters will depend on the particular site configuration and needs.
Allocator	VOV-10360	24466	Improved performance of NRU matching. Also, changed the NRU bailout message to clarify the numbers in the message.
Allocator	VOV-9411	23688	Added support for hierarchical Altair Allocators. This is an experimental feature. Please contact support for details.
Accelerator	VOV-10520		Accelerator will now support the use of burst licenses. If license file is provisioned with <code>nc_slots_burst</code> type licenses, Accelerator will allocate licenses first out of the base <code>nc_slots</code> licenses, and then allocate additional slots as required from the <code>nc_slots_burst</code> license pool.
Accelerator	VOV-4900	21070	TIMEVAR time slot specifications are expanded to allow the second time item in the range <code>HH:MM-HH:MM</code> to be a prior time, as is the case when spanning an overnight time. For example, 6 PM to 6 AM may now be specified using a 24 hour clock range as follows: <code>18:00-6:00</code> .
Accelerator	VOV-8188	21251	Previously, when <code>vovgetgroups</code> timed out or did not return groups info correctly, the job would run with the incorrect groups. Following this change, under those conditions, the job will fail. Also previously, the <code>VOV_ALARM</code> timeout for <code>vovgetgroups</code> was limited to not exceed 60 seconds. The 60 second limit has been eliminated.
Accelerator	VOV-10812		The show/hide <code>cgroups</code> link on the Slave Resources web UI page is no longer required to show the <code>CGROUP:RAM</code> slave resource, and therefore has been removed.
Accelerator	VOV-9555		Modified <code>vovslave</code> log messages to be more clear and actionable.
Accelerator	VOV-10905	24801	<code>nc_why</code> output for DP jobs will omit the confusing internal <code>DP:SLOTS_N</code> resource and show subjob IDs and statuses
Accelerator	VOV-5294		A new capability to improve job RAM and CPU TIME accounting for jobs with detached processes is implemented on Linux systems. In addition to collecting PIDs that share a PGID or are within the process tree for a job, various types of detached processes are found if they are in the same Session ID or if the <code>VOV_JOBID</code> environment variable matches the values for the running job.
Accelerator	VOV-10795		Support for hourly charging in the cloud has been implemented. If a slave is started with the environment variable <code>VOV_INSTANCE_LAUNCH_TS</code> set to the launch time of the instance on which the slave is running, then the slave will be kept alive until we approach the hour-boundary to within a few minutes.

Product	Internal Number	Case Number	Description
			This is an unsupported feature.
Allocator	VOV-9737	24038	The VOV_LICMON environment variable now supports a comma-separated list of hosts rather than a single host.

## Resolved Issues

The following issues were resolved in 2019.01 Update 4 software release.

Product	Internal Number	Case Number	Description
All	VOV-10999		Fixed issue that prevented the <b>show all rows</b> link from working on the buckets web UI page. Previously, using this link would result in an empty table as opposed to showing all available rows.
All	VOV-10350		All installers/SFDs now reject installation paths that contain spaces.
All	VOV-10427	24510	<p>This ticket addressed three issues that affected crash recovery.</p> <p>The first was a race condition that occurred when a vovslave connected to a restarted server. If the vovslave license authorization happened to be checked during a very small interval the result was that the vovslave was destroyed.</p> <p>The second was that 'hog protection' was inadvertently applied to vovslaves during crash recovery with the result that reconnection of vovslaves after a serve restart could be delayed until crash recovery period had ended. (This compounded the first issue during crash recovery.)</p> <p>The third issue was cosmetic and resulted an a Tcl stack trace if the vovserver took too long to respond while restarting. The database queries (vtk_select_loop) parameters were adjusted to lengthen the response period.</p> <p>Also see the release notes for VOV-10444 for pertinent crash recovery parameters.</p>
All	VOV-10221	24265, 24417	vovserver failover recovery has been enhanced to try for the recovery on all the configured server candidates.
All	VOV-9902		Prevent vovserver and child processes from exiting when Ctrl-C is pressed in the Windows command prompt from which the server was started.
All	VOV-11126	24961	The description of the RAMUSED slave resource was updated for better clarity on usage.

Product	Internal Number	Case Number	Description
Accelerator Plus	VOV-10862		Behavioral change; remaining slaves in base queues that have been removed will not be filtered from wait reasons.
Accelerator Plus	VOV-10557	24557	The Linux priority/"nice level" of jobs running via Accelerator Plus will now have the same priority as jobs running directly on Accelerator for the same Accelerator/Accelerator Plus designated execution priority. Use <code>nc/wx run -p &lt;scheduling priority&gt;.&lt;execution priority&gt; . . .</code> to set the execution priority.
Accelerator Plus	VOV-10117	24291	Fixed race condition when a job arrives while a slave is shutting down due to exceeding its <code>maxIdle</code> setting. The job will now be rescheduled instead of failing.
Accelerator Plus	VOV-10273		If the server configuration parameter <code>failover.usefailoverslavegrouponly</code> is set (default 0), then only failover slaves participate in server election. By default all slaves participate, which may cause excessive file traffic with many slaves (particularly exacerbated by Accelerator Plus).  The server election 'voting' period in seconds can be overridden by the server configuration parameter <code>failover.maxdelaytovote</code> (default 120).
Accelerator Plus	VOV-10033	24060	Jobs using shared memory should no longer see incorrect ram usage spikes when child processes terminate.
Accelerator Plus	VOV-10705	24632	Fixed bug that masked the number of queued slave requests when Accelerator Plus was calculating how many more slaves to request and under some conditions resulted in more slaves requested than there were jobs in the bucket. Also fixed the use of quota with slave launching via arrays so that the array parameter correctly applies the quota.
Accelerator Plus	VOV-11113		<code>vovwxd</code> will now log the time for a service loop at log level 3. The time of the latest loop will be updated in the property <code>WXLoopTime</code> .
Accelerator Plus	VOV-11112		The <code>WX_BUCKET_SERVICE_TS</code> property will be updated more frequently to show activity on heavily loaded Accelerator Plus queue.
FlowTracer	VOV-10990		Fixed an issue that could cause <code>vovlsfd</code> to fail due to errors updating reservations.
FlowTracer	VOV-7913	21527	Fixed issue that caused the login link to be shown even after logging into the web UI for users possessing the <code>READONLY</code> security level.
FlowTracer	VOV-10654	24609	Fixed unflattening of sets ( <b>Unflatten Sets</b> in the context menu) that were flattened recursively in <code>vovconsole</code> .

Product	Internal Number	Case Number	Description
FlowTracer	VOV-10114	24290	Job (transition) may now have "Failed to get user" error code.
Accelerator	VOV-10833	24749	Fixed an issue with <code>vovreconciled</code> not revoking component resource as per the revocation delay set for summary resource, when the component resource revocation delay is not set.
Accelerator	VOV-9123	23250	Accelerator issuing "stop" from the web interface is now sending the right exit signals.
Accelerator	VOV-9194	24593, 24922	Interactive jobs now use the fully-qualified domain name, if available, of the submission host to ensure the execution host can find and connect to the submission host.
Accelerator	VOV-9557	23850	Added new <code>vovslavemgr stop -sick &lt;TIMESPEC&gt;</code> function that can be used to forget slaves that are older than the specified timespec-based threshold.
Accelerator	VOV-10028	24238	<ol style="list-style-type: none"> <li>1. In back-compat mode, increase verbosity level to 3 for message relating to using the signal list and delay obtained from the <code>NC_STOP_*</code> properties.</li> <li>2. Do not show <code>&lt;default&gt;</code> in the level 3 Job Control message when using properties.</li> <li>3. In that same message, add an indicator of the signal/delay origin when not <code>&lt;default&gt;</code>. Example: "delay=4 (from property)". The indicator will be one of: property, environment, or option.</li> </ol>
Accelerator	VOV-7862	21237	Correct some edge cases in the job CPU utilization graph. Phantom CPU usage spikes were being seen.
Accelerator	VOV-11046	24897	Fixed issue where the <code>vovslave</code> would continuously log "Killing subslave with pid = <code>&lt;pid&gt;</code> " leading to eventual exhaustion of disk space. This fix requires a restart of all <code>vovslaves</code> .
Accelerator	VOV-10393		Slaves now start automatically on Windows.
Accelerator	VOV-9794		Fixed issue where the terminal appears to freeze when the output of an interactive Accelerator job ( <code>NC -I r</code> ) is piped to tee (tee, for example, would report "tee:write error"), cat, etc.
Accelerator	VOV-10108	24207	New API <code>containerHooksRunDir</code> is available to specify location where to run container hook scripts. The requested job running directory will be passed to Enter hook script as <code>env(VOV_CONTAINER_JOB_RUNDIR)</code> . Please see sample files at <code>/etc/config/containers</code>

Product	Internal Number	Case Number	Description
Accelerator	VOV-10341		Added a description of the RESV_<license> job property, which is a counter of how many times <license> has been revoked by the vovreconciled daemon (if configured).
Monitor	VOV-10908	24235	When monitoring a remote instance of Monitor, ensure that a remote dropped feature is detected and results in the deletion of the local feature. This allows the local feature's capacity to be set to 0 upon the next capacity snapshot.
Monitor	VOV-7082	20029	Parsers for MathLM, LMX HASP enhanced. Green Hills error for large IDs fixed.
Monitor	VOV-11062	24869	Improved help for vovslavemgr config setenv to instruct windows users to quote the "name=value" parameter

## 2019.01 Update 4 Patch 2

Product	Internal Number	Case Number	Description
All	VOV-12679	CS0124318, CS0128385	Fixed an issue with interactive jobs failing with the incorrect message "Client has responded to authentication request... with key """. This happens when the client has closed the connection. This is also accompanied with the following vovslave log message "Timed out waiting for authentication request from pty server".
All	VOV-12647	CS0128385	Fixed issues with interactive jobs failing with the following log message "Timed out waiting for authentication request from pty server". Also, added a new environment variable, VOV_INTERACTIVE_AUTH_TIMEOU

Product	Internal Number	Case Number	Description
			to configure the authentication timeout on the vovslave.
All	VOV-12316	AAP25172	Fixed an issue that caused vovserver memory to grow over time as "nc wait" and "nc run -w" commands were issued.

## 2019.01 Update 4 Patch 1

### Resolved Issues

Product	Internal Issue	Description
Allocator	VOV-11306	<p>Fixed a crash that was introduced in 2019.01u4. The call stack for the crash would have entries similar to the following:</p> <pre> Received signal: SIGSEGV 11 3/15 vovserver   (_Z25vovGenFirstAttachmentFASTPK9VovObjectj1+0x21)   [0x753bd1]  Received signal: SIGSEGV 11 4/15 vovserver   (_ZN14VovResourceMap22matchFalseOOQJobsForMQERSt6vectorIP11VovResource+0x312) [0x79ecb2]  Received signal: SIGSEGV 11 5/15 vovserver   (_ZN8VovMQRes12matchHandlesERSt6vectorIP11VovFTResJobSaIS2_E+0x140) [0x7bd420]  Received signal: SIGSEGV 11 6/15 vovserver   (_ZN12VovMQManager27matchAndDistributeResourcesER8VovTrace11VovResource+0x3ab) [0x7b011b]                     </pre>
Monitor	VOV-11306	Fixed an issue with the Detailed Plots report that resulted in a Tcl error when generating a report for a feature with no usage for the specified time range. Also fixed an issue with the Usage Trends report that resulted in a Tcl error when generating a report for a feature with a capacity of 1000 or more tokens.
Accelerator	VOV-11347	Fixed an issue in "vovfsgroup loadconfig" where the weight and window values of the FairShare group were not getting set to the values in the config file.
Accelerator	VOV-11305	Prevent a new autokill sequence from initiating if an existing sequence is already being processed. Prior to this change, an autokill sequence that took more than 5m to process would result in a new sequence starting without the

Product	Internal Issue	Description
		existing one completing. This would result in the slave entering a looping condition that may never end.
Accelerator	VOV-11307	Fixed a race condition in the job fostering system, which is used to properly account for jobs running on a host that has had its vovslave restarted, that could cause the foster jobs to fail and the restarted vovslave to refuse any future stop requests.
Accelerator	VOV-11296	A change to the command <code>nc hosts</code> that displayed all reservations a slave may have was backed out due to adverse performance effects on the server. The command <code>nc hosts</code> will now only show the "dominant" reservation, i.e. the oldest unexpired reservation.

## 2019.01 Update 3 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Product	Internal Number	Case Number	Description
All	VOV-10550		Added inline documentation for the default vovcleanup config file, <code>cleanup.config.tcl</code> .
All	VOV-6577		A new configuration parameter ( <code>liverecorder.logdir</code> ) has been added to allow the Live Recorder recording file directory to be specified. This can be used with both the <code>vovservermgr configure</code> and <code>vovslavemgr configure</code> utilities.  The default location for the server remains <code>\$SWD/./.</code> . The default location for the slave remains <code>/tmp</code> .
All	VOV-9639, VOV-9640		Improved the functional relationship between the refresh operation and the reporting operations of the <code>vovprocessmgr</code> utility, improved the help text for all options that needed clarification, added warnings about timing and accuracy, and added host filter support to the refresh operation for orphans.
All	VOV-9454	23741	Most of the VOV Tcl files from the installation package now contain a proper Altair copyright statement.
Accelerator Plus	VOV-9862	24090	Fixed a bug that was causing waitreasons to be empty for buckets that are being updated but their jobs cannot be dispatched to slaves.

Product	Internal Number	Case Number	Description
Accelerator Plus	VOV-10019		Added new parameter in <code>vovwxd /config.tcl CONFIG(limit,mode)</code> that allows Accelerator Plus to properly handle the <code>-limit</code> option of <code>wx run</code> . Refer to <code>config.tcl</code> for more information.
Accelerator Plus	VOV-10569	23888	Removed call to <code>vovtcpkill</code> from within the <code>vovserver</code> failover script.
FlowTracer	VOV-5668	20732	<p>We support the following new features for stopping and suspending jobs:</p> <p>The <code>-signals</code>, <code>-include</code> and <code>-exclude</code> options to <code>nc stop</code> and <code>vovstop -f</code> are now functional.</p> <p>The trace parameters <code>defaultStopSignalCascade</code> and <code>defaultSuspendSignalCascade</code> have been added to specify default behavior when requesting to stop or suspend a job, respectively. The trace parameters <code>defaultStopSignalDelay</code> has been added to specify default delay when requesting to stop a job, respectively.</p> <p>The job property <code>STOP_SIGNALS</code> can now be used to set stop-signal cascades on a per-job basis.</p> <p>The job property <code>STOP_SIGNAL_DELAY</code> can now be used to set the delay between stop signals on a per-job basis.</p>
Accelerator	VOV-10392		Added an SFD (single-file distributable) package for Accelerator. Also, the window for all SFDs can no longer be resized.
Accelerator	VOV-9596	24133	Added <code>-json</code> and <code>jsondoc</code> arguments to <code>vsy</code> to return job information in JSON format.
Accelerator	VOV-9909		<p>Added an option (<code>-splitstderr</code>) to write <code>stderr</code> output of the job to the terminal's <code>stderr</code> when running interactive jobs (<code>nc run -I</code>). The default is to write the job's <code>stderr</code> output to the terminal's <code>stdout</code>. Note that using this option will probably result in garbled terminal output due to interleaving of <code>stdout</code> and <code>stderr</code> outputs.</p> <p>This feature requires an update of the <code>vovsh</code>, <code>vovslave</code> and <code>vovserver</code> binaries.</p>
Accelerator	VOV-10488		Added new <code>STATISTICS</code> field to the <code>SET</code> object that contains the breakdown of jobs in a set, per job state, in JSON format.
Accelerator	VOV-10489		<p>Added new fields to <code>SERVER</code> object:</p> <ul style="list-style-type: none"> <li>• <code>INNERLOOPTIMERS</code> - json object containing percent of time spent in various phases within the server inner loop</li> <li>• <code>NUMBUCKETS</code> - total number of buckets</li> <li>• <code>SERVERSIZE</code> - the ram size of the server data</li> </ul>

Product	Internal Number	Case Number	Description
			<ul style="list-style-type: none"> <li>• SCHEDMAXEFFORT - current setting of the schedMaxEffort trace parameter</li> <li>• CYCLEFREQ - avg server cycles/sec over the previous ~10s interval</li> </ul>
Accelerator	VOV-8857	22729	<p>Added new slave resource: OSNAME. OSNAME is the name of the OS vendor/distribution (CentOS, Ubuntu, Windows, MacOS. etc).</p> <p>Changed the value for the OSVERSION resource to be more useful. OSVERSION is the common version number associated with the release, such as 18.10, 6-2.</p> <p>OSVERSION can be compared with =, !=, &gt;, &lt;, &gt;=, and &lt;= . A shorthand version such as 18, will match all 18.x.y versions. 18.4 will match all 18.4.y versions.</p> <p>"nc run -r osname=Ubuntu 'osversion&gt;=6.2' 'osversion&lt;=7.6' -- command" will run on a slave running Ubuntu versions 6.2 - 7.6 inclusive.</p>
Accelerator	VOV-10223		<p>Added wording to <code>lmmgr</code> usage help detailing how to disable the guest access port.</p>
Accelerator	VOV-8925	22887	<p>Jobs placed under the spread policy will now favor the socket with the most free memory when the cores used count is equal between all sockets. Additionally, the NUMA_LAYOUT slave property has been augmented to show the memory currently used by all jobs on the slave that requested NUMA support (e.g. "Socket: 0 RAM= 500/32089 **ooooooooo").</p>
Accelerator	VOV-9021	23089	<p>Allow for <code>VovUserError</code> to be called from within a job class as a means of exiting the job class without affecting the job class web UI page or the <code>nc jobclass</code> command.</p>
Accelerator	VOV-4897	20586, 21030	<p>FairShare configuration page now permits direct weight entry without resetting the window to 0.</p>
Accelerator	VOV-9364	23619	<p>Users can now specify the NUMA-related resources MAXNUMACORES and MAXNUMACORESFREE when running jobs. The former refers to the maximum number of NUMA cores in a single node on the slave, the latter to the maximum number of free NUMA cores on any single node on the slave.</p> <p>For example:</p> <pre>nc run -jpp pack -r+ MAXNUMACORESFREE#4</pre> <p>will request a job on any slave with at least 4 free NUMA cores on the same node.</p>

Product	Internal Number	Case Number	Description
			In addition, the fields MAXNUMACORES and MAXNUMACORESFREE have been added to the SLAVES object for the purposes of vtk_select_loop, vovselect and related commands.
Accelerator	VOV-10363	24474	Fixed requested RAM value shown by ram_usage.cgi
Accelerator	VOV-10540		Licenses are now checked in upon ncmgr stop -freeze.
Accelerator	VOV-10478		<p>Metrics are now enabled by default. Added new scheduler metrics:</p> <ul style="list-style-type: none"> <li>• scheduler/cores/capacity</li> <li>• scheduler/cores/inuse</li> <li>• scheduler/hosts/ready</li> <li>• scheduler/hosts/full</li> <li>• scheduler/hosts/overloaded</li> <li>• scheduler/hosts/sick</li> <li>• scheduler/hosts/noslot</li> </ul> <p>Internally calculate moving averages for the above metrics as well as all existing metrics:</p> <ul style="list-style-type: none"> <li>• scheduler/ram/capacity</li> <li>• scheduler/ram/inuse</li> <li>• scheduler/slots/capacity</li> <li>• scheduler/slots/inuse</li> </ul> <p>Added new CAPACITYMETRICS field to the SERVER object that contains the latest value and moving averages for these metrics in json format.</p>
Accelerator	VOV-7408	20586	<p>Original: FairShare configure page now displays actions for a group based on user's permission on that group.</p> <p>This fix: Randomly, the fairshare.cgi web UI page would receive an error from the API that prevented it from rendering.</p>
Accelerator	VOV-9647	24675	<p>Simplified the controls and behavior of the limit functionality of the tabular reports found in all products.</p> <p>For reports that deal with a potentially high number of records, the separate "records to retrieve" control has been removed and consolidated into the table's built-in limit control. In such tables, the table no longer attempts to show the total number of rows available, nor the number of rows that were matched by the back-end query. This is done for both performance and accuracy reasons, as getting these numbers can take a significant amount of time from the back-end database.</p>

Product	Internal Number	Case Number	Description
			<p>Also fixed an issue that caused the "show all rows" link to not appear in some web UI tables that were being limited.</p> <p>The behavior of this link has also changed slightly, in that when showing all rows, instead of passing the total number of rows the table is cognizant of back into the table as the new limit, a limit of 0 is passed. This triggers the table functionality to show all rows available. To prevent confusion, an empty string is displayed as the current limit value instead of 0. Before this change, the total number of rows was only current at the time the table was build, so the limit passed was often stale and still did not show all rows.</p>
Accelerator	VOV-10531		The "default" keyword is now supported for the log file specification for UNIX-based slaves that are managed by vovssd. This results in a composed log file specification of @SWD@/logs/slaves/<slaveName>/<slaveName> that will be passed into the <code>vovslave -l</code> option.
Accelerator	VOV-9593	21346, 23449	The NC integration code will now load correctly with versions of Cadence ADE environment that have alphanumeric characters in their version strings (for example, "ICADVM18.1-64b").
Accelerator	VOV-9779	23926	The <code>vovcleanup</code> command has been enhanced to remove old logfiles generated by <code>vovwxd</code> . The guiding age threshold is controlled by the new <code>vonfig(cleanup, vovwxd)</code> setting in the <code>cleanup.config.tcl</code> configuration file. Default value is 30d. This value can be changed by modifying (or adding, as necessary) the value in the <code>cleanup.config.tcl</code> file in the project's server working directory. For example set <code>config(cleanup, vovwxd) 15d</code> .
Accelerator	VOV-6173	21118	<p>Reservation by negation for <code>vovslave</code> is now accepted. For example:</p> <pre>nc cmd vovslavemgr reserve -jobclass \!normal - duration 2h a003</pre>

## Resolved Issues

The following issues were resolved in this software release:

Product	Internal Number	Case Number	Description
All		24362	Fixed a bug when <code>vovserver</code> incorrectly reports about license expiration for perpetual license.
All		23689	Added a new time value trace parameter: <code>preemption.rule.cooldown</code> . Preemption rules that are

Product	Internal Number	Case Number	Description
			disabled due to exceeding the max preemption processing time ( <i>preemption.max.time.rule</i> ) will observe a cooldown period equal to the value specified by <i>preemption.rule.cooldown</i> before being automatically re-enabled. The minimum value is 0 which indicates that an alert should be generated but the rule will not be disabled. The default and max value is 1y = off (rules will not be automatically re-enabled).
All	VOV-10317		Fixed an error that corrupted non-default values for the <i>allowUidForSecurityFile</i> parameter, which in turn could prevent the vovserver from honoring settings in the security file.
All	VOV-10665		Fixed an issue in the deprecated <i>vtk_resourcemap_reserve</i> Tcl command that caused an error when attempting to cancel existing reservations by updating the duration to 0 seconds.
All	VOV-10239		Simplified switches to avoid user confusion.
All	VOV-10726		Fixed an issue that caused the "show all rows" link to not appear in some web UI tables that were being limited. The behavior of this link has also changed slightly, in that when showing all rows, instead of passing the total number of rows the table is cognizant of back into the table as the new limit, a limit of 0 is passed. This triggers the table functionality to show all rows available. To prevent confusion, an empty string is displayed as the current limit value instead of 0. Before this change, the total number of rows was only current at the time the table was build, so the limit passed was often stale and still did not show all rows.
Accelerator Plus	VOV-10462	24488	Fixed a bug in <i>vovwxd</i> daemon that was causing it to request only 1 slave at a time for jobs with NC:<queue> resource.
Accelerator Plus	VOV-10530	24543	Fixed a bug in <i>vovwxd</i> that was causing it to create only 1 launcher job per buckets processing cycle. The impact of the bug was slow Accelerator Plus job starts due to delays in launching the host job in the base NC queue.
Accelerator Plus	VOV-10414	24497	Fixed a bug that was causing <i>vovwxd</i> daemon to run into a infinite loop.
Accelerator Plus	VOV-10678	24572	Fixed an issue that caused user-based security rules to eventually stop working on a heavily loaded server.
Accelerator Plus	VOV-10205		In Accelerator Plus, a Tcl error occurred in <i>vovnc</i> driver script, for one bucket, will not impact the processing of other buckets. However the error will be reported as an alert, the user should take action accordingly. The failed bucket will be recovered after <i>vovnc.tcl</i> file is updated.

Product	Internal Number	Case Number	Description
Accelerator Plus	VOV-10182	24321	In Accelerator Plus, user will not be able to submit jobs into a locked FairShare group. The FS group must be also locked on Accelerator Plus side as well as on Accelerator queue.
Accelerator Plus	VOV-10355, VOV-10353		Job data files have been enabled for Accelerator Plus.
Accelerator Plus	VOV-10161		vovresourced is disabled in Accelerator Plus.
Accelerator Plus	VOV-9728	24019	wx run can now specify -G parameter for FairShare group. The wxagent job in the base queue will run with the specified group.
Accelerator Plus	VOV-10275	24422	Removed syntax error warning from the slave log file
Allocator	VOV-9066	23158	The "show all rows" links in LA resource report tables has been restored.
Allocator	VOV-10841	24713, 24756	Fixed issue where Allocator would double count OOQ tokens. This would result in sites with OOQ jobs getting more than their fair share of tokens. This could also result in some tokens not being allocated to sites.
FlowTracer	VOV-10187		Client connections made by scripts run by the auto-start feature now close correctly when the script exits, instead of remaining open indefinitely.
FlowTracer	VOV-10658	24604	Fixed keyword expansion in log file names for array jobs and added support for cases where the array reference job ID is the intended target for an artificial dependency (AD) as opposed to each individual job in the array. This is accomplished via a new format for the AD target job: ARRAY:N, where N is the job ID of the array reference job.
FlowTracer	VOV-10581	24030	Running commands via nc cmd ... or wx cmd ... will now apply the appropriate vnc_policy to the command's environment
FlowTracer	VOV-10337		vovconsole hang issue has been fixed by handling duplicate IDs.
FlowTracer	VOV-10901		Fixed an issue where an undefined variable was being referenced upon an LSF job submission failure in vovlsfd.
Accelerator	VOV-10119		A low swap space alert will no longer be generated for servers with 0 total swap or total swap that is lower than the threshold.
Accelerator	VOV-10403		A separate Windows user name is no longer required for user impersonation in Windows slaves. It is still required, however, if the Windows user name is different from the user name obtained from the job submission, as might be the case in a cross-platform submission environment.

Product	Internal Number	Case Number	Description
Accelerator	VOV-9883		AAP command line tools no longer throw errors when the output is piped through another command line program that exits before allowing the input command to finish, such as the UNIX "head" command.
Accelerator	VOV-10072		An alert will be generated if all jobs on a host are stuck (consuming no CPU time). Optional alerts are available for setting a threshold for creating alerts based on a number of jobs being stuck per host, tool, or user. See the Jobstuck Procedure of <code>vovnotifyd</code> .
Accelerator	VOV-10142	24314, 24325	An alert will now be generated if the process spawned to save the PR file fails.
Accelerator	VOV-9482		Enhanced <code>stripTclComments</code> filter to retain repository IDs
Accelerator	VOV-10784	24660	Fixed an issue with <code>vovreconciled</code> not revoking sum resources when the component resource that was revoked contains zeros in its name.
Accelerator	VOV-10748		Fixed an undesired growth in memory consumption for jobs that utilize license-based resources.
Accelerator	VOV-10401		Fixed issue that prevented the <code>vovauxpasswd</code> utility working in the Windows command prompt.
Accelerator	VOV-10412		Fixed numerous issues regarding user impersonation on Windows. Jobs should now execute correctly as the target user on slave and job output should be available in the log file.
Accelerator	VOV-10217		Fixed an issue with "default" slavelist.
Accelerator	VOV-10410		Fixed issue with SNAPSHOT environment that caused UNIX-style path delimiters (colons) to be used on Windows instead of semi-colons for the <code>VOVDIR/bat</code> , <code>VOVDIR/bin</code> , and <code>VOVDIR/scripts</code> segments of the <code>PATH</code> environment variable.
Accelerator	VOV-10781	24680	Fixes a crash related to <code>nc info</code> , <code>vtk_explain_status</code> and related commands when querying a job with pending dependencies (e.g. if the job was run with <code>nc run -dep</code> ).
Accelerator	VOV-7570, VOV-9885	20881, 24152	If <code>\$NC_LOGDIR</code> is a non-existent directory, <code>nc run</code> failed in prior releases. This change causes <code>nc run</code> to create the <code>\$NC_LOGDIR</code> directory if it does not exist and successfully launch the job.
Accelerator	VOV-10616	24589	In jobclass editor, the autokill field is now free-form.
Accelerator	VOV-10914	20586	Randomly, the <code>fairshare.cgi</code> web UI page would receive an error from the API that prevented it from rendering

Product	Internal Number	Case Number	Description
Accelerator	VOV-8980, VOV-9841	22986	Removed appearance of DOS newline characters (^M) when the output of <code>nc run -I</code> is piped.
Accelerator	VOV-9877		Show the Accelerator-specific job status (eg Running) instead of the FlowTracer-specific status (RETRACING) in the UIs for all products other than FlowTracer.
Accelerator	VOV-10356		Stderr will now be included in the output log for default windows jobs.
Accelerator	VOV-9619		The network port opened on the submission host when running an interactive job now authenticates the incoming connection to prevent accidental connections, such as those made by port scanners, from causing the interactive job to fail.
Accelerator	VOV-10408		The user profile directory is now created upon starting a job on a Windows slave if the directory does not already exist on the slave host.
Accelerator	VOV-10107		Updated <code>minMemFreeOnServer</code> and <code>minSwapFreeOnServer</code> configuration parameter descriptions with the unit of measure, which is MB.
Accelerator	VOV-10792	24689	Fixed issue with <code>vovresourced</code> failing to start when <code>vtk_flexlm_monitor -tags { }</code> is used with more than one tag.
Accelerator	VOV-10831		A couple of issues with running Accelerator in interactive mode ( <code>nc run -I</code> ) have been fixed. The first issue would occasionally result in the initial output of the job being lost. The second issue would, in rare cases, cause interactive mode to time out and fail.
Accelerator	VOV-10989	24514	Post execution script handling is changed for the case where a job body script terminates due to a signal or <code>nc stop</code> . In these cases, the post-execution script specified by <code>-post</code> on the <code>nc run</code> command will run to completion. A second signal or <code>nc stop</code> executed while the post-execution script runs can be used to terminate it early if that is desired.
Monitor	VOV-10265	24389, 24416, 24487	Fixed an issue in the license web UI page that caused an error to be displayed concerning an undefined "enterpriselicense" array element when using a license key file for product licensing.
Monitor	VOV-10013	23315	Parser now can handle datetime strings that has comma after year, such as "8/5/19, 10:14:06 AM" or "Jan 15, 2019, 5:27:40 PM"), and added test cases; Also fixed the parser to locate and use full key file path (necessary for commandline run).
Monitor	VOV-10132		More places changed to use global db handle to prevent or essentially reduce multiple db handles in the same session. Also optimized code to reduce the repeated calls to db to retrieve the same data.

Product	Internal Number	Case Number	Description
Monitor	VOV-10049	24281	This addresses an issue where under certain circumstances the LM/LA vovlmd daemon crashes because the vov slaves are unable to stop jobs via the autokill mechanism.
Monitor	VOV-10725	24614	More places changed to use global db handle to prevent or essentially reduce multiple db handles in the same session. Also optimized code to reduce the repeated calls to db to retrieve the same data.

### Errata

The following issues and defects are known to exist in 2019.01 Update 3 software release.

Product	Internal Issue	Description
Monitor	VOV-10947	Altair Monitor SFD not starting on Linux

## 2019.01 Update 3 Patch 2

### Resolved Issues

The following issues were resolved in this software release:

Product	Case Number	Internal Number	Description
Accelerator	24897	VOV-11046	Jobs are failing with fork errno 0, filling up the disk with error logs.

## 2019.01 Update 3 Patch 1

### Resolved Issues

The following issues were resolved in this software release:

Product	Internal Issue	Description
FlowTracer	VOV-10990	"Generic Error" in vovlsfd log file

## 2019.01 Update 2 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Product	Issue Number	Case Number	Description
All	VOV-10021		The Bookshelf page has been simplified for easier reading.
All	VOV-9742		The new <code>vovservermgr</code> command is added for system administrators. This command has several subcommands. Three of the subcommands provide an easier syntax to set <code>vovserver</code> configuration and environment variables than <code>vtk_server_config</code> , et al. Other subcommands interface to memory chunking and scheduler tuning controls.
FlowTracer	VOV-9692		Added the 'fileready' and 'waitforfile' flags (visible when the flag is set) to the <code>vovconsole</code> GUI and web pages.
FlowTracer	VOV-9805	22742	In FlowTracer, <code>vovlsfd</code> will "bsub" buckets based on priority; earlier it used to be rank followed by priority.
Accelerator Plus	VOV-9792		Added new parameter in <code>vovwxd/config.tcl</code> <code>CONFIG(slave,AutoKillMethod) ""</code> that specifies the autokill method for all slaves.
Accelerator Plus	VOV-9200	22867	If the directories <code>\${VOVDIR}/local/logs/lm</code> or <code>\${VOVDIR}/local/logs/nc</code> exist, then the output of <code>lmmgr</code> and <code>ncmgr</code> respectively will be logged in those directories with timestamped filename.
Accelerator Plus	VOV-8840		<code>vovdaemonmgr stop/start/restart</code> of <code>vovwxd</code> will also stop/start/restart WXLancher slave.
Accelerator	VOV-7248	20366	Added the <code>BUCKETTIME</code> field to the <code>JOBS</code> object for <code>vovselect</code> , <code>vtk_select_loop</code> and related commands. This field indicates the timestamp at which the job was most recently assigned to a bucket. For jobs that are not yet assigned to buckets, this field will be 0.
Accelerator	VOV-8994	22987	The Accelerator administrator may now restrict access to the <code>nc modify</code> subcommand. If a <code>VovUserGroup</code> named "System:jobmodify" exists, only <code>USERS</code> who are in that group may modify jobs.
Accelerator	VOV-9535		There will be two additional trace parameters visible: <code>preemption.load</code> and <code>preemption.module</code> . Both may be set in the policy file or via the <code>vovservermgr config</code> command.  <code>preemption.load</code> - a value of 1 will cause the preemption module to be loaded, a value of zero will cause it to be unloaded. During startup the value indicates the desired state, afterwards it reflects the current loaded/unloaded

Product	Issue Number	Case Number	Description
			<p>state. Setting the value to 0 in the <code>policy.tcl</code> file will disable the loading of the preemption module on startup.</p> <p><code>preemption.module</code> - indicates the preemption module to be loaded. The default (and only currently available) value is <code>libpreemption.so</code>.</p> <p>In the future these parameters will allow us to unload preemption and load a new version without taking down vovserver.</p>

## Resolved Issues

The following issues were resolved in 2019.01 Update 2 software release:

Product	Internal Number	Case Number	Description
All	VOV-9998		<p>Eliminated the appearance of errors similar to the following in the logs:</p> <pre>7,275 vovserver(19661) ERROR May 20 15:59:55 Ending a visit that is already ended (searchId=81179) [object:411] 7,277 vovserver(19661) ERROR May 20 16:14:01 Nested visit with searchId=82117 [object:388]</pre>
All	VOV-10103		<p>Fixed issue in calculating the total memory used by jobs, where the reported amount did not take into account memory that is shared between multiple processes in a job's process hierarchy.</p>
All	VOV-9827		<p>Fixed a bug in the handling of resource names that were the same as the beginning of a slave name. For example a slave named "foo1" with a resource "foo" would see its "foo1" resource disappear and be replaced by a second "foo" resource. Both the disappearing slave name and the resource duplication have been fixed.</p>
All	VOV-10003		<p>Fixed a bug involving missing field names in result arrays returned by <code>vtk_select_get</code> when specifying parameterized fields, e.g. properties.</p>
All	VOV-10071		<p>Relaxed the restrictions around the user-specified slave health check script.</p>
All	VOV-9852		<p>vovserver will not start any configured daemon as part of the server start up process; this task will be handled by the auto start scripts.</p> <p>One exception to this behavior is <code>vovnginxd</code>; the vovserver will explicitly start <code>vovnginxd</code> if the web port is changed from zero to a valid port while the server is running.</p>

Product	Internal Number	Case Number	Description
FlowTracer	VOV-9158		Fixed <code>vov1sf</code> issue where all occurrences of "-R" was getting removed from <code>BSUB_OPTIONS</code> .
FlowTracer	VOV-9388		Improved error message to display node Id.
FlowTracer	VOV-10120	24303	User environment variable with the name "SAVE" will no longer interfere with the "CLEAN" environment script.
FlowTracer	VOV-8002	21684	When <code>VOV_FT_MULTIUSER</code> environment variable is set before launching a slave, the slave will only accept jobs owned by the same user who started the slave. Jobs owned by other users will be refused. New keyword <code>@JOBOWNER@</code> has been added to substitute it with the actual job user on runtime.
FlowTracer	VOV-9404		<code>vov</code> daemon processes will ignore <code>Ctrl+C</code> signals when started from <code>vovdaemonmgr start</code>
Accelerator Plus	VOV-10171		Fixed error in Accelerator Plus that could cause non-ADMIN users' jobs to fail due to security errors during slave startup.
Accelerator Plus	VOV-10067		Fixed error that prevented <code>vovwxconnect -test</code> script from successfully running.
Accelerator Plus	VOV-9378		Multiple instances of the same daemon will no longer be allowed to run when the "-f" flag is used. If the specified daemon is not running, "-f" will attempt to start the daemon, but if there is one already running, another instance will not be started.
Accelerator Plus	VOV-9357		Multiple instances of the same daemon will no longer be allowed to run when the "-f" flag is used. If the specified daemon is not running, "-f" will attempt to start the daemon, but if there is one already running, another instance will not be started.
Accelerator Plus	VOV-9735		The fields <code>GRABBEDRESOURCES</code> and <code>GRABBEDRESOURCESO</code> are now visible for Accelerator Plus jobs. In addition, the <code>VOV_GRABBED_RESOURCES</code> environment variable now propagates properly in Accelerator Plus jobs. Note that the value of <code>GRABBEDRESOURCES</code> differs from that in Accelerator; for Accelerator Plus jobs, its value will be derived from that of <code>GRABBEDRESOURCESO</code> of the associated slave job in the base queue.
Accelerator Plus	VOV-10094		<code>nc/wx cmd . . .</code> now supports interactive scripts.

Product	Internal Number	Case Number	Description
Accelerator Plus	VOV-9753	24035	Accelerator Plus will initialize environment variables specified in VOV_LM_VARNAMES variable of the job that requests a License:* resource
Accelerator	VOV-9895		Added documentation page in the Accelerator Admin Guide for job fostering and improved command help.
Accelerator	VOV-9128	23263	Jobs will have exit status 1 if for any reason they cannot be started on vovslave.
Accelerator	VOV-9996	24208	Fix docs to correctly describe user-provided vovslave health script
Accelerator	VOV-10100	24275	Correct the job NUMA placement doc in the Accelerator Manuals.
Accelerator	VOV-9879		Changed slave error logging messages to make them clearer and more user-friendly.
Accelerator	VOV-8837		Corrected job why property to display the actual time taken on start.
Accelerator	VOV-9806		Extras and consumables are no longer listed twice in vovslavemgr show -resourceonly output.
Accelerator	VOV-9679		Fixed issue where TIMEVAR procedures defined in job classes were not being re-evaluated when needed.
Accelerator	VOV-9511		Fixed issue where slaves in 'ready' state were shown as 'overloaded' on vovslavemgr update.
Accelerator	VOV-9198		Fixed issue with the "-O @CLOCK@" output format option to nc hosts where the leading digit of the clock was being truncated.
Accelerator	VOV-10104	24273	Fixed the issue where vovreconciled continues to reconcile (or vice versa) even after "Handle-job matching" is turned off in Allocator.
Accelerator	VOV-9881		Improved messaging from nc stop command when signals are provided via environment variables or when using the default stop signal cascade. In addition, CHECK is now recognized as a valid signal.
Accelerator	VOV-9908		Accelerator's vnc_policy.tcl file will be applied to Accelerator jobs coming from FlowTracer scripted indirect slaves.
Accelerator	VOV-9768		The default vovresourced configuration file no longer assumes Monitor to be available, preventing unwanted alerts concerning Monitor being unreachable in environments where it is not being used or has not yet been configured.  Additionally, the call to vtk_flexlm_monitor_all is now disabled by default to prevent the creation of Accelerator resources for all

Product	Internal Number	Case Number	Description
			licenses reported by Monitor. For performance reasons, the use of <code>vtk_flexlm_monitor_all</code> is only recommended in environments where a small total number of licenses are reported by Monitor, or when the majority of the licenses reported are actually requested by Accelerator jobs as a resource requirement. In all other cases, it is recommended to individually choose which licenses will be used to create Accelerator resources by calling <code>vtk_flexlm_monitor</code> for each license.
Allocator	VOV-10022		If a site has <code>DO_NOT_SHARE</code> set for a resource in LA, that resource no longer appears in the output of <code>nc cmd vovshow -resources</code> . The earlier behavior was to show the resource with a value of zero.
Monitor	VOV-9764		Fixed an issue that prevented slaves and agents created via the web UI from starting.
Monitor	VOV-9838		Fixed the code that added data points for capacity prior the given range. Now all data should limited to the given range, so no wrong chart scaling is possible.
Monitor	VOV-10111		The Monitor SFD GUI may now take longer to enable the Stop button than it did previously. It has been modified to ensure that Monitor has completely started before enabling Stop.
Monitor	VOV-9878		When switching back to HTML as the output format from CSV, ensure that the input file name or prefix depends on single or multiple files.

## Errata

The following issues and defects are known to exist in 2019.01 Update 2 software release.

Product	Internal Issue	Description
FlowTracer	VOV-10507	vovconsole hangs/closes connection with large flow (>250k jobs and > 388k files)

## 2019.01 Update 1 Release

### New Features and Enhancements

The following new features and enhancements were introduced this software release:

Product	Internal Number	Case Number	Description
All	VOV-9448		Cached queries created via <code>vtk_select_create</code> or related commands can no longer expire while the results are still being processed.
All	VOV-8080	22230	Startup scripts for use with <code>systemd</code> are now included in <code>\$VOVDIR/etc/boot</code> .
Accelerator Plus	VOV-9798	24022	Added new parameter in <code>vovwxd/config.tcl</code> set <code>CONFIG(agent,PreemptMethod) ""</code> that specifies the preemption method for all <code>wxagent</code> jobs running in base NC queue.
Accelerator	VOV-8699		Added support for <code>cgroups v2</code> .
Accelerator	VOV-7248	20366	Added the <code>BUCKETTIME</code> field to the <code>JOBS</code> object for <code>vovselect</code> , <code>vtk_select_loop</code> and related commands. This field indicates the time in seconds that a job spent after being assigned to a bucket, but before being dispatched to a slave. For jobs that are not yet assigned to buckets, this field will be 0.
Accelerator	VOV-9588		Added IPv6 support.
Allocator	VOV-9800		Added a toggle button to the LA Resource Summary page to toggle matching of handles with "recent" jobs (i.e., jobs that have already finished running). Also, the existing push buttons for toggling debugging, etc. have been changed to toggle buttons.
FlowTracer	VOV-9692		Added the 'fileready' and 'waitforfile' flags (visible when the flag is set) to the <code>vovconsole</code> GUI and web pages.

## Resolved Issues

The following issues were resolved in 2019.01 Update 1 software release:

Product	Internal Number	Case Number	Description
All	VOV-10040		This fixes some issues with <code>vov</code> services on Windows not listening to both IPV4 and IPV6 network ports. Without this fix, the user may experience hangs while starting and stopping Monitor or other projects, and with <code>nginx</code> being unresponsive.
All	VOV-9771		Fixed an issue where all field names specified by <code>vtk_select_create</code> and related commands would be converted to upper-case in the returned Tcl array. The field names will now be returned with the same capitalization as requested by the user.

Product	Internal Number	Case Number	Description
All	VOV-9749		Changed the behavior of the stop button in the vovssd SFD to stop the vovssd daemon and all child processes to prevent orphaned child processes from being present after exiting the SFD.
Accelerator Plus	VOV-9379	23650	vovwxd will show an alert when the deletion of a slave object is unsuccessful. The new alert will have "vovwxd could not destroy slave" title format.
Accelerator Plus	VOV-9745	24004	Fixed a bug in vovwxd that was causing it to request slaves from the same base Accelerator queue when configured for multiple queues.
Accelerator Plus	VOV-9744	24001	Improved the method of retrieving the slave status in Accelerator Plus from the base Accelerator queue. The new method will help to avoid the blocking of vovwxd caused by <code>nc getField</code> command
Accelerator Plus	VOV-9797		A configuration parameter was added that can change how wxagent responds to an <code>nc stop</code> command when running with an NC base queue. The parameter is named <code>CONFIG(nc_stop_signals)</code> and can be found in <code>vovwxd/config.tcl</code> . The default value is "" (empty string). If this parameter is set to a non empty string (for example, "USR1"), then the wxagent will be started with the additional parameter <code>NC_STOP_SIGNALS</code> set to the value of the string.
Allocator	VOV-9151		Fixed adding of maps with <code>LA::AddResource</code> (were not getting added to the Resource earlier).
Allocator	VOV-7592	20921	Fixed cleanup of <code>.nfs*</code> files.
FlowTracer	VOV-9158		Fixed <code>vovlsfd</code> issue where all occurrences of "-R" was getting removed from <code>BSUB_OPTIONS</code> .
FlowTracer	VOV-9388		Improved error message to display node Id.
FlowTracer	VOV-8776		Changed the behavior of the "Forget" context menu in the canvas area for "Set" objects so that it now forgets the selected set; not its contents. The earlier behavior was to forget the set's contents but not the set. Added a new context menu "Forget Recursively" that forgets the selected set and its contents recursively.
Accelerator	VOV-9511	23730, 23867	Fixed issue where slaves in 'ready' state were shown as 'overloaded' on <code>vovslavemgr update</code>
Accelerator	VOV-9681	23977	Fixed issues with the vovssd SFD (single-file distributable) that prevented it from working properly as a Windows service. Slaves are now stopped when vovssd is stopped from within the SFD GUI, the SFD is exited entirely, or its Windows service is stopped. This change prevents the situation where

Product	Internal Number	Case Number	Description
			orphan slave processes are left behind, preventing the SFD from extracting into the same directory as before, which would be the case in a Windows service.
Accelerator	VOV-9051	23098	Changed <code>vovresourced</code> to use more efficient data URLs for querying Monitor for data.
Accelerator	VOV-8928		The parameter <code>schedSkip</code> has been replaced with <code>schedMaxEffort</code> . The documentation has been updated to reflect this change.
Accelerator	VOV-9184		Fixed a bug that was causing performance problems due to generation of redundant NODESET events when submitting jobs <code>nc run -fb 1 -f &lt;filename&gt;</code> .
Accelerator	VOV-9170		Metrics system no longer requires a license.
Accelerator			Changed internal representation of filesystem sizes to accommodate large filesystems. Customers with TMP filesystems up to $9 \times 10^{24}$ bytes should see correct values for the TMP# resource
FlowTracer	VOV-9613		Fixed issue leading to nested visit error messages in logs.
Monitor	VOV-9514	20544	<code>ftlm_batch_report</code> , and a few other programs like <code>ftlm_accouts</code> and <code>ftlm_tags_admin</code> now opens only one db handle and use it throughout the process.

## 2016.09 Release Notes

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	6258		<p>There is now a Python interface for the vovserver REST API. The Python interface returns a JSON formatted string as a result of posted query. For more information about request URLs and response format please refer to REST API documentation. As vovserver requires the user to be authenticated, the Python interface will automatically prompt the user for username and password if the current login session is expired.</p> <p>Example scripts:</p> <pre>from   common.scripts.rtda_rest import RTDARest rtda_client =   RTDARest() obj =   rtda_client.getUrl(&amp;http:// localhost:11913/ api/v1/jobs/12345/ status&amp;) print (&amp;Return   type is&amp;,   type(obj)) print   (&amp;Return val: &amp;,   obj)</pre>
All	2272		<p>Selection rule syntax now supports several additional features.</p> <p>Logical "or" operations in selection rules are available via the   operator.</p>

Products	Internal Number	Case Number	Description
			<p>Logical operations may be grouped with parentheses.</p> <p>AND operations always take precedence over OR operations in the absence of parentheses.</p> <p>The words <b>and</b>, <b>or</b> and <b>not</b> can now be used in place of <b>&amp;</b>, <b> </b> and <b>!</b> respectively; this makes shell-level scripting easier. These words are case-insensitive; they may also be typed as <b>AND</b>, <b>OR</b> and <b>NOT</b>.</p> <p>The = operator is now supported, which is equivalent to the == operator.</p> <p>Spaces are now allowed in non-quoted string values if they are preceded by a backslash <code>\</code> character.                      Example: <code>command^sleep\ 60</code> is now a valid rule.</p>
All	4218		<p>Improved protocol for more compact packing.</p> <p>To send 16-bit integer, packing size is changed from 8 bytes to 3 bytes. to send 32-bit integer, packing size is changed from 8 bytes to 5 bytes.</p> <p>To send 64bit integer, packing size is changed from 16 bytes to 10 bytes.</p> <p>By removing 4-byte alignment packing and reducing data type encoding method, encoding of string and double types is also more efficient.</p>

Products	Internal Number	Case Number	Description
All	4980		<p>Daily log files generated by system daemons are now automatically compressed.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> This applies only to non-Windows platforms.</p> </div>
All	5349		<p>Vovselect now supports the '*' wildcard to signify all fields of a particular object.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> Ensure the '*' character is quoted as required by your shell.                      Example:                      vovselect                      '*' from                      jobs where                      idint==12345</p> </div>
All	5595	13053	<p>The increased web server security now prevents local file inclusion via a path relative to an open URL, such as /gif.</p>
All	5935		<p>Added waitreasons as <i>from</i> source to vovselect, which provides access to the data available in vovshow - waitreasons.</p>
All	5954		<p>Jobs submitted to NetworkComputer by the administrator can no longer be accidentally dispatched to the VOV database support slave.</p>
All	5985		<p>Added coresused and corestotal fields to</p>

Products	Internal Number	Case Number	Description
All	6071		<p>vovselect when querying slaves.</p> <p>The interface to the vovversion shell command has been changed.</p> <p>The new command interface:</p> <pre data-bbox="1166 527 1507 1591">                     % vovversion -h                     vovversion: Usage                     Message                     DESCRIPTION:                     Print the                     VOV version.                     Optionally show                     more details.                     USAGE:                     vovversion                     [options]                     OPTIONS:                     -help -- Print                     this message                     -all -- Print all                     available version                     information                     -clients -- List                     clients and their                     version numbers                     -install -- Print                     the VOV version                     with patch names,                     if any                     -patches -- Print                     patch names, if                     any                     -project -- Print                     the version                     of vovserver                     associated with                     the current                     project [Can                     abbreviate                     options provided                     they are                     unambiguous]                 </pre>
All	6107		<p>Added timestamp for FILE type and start and end time for JOB job in vovconsole Navigator. This allows users to easily see the dependencies of a timestamp.</p>

Products	Internal Number	Case Number	Description
All	6119		For easier editing, Cut/Copy/Paste menus have been added to Text fields
All	6168		Added support for doing daily maintenance on the VOV database, which is configurable through the database administration web interface.
All	6196		<p>A new configuration parameter, <code>liverecorder.logsize</code>, now controls the size of Live Recording log files.</p> <p>The parameter, <code>liverecorder.logsize</code>, can be added to the <code>policy.tcl</code> file, or set on-demand for the server via:</p> <pre>vovsh -x &amp;vtk_server_config liverecorder.logsize N</pre> <p>or for the slave via:</p> <pre>vovslavemgr configure - liverecorder.logsize N SLAVENAME</pre> <p>where N is any number between 256 and 8192, which represents the size of the log file in megabytes. This setting must be applied before turning Live Recorder on.</p>
All	6400		The protection against deleting a resource when a job is queued against is now improved; it no longer slows the vovresourced-based expiration extender.

Products	Internal Number	Case Number	Description
LicenseMonitor	5394		Integrated licensing capabilities now support server lists. This feature is useful for unlicensed tool wrapping.
NetworkComputer	5766		New features have been added to the vovprocessmgr utility for finding processes that are descendents of vovslave, orphans of vovslave and external processes. There is an option to create foster jobs for discovered orphans; orphans can now be accounted for by a slave on the same host, and tracked for the rest of their lifetime.
NetworkComputer	5904		<p>On Linux slaves, a job can now be requested to run in one or more cgroups. The syntax is similar to requesting any other resource, with the resource name consisting of the prefix CGROUP: followed by the path to the cgroup on the filesystem.</p> <p>Example, to use /sys/fs/cgroup/cpuset/my_cgroup1 / sys/fs/cgroup/memory/ my_cgroup2:</p> <pre>nc run -r CGROUP:/ sys/fs/cgroup/ cpuset/my_cgroup1 -r  CGROUP:/sys/ fs/cgroup/memory/ my_cgroup2 -- sleep 120</pre> <p>will assign a "sleep 120" job to the cgroups my_cgroup1 and my_cgroup2</p> <p>If the user specifies multiple conflicting cgroups (such as</p>

Products	Internal Number	Case Number	Description
			<p>2 cgroups under the /memory hierarchy), the cgroup that is specified last is the one that the process will be assigned to.</p> <p>The special resource CGROUP:RAM can be used to limit memory usage of a job within a cgroup.</p> <p>Example:</p> <pre>nc run -r CGROUP:RAM -r RAM/2000 -- sleep 120</pre> <p>will assign the job to a default cgroup and limit that cgroup to 2000 megabytes of RAM. Since we only place one job in each default cgroup, we can effectively limit RAM usage on a per-job level. The path to this default cgroup will be:</p> <pre>&lt;path to cgroup root directory &gt;/memory/ &lt;queue name&gt;_ &lt;slave name&gt;_ &lt;job slot number&gt;</pre>

Products	Internal Number	Case Number	Description
			<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p> <b>Note:</b>                      CGROUP:RAM cannot be used with a non-default cgroup; if both CGROUP:RAM and a non-default cgroup are specified, the job will be placed in the specified cgroup without changing that cgroup's RAM usage limit. We strongly recommend specifying a RAM resource when using CGROUP:RAM, as the default value is low (currently 20 megabytes).</p> </div> <p>To see slave resource for cgroups, use <code>nc hosts -r</code> and look for CGROUP: entries. If they are not present, ensure that they are set up on the slaves with lscgroups and check the slave logs for errors.</p>
NetworkComputer	5909		<p>The new dynamic server tuning feature enhances performance when the server is under heavy load conditions: a unique maximum value is set per bucket.</p>

Products	Internal Number	Case Number	Description
NetworkComputer	5080		Slaves now account for jobs running on a stopped slave on the same host. When a slave is started, if there is a matching slave in the stopped condition (waiting on its jobs to finish), the new slave will adopt any jobs on the stopped slave by using foster jobs. This feature helps prevent host overloading.
NetworkComputer	5472	12544	There is a new server configuration parameter for statistics: <code>cpuprogressWindowSize</code> . This parameter can be set in the <code>policy.tcl</code> configuration file. The default value (1) provides identical behavior to previous releases. Increasing the parameter increases the number of samples to be used in the calculation of the <code>cpuprogress</code> statistic. The accepted range of values is 1-1440. 1440 signifies one full day, assuming the sample time is 60 seconds.
NetworkComputer	5689		The fields <code>REQCORES</code> , <code>REQCPUS</code> , <code>REQPERCENT</code> , <code>REQRAM</code> , <code>REQSLOTS</code> , and <code>REQSWAP</code> are now valid on <code>SCHEDULED</code> jobs. This can be useful in writing -preempting clauses on preemption rules.
NetworkComputer	6144	14414	Validation is improved with two new options and a new health check. Summary:

Products	Internal Number	Case Number	Description
			<p>The new <code>-failover</code> option to <code>vtk_slave_define</code> now sets the capacity to 0, which prevents the slave from accepting jobs and pulling a license. This also acts as a flag to perform some failover configuration testing, such as checking <code>servercandidates.tcl</code> to ensure the slave host is in the list.</p> <p>Passing in the new <code>-descriptors</code> as well as the <code>-failover</code> option to <code>vovslavestartup</code> triggers a check to ensure the host has at least as many descriptors as <code>vovserver</code>, which ensures it can operate at full capacity in the event of failover. It also checks that the <code>server_election</code> directory is empty.</p> <p>In addition, a new health check ensures that a slave is running on each host listed in the <code>servercandidates.tcl</code> file. By default, the health check is on; it can be disabled in the health check configuration of the web UI.</p> <div data-bbox="1166 1444 1502 1791" style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> The health check features and options are listed on the health check configuration of the web UI.</p> </div>
NetworkComputer	6195		<p>Update calls to <code>ftlm_lmproject</code> from <code>vw</code> every 20m. The period</p>

Products	Internal Number	Case Number	Description
			is controlled by the variable VOV_VW_PING.
NetworkComputer	6204		The PERCENT slave resource can now be configured in the slave resource specification. This is specified in consumable form, such as PERCENT/50. Previously, PERCENT was always initialized to 100 and could not be changed.
	6312		<p>New parameter <code>resuserDisableMatchingThreshold</code> allows matching to be disabled for license resources from a license server: in such cases, the matching process can take a very long time.</p> <p><code>resuserDisableMatchingThreshold</code> provides a threshold that disables matching if the sum of LicenseMonitor handles and FlowTracer jobs exceed that threshold.</p> <p>The range is 0 - 10000; the default value is 1000.</p> <p>This parameter can be specified in <code>policy.tcl</code>.</p> <p>Example:</p> <pre>set   config(resuserDisableMatchingThreshold)   1000</pre> <p>This parameter can also be set using the VTK API.</p> <p>Example:</p> <pre>vtk_server_config   resuserDisableMatchingThreshold   1000</pre>

Products	Internal Number	Case Number	Description
NetworkComputer	6722	14704	<p>The vovserver now responds to multiple incoming client connections during the same cycle.</p> <p>This capability is enabled by default, and can be controlled with the following configuration parameters via the policy.tcl file:</p> <pre> set   config(clientConnectionQueu   multi set   config(clientConnectionQueu   512                     </pre> <p>The mode can be "single" or "multi" (default=multi). The size can be any integer in the range of 25-1024 (default=512).</p>
Workload Accelerator	6558		<p>The ncmgr and wxmgr utilities now check for a minimum number of file descriptors on Unix-based platforms.</p> <p>Summary:</p> <p>The default value can be over-riden with the VOV_MIN_DESCRIPTOR environment variable.</p> <p>An attempt is made to raise the default limit if needed.</p> <p>If the target's limit is higher than the system's hard limit, an error is displayed and the product start will be aborted.</p>
LicenseAllocator	5311	12150	<p>License resources can now be allocated from multiple servers or excluded.</p> <p>Summary:</p>

Products	Internal Number	Case Number	Description
			<p>Resource groups can be defined that are a <b>logical OR</b> of components that are hosted on different license servers.</p> <p>Licenses from specific servers can be excluded from distribution to specific sites.</p>
FlowTracer	6358		<p>A SNAPSHOT of the server environment is now automatically captured on FlowTracer <code>vovproject start</code>. This new feature enables users to run a job in the same environment as the server. A shell environment snapshot can also be saved on demand from any project enabled shell.</p> <p>Summary:</p> <p>The automatically captured environment is saved as a file under the server working directory, which can be used to set the SNAPSHOT environment at any time.</p> <p>The new standalone utility <code>vovenvcapture</code> is for saving the environment on demand, either into a file or as a property on a Vov object.</p>
FlowTracer	4879		<p>A periodic job can be paused by setting a property "PERIOD_PAUSE" as 1. This is done through web interface, <code>vovconsole</code> NodeEditor, <code>vtk_prop_set tcl</code> function, or <code>vovprop cli</code>. If a paused job is running when this property is set, the current run will continue to completion, but a new</p>

Products	Internal Number	Case Number	Description
			run will not be started at the next period; it will remain paused until PERIOD_PAUSE property is reset to 0.
FlowTracer	5428		If <b>EventOverflow</b> occurs from server, vovconsole will empty all events, wait, reconnect and refresh all set viewers. When this occurs, a message is displayed: Updating ... please wait
FlowTracer	5617	13082	Upcone Set and Downcone set menus are now added to the popup menu of vovconsole when a set is selected. If no node is selected, Connectivity popup menus of Downcone, Upcone and Expand will apply to the current set displayed in the SetViewer.
FlowTracer	6018		<p>Details about the condition of a schedule job that is stuck due to barrier invalid are now available.</p> <p><i>Summary:</i></p> <p>When a job is stuck due to barrier invalid node in upcone, a balloon message appears and shows "barrier invalid". On NodeEditor, the "Why" tab shows barrier invalid messages on the associated node(s).</p> <p><i>Trouble-shooting methods:</i></p> <p>(1) An aggressive retrace flag can be done in the main console window or by using vsr.</p>

Products	Internal Number	Case Number	Description
			<p>(2) Find the invalid jobs in the upcone and retrace them to validate the barrier.</p> <p>If there are no invalid jobs in the upcone, fix the barrier invalid flag by running <code>sanity</code>.</p>
FlowTracer	6122		The Navigator column now sorts per the severity of the node status.
FlowTracer	6156		SERIAL and PARALLEL commands in FDL now work with any level of nesting: you can nest parallel in serial and vice versa, for as many levels deep as desired. SERIAL and PARALLEL commands now work with S (set), T (task), and J (job) commands, which can be nested under one another in any order.
FlowTracer	6440		<code>vovlsfd</code> now utilizes an agent script ( <code>vov_lsf_agent</code> ) in the installation to launch <code>vovslave</code> in the batch system. Previously, shell scripts had to be written to the launchers/ <code>&lt;hourly sub-directory&gt;</code> .
FlowTracer	6571	15109	<p>The <code>vw</code> command now has the option to apply a delay that allows latency on outputs as well as inputs.</p> <p>Previously, if the environment variable <code>VOV_VW_NFS_PROTECTION</code> was set to 1 (or if the <code>-n</code> option is used with <code>vw</code>), <code>vw</code> added a delay when waiting for inputs to allow for Network</p>

Products	Internal Number	Case Number	Description
			<p>File System (NFS) latency. By default, the wait duration was 60 seconds that could be overridden by setting the environment variable <code>VOV_VW_NFS_WAIT</code>.</p> <p>In this release, in addition to the above behavior, if <code>VOV_VW_NFS_PROTECTION</code> is specified as <b>2</b> (or the -N option is used), vw also applies the same delay to allow for latency on outputs.</p> <p><i>Overview:</i></p> <p>Under certain conditions, for both inputs and outputs, vw will attempt to trigger a cache update sooner if possible. <b>Note:</b> for this to work, <code>nfsdelay</code> must be enabled in the vovserver settings in the <code>policy.tcl</code> file, and also applied to any currently running vovserver (by doing <code>vovproject sanity</code>). Example: <code>set config(nfsdelay) 60</code></p> <p>It is also recommended to specify a small time tolerance in <code>policy.tcl</code> to compensate for minor time discrepancies among machines and/or the filer. Example: <code>set config(timeTolerance) 3</code></p>

Products	Internal Number	Case Number	Description
			<div style="border: 1px solid #ccc; padding: 10px; background-color: #f9f9f9;">  <b>Note:</b>                      This should also be applied to any currently running vovserver using vovproject sanity.                 </div>

### Resolved Issues

Products	Internal Number	Case Number	Description
All	3120	13056	Increased web server security, which prevents cross-site scripting.
All	6132		Added arch field support for slave objects to VovQuery: vovselect , vtk_select.
All	6193		An issue has been fixed with field-only selection rules for string fields. By passing the field name without an operator or a value, you can now query for objects that have a non-empty value in the specified field. For integer fields, this form of selection rule queries for objects that have a non-zero value in the specified field.
All	6253		Scrolling has been added to the alerts dialog, which makes long lists of alerts easier to

Products	Internal Number	Case Number	Description
			access and consumes less space on the monitor.
All	6394		<p>Viewing the files of sets has been made easier:</p> <p>Summary:</p> <p>For default sets that only contain files, such as System:files, System:filesToCheck, System:zippable, Predefined:missing files, and Predefined:blocking files, files are always displayed regardless of the setting of the flag.</p> <p>However, for user defined sets, <b>Show files</b> must be turned on to view the files.</p>
LicenseMonitor	6103	13577	New format is now recognized, and added support for additional date format in Feature line.
LicenseMonitor	6268		Detailed plots are now easier to read. The visibility of plot lines was increased for checkouts and queued requests with shorter durations compared to the report time range.
NetworkComputer	5253		<p>The <code>vovfsgroup create</code> command now copies the parent ACL when creating a subgroup. Example:</p> <pre>vovfsgroup create / abc/def</pre> <p>will create a new group <code>/abc/def</code>, with ACL permissions copied from the group <code>/abc</code>. If there is no applicable parent group, the default ACLs will be used.</p>

Products	Internal Number	Case Number	Description
NetworkComputer	5699	14154	fairshare.cgi now takes fstokens into account. Previously, fstokens were ignored.
NetworkComputer	5715	13420	The autokill function now takes suspension time into account when determining if a job has exceeded the autokill time threshold.
NetworkComputer	5993	13705	License resources are no longer overbooked. Previously, the configured threshold was honored the first time the overbooking procedure was called for a specific feature.
NetworkComputer	6125	13164	vovset list can now display more than 600k sets.
NetworkComputer	6617		<p>The failover process now works correctly.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> It can take over 2 minutes for the failover process to complete.</p> </div>
NetworkComputer	6618		The error message for a specific port issue is better handled: where ncmgr is being used to start or stop an NetworkComputer instance, but the specified port matches that of an NetworkComputer instance other than the one being controlled.
NetworkComputer	6619	15159	The DISPLAY environemnt is unset during the failover process, which prevents the

Products	Internal Number	Case Number	Description
			process from failing due to an invalid value.
LicenseAllocator	6414		ADMIN permission is no longer needed to read LicenseMonitor or NetworkComputer data. That data is now accessible by all USERS. However, updating the NetworkComputer instances with new allocations still requires ADMIN privileges.
LicenseAllocator	6601	12150	The minimum number of tokens to run any queued job on a site are allocated when possible. This ensures jobs will be run.
LicenseAllocator	6752	15243	When a new resource is declared in the LA config.tcl file, restarting LicenseAllocator or vovlad is no longer needed to get the resource tokens.
LicenseAllocator	6753	15245	LicenseAllocator now uses the expression specified through <code>LA::SetMapForResourceInSite</code> to set the resource map expression in NetworkComputer; components are in the resource map in the correct order.
LicenseAllocator	6756	15244	LicenseAllocator now sets the weight of the components of a resource group from the weight of the resource group, unless the weight of the component has been set explicitly.
FlowTracer	4826	11903	When a new set is created in the Set Browser, the sets can now be placed in alphabetical

Products	Internal Number	Case Number	Description
			order: right-click any node and select the Update and Sort option. Previously, new sets were appended to the bottom, with no option to update the order.
FlowTracer	4901	10461	vovproject enable now returns a non-zero exit when it fails.
FlowTracer	4945		Detailed information of "why" is now provided if a job fails with no outputs.
FlowTracer	5198		<p>Improved Slave Monitor:                      Slave LED Monitor on vovconsole and Floating Slave Monitor.</p> <p><i>Summary:</i></p> <p>When there are many slaves, Slave Monitor will not occupy the vovconsole area and show only one row and rest of them can be seen at floating Slave Monitor</p> <p>If there are more than 20 slaves, grouping options are displayed. Users can group slaves by state, arch, group(=slavegroup)</p>
FlowTracer	5231	3186 4562 5409	<p>Predefined sets on the console can now be deleted or modified; they are not permanently deleted.</p> <p><i>Summary of the changes:</i></p> <p>After a predefined set is deleted, the vovconsole keeps the set names.</p>

Products	Internal Number	Case Number	Description
			When the predefined sets are double-clicked, the predefined sets are recreated: the predefined set is recomputed and the up-to-date set is drawn on the set viewer.
FlowTracer	5424		Manually overriding vovslave cores and capacity is now improved.  <i>Summary of features:</i> By default, the capacity follows the core count. The capacity can be manually set via the -T option, or by defining the SLOTS/N consumable resource via the -r option. N is a positive integer. In all cases, the capacity directly affects the number of slot licenses that will be requested.
FlowTracer	5537		Sticky attachment attributes on inputs are now preserved when creating job arrays. Previously, sticky attributes were not copied for inputs.
FlowTracer	6101	14221	vovconsole no longer crashes when running in READ-ONLY mode. Menus and buttons that are not applicable for read-only security are now disabled.
FlowTracer	6129	13269	A race condition that occurred between resource reservations and resource grabbing by a

Products	Internal Number	Case Number	Description
			job has been fixed. Previously, this occurred when a job was dispatched by the server and resource was reserved between the time of the dispatch and the time the job started running on a slave.
FlowTracer	6262		The Disconnect popup menu of the Navigator is now fixed. Previously, error messages were displayed.
FlowTracer	6364		In vovconsole, jobs in a set are no longer deleted when the set is flattened then rebuilt from FDL.
FlowTracer	6438		The following commands that were previously deprecated are no longer available: vovstopjobs vovleader -K retraces
FlowTracer	6668		The numbers of projects for other users shown in registry.cgi page has been corrected.
FlowTracer	6683		Files no longer appear in sets that should not contain files such as "Predefined:stuff to do" and "System;jobs".

## 2016.09 Update 20

### New Features and Enhancements

Products	Internal Number	Case Number	Description
LicenseMonitor	VOV-8169	21933	The vovdb_util 'showcfg' sub-command now shows information about DB backups, if configured.
LicenseMonitor	VOV-9133	23261	The Altium log file parser now handles dates of a few new formats, such as yyyy-mm-dd, in addition to those using slash and dot as separators.
LicenseMonitor	VOV-9045	23136	ftlm_parse_altiumlog now is able to parse the log line record of the new format of time log: Product Name;License Name;User;Role;Action;Action Time or format of usage log: Product Name;Activation Code;User;Role;Version;Start Time;Returned Time
NetworkComput	VOV-9075	23176	For preemption rule debugging purposes, a separate preemption log file is written if enabled. The preemption log can be turned on through server config parameters in policy.tcl. set preemption.log.verbosity to 1 or up to 10. For example, add the following to the <swd>/policy.tcl:set preemption.log.verbosity 3 Turn on debug flag for each preemption rule of interest through WebUI or preemption rule definition in <swd>/vovpreemptd/config.tcl. To enable all preemption rules debugging, add the following to <swd>/policy.tcl:set preemption.log.allrules 1 Verbosity level needs to be chosen carefully. Higher verbosity number will create many messages and may cause the log file size to grow quickly. In case the current preemption log file is removed, it can be recreated with:vovsh -x 'vtk_server_config rotate_server_preemption_log 1'

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput	VOV-8018	23130	Removed unnecessary "Load" button for config.tcl. config.tcl is loaded automatically by vovpreemptd daemon.
	VOV-8347	23028	The "slave.childProcessCleanup" parameter in policy.tcl no longer requires cgroups; it does still require a Linux platform. Additionally the method of process cleanup has been changed to be more thorough. This setting may cause vovslave to be less responsive in heavy usage scenarios.

Products	Internal Number	Case Number	Description
	VOV-9096	23174	Fixed a bug that when slave names get updated in RESERVE_SLAVES preempt rules, previous slaves still get reserved.
	VOV-9097	23175	FREE_SLAVES rule type preempts slaves only in IDLE(READY), WORKING, or FULLLOAD.
	VOV-9118		vovserver doesn't check file existence with lstat for nc run -l <logfile> .
	VOV-9025	23101	Initialize job classes in a separate vovresourced process by default.
	VOV-9026	23102	Initialize job classes in a separate vovresourced process by default.
	VOV-9036	23149	Prevent misleading message in node.cgi about the job being executed on an invalid slave when the job has been forgotten from server memory and job data is being loaded from the database.
	VOV-8923	22882	Added an environment variable, VOV_BJOBS_JOBID_WIDTH, that can be used to override the default job ID column width in the bjobs output.
	VOV-8986	22899	Fixed incorrect value of cputime field displayed at job completion.

## 2016.09 Update 19

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	7453	20684	The vovbrowser command now shows the value of VOV_HOST_HTTP_NAME, if this is set, in the project URL.
NetworkComput	8973	22958	NetworkComputer now correctly generates an alert if the LicenseMonitor instance being tracked by vovresourced is not available at first contact attempt. Previously this alert would appear only if contact was made and then lost.
NetworkComput	7108	20078	nc hosts will show the full list of reservations for a slave in the following format: U:<list of users> C:<list of job classes> G:<list of groups> etc...

Products	Internal Number	Case Number	Description
NetworkComput	7126	20116	vtk_slave_define has a new argument <code>-expiredate</code> that specifies the date and time after which the definition of this slave is expired, and it cannot be started with <code>vovslavemgr</code> command. The format of this parameter is <code>year_month_day_hour_min_sec</code> . Example: <code>2018_12_31_23_59_00</code>
NetworkComput	7970	21621	The job output URL protocol ( <code>http</code> or <code>https</code> ) matches that from the output of <code>vovbrowser</code> . i.e. It is determined by setting of <code>sslenabled</code> from the project.
NetworkComput	8014	21705	Added <code>CLOCKTURBO</code> field to slave objects in <code>VovQuery</code> that represents the CPU turbo speed of the host.
NetworkComput	8028	21725	The command <code>vovslavemgr stop -force</code> with an empty slave list now prints a warning and does not stop any <code>vovslaves</code> . Use with <code>-all</code> if you really mean it.
NetworkComput	8996		<code>FreeStyle</code> preemption ruletype no longer preempts more jobs than necessary to run jobs in preempting bucket.

## Resolved Issues

Products	Internal Number	Case Number	Description
LicenseMonitor	8967	22940	Now <code>cvs</code> export function works properly on the following pages: <ul style="list-style-type: none"> <li>• <b>Admin &gt; Tags &gt; Server</b></li> <li>• <b>Admin &gt; Tags &gt; Database</b></li> <li>• <b>Admin &gt; Features &gt; Server</b></li> <li>• <b>Admin &gt; Features &gt; Database</b></li> <li>• <b>Admin &gt; Tasks</b></li> <li>• <b>Admin &gt; Licensing</b> (<code>VovSlaves</code> table)</li> </ul>
NetworkComput	8911	22868	Fix premature termination of <code>nc hosts</code> command when a slave exits during the running of the command. This may have been encountered with large or volatile slave counts and is seen when the <code>-O</code> format option is used. Fixed in 2016.09 Update 19 for the case of volatile slave counts.
NetworkComput	8917		Jobs that have reached <code>WITHDRAWN</code> state later than preemption plan spec. are no longer left as <code>WITHDRAWN</code> and get rescheduled.
NetworkComput	8925	22887	Added accountability of RAM used by jobs that are submitted with <code>NUMA</code> supported requested. The total RAM for each socket will be decremented

Products	Internal Number	Case Number	Description
			by a job's RAM request when the job is bound to the socket. This allows the next job requesting NUMA support to be placed according to the RAM that is expected to be available instead of the RAM that is currently available. Additionally, the NUMA_LAYOUT slave property has been augmented to show the memory currently used by all jobs on the slave that requested NUMA support (e.g. "Socket: 0 RAM= 500/32089 oooooooooo").
NetworkComput	8964	22922	Interactive jobs no longer consume 100% CPU when attempting to reconnect to a downed NetworkComputer queue.
NetworkComput	4453	20991	Added sorting, filtering, and searching capabilities to legacy FairShare page.
NetworkComput	8730	22315	Fixed an error where editing a queued interactive job in the NetworkComputer web interface could potentially cause the job to fail.
NetworkComput	8978	22965	Removed redundant "Excluded from being declared as input" warnings on <code>nc run -f</code> command.
NetworkComput	9047		The URL shown at the end of the NC startup routine now takes into account the VOV_HOST_HTTP_NAME value and whether SSL is enabled.

## 2016.09 Update 18

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	8766	22020	When copying the <code>&lt;swd&gt;/vovnginxd/conf/nginx.conf.template</code> file to an <code>nginx.conf</code> file, a message is output to the server log indicating that a copy is being made, and also specifying the source and destination files.
LicenseMonitor	8574	22192	LicenseMonitor now includes support for monitoring licenses of QF-Test software.
LicenseMonitor	8954	22878	Moved the icons for exporting png/csv up in a separate row, so chart area can be highlighted excluding those icons for screenshots.
LicenseMonitor	8959	22897	The FLEXlm parser has been enhanced to correctly handle version 11.14+ <code>lmstat</code> output.

Products	Internal Number	Case Number	Description
NetworkComput	8789		The ncupgrade script has been implemented at beta level. This script allows customers to upgrade their NC installation to a different (newer) version of software without taking down the queue. The script prompts users for decisions (such as queue name, location of the new version, etc.) and is intended to perform the upgrade without losing any jobs, and without having client job submissions fail (they just take longer to register). Please provide feedback on this feature during the beta period.
NetworkComput	7466	20598	Reservations may now be negated to specify who or what is NOT allowed to use a slave. For example a reservation of "USER !john,mary" will allow all users except "john" and "mary" to run jobs on the slave for the specified duration.
NetworkComput	7748	21236	Generate both an event and a server log entry when a FairShare group is changed. Event example:  <pre>27 FSGROUP CHANGE 000553805 1507566658 {/test, by joe@localhost SERVER: Window 1h00m to 2h00m }</pre> Log example:  <pre>vovserver(9805) Oct 09 13:26:20 FairShare change: / test, by joe@localhost SERVER: Window 1h00m to 2h00m</pre>
NetworkComput	8695		Slave reservation that is created by preemption type FreeSlave is now reserving the preempted slave by bucket id. The reservation duration is 5 seconds by default and it can be configured using preempt rule field reservetime.
NetworkComput	8735	22516	Speeds up jobclasses.cgi by showing detailed job statistics per jobclass only on demand, by clicking the basic job count initially displayed.
NetworkComput	6199	20959	Documented the boolean jobclass variable "classEditable", which controls whether a jobclass can be edited using the jobclass web UI page. Example: set classDescription "my jobclass" set classEditable false ...rest of jobclass script...

## Resolved Issues

Products	Internal Number	Case Number	Description
All	8826	22666	Prevent vovslave from caching empty group lists returned from OS.

Products	Internal Number	Case Number	Description
All	8947		The AGE field of the SETS object will now return the correct age, defined as time in seconds since the set was last updated. In addition, the LASTUPDATE field will always return a valid timestamp instead of 0 for non-smart sets.
FlowTracer	8854	22728	Fixed vovconsole crash that could occur in flow graphs when using Orthogonal/Manhattan arrows.
FlowTracer	8984	22999	Fixed bug which caused a Tcl error in node editor when the expected duration field had a time value with a leading zero, and then changes were made to the node and saved. The time spec parser was failing to trim the leading zeroes and producing an error. Now, the time spec parser does it correctly. An example time spec that could cause the error is "1h05m" due to the "05" value for the minutes.
LicenseMonitor	8133	21860	The "shift combo" was fixed in previous 2016.09 release. The test case added to ensure this error will get covered in our regression tests.
LicenseMonitor	9011	23060	Removed the double html-encoding to prevent license editing corruption.
LicenseMonitor	8834	22690	ftlm_batch_report should honor the switch with "Hide" parameter (e.g.- UtilPlotHideAverage) with empty value (default value as 1).
LicenseMonitor	8852		Configure group access to a tab should not prevent the guests view page using readonly port.
LicenseMonitor	8859	22682	<p>Several robustness improvements to vovresourced with respect to obtaining data from LicenseMonitor:</p> <ul style="list-style-type: none"> <li>• Improved handling of buffer overflow condition in /raw/checkouts and /raw/vovresourced URLs when a large number of checkouts is present.</li> <li>• Improved debuggability of HTTP errors by printing errors and timeout occurrences in vovresourced log.</li> <li>• Fixed bug in LM lookup procedure when SSL is specified as true in the vovresourced configuration but LM is not running with SSL.</li> <li>• Add handling for HTTP timeout in LM lookup procedure so that 3 retries are attempted before marking LM as down.</li> <li>• Improved resource life support by entering the mode only for the affected license-based resource when the data request to LM fails only for that license.</li> <li>• Improved life support debuggability with improved messaging in the vovresourced log.</li> <li>• Improved performance of /raw/checkouts and /raw/vovresourced URLs.</li> </ul>

Products	Internal Number	Case Number	Description
			<ul style="list-style-type: none"> <li>Added configurable HTTP timeout to vovresourced configuration to accommodate heavily loaded LM instances. The setting, RESD(timeout,http), accepts timespec values and is set to 30s by default.</li> <li>Disable vtk_flexlm_monitor_all by default for new WX installations.</li> </ul>
LicenseMonitor	8615	22208	ftlm_parse_flexlmlic to handle nodelocked licenses (e.g. MATLAB:ID=720099) with correct capacity
NetworkComput	7242	20265	FairShare groups now have a "flatten" setting. When a group is flattened, all of its child groups will be treated as though they were on the same level of hierarchy; that is, all leaf-level groups will be assigned weights as though they were direct children of the top-level flattened group, ignoring weights assigned to any non-leaf-level groups in between. This setting can be enabled by the vovfsgroup modify command. Note that disabling this setting for a group that has a flattened parent will have no effect; the group will still be flattened.
NetworkComput	7806	21608	Fixed FreeSlave preemption type not to preempt slaves that are not compatible with preempting jobs in HW requests such as CORES, RAM.
NetworkComput	8824	22655	Do not process commas as option delimiters in SNAPSHOT environment calls so that a snapshot file path can include commas.
NetworkComput	8865	22693	Improved error messages for wrong parameters in nc preempt command.
NetworkComput	8686		Improved the preemption rule view page to include all of the fields that are displayed in the new rule page. This mainly includes improvements to the FREE_SLAVES, RESERVE_SLAVES, and RESERVE_RESOURCES rule views.
NetworkComput	8697	21608	Improved the performance and reliability of the FREE_SLAVES preemption rule behavior. Hosts with non-preemptable jobs can be preempted if the machine can still run preempting jobs.
NetworkComput	8914	22857	<ol style="list-style-type: none"> <li>Implemented "spread" NUMA placement. Jobs using this placement type will be bound to the least-loaded sockets available on the chosen slave.</li> <li>Simplified NUMA usage. Requesting the "NUMA" resource is no longer required. NUMA is controlled exclusively by the -jpp option to nc run. The "NUMA" resource is no longer required to be provided by slaves.</li> <li>Improved NUMA visibility. Fixed issue with the NUMA field that prevented the NUMA type from being displayed with vovselect, or when using the @NUMA@ keyword in the nc list output</li> </ol>

Products	Internal Number	Case Number	Description
			<p>format string. Additionally, the NUMA_AFFINITY job property has been augmented to show the placement type (e.g. "NUMA pack: 0 1 * *").</p> <p>4. Improved debug capability. Added ability to use <code>vovslavemgr configure</code> to control the <code>debugnuma</code> setting for slaves. Detailed NUMA information will be printed to the slave log when this setting is set to 1. Also added control in <code>vovslavemgr configure</code> for binding to entire sockets (default) or to individual cores (experimental). See <code>vovslavemgr usage help</code> for details.</p>
WorkloadXelera	8878	22773	Fixed problem with SNAPSHOT environments that caused environment variables to get added in subsequent jobs but never removed. Now it uses the correct environment from the shell that launched the job, plus the environment specific to each job. The bug impacted <code>vovslave</code> but not <code>vovslaveroot</code> .

## 2016.09 Update 17

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	8720	22285	Added <code>patchlevel</code> display and patch sorting for various options of <code>vovversion</code> command.
FlowTracer	8756	22556	<p>Added 2 config parameters for <code>vovlsfd</code>:</p> <pre>VOVLSFD(bsubErrorsBlackList) specifies a list of bsub errors that will be ignored by vovlsfd. For all other errors vovlsfd will dequeue the jobs that are causing unsuccessful bsub requeuests.  VOVLSFD(dequeueOnNumBsubErrors) specifies a number of sequential bsub failures that should force vovlsfd to dequeue the corresponding FT jobs. Default value: 2</pre>
LicenseMonitor	7006	5636	Added a pair of new configuration variables in the <code>vovlmd</code> configuration file to control the threshold of elapsed time without an update at which point

Products	Internal Number	Case Number	Description
			<p>a license server is to be considered down. That is, you can set the following in the <code>licmon.swd/vovlmd/config.tcl</code> file:</p> <pre>LSset VOVLMD(downthreshold) 10m LSset VOVLMD(checkfrequency) 5m</pre>
LicenseMonitor	8743	22692	Added "Show capacity with queued" and "Show peak with queued" options in the utilization plot batch report UI and corresponding options for CLI.
NetworkComput	8701	22294	The <code>bjobs</code> LSF emulation utility has been modified to support the <code>-o</code> option to control the job listing output format. Column width and delimiter specifiers are also supported. See <code>bjobs</code> usage syntax ( <code>bjobs -h</code> ) for details.
NetworkComput	8796	22674	A new subcommand of <code>vovslavemgr</code> , <code>rotatelog</code> , creates new log files and new log directories if missing. Startup log files are not recreated.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	7809	21345	Fixed issue that caused the patch status link in certain web UI pages to be rendered as plain text instead of HTML.
All	8630	22215	Improved <code>vovnginxd</code> robustness when reconfiguring the web port, and corrected the documentation on how to modify the web port while the server is still running.
LicenseMonitor	8580	22181	LicenseMonitor can now serve batch reports greater than 1GB in size.
LicenseMonitor	5898		License server emulate thru <code>vtkle_feature_set</code> can take <code>y</code> (year) as time unit.
LicenseMonitor	8451	22083	Remove the <code>VIEW</code> (and other relevant) permissions for <code>EVERYBODY</code> when restricting tag access to specific users.
LicenseMonitor	8846	22701	Fixed "extra switch pattern with no body" Tcl error in the <code>vovddb_util</code> dump function.
NetworkComput	8805	22639	Fixed issue where the highest possible value for the <code>maxload</code> setting of a <code>vovslave</code> was silently capped at 100.0. This prevented slaves configured with more than 100 job slots from running more than 100 jobs. The new highest possible value for the <code>maxload</code> setting is 10000.0. Along with this

Products	Internal Number	Case Number	Description
			<p>change, jobs will need to be submitted with PERCENT/0, or the default minimum HW request will need to be modified so that PERCENT/0 is requested, or no PERCENT resource at all. The default minimum HW request can be configured in the SWD/policy.tcl file, using the "minhw" setting (default is shown):</p> <pre>set config(minhw) "RAM/20 CORES/1 SLOTS/1 PERCENT/1"</pre> <p>If this setting is changed, the policy.tcl file will need to be reread by the vovserver, which can be accomplished with the following command:</p> <pre>nc cmd vovproject reread</pre>
NetworkComput	8075	21678	<p>The server parameter schedskip is now obsolete. We recommend using the parameter schedMaxEffort to limit the time usage of the scheduler. See the documentation for schedMaxEffort for more details.</p>
NetworkComput	8244	22004	<p>A new server configuration parameter is added to limit the maximum number of ORs in a resource expression. For example in policy.tcl:</p> <pre>set config(maxORsInResourceExpressions) 10</pre> <p>Or from the shell:</p> <pre>nc cmd vovsh -x 'vtk_server_config maxORsInResourceExpressions 10'</pre> <p>If a job is submitted and the number of ORs in its resource expression exceeds the limit, the job fails with a message in the Why info.</p> <p>The default value for the limit is 20.</p>
NetworkComput	8373	22020	<p>Added documentation that describes vovnginxd configuration files and procedure.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> This ticket is composed of 2 parts. The first part has been addressed. The second part, "nginx sometimes holds up the port indefinitely when the back end NC vovserver has failed over", will be addressed in a future release.</p> </div>
NetworkComput	8475	22006	<p>Jobs with a negated soft resource containing a colon or underscore character were unexpectedly dispatched instead of queueing. This has been corrected.</p>
NetworkComput	7864	21442	<p>Fixed to set correct fail codes for stopped jobs by Ext method.</p>

Products	Internal Number	Case Number	Description
NetworkComput	8833	22689	The SOLUTION property on jobs will now use "!" to indicate negated resources rather than "!=".
NetworkComput	8872	22713	Fixed the problem that one of preempt rules is not sorted by order. Improved error message.

## 2016.09 Update 16

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	8641	22235	When a job is modified, do not mark the job unsafe when the host has been changed. Also do not invalidate the job when the resources, aux resources, jobclass, job project, or FairShare group changed.
NetworkComput	7878	21366	Added option <code>-leaf</code> to <code>vovfsgroup genconfig</code> to also include weights for the leaf nodes of the complete FairShare tree.
NetworkComput	8644	22239	To prevent excessive server load due to too many OR clauses in resource map sums, calls to <code>vtk_resourcemap_sum</code> from <code>&lt;swd&gt;vovresourced/config.tcl</code> are now limited to expressions of up to 5 ORs (by default). The default limit can be adjusted by setting <code>RESD(maxORsInResourceSum)</code> in <code>&lt;swd&gt;/vovresourced/config.tcl</code> . If a resource sum with excessive ORs is seen, an alert is generated and an error message is output once per day in the <code>vovresourced</code> logfile.
NetworkComput	8749		A new option, <code>-writeprdir &lt;directory_path&gt;</code> has been added to the <code>ncmgr stop</code> command. This permits the PR file to be written, uncompressed, to the specified directory instead of the <code>trace.db</code> directory upon server shutdown.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	8658	22287	Fixed issue that randomly caused a "page too large" error to be displayed for certain pages in the web UI that contain a significant amount of data.
FlowTracer	8709		Fixed vovfileready bug that existed in 2016.09u12-2016.0u15. The bug caused the vovfileready job to become invalid instead of becoming valid and running the downcone immediately. Now, it behaves correctly. This is a 1-line Tcl change and is a trivial patch to any release.
FlowTracer	8626		An alert for not enough file descriptors from vovlsfd.tcl was confusing users and has been removed. Warnings about this are still issued in the logfile.
FlowTracer	8773		Fixed issue in Tcl procedures that attempt to validate nodes (waive exit code, force run, force validate). These procedures were broken in recent 2016.09 versions (validation did not always occur and error messages were seen). This fix allows these functions to successfully validate the requested node, which also includes the output of jobs.
LicenseMonitor	8162	21794	Made sure the data series has the same order as the legend series so that there is no mismatch between them.
LicenseMonitor	8610		Use bold font for the label and legend in pie charts, and use bold font for tick and legend in bar/histogram chart. This change should provide improved look for presentation views.
LicenseMonitor	8611		Adopted a new pie chart color selection algorithm that produces a range of lighter colors that look good with black fonts on top of them in most cases.
LicenseMonitor	8209		Fixed issue that prevented the lmmgr reset function from working.
LicenseMonitor	8571		Make sure correct where clause for the SQL is used when retrieve data from database to produce reports.
NetworkComput	8492	22142	Fixed issue with vovslaveroot reconnecting after a 30+ minute network interruption. Now, the slaves will properly reconnect and recover the jobs when the network connection to the server is re-established even after a delay of over 30 minutes. Fixed issue with vovslaveroot when the process exits with an error to make sure that the message gets logged (previously the "fatal error" message was not shown or logged anywhere). Fixed issue with the sleep time between reconnection attempts to be accurate based on wall clock time. Previously, when a vovslave was reconnecting, the timeout would sometimes be very far off from the requested wall clock time.

Products	Internal Number	Case Number	Description
NetworkComput	8739	22515	In certain cases, when a job finishes at the same time as an internal alarm, a job can hang, or be auto-killed, so appears to fail. This problem has been resolved.
NetworkComput	8753	22291	Fixed error in <code>jobclass.cgi</code> , where a jobclass using the variable <code>VOV_JOB_DESC(jobclass)</code> would trigger a Tcl error.
NetworkComput	7343	20113	When there is an error opening, writing, or closing a dailylog file, such as the log used for <code>vovresourced</code> , catch the error and report it. The error message, including the decoded string from C++, will get printed, as well as the message that was being written. In addition, generate an alert when such an error occurs with the same information (except for the message being written).
NetworkComput	8744	22529	Format the value of the <code>WX_BUCKET_LINK</code> property when viewed from within <code>node.cgi</code> .
NetworkComput	7562	20821	Made some fixes to input and output declarations to address "Server is operating on a non-internal object" error.
NetworkComput	7911	21526	The command <code>vovslavemgr restart</code> now behaves identically to <code>vovslavemgr stop</code> followed by <code>vovslavemgr start</code> , allowing <code>vovslavemgr restart</code> to properly restart busy slaves.
NetworkComput	8623	22166	<ul style="list-style-type: none"> <li><code>vtk_fsgroup_update</code> is added. Calling this function triggers the server to update FairShare statistics such as target share, actual share, excess share.</li> <li>FairShare statistics updated timestamp is showing on the page <code>fairshare.cgi</code>.</li> <li>Sanity function does not restart <code>vovresourced</code> daemon any longer.</li> <li>If running counts is wrong and gets fixed by sanity, the server log will have a message that looks like "Fixing count of running jobs old=1 new=2".</li> <li>Running count became wrong when a job was invalidated, and this case is fixed.</li> </ul>
NetworkComput	8625	22226	Queries for requested-resource fields will now return correct values for jobs with non-running statuses.
NetworkComput	8673	22267	Added "USERXDUR" and "USERXDURPP" fields to <code>vovselect</code> (for FlowTracer) and <code>nc getfields</code> (for NetworkComputer) to reflect the expected duration of the job as specified by the user. The existing fields "XDUR" and "XDURPP" will continue to be updated to reflect actual duration when the job completes successfully.

Products	Internal Number	Case Number	Description
NetworkComput	8678	22273	A slave that is in the process of stopping but is still running jobs will now have <code>_stopped_&lt;timestamp&gt;</code> appended to its name, whether stopped from the command line or through the server's browser-based UI. This allows a slave to be restarted multiple times. In addition, a request to a slave to stop can only be canceled if a replacement slave hasn't already started.
NetworkComput	8697	21608	Improved the performance and reliability of the <code>FREE_SLAVES</code> preemption rule behavior.

## 2016.09 Update 16.1

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput	8833	22689	Have <code>vovfosterjob</code> detect the malformed negated resource and translate it into the proper syntax (work-around prior to server-side fix).
NetworkComput	8753	22291	Fix error in <code>jobclasses.cgi</code> , where a jobclass using the variable <code>VOV_JOB_DESC(jobclass)</code> would trigger a Tcl error.

## 2016.09 Update 15

### Resolved Issues

Products	Internal Number	Case Number	Description
All	8529	22165	Attempts to use <code>vtk_resourcemap_set</code> to create a self-referential resource map are now rejected with an error message and an alert.
All	8570		NetworkComputer and WorkloadXelerator queue configuration files are no longer corrupted when enabling server failover.
All	8592		Timespec values are now supported in selection rules, in all places that accept integer values.

Products	Internal Number	Case Number	Description
FlowTracer	8261	22036	Fixed a problem with editing jobs from the browser UI when the command line uses single quote characters.
FlowTracer	8569	22173	We have added a new environment variable, VOV_SLAVE_SID_DISABLE. If this variable is set to 1, vovslave and vovslaveroot will not create new sessions (and consequently will not create new process groups) on startup.
FlowTracer	8595		When calling ForceValidate, queued jobs that are validated are removed from the buckets.
FlowTracer	8146	21921	Fixed the occasional failure of vovlsfd to start when run in single user mode for multi-user FT usage. Removed redundant checks for whether it is safe to run or not.
LicenseAllocator	8585	22193	Critical jobs check will now work with wait reasons that include number of tokens in the resource specification.
LicenseAllocator	8635		Improved presentation of "group matching" in LA user interface.
LicenseMonitor	8561	22112	Fix issues with LM SFD that prevented it from running as a Windows service under the "system" user. Running under the "system" user requires the user name AND password to be "system" in the account information portion of the SFD GUI. The "system" user is now added to the default security configuration in security.tcl to allow it to run normally. Because the "system" user has no password, at least one real user will need to be granted ADMIN privileges in the security.tcl file as well. After doing so, restart the service for the change to take affect. Please allow for 30 seconds between stop and start of the service. Note that the service must be uninstalled and reinstalled or it will fail to start with this version of the SFD. This can be done using the Install/Delete controls in the service portion of the SFD GUI.
LicenseMonitor	8580	22181	Fixed error in LicenseMonitor that prevented the viewing of very large batch reports.
LicenseMonitor	8620	22225	Now the ftlm_parse_flexlm program correctly outputs the parsed version for the queued for license records to the *.chk file.
LicenseMonitor	8526		Clarified messaging regarding unrecognized slave configuration parameters; this is now a warning rather than an error, as it can occur for example when using a newer server with an older slave.
NetworkComput	8468	22121	NetworkComputer no longer "forgets" a resource map that has been in use for longer than the cutoff provided or is currently in use by a preempted job.

Products	Internal Number	Case Number	Description
NetworkComput	7643	21098	Fixed issue that caused jobs submitted through the LSF emulation layer to result in a SLEEPING state due to an output conflict caused by the use of the <code>-o</code> option to <code>bsub</code> .
NetworkComput	8038	21752	Added the ability to grant a user the privilege to stop another user's job. This can be accomplished by granting the STOP ACL privilege to the other user by using the <code>vovacl</code> command line utility.  <pre>vovacl -agent "USER joe" -append -actions STOP 008210915</pre>
NetworkComput	8089	21856	Ensure <code>VOV_JOBCLASS_DIRS</code> is honored in CLI and web UI, regardless whether it is defined in the queue setup file in <code>vncConfig</code> or the <code>vnc_policy.tcl</code> file. This includes a new line in the output of the <code>nc jobclass -ll</code> command that shows the location of the jobclass script. For the web UI specifically, jobclasses that are located in a user-defined directory are also marked as editable.
NetworkComput	8233	21983	Messaging in <code>vsy</code> , <code>nc info</code> and related commands has been changed to clarify which resources are actually missing when the user specifies OR clauses in the resource request.
NetworkComput	8347	22087	The <code>slave.childProcessCleanup</code> parameter in <code>policy.tcl</code> no longer requires <code>cgroups</code> ; it does still require a Linux platform. Additionally the method of process cleanup has been changed to be more thorough; this setting may cause <code>vovslave</code> to be less responsive in heavy usage scenarios.
NetworkComput	8439	22088	The snapshot environment used by the <code>nc run -ep</code> option is now protected against stale system environment variables, such as <code>VOV_PORT_NUMBER</code> .
NetworkComput	8587	22194	Fixed handling of selection rules for preemptable job for <code>MULTIQUEUE</code> preemption rules.
NetworkComput	8631		Fixed resource leak caused by hyper-active preemption of same job.
NetworkComput	8412		NetworkComputer now reconnects properly to a LicenseMonitor instance that has been restarted.
NetworkComput	8588		Improved reliability of <code>nc stop -dir xxx</code> which now makes sure all stops have been performed.
NetworkComput	8629		A job preempted with <code>EXT</code> and then killed correctly ends up in the <code>FAILED</code> status rather than <code>WITHDRAWN</code> .
NetworkComput	8636		Allow editing of <code>mqthresh</code> parameter in <code>MULTIQUEUE</code> preemption rules.

Products	Internal Number	Case Number	Description
HERO	8164		Fixed problem with exit-status-based auto-rescheduling that prevent the job from running upon being auto-rescheduled.

## 2016.09 Update 14

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	8248		NetworkComputer will now update license information from LicenseMonitor the minimum of either every 5 minutes or half the configured expiration time.

### Resolved Issues

Products	Internal Number	Case Number	Description
FlowTracer	8479		Fixed "Force Validate", which uses a procedure called MakeDashT to emulate the "-t" option to Make. This feature updates the start and end times of jobs, which was being prevented due to tightened protections that were added. This change also fixes a similar problem with "RECONCILE_WITH_FILE_SYSTEM", which also needs to update start and end times of jobs.
FlowTracer	8519		Added back addflow.cgi and removed the broken web link to it in the web interface. This script is not expected to be used but the broken web link needed to be removed.
LicenseMonitor	8487		Handles correctly the case "No checkouts found for the specified report period." for division calculation when excluding idle time.
NetworkComput	8401	22101	An incorrect "why" message produced by "nc info" when jobs had been stopped was corrected.
NetworkComput	8503	22148	Added support for entire list of legacy field names in "nc hosts -O", which in turn, fixes issues with the named groups, such as "nc hosts -SLOTS".

Products	Internal Number	Case Number	Description
NetworkComput	8187	21130	Fixed issue with auto-rescheduling of failed jobs so that the downcone dependencies do not get descheduled. Now, the failed job can re-run and the downcone will run if and when the job passes on the second (or later) attempt.
NetworkComput	8505	22150	Restored sensitivity to NC_STOP_SIGNALS and NC_STOP_SIG_DELAY job properties.
NetworkComput	7952	21588	Reverted FairShare history graph to original width of 600px in order to restore x-axis label visibility for graph windows down to 5d.
WorkloadXelera	8334	22085	vovelasticd will now use auxiliary resources of WX jobs when submitting slaves to NC. In case of a previously failed slave, using auxiliary resource, WX will try to submit a slave on a different host in NC.
WorkloadXelera	8074	21997	Resource expressions with   operator in job classes should be combined without spaces. e.g. set VOV_JOB_DESC(resources) "(general PD) Limit:..."

## 2016.09 Update 13

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	8346	22069	Changed default value of thread.service.max from 2 to 0, per customer request.
All	8420	22111	Allow control of the maximum number of maps in a job resource expression, previously hard-coded at 300. Now this can be set with the parameter resources.max.maps.
NetworkComput	5947	22069	Added ability to shut down threads. This can be done now with % vovsh -x 'vtk_server_config thread.service.max 0'. Other parameters called thread.service.... are accessible to control when to use threads.
NetworkComput	7535	20833	The Tcl procedure VovGetRevokeDelay { } can now be added and customized by redefining it in vovresourced/config.tcl under the SWD directory to allow users to customize the revoke delay to be used in

Products	Internal Number	Case Number	Description
			vovreconciled. This allows users to have the revoke delay from their job classes override the default value of RESD(revokeDelay). The proc definition has been added to the documentation. In addition, the verbosity levels of various messages have been modified per customer request.
NetworkComput	7455	20674	The optional live_keepfor_jobs.tcl task script has been improved to reduce the load on the NC vovserver.
NetworkComput	7959	21585	The -maxload option of vtk_slave_define now accepts simple expressions relative to the capacity value, represented by the keyword 'CAPACITY'. For example, -maxload CAPACITY*1.5 would set the maxload to 1.5 times the number of slots. Supported operators are: +/-* .

## Resolved Issues

Products	Internal Number	Case Number	Description
All	8031	21729	As of 2016.09 update 11, there is a new environment variable VOV_PAUSE_CHILD_SIGNAL, which controls the signalling of child processes on Linux platforms when a slave enters the PAUSED state (usually this happens when a slave receives a SIGTSTP signal). The valid values of this variable are: "STOP" - send SIGSTOP to all child processes. This is the default behavior. "TSTP" - send SIGTSTP to all child processes. SIGTSTP is not guaranteed to suspend child processes. "NONE" or ""(empty string) - do not signal child processes. Any value other than the valid values will result in the default behavior (SIGSTOP). As of 2016.09 Update 13, the environment variable VOV_PAUSE_VW_ON_TSTP can be set to 1 to cause vw jobs to pause when they receive the SIGTSTP signal. The vw jobs will continue if they receive either SIGCONT or SIGALRM.
All	8486		Fixed a bug that was introduced in 2016.09u10 wherein the server would crash if it failed to obtain a lock on the server.info file (on server startup).
FlowTracer	8294	22059	Prevent Tcl errors for FDL procedures that apply to the most recent job, set, or file when the FDL has not yet declared the necessary item. Issue a warning that the item was ignored for properties, annotations, and job names. For inputs, outputs, capsules, adding items to sets, IFJOB, and X11_DISPLAY, stop the vovbuild with a fatal error when this problem occurs.
LicenseMonitor	7863	1099	vovsql_load_checkouts now is able to process checkout log with handle# > limit of INTEGER data type in one of the following ways:

Products	Internal Number	Case Number	Description
			<ul style="list-style-type: none"> <li>For newly created checkouts table, the handle's data type is BIGINT, can deal with integer up to 263-1 (vs. the INTEGER can deal with integer up to 231-1=2147483647).</li> <li>For existing tables, if you set the environment variable ALTER_HANDLE_TO_BIGINT before you upgrade the software, it will convert handle from INTEGER to BIGINT.</li> <li>For those keeping the handle as INTEGER type, we will do some processing in the temporary table when loading the data to checkouts table, i.e. handle=handle%2000000000 so that it will not over the limit.</li> </ul>
LicenseMonitor	7977	21594	The efficiency stats report now has option "Include idle time". If selected, the percentile calculation will based duration, match the right-side (Exactly Used) chart in the "Feature Efficiency Histogram".
LicenseMonitor	8054		The .png export for report chart will work correctly even for high DPI canvas.
LicenseMonitor	8251	21817	Updated LicenseMonitor's FlexLM parser to combine reservations for the same feature and user or group that are spread over multiple declarations.
LicenseMonitor	8173	21934	The vovserver policy.tcl file options checkoutHostLowerCase and checkoutUserLowercase were inoperative, but now correctly control case-sensitivity.
LicenseMonitor	8201	21958	Fixed issue in the usage comparison plot report where an error is produced when dropped queued requests are present.
NetworkComput	8187	21130	Added a post_retrace_downcone post-processing script to schedule the down cone of a job, to cover the case in which a job with dependencies may be automatically resubmitted multiple times.
NetworkComput	8241	21985	Fixed a problem with @JOBID@ not being expanded in the environment specification. This was causing a problem with cross queue submission due to environment not being captured correctly.
NetworkComput	8362	22086	Fixed issue with new dependencies for existing jobs in NC that caused the job that is a dependency for another job to turn invalid, which also invalidated the downcone. Now, it does not turn invalid.
NetworkComput	7982	21646	Changed documentation to suggest usage of the option -rule rather than -hw for multiple constraints in an nc hosts command. Corrected the help for nc hosts. An issue was also fixed in the nc hosts -hw command that prevented multiple elements from being evaluated.

Products	Internal Number	Case Number	Description
NetworkComput	8188	21251	Previously, when <code>vovgetgroups</code> timed out or did not return groups info correctly, the job would run with the incorrect groups. Following this change, if <code>vovgetgroups</code> fails or times out, the job will fail.
NetworkComput	8219	22004	No longer perform detailed slave analysis unless there is a confirmed HW resource wait reason.
NetworkComput	8244		<p>A new server configuration parameter is added to limit the maximum number of ORs in a resource expression. For example in <code>policy.tcl</code>:</p> <pre>set config(maxORsInResourceExpressions) 10</pre> <p>Or from the shell:</p> <pre>nc cmd vovsh -x 'vtk_server_config maxORsInResourceExpressions 10'</pre> <p>If a job is submitted and the number of ORs in its resource expression exceeds the limit, the job fails with a message in the Why info. The default value for the limit is 20.</p>
NetworkComput	8458		Synchronized the <code>nc hosts</code> utility with supported slave fields so that all fields are supported by the <code>-O</code> option.
NetworkComput	8089	21856	NC jobclasses defined via <code>VOV_JOBCLASS_DIRS</code> now are visible in web and command line.
NetworkComput	8111	21869	<code>vovserver</code> no longer issues incorrect license status GRACE messages in its log file.
NetworkComput	8218		Fixed error message concerning undefined <code>errorCode</code> variable in the <code>nc why help</code> message.
NetworkComput	8330	22081	Fixed a bug in which <code>nc hosts -f</code> did not return an accurate list of field names.
NetworkComput	8397	22079	The fork time metric now shows 0 if threading has not been turned on, and also falls to 0 when threading gets turned off after being on.
WorkloadXceler	8074	21997	Fixed resource parsing that contains <code> </code> operator in <code>vovelasticd</code> , <code>vovwxd</code> .
WorkloadXceler	8214	21986	WX no longer leaves stranded processes after the <code>vovslave</code> in the base NC setup has become SICK and subsequently recovers.

## 2016.09 Update 13.1

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput	8505	22150	Restored sensitivity to NC_STOP_SIGNALS and NC_STOP_SIG_DELAY job properties.

## 2016.09 Update 12

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	8174		Improved performance of <code>vtk_resourceemap_set_limit</code> .
NetworkComput	8125		Added timing control for preemption with two new parameters: <code>preemption.max.time.overall</code> which limits the time spent by the preemption code in any given preemption iteration (normally 0.3 seconds at most once every 3 seconds) and <code>preemption.max.time.rule</code> which limits the maximum time for each rule. Improve performance of RESERVE_SLAVES rules. Allow RESERVE_SLAVES lists to be specified with <code>SlaveList:NAMEOFLIST</code> . Allow reservation of slaves to a bucket.
NetworkComput	6022	21107	Removed the confusing <code>-q</code> option to <code>nc forget</code> , introduced in 2016.09 Update 9, since it could be confused with the <code>-q</code> (queue) option. Replaced it with the <code>-quiet</code> option to <code>nc forget</code> . Note that the command is not quiet in case of errors. To make it completely silent, use: <code>nc forget ... &gt;&amp; /dev/null</code> .

### Resolved Issues

Products	Internal Number	Case Number	Description
All	8184		Fixed error case when <code>vovconsole</code> prints out unknown color name "" when there is not visible error.

Products	Internal Number	Case Number	Description
FlowTracer	8052	21619	Fixed bugs with barriers. Prevent jobs above a valid barrier from being retraced when a job below the barrier is retraced with the aggressive retrace flag. Prevent invalidation of a valid barrier that is the output of an invalid job during vovbuild. Added protection from illegal status changes (for example, a job can not be MISSING). Allow only INVALID to propagate to the entire downcone of a node.
FlowTracer	8083	21752	vtk_set_get_elements accepts -selrule as the same option with -rule. Error handling with invalid options is improved.
FlowTracer	8161		Fixed bug that sometimes caused deleted sets to not be removed from the set browser in FlowTracer after being forgotten. This was most visible when doing vovforget -allsets and depended on the order that sets were forgotten.
LicenseAllocator	8123	21866	LA will check allocations against min restriction at every step of allocation calculation.
LicenseAllocator	8088		LA will check out at least 1 token of jobs_la, even if no job are running.
LicenseMonitor	8113	21882	Fixes issue where the override timezone was not being honored for log parsing jobs.
LicenseMonitor	8176	21952	In some cases, the LM 'convert to batch report' link generated command lines that produced reports different from those in the browser UI. This is now fixed.
NetworkComput	7958	21591	Modified both nc_info and node.cgi to show the CHOSEN_SLAVE_ID if it is set. Also added the -same_slave option to vovresreq to control this behavior.
NetworkComput	8027	21723	Prevent changes to a job while running if the changes would invalidate the job. This fixes a bug when resources are modified with nc_modify on a running job, causing it to turn INVALID/Idle even though the processes are still running.
NetworkComput	8126	21884	A new debug environment variable, VOV_DEBUG_NO_START has been created. The script vov_diagnostic_no_start will be run only if this environment variable is set to a non-zero value on the slave. The script contains a vovselect query, which can increase server load significantly under certain conditions. The query will be run only if VOV_DEBUG_NO_START is set to 2 on the slave.
NetworkComput	5624	20532	Changed behavior for when we reconcile a resource R we can take a look at the previous resource in the grabbed list and check if the previous resource is a summary resource for R.

Products	Internal Number	Case Number	Description
NetworkComput	7962	21605	Fixed calculation of most recent job in the <code>nc info !</code> command.
NetworkComput	8043	21762	There are minor changes to the wording of the output of <code>vsv</code> , <code>vovwhy</code> , <code>nc why</code> , <code>wx why</code> and <code>vtk_explain_status</code> .
NetworkComput	8090	21778	Corrected incorrect wording in why-waiting analysis that misreported the job's bucket rank in FairShare as the job's order in the bucket.
NetworkComput	8093	21849	Fixed incorrect reference to: <code>NC:AlsoRemovePreviousSummaryResources</code> in recursive call.
NetworkComput	8171		Reduced the rate at which <code>vovresourced</code> checks for LM to be up when using a hard-coded LM location and LM is currently down.
NetworkComput	6939	21653	Fixed <code>nc gui</code> timeout restart so you do not have to go through the additional steps of clicking in the set bar and pressing enter.
NetworkComput	8044	21764	If a slave becomes "stopped" slave, <code>symlink slave.log</code> is not updated by the slave.
NetworkComput	8050	21772	The behavior of the <code>nc info</code> command has been fixed to provide better information in cases where a FAILED or INVALID job has an invalid return code.
NetworkComput	8159		The <code>nc who</code> command was nonfunctional starting in 2016.09u9. This has been fixed.
NetworkComput	7944	21576	Fixed issue where NC wrapper fails to exit when job is complete.
NetworkComput	7978	21596	There is a new optional <code>policy.tcl</code> parameter on Linux platforms named <code>slave.childProcessCleanup</code> . Setting this parameter to 1 causes slaves to kill all child processes when a job exits. This parameter will implicitly use <code>cgroups</code> . Additionally the old method of using <code>vovprocessmgr</code> has been fixed.
NetworkComput	8098	21828	The time window was missing from the URL of the FairShare web page. This prevented it from being shared. The URL now again has <code>name=value</code> pairs, which should once again allow sharing.
NetworkComput	8136	21918	There was a race condition which could result in a deadlock when a signal handler was called. This manifested variously in the traceback as a hung call to <code>futex()</code> or <code>readSocket()</code> , and possibly others. This problem has been fixed.
NetworkComput	8156	21915	When reading environments, if there is an environment variable with an empty value, call <code>unsetenv</code> on it instead of logging an error with a backtrace in the slave log.

Products	Internal Number	Case Number	Description
NetworkComput	8157	21928	The emulated bsub command now correctly uses the job placement policy defined in the NC jobclass that is mapped to the bsub "-q" option.
WorkloadXceler	8085	21803	WX now correctly handles SlaveList requests by not attempting to process them in the front-end, passing them on to the NC back-end for processing instead.
WorkloadXceler	7772	21266	Failover slaves now use the original vovserver's VOVDIR as opposed to their own when starting a failover server.
WorkloadXceler	8097		Catch error caused by the removal of a non-existent slave.

## 2016.09 Update 11

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	8017		Improve visibility on unused slaves.
NetworkComput	6151	21656	Added @JOBLOGDIR@ field for JOBS to allow pre- and post-command logfiles to go to the same directory as the job logfile. Checked if the pre- and post-command output logs are zero length, in which case they are auto-deleted.
NetworkComput	7455	20674	The optional <code>live_keepfor_jobs.tcl</code> task script has been improved to reduce the load on the NC vovserver.
NetworkComput	7604	20904	Added explanation that the main 'why' reason may not be the only one to discussion of <code>nc why</code> in <code>vncqueue.html</code> in trunk.

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComputer	7978	21596	There is a new optional <code>policy.tcl</code> parameter on Linux platforms named

Products	Internal Number	Case Number	Description
			"slave.childProcessCleanup". Setting this parameter to 1 causes slaves to kill all child processes when a job exits.
NetworkComputer	7999	21674	Fixed issue where keyword substitution for the command line can inject curly braces if the command line includes a quoted string.
NetworkComputer	8011	21693	Increase the max capacity of a running slave to match the new capacity if the slave is being reconfigured with a capacity that exceeds the current max capacity.
WorkloadXcelerator	7772	21266	Improve visibility on unused slaves.
WorkloadXcelerator	7996	21706	Ensure vovelasticd daemon clears the queue error state to allow launcher submissions to resume after its 2-minute error waiting period.
WorkloadXcelerator	8025	21663	Disable vovresourced LM interconnect for WX.

## 2016.09 Update 11.5

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	8644	22239	To prevent excessive server load due to too many OR clauses in resource map sums, calls to <code>vtk_resourcemap_sum</code> from <code>&lt;swd&gt;vovresourced/config.tcl</code> are now limited to expressions of up to 5 ORs (by default). The default limit can be adjusted by setting <code>RESD(maxORsInResourceSum)</code> in <code>&lt;swd&gt;/vovresourced/config.tcl</code> . If a resource sum with excessive ORs is seen, an alert is

Products	Internal Number	Case Number	Description
			generated and an error message is output once per day in the vovresourced logfile.

## 2016.09 Update 11.4

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	8644	22239	To prevent excessive server load due to too many OR clauses in resource map sums, calls to <code>vtk_resourcemap_sum</code> from <code>&lt;swd&gt;vovresourced/config.tcl</code> are now limited to expressions of up to 5 ORs (by default). The default limit can be adjusted by setting <code>RESD(maxORsInResourceSum)</code> in <code>&lt;swd&gt;/vovresourced/config.tcl</code> . If a resource sum with excessive ORs is seen, an alert is generated and an error message is output once per day in the vovresourced logfile.

## 2016.09 Update 11.3

### Resolved Issues

Products	Internal Number	Case Number	Description
All	8500		Provided a workaround to enable the patch URL at the top of the project page to be rendered properly as a link instead of displaying HTML code. This has been fixed in 2016.09u12 and above.
NetworkComput	7982	21646	Changed documentation to suggest usage of the option <code>-rule</code> rather than <code>-hw</code> for multiple constraints in an <code>nc hosts</code> command. Corrected the help for <code>nc hosts</code> . Also fixed the <code>nc hosts -hw</code> command preventing multiple elements from being evaluated.
NetworkComput	8187	21130	Provided a workaround that enables auto-rescheduling of failed jobs so that the downcone dependencies do not get descheduled. Now, the failed job can

Products	Internal Number	Case Number	Description
			re-run and the downcone will run if and when the job passes on the second (or later) attempt. Requires the workaround script \$VOVDIR/etc/post/post_retrace_downcone which must be run at the end of the job as a post cmd.
NetworkComput	8241	21985	Provided a workaround for problem where @JOBID@ was not being expanded in the environment specification. This was causing a problem with cross queue submission due to environment not being captured correctly. Workaround requires use of VncCallbackAction (see NC Admin Guide) to call custom callback script in jobclass to perform expansion.

## 2016.09 Update 11.2

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput	8136	21918	There was a race condition which could result in a deadlock when a signal handler was called. This manifested variously in the traceback as a hung call to futex() or readSocket(), and possibly others. This problem has been fixed.
WorkloadXceler	8073	21803	Minor cleanup of errors in vovelasticd.tcl.

## 2016.09 Update 11.1

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput	8159		The nc who command was nonfunctional starting in 2016.09u9. This has been fixed.
NetworkComput	8093	21849	Fixed incorrect reference to: NC:AlsoRemovePreviousSummaryResources in recursive call.

Products	Internal Number	Case Number	Description
WorkloadXceler	8073	21803	Improve handling of job's expected duration with respect to maximum slave lifetime. Also, appropriately handle error caused by the removal of a non-existent slave so that the <code>vovelasticd</code> daemon does not enter the 2-minute wait state for back-end queue errors. More debug output at verbosity level 5 if slave not started for bucket. Improved web based visibility into <code>vovelasticd</code> .
WorkloadXceler	8074	21654	Fixed issue with handling resource specifications that contain boolean OR conditions.

## 2016.09 Update 10

### New Features and Enhancement

Products	Internal Number	Case Number	Description
All	7925		Symbolic links of log files, such as <code>server.log</code> , <code>slave.log</code> are changed to relative paths.
FlowTracer	7827	21382	<p>The <code>VOV_STDOUT_SPEC</code> environment variable now supports <code>@JOBNAME@</code> as part of the stdout and stderr filename formats, e.g.,</p> <pre>setenv VOV_STDOUT_SPEC .std_@ID@.@UNIQUE@.@JOBNAME@</pre> <p>The jobname portion of these filenames is limited to alphanumeric characters, the underscore, hyphen and the period. Other characters in the jobname are filtered out. For jobs without a jobname, <code>NOJOBNAME</code> is used. Note that the <code>vovserver</code> must have the <code>VOV_STDOUT_SPEC</code> environment variable defined as above for this to take effect.</p>
FlowTracer	7928	21547	No longer bind to the X display by default in <code>vovsh</code> . To bind, pass the <code>-d</code> option.
LicenseMonitor	7762	21280	<code>ftlm_batch_report</code> can take input fields from a file <code>%ftlm_batch_report -inputFile &lt;INFILE&gt;</code> and a template <code>&lt;INFILE&gt;</code> can be found at <code>\$VOVDIR/etc/config/lm/ftlm_batch_report.tm</code> .

Products	Internal Number	Case Number	Description
LicenseMonitor	7849	21424	LA will cut back unused tokens to maximize utilization. It will also try hard not to reduce allocations below currently running for higher weightage sites, thus reducing the likelihood of pre-emption on NC.
NetworkComput	7959	21585	The <code>-maxload</code> option of <code>vtk_slave_define</code> now accepts simple expressions relative to the capacity value, represented by the keyword 'CAPACITY'. For example, <code>-maxload CAPACITY*1.5</code> would set the maxload to 1.5 times the number of slots. Supported operators are: <code>+/*</code> .
NetworkComput	7535	20833	The Tcl procedure <code>VovGetRevokeDelay</code> can now be added and customized by redefining it in <code>vovresourced/config.tcl</code> under the SWD directory to allow users to customize the revoke delay to be used in <code>vovreconciled</code> . This allows users to have the revoke delay from their job classes override the default value of <code>RESD(revokeDelay)</code> . The proc definition has been added to the documentation.
NetworkComput	7714	21125	Enabled the <code>@USER@</code> recipient keyword for the LongJobs health check notification procedure.
NetworkComput	7715	21199	A limited-release capability, <code>nc info -legacy</code> , is provided to generate <code>nc info</code> output in the older format (prior to 2016.09). The behavior of this command can be customized via a Tcl file at <code>.../local/vncinfo.config.tcl</code> based on environment variable, username, project name, etc. by doing 'set NCINFO(legacy) 1' under the desired conditions. Example: <pre>if { [vtk_logname] eq "george" } { set     NCINFO(legacy) 1 }</pre> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p> <b>Important:</b> This legacy feature will not be available in releases beyond 2016.09 (and updates).</p> </div>
NetworkComput	7881		Fixed the ROWCOUNT field in REST API output so that it does not report double the correct row count.
NetworkComput	7810	21343	<b>Stop all running jobs</b> button changed to <b>Stop jobs for all users</b> , and the default set to "Cancel" on the dialog window instead of "OK" (which also changed to "Yes, Stop All").

## Resolved Issues

Products	Internal Number	Case Number	Description
All	7807		Improved signal handling in vov/vw/vrt wrapper when waiting for a job to finish to increase stability.
All	7931		Fixed conflict with the -platform and -nocommon options in the batch installer so that the option order does not matter.
FlowTracer	7912	21517	LSF jobs can now have multiple "LSFmopts:*" parameters in the resource string.
FlowTracer	7953	21590	The capsule for Questa vcom is enhanced to handle files containing both entity and package declarations.
FlowTracer	7749	21260	Documentation for PJ has been updated to describe the new method of indicating a PJ is a system job.
FlowTracer	7776	21297	When an input or output is disconnected from a running job, do not invalidate the job. If a file was declared as an output of a running job during the job, and it is disconnected, propagate INVALID to the downcone of the disconnected output.
FlowTracer	7829		Prevent md5 barriers from invalidating the downcone when the timestamp changes but the content (md5sum) is still the same.
FlowTracer	7837	21356	When the FDL commands T_FINAL or J_FINAL are called, do not disconnect

Products	Internal Number	Case Number	Description
			dependencies other than the ones previously declared in FDL (no runtime dependencies such as instrumented tools, stderr, etc, should be detached).
LicenseAllocator	7861	21445	LA will prevent reconciliation of licenses by vovreconciled if matching has been turned off for this license resource.
LicenseAllocator	7984		Fixed the problem with targets being set to 1 even when there is no demand.
LicenseMonitor	7601	20454	<p>Added ability to specify a replacement pattern and string for host names obtained by LM parsers. This is configured by adding the following line to the SWD/config/parser.cfg file:</p> <pre> set   PARSER(hostReplace)   { {PATTERN}     {REPLACEMENT} }                     </pre> <p>where PATTERN is a case-sensitive regular expression pattern, and REPLACEMENT is the string with which to replace the pattern.</p>
LicenseMonitor	6962	20151	Use the parser time for checkouts in the remote LM parser instead of the remote checkout time, to prevent overlapping of checkout records.
LicenseMonitor	7863	21099	vovsql_load_checkouts now is able to process checkout log with handle# > limit of integer data type.

Products	Internal Number	Case Number	Description
LicenseMonitor	7775	21279	Uncheck options on batch report via Web UI to disable the plot on that option, now matching the behavior of online history report. Batch report via CLI now takes boolean (1 0) value for options that do not require values before but will backward compatible if no value provided.
LicenseMonitor	7868	21447	Now the report UI is able to display users or any other drop-down list on Windows supported versions of all browsers (Chrome/FireFox/IE) even if the list contains binary characters.
LicenseMonitor	4216	21593	Added average usage statistic to the Efficiency Statistics report table.
NetworkComputer	7906	21516	Fixed issue that caused global namespace variables in the vnc_policy.tcl file to not be seen by the Tcl interpreter without adding a global call.
NetworkComputer	7383	20576	Start time, end time, and duration values are now validated in a call to vtk_slave_reserve to prevent values of 0 from being applied to a reservation. This prevents confusing reservation property entries in the /system/slaves/reservations FairShare group, if enabled. Slave reservation expirations and cancellations are now logged in the server log, even if the reservation expires while the slave is down. Slave properties, which store

Products	Internal Number	Case Number	Description
			reservations for persistence, are now enabled by default for NetworkComputer instances.
NetworkComputer	7487	20455	Fixed issue where bash functions were not being defined correctly in snapprop.
NetworkComputer	7739	20807	Resumer jobs for jobs preempted via preemption rules that are waiting for HW now request the same slave and HW resources as the preempted job.
NetworkComputer	7937	21560	Prevent the following environment variables from being carried over from the job submission environment to the execution environment when using environment snapshots: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>TK_TABLE_LIBRARY VTCL_LIBRARY VTIX_LIBRARY VTK_LIBRARY</pre> </div> By doing so, conflicts in a mixed-version environment will be prevented.
NetworkComputer	7866		Cleanup stderr files generated by the SNAPPROP job environment when an error is caught by the Tcl interpreter when fetching a system property.
NetworkComputer	7880		Fixed the format of JSON output in the REST API to include commas between list elements.
NetworkComputer	7919	21520	The following changes have been made to non-legacy output of vsy, vovwhy, nc why, wx why, vtk_explain_status and related

Products	Internal Number	Case Number	Description
			commands: slavelists will not appear as SLAVELIST-NOT-AVAILABLE with 0 slaves when running wx. For non-wx products, empty or non-existent slavelists will now appear under "Main Reason" in the first section of the output. This is an additive change; slavelist information will still appear in the "Additional Information" section as well. The redundant line "Analyzing job 12345" has been removed from non-verbose output. This makes the "Main Reason" section easier to read.
NetworkComputer	7958	21591	A slave spawned by vovelasticd should use the trigger job's expected duration for its max life if the duration is longer than the slave max life configuration. This will prevent a deadlock situation where a slave is available to run a job, but cannot because it will exit before the job is expected to be finished.
NetworkComputer	7973		Modified job why-waiting analysis to report on cases where the job's expected duration exceeds a slave's maximum lifetime.
NetworkComputer	7975	21634	Enabled pre/post commands with use of -f option to nc run.
NetworkComputer	7982	21646	Changed documentation to suggest usage of the option "-rule" rather than "-hw" for multiple constraints in a "nc hosts" command.

Products	Internal Number	Case Number	Description
NetworkComputer	5725	20830	The "Seamless Transition To A Cycle-Based Scheduler" of the docs has been modified to provide added description for scheduler parameters.
NetworkComputer	7644	21092	Improved error handling in LSF emulation's bsub
NetworkComputer	7930	21518	Do not attempt to kill a non-existent subslave (with a PID of 0) after a job fails to start due to an unknown user error.
NetworkComputer	7631	21020	If job class description has html tag <em>, the enclosed text will rendered to the intended effects as italic/emphasized.
NetworkComputer	7682	21153	Fixed so that all NC jobclasses from \$VOVDIR/local/jobclass show up in the web GUI.
WorkloadAccelerator	7890	21478	Enabled initialization of jobclasses so that jobclass limit resources are defined correctly.
WorkloadAccelerator	7910	21532	Made vovelasticd sensitive to bucket FairShare groups for determining the number of job launchers to submit to the back-end queue.
WorkloadAccelerator	6281		Added "VOVELASTICD(maxQueueErrors)" setting, defaulting to 10, that will cause the vovelasticd daemon to stop attempting launcher submissions when the number of consecutive launcher submission failures to the back-end queue exceed the setting. Both a system alert, as well as a vovelasticd log file

Products	Internal Number	Case Number	Description
			entry, will be generated during this condition. Most often, this is related to a misconfigured queue. The daemon will resume normal operation once the configuration files have changed to correct the issue.
WorkloadAccelerator	6314		Documented the requirement to include LSFqueue:<queueName> in the resource specification in order to direct jobs to a specific LSF queue when using LSF as the base scheduler.
WorkloadAccelerator	7744	20975	Enabled additional health check procedures, which can be used to monitor for errant conditions in the compute environment or the workload, such as jobs that have been queued or running for longer than desired.
WorkloadAccelerator	7772	21266	Failover slaves now use the original vovserver's VOVDIR as opposed to their own when starting a failover server.
WorkloadAccelerator	7820	21173	Fixed case in WX where users first jobs do not run when they are submitted with "-f file".
WorkloadAccelerator	7969	21614	Slaves spawned by vovelasticd should be reserved for the trigger job's bucket instead of its FairShare group. This will ensure that the slave will execute the trigger job first, then any subsequent jobs in the same bucket instead of allowing unrelated jobs to be executed.

Products	Internal Number	Case Number	Description
WorkloadAccelerator	7976	21633	Elastic slave launchers should reflect the job placement policy of the trigger job.
WorkloadAccelerator	7989	21661	Elastic slaves should be initialized with actual RAMTOTAL instead of using the trigger job's requested RAM.

## 2016.09 Update 10.1

### Resolved Issues

Products	Internal Number	Case Number	Description
WorkloadAccele	7995, 7996	21655, 21706	Fixed issue that caused vovelasticd daemon to enter a dead-locked state upon reaching the max allowed number of back-end queue errors.
WorkloadAccele	21803	8073	Improve handling of job's expected duration with respect to maximum slave lifetime. Also, appropriately handle error caused by the removal of a non-existent slave so that the vovelasticd daemon does not enter the 2-minute wait state for back-end queue errors. More debug output at verbosity level 5 if slave not started for bucket. Improved web based visibility into vovelasticd.
WorkloadAccele	8074	21654	Fixed issue with handling resource specifications that contain boolean OR conditions.

## 2016.09 Update 9

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	7697	21191	In Admin/Database page or vovdbd_util, user is able to specify port for use by the VOV Postgres DB.
All	7657		The slave will now print a warning message to its log when the server appears to be a different version from the slave.
All	7728		Allow colons in property names.
FlowTracer	7788		Added option to vovbuild to prevent building when jobs are running.
FlowTracer	7743	21229	When vov/vw/vrt is used to launch jobs from a client, and an illegal option is passed, make sure to update the "WHY" property to tell the user exactly why it failed. Previously it would exit with error code 2 and not provide any reason why.
FlowTracer	7609	21025	Display run and suspend times in UIs that show job duration.
FlowTracer	6852	15427	In FlowTracer and NC GUI, added subsets to the list of nodes that "quick find" highlights and selects. Previously it would only search for jobs and files.
FlowTracer	7667		In FlowTracer and NC GUI, the quick find search field searches every time you type or click the mouse in the search field, provided there are at least 2 characters. For large node counts, this made it feel like it was hanging between keystrokes. In this fix, it initiates a search request when the search text is changed, but does not start the search until a small amount of time passes, so it prevents starting the search too early. It also can interrupt the previous search if more characters are typed. In addition, a bug was found that was causing it to search for each node type twice. That bug was fixed. For large node counts (100k+), it prints white status messages on the screen to show the search progress. The result is a faster and more responsive quick find feature.
FlowTracer	7689		When NFS protection is enabled using the nfsDelay setting in <code>policy.tcl</code> , do not wait for the nfs delay time to pass when checking if a file exists if the file's status is MISSING.
FlowTracer	7688		When using vovbuild, if an input or output dependency is excluded due to exclusion rules such as those in the server working directory file "exclude.tcl", print a warning message.

Products	Internal Number	Case Number	Description
LicenseAllocator	7105	20054	Site nicknames will no longer be truncated in the column headers of the overview page - the full nickname will be displayed.
LicenseAllocator	7576	20897	LA overview page will now show the sum of all running jobs for each resource, and all queued jobs for each resource, across all sites.
LicenseAllocator	7581	20901	Clicking running or queued jobs in Overview page or Resource Summary page will take you to an NC page that only shows jobs that are running with or queued for this specific resource.
LicenseAllocator	7279	20452	The resourcemap owner name will now include the name of the LA project which is currently controlling this resource.
LicenseMonitor	7706		Added CLI version of the LM agent SFD for Windows. The new agent, <code>Imagent-win64-cli.exe</code> , can interact with the Windows SCM (requires UAC elevation). Run with <code>-h</code> to get the full usage syntax.
NetworkComput	6022	21107	Added option <code>-q</code> to <code>nc forget</code> . Note that the command is not quiet in case of errors. To make it completely silent, use: <code>nc forget ... &gt;&amp; /dev/null</code> .
NetworkComput	7452	20720	The <code>vovreconciled</code> daemon now includes the name of the license when notifying that reconciliation is skipped for a job.
NetworkComput	7652	21013	Added new <code>nc info -dep</code> command to easily list job dependencies: <pre>&gt; nc info -dep 7299670 007299670 dependees: 007299667 007299670 dependents: 007299673 007299676 007299688</pre>
HERO	7103	20071	Completed implementation of <code>vtk_fs_stat</code> by supporting the field "fsid".

## Resolved Issues

Products	Internal Number	Case Number	Description
All	6966		If a server log file cannot be opened at server startup, the server will exit with a fatal error. If a new server log file cannot be opened during daily rotation and the previous log file is not accessible, a new log file will be opened under <code>tmp</code> directory.

Products	Internal Number	Case Number	Description
All	7381	20552	Added a column to show resource reservations in the monitor GUI.
All	6921		Slaves will timeout predictably, after attempting to connect/reconnect to server. VOV_RELIABLE_TIMEOUT can be used to specify the timeout period. Command line option -t can be used to override the setting of VOV_RELIABLE_TIMEOUT.
All	7524	20809	Now db host can be configured using fqcn, alias, or IP address, in addition to the canonical short host name. If host provided cannot be pinged, an error message will be displayed.
All	7809	21345	Fixed issue that caused the patch status link in certain web UI pages to be rendered as plain text instead of HTML.
All	7698		vovconsole -geometry option was ignored in 2016.09 u8. Fixed to make -geometry option respected.
All	7801		No longer show utilization percentage in monitor GUI for resources with unlimited capacity.
FlowTracer	7777	21297	Added option to vovbuild to prevent building when jobs in the flow are running. The new option is vovbuild -c which is short for "cautious" mode.
FlowTracer	5423	21190	vovlsfd will generate a warning if it detects jobs with expected duration longer than MaxLife parameter. Slaves will not be submitted for these jobs.
FlowTracer	7814		<p>Fixed a bug that caused printing an incorrect count of the number of overloaded slaves in the output of vsy, nc why, wx why and vtk_explain_status. The formatting of the output of the vsy, nc why, wx why, and vtk_explain_job_status commands has changed in the following ways:</p> <ul style="list-style-type: none"> <li>• In the "Server Summary" section, we now print "Hardware conflicts found" instead of "No compatible slaves found".</li> <li>• In the "Server Summary" section, we now print "Job cannot be run because the following resources are not currently free on any slave" instead of "Job cannot be run because the following resources do not currently exist on any slave".</li> <li>• In the "Slave Summary" section, we now print "Final available candidate count: 0" in the event of hardware conflicts that prevent any slave from starting a job.</li> <li>• In the "Slave Summary" section, we now print "(ignoring load)" instead of a meaningless overloaded count when -i is specified for vtk_explain_job_status.</li> </ul>

Products	Internal Number	Case Number	Description
			<ul style="list-style-type: none"> <li>In the "Additional Information" section, the status "Full" is now written as "Fully Loaded".</li> <li>In the "Additional Information" section, slave statuses are separated from slave counts by a colon (:) character.</li> </ul>
FlowTracer	7694		Sending a SIGTSTP signal to an indirect slave no longer kills the slave. Instead the slave process and all of its jobs will be suspended until another signal is received.
FlowTracer	7707		Fixed vtk_server_config protocol error in readonly security level.
FlowTracer	7724		Redirected indirect slave log from stdout to the slave daily log file.
FlowTracer	7725		Fixed grid mode drawing bug that made FlowTracer seem to go into an infinite loop of drawing when the setting to move nodes to the end in grid mode was enabled and the graph was already maxed out (autofit overflowed the bottom due to too many nodes to fit in the canvas).
FlowTracer	7590	20930	Corrected vovps documentation, and added example.
LicenseAllocator	7222	21220	LA now correctly drops overbooking to zero when overbooking is turned off.
LicenseAllocator	7794	21306	LA will try to meet demand first before distributing extra tokens. Also, LA will not take tokens away from critical sites when adjusting for uncertainties.
LicenseAllocator	7796	21311	LA will use wave based OOQ values for computing available tokens for distribution.
LicenseMonitor	7647	20906	Fixed issue with loading remotely-generated data via the lmmgr loadremotedata command caused by the utility not connecting to the LicenseMonitor server.
LicenseMonitor	7676	21269	On Windows, one of file path modules tried a shortcut expansion on a regular file and reported that the file doesn't exist even though the file exists. Fixed to try the shortcut file expansion when it is a really a shortcut. Also added recovery codes when the expansion fails.
LicenseMonitor	7665	20884	Fixed an issue in the detailed plot report when showing reservations that caused currently-active reservations to be displayed as normal checkouts in the plot.
LicenseMonitor	7704	21178	Fixed issue with batch reporting of denial plot for multiple features that resulted in the carryover of previous plot data for subsequent features that have no denials.

Products	Internal Number	Case Number	Description
NetworkComput	5624	20532	Changed behavior for when we reconcile a resource R we can take a look at the previous resource in the grabbed list and check if the previous resource is a summary resource for R.
NetworkComput	7680		Fixed bug where exporting preemption rules previously wrote out incomplete rules in some situations.
NetworkComput	7699	20879	Fixed bug where removing resources from slaveClass.table would not remove them from the server without a restart.
NetworkComput	7770	20883	Output files are no longer tracked for jobs submitted via the LSF emulation layer. This prevents a queue bucket from being created for each job that uses the bsub -o option to specify the job log file.
NetworkComput	7607	20982	LSF bsub emulator uses VOV_JOBPROJ environment variable for the project name. Specifying a project explicitly with -P in bsub command overrides the project specification in the VOV_JOBPROJ variable.
NetworkComput	7636	20603	Fixed a bug that caused VOV_PORT_NUMBER not to be applied correctly after a connection timeout. Previously, only the last port listed would be used after VOV_RELIABLE_TIMEOUT had expired.
NetworkComput	7641		Preempting and preemptable selection rules are now validated at preemption daemon start time. Preemptable rules are also validated upon each update of the rule as job queue buckets change.
NetworkComput	7682	21153	Fixed behavior so that all NC jobclasses from \$VOVDIR/local/jobclass show up in the web GUI.
NetworkComput	7708		Fixed issue with slave-reservation preemption that treated this HW-based rule as one that is SW-based, preventing all related preemption attempts from succeeding.
NetworkComput	7822	21365	Corrected the vovslavemgr reserveshow output format for unending reservations.
NetworkComput	6498		NC and WX now use the 'any' port mode by default, to help prevent deadlock situations when the port chosen by the previous default of 'automatic' mode is already in-use.
NetworkComput	7588	20923	Fixed issue that prevented auto-rescheduled jobs from avoiding the previously used host. Also added a new configuration parameter in the policy.tcl file, autoRescheduleOnNewHost, to control whether autorescheduled jobs will avoid an entire host, or just the same slave. Set to 1 (default) for entire host, set to 0 for same slave.

## 2016.09 Update 9.4

### Resolved Issues

Products	Internal Number	Case Number	Description
LicenseMonitor	6962	20151	Use the parser time for checkouts in the remote LM parser instead of the remote checkout time, to prevent overlapping of checkout records.

## 2016.09 Update 9.3

### Resolved Issues

Products	Internal Number	Case Number	Description
WorkloadAccele	7910	21532	Made vovelasticd sensitive to bucket FairShare groups for determining the number of job launchers to submit to the back-end queue.

## 2016.09 Update 9.2

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput	7822	21365	Corrected the vovslavemgr reserveshow output format for unending reservations.
NetworkComput	7906		Fixed issue that caused global namespace variables in the vnc_policy.tcl file to not be seen by the Tcl interpreter without adding a global call.
WorkloadAccele	7820	21173	Fixed case in WX where users first jobs do not run when they are submitted with "-f file".
WorkloadAccele	7890	21478	Fixed issue where WX limits were not being defined correctly.

Products	Internal Number	Case Number	Description
WorkloadAccele	6314		Documented the requirement to include LSFqueue: <queueName> in the resource specification in order to direct jobs to a specific LSF queue when using LSF as the base scheduler.
WorkloadAccele	7744	20975	Enabled additional health check procedures, which can be used to monitor for errant conditions in the compute environment or the workload, such as jobs that have been queued or running for longer than desired.
WorkloadAccele	6281		Added VOVELASTICD(maxQueueErrors) setting, defaulting to 10, that will cause the vovelasticd daemon to stop attempting launcher submissions when the number of consecutive launcher submission failures to the back-end queue exceed the setting. Both a system alert, as well as a vovelasticd log file entry, will be generated during this condition. Most often, this is related to a misconfigured queue. The daemon will resume normal operation once the configuration files have changed to correct the issue.

## 2016.09 Update 9.1

### Resolved Issues

Products	Internal Number	Case Number	Description
LicenseMonitor	7867	21451	Enabled project tracking in remote LM parser.

## 2016.09 Update 8

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	7474		Fixed instances where replacing/following symlinks is not supported in Windows.
All	7387	20602	Added an updatecrontab_vovdir.csh script to the project.swd/autostart directory to automatically update the

Products	Internal Number	Case Number	Description
			scripts/vovdir.csh file when the server starts. Upgrading to a new release now automatically updates the version of crontab used to be consistent.
All	7088	20035	Added logic to check if the .stdstart (headLog) and .stdend (footLog) files are in use. If so, delete if size 0.
All	5525	12768	The environment variable HOSTNAME was previously being transferred to slaves via SNAPSHOT or SNAPPROP. This was causing the HOSTNAME on the slave to show an incorrect value. The transfer is now suppressed.
FlowTracer	7553	20870	2016.09 update 8 adds PAUSED state for slaves that receive SIGTSTP; receiving this signal suspends all child jobs and the slave itself. Resuming slaves will resume all child jobs. Additionally, we have added a queryable HEARTBEAT field to the "slaves" table.
	7673		In FlowTracer, changed the default value of nfsdelay from 0 to 60 seconds to protect against invalidation of jobs due to filesystem caching, such as NFS attribute and directory caching. This change is made in the policy.tcl file in the server working directory. In FlowTracer, changed the default value of timeTolerance from 0 to 1 second to protect against invalidation of jobs due to clocks not being synchronized across hosts in the network. This change is made in the policy.tcl file in the server working directory.
LicenseAllocator	6499	20229	Historical metrics can be loaded upon server restart by adding the command "LA::ReloadHistoricalMetrics" to LA's "config.tcl" AFTER all the sites and resources have been declared. The command requires a parameter specifying a duration (Vov time specification) for which to load the metrics. The duration is the time going back from "now".
LicenseMonitor	7507	20235	Added new -replaceImages option to ftml_batch_report to replace the dynamic image elements of a batch report HTML file with static PNG images. The usage syntax for the new option is: <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>ftlm_batch_report -replaceImages &lt;INFILE&gt; [OUTFILE]</pre> </div> If the OUTFILE option is not passed, the utility will generate a new file named INFILE-static.html. OUTFILE can be the same as INFILE, but is not recommended.
LicenseMonitor	7472	20744	When available, make pid visible in certain LM reports.
NetworkComput	7455	20674	The optional live_keepfor_jobs.tcl task script has been improved to reduce the load on the NC vovserver.

Products	Internal Number	Case Number	Description
NetworkComput	7433		Added field XDURPERCENT for jobs, which can be used in preemption rules.
NetworkComput	5579	20837	<p>Log an entry in the server log when a slave fails to send its required heartbeat to the server and enters a sick state. The log entry resembles:</p> <pre>vovserver(1323) May 05 11:51:19 Slave parser on host maiden (client 1) is sick due to a missing heartbeat</pre> <p>The server log also contains a message when the slave is healthy again:</p> <pre>vovserver(1323) May 05 12:10:18 Sick=1 slave parser on maiden (client 1) is healthy again</pre>
NetworkComput	7535	20833	The proc VovGetRevokeDelay can now be added and customized by redefining it in vovresourced/config.tcl under the SWD directory to allow users to customize the revoke delay to be used in vovreconciled. This allows users to have the revoke delay from their job classes override the default value of RESD(revokeDelay). The proc definition has been added to the documentation.
NetworkComput	7537	20834	Provide the ability to specify slot count as an adjustment to the core count. The following capacity specification forms have been added: CORES+N, CORES-N, CORES*N, CORES/N The word CORES is required, followed by a single-character operator, then a whole or decimal number. These new forms work in addition to the traditional numerical capacity setting and are supported in the following: vtk_slave_define -capacity XXXXX, vtk_slave_set_defaults -capacity XXXXX, vovslave -T XXXXX, vovslavemgr configure -capacity XXXXX *Where XXXXX is capacity specifier as described previously. Note: Capacity cannot be less than 0 slots, nor can it exceed 1000 slots.
NetworkComput	7561		Improved debugability of preemption rules with a DEBUG property.
NetworkComput	7642		Slave grouping was added in 2016.09 and nc gui -slaves was showing groups if there are more than 20 slaves. This changeset returns to 2016.03 behavior. nc gui -slaves shows individual slaves.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	7328	20517	The sets page now reloads after invalidating the set via the invalidate icon.
All	7456	20713	The frequency of calls made by vovslave to the w command have been reduced to once per minute across all slaves for a given host.
All	7473		Fix instances where symlink depth in Linux is limited to 5 or 8 in some cases.
All	7506	20517	The sets page now reloads after invalidating the set via the invalidate icon.
All	7503	20635	Fixed a possible memory corruption issue that occurred when defining equivalences.
All	7557		Enhanced sanity to create resources for any FairShare groups that do not have a corresponding resource, such as "Group:time_users". They can be deleted by doing <code>vovforget -allresources</code> so this provides a mechanism to get them back.
FlowTracer	7459		vovconsole is resizable to smaller size. Previously the minimum size was set to an optimal size.
FlowTracer	7467	20481	Allow <code>vovfilerready</code> to work with paths that did not exist or symlinks that point to paths that did not exist at build time.
FlowTracer	7511		Fixed instances where there was random invalidation due to rejection of good timestamp update.
FlowTracer	7003	20731	Flush NFS directory cache when starting a job on a vovslave to prevent <code>chdir</code> failure.
FlowTracer	7463		Fixed bug in <code>vsx</code> output that would cause a job with a name to appear next to the command without a space inbetween.
FlowTracer	7611		Status color is properly updated on Navigator and Alert window after a row is removed.
FlowTracer	7659		Ignore <code>bkill</code> failure when removing slave object.
LicenseAllocator	7450	20230	An issue was uncovered wherein significant memory bloat occurred resulting in large process size and gradual slowdown over a period of days or weeks. This problem has been fixed.
LicenseAllocator	7451	20691	LA will now catch errors in stopping and forgetting old probes before creating new ones. It will wait for up to 60 seconds for the probes to stop, and if they still don't stop, it will raise an alert and not create new probes.

Products	Internal Number	Case Number	Description
LicenseAllocator	7494		Reset allocations before beginning new distribution, instead of upon receiving a new NC sample.
LicenseAllocator	7265	20460	LA will now convert fully qualified host names into short names before performing matching.
LicenseMonitor	7523	20803	Fixed issue that caused the rlmstat parser to fail if the license server host was changed in the configuration for a live monitor.
LicenseMonitor	7565	20878	It is now possible to choose whether or not to plot the average usage line on the usage-over-time graph of the Feature Detailed Plots page.
LicenseMonitor	7527		ftlm_agent on Linux and MacOS has been fixed to prevent an error trying to change into a non-existent LMSWD directory when attempting to execute ControlCenter jobs.
LicenseMonitor	7533		Fixed issue that caused tag renaming and site assignment to use an empty string value.
NetworkComput	7632	21004	Addressed issue with NC starting jobs from 2016.09u7 vovserver to 2015.03 clients.
NetworkComput	7383	20576	Start time, end time, and duration values are now validated in a call to vtk_slave_reserve to prevent values of 0 from being applied to a reservation. This prevents confusing reservation property entries in the /system/slaves/reservations FairShare group, if enabled. In 2016.09, this and the /system/slaves/messages FairShare groups/properties are disabled unless this configuration item is added to the policy.tcl file:  <pre>set config(slave.props.enable) 1</pre>
NetworkComput	6042		Fixed balloon error in nc gui -slaves.
NetworkComput	7461		Fixed formatting issue on system recovery setup web UI page for failover server candidates information.
NetworkComput	5276	11584	Improved life support mode for license-based resources when the connection to LM is interrupted. Life support is now activated when an HTTP update fails, in addition to when the event monitor is closed. External resource data, such as capacity and used-by-others numbers, will be held at the value last obtained from LM, and will be updated immediately upon reconnection to LM.
NetworkComput	7566	20787	Improved the performance and configurability of the nc list utility concerning listing by job names: Modified -J option to not use a smart set. Added help clarify the impact of -J option. Provided ability

Products	Internal Number	Case Number	Description
			for the administrator to disable <code>-J</code> usage. Added documentation for <code>vnclist.config.tcl</code> .
NetworkComput	7562	20821	Made some fixes to input and output declarations to address "Server is operating on a non-internal object" error.
NetworkComput	7505	20774	Added non-Admin visibility to NC fair share graphs showing running and queued job totals.
NetworkComput	7528		Fixed behavior where preemption method gets lost some point after server restart.
NetworkComput	7442		The LSF emulation scripts, <code>bjobs</code> and <code>bsub</code> were modified to allow <code>bsub -J jobname</code> to work reliably. Job names with embedded blanks are no longer allowed.
NetworkComput	7638	21054	Fixed HW resource accounting issue that caused slaves to report higher-than-actual numbers when suspended jobs were stopped instead of being resumed.
NetworkComput	7547	20475	Added ability for the administrator to configure the maximum environment size for job submissions. This is done via the <code>\$VOVDIR/local/vncrun.config.tcl</code> file, using the following configuration variable: <pre>set VOV_JOB_DESC(maxEnvSize) 10000</pre> The value is specified in bytes.
NetworkComput	7633	20983	Added space between job name and command to correct format in NC.
NetworkComput	7677		The <code>vovfsgroup create</code> command is now more efficient when copying parent group ACL's.
NetworkComput	7678	21174	Previously: If there was no <code>vnc_logs</code> directory and <code>nc run</code> commands run with <code>-l log file.log</code> option, snapshot was saved to "vnc_logs" file. Fixed: If there is no <code>vnc_logs</code> directory, snapshot capturing module will try to create one. If it cannot create, it will save the snapshot to <code>env \$hashcode.env</code> file instead of <code>vnc_logs</code> file.

## 2016.09 Update 8.1

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	7755		Improved the NC GUI responsiveness when 50k jobs are submitted.
NetworkComput	7547		<p>Added ability for the administrator to configure the maximum environment size for job submissions. This is done via the <code>\$VOVDIR/local/vncrun.config.tcl</code> file, using the following configuration variable:</p> <pre>set VOV_JOB_DESC(maxEnvSize) 10000</pre> <p>The value is specified in bytes. Note that the maximum property length limit, <code>prop.maxStringSize</code>, that can be defined in the <code>SWD/policy.tcl</code> file, can also act as a limit when using the snapshot property for job submissions (<code>nc run -ep</code>).</p>
NetworkComput	7715		<p>A limited-release capability, <code>nc info -legacy</code>, is provided to generate <code>nc info</code> output in the older format (prior to 2016.09). The behavior of this command can be customized via a Tcl file at <code>.../local/vncinfo.config.tcl</code> based on environment variable, username, project name, etc. by doing 'set NCINFO(legacy) 1' under the desired conditions.</p> <p>Example</p> <pre>: if { [vtk_logname] eq "george" } {     set NCINFO(legacy) 1 }</pre>

### Resolved Issues

Products	Internal Number	Case Number	Description
LicenseAllocator	7751		Added NRU job detection in LA, so this information can be used by vovreconciled to add the used tokens back to the job's grabbed tokens list.
NetworkComput	7383		Start time, end time, and duration values are now validated in a call to <code>vtk_slave_reserve</code> to prevent values of 0 from being applied to a reservation. This prevents confusing reservation property entries in the <code>/system/slaves/reservations</code> FairShare group, if enabled. Slave

Products	Internal Number	Case Number	Description
			reservation expirations and cancellations are now logged in the server log, even if the reservation expires while the slave is down. Slave properties, which store reservations for persistence, are now enabled by default for NetworkComputer instances.
NetworkComput	7455		Documentation for update <code>live_keepfor_jobs.tcl</code> (job persistency) has been improved.
NetworkComput	7601		<p>Added ability to specify a replacement pattern and string for host names obtained by LM parsers. This is configured by adding the following line to the <code>SWD/config/parser.cfg</code> file:</p> <pre style="background-color: #e6f2ff; padding: 5px;">set PARSER(hostReplace) {{PATTERN}} {REPLACEMENT}}</pre> <p>where <code>PATTERN</code> is a case-sensitive regular expression pattern, and <code>REPLACEMENT</code> is the string with which to replace the pattern.</p>
NetworkComput	7741		Fixed SNAPSHOT property expansion in web pages for cases where the environment was large enough to be split across multiple SNAPSHOT properties.

## 2016.09 Update 8.1-1

### Resolved Issues

Products	Internal Number	Case Number	Description
LicenseMonitor	7746	21218	Fixed issue with GreenHills license parser for checkout records that have a handle that is greater than a 32-bit integer. Also added protection in the database loader to handle such records.
NetworkComput	7715	21199	A limited-release capability, <code>nc info -legacy</code> , is provided to generate <code>nc info</code> output in the older format (prior to 2016.09). The behavior of this command can be customized via a Tcl file at <code>.../local/vncinfo.config.tcl</code> based on environment variable, username, project name, etc. by doing <code>'set NCINFO(legacy) 1'</code> under the desired conditions.

Products	Internal Number	Case Number	Description
			Example: <pre>if { [vtk_logname] eq "george" } { set     NCINFO(legacy) 1 }</pre> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>Important:</b> This legacy feature will not be available in releases beyond 2016.09 (and updates).                     </div>
NetworkComput	7594	20944	Added <code>-failover</code> constraint option for <code>vovslavemgr</code> operations. Also ensure that failover slaves are the first to start when starting multiple slaves. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>Note:</b> These functionalities require that failover slaves be defined in <code>slaves.tcl</code> using <code>vtk_slave_define</code> with the <code>-failover</code> option.                     </div>
NetworkComput	7664	21289	Fix case where <code>nc stop -reason</code> doesn't add reason to Why.

## 2016.09 Update 8.1-2

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	7715	21199	<code>nc info</code> compatibility enhancement backported from 2016.09u9.

### Resolved Issues

Products	Internal Number	Case Number	Description
NetworkComput		7786	Support FairShare groups that contain a dash in their name in the <code>vovfsgroup loadconfig</code> command.

## 2016.09 Update 7

### New Features and Enhancements

Products	Internal Number	Case Number	Description
LicenseMonitor	5871	20081	LicenseMonitor's FlexLM monitor will now report the PID associated with a checkout, if that support is enabled in FlexLM. Also NetworkComputer will provide PID information to LicenseAllocator for matching.
LicenseMonitor	7432	20688	Added pie slice limit control for detailed plot report.
NetworkComput	5599		Enabled ranking of FairShare groups using weighted sum of <code>excess_running</code> and <code>excess_history</code> .
NetworkComput	6022	13969	Added option <code>-q</code> to <code>nc forget</code> .
LicenseAllocator	7332	20081	LA can now perform matching between LM checkouts and NC jobs based on the UNIX PID information, whenever available. Such matches are clearly identified by the keyword "pid" in the matches page in LA.

### Resolved Issues

Products	Internal Number	Case Number	Description
All	6121		Added a compound tab with an alert icon next to "Why", instead of automatically raising why tab on failed jobs and failed/invalid files.
All	6745		The path of slave startup log is printed in every daily log that is rotated midnight. Symbolic links are created as <code>server.log</code> , <code>subserve.log</code> , <code>slave.log</code> , and <code>startup.slave.log</code> . These symbolic links point to latest corresponding log files. <code>vovcleanup</code> rules can be customized by editing <code>cleanup.config.tcl</code> located in <code>swd</code> (server working directory).
All	6966		If the daily log file of <code>vovserver</code> cannot be opened in <code>swd/logs</code> directory at startup time due to permission or other failures, the daily log is created in <code>/tmp</code> directory.
All	7255	20389	As of 2016.09 Update 7, the Trace object can be queried for <code>PARAMETERS</code> , <code>PARAMDUMP</code> and individual trace parameters via <code>vovselect</code> and all related <code>vtk</code> commands (e.g. <code>vtk_select_loop</code> ). The

Products	Internal Number	Case Number	Description
			<p>PARAMETERS field will return a list of all trace parameters and their values, separated by '=', for example:</p> <pre>vovselect parameters from trace     sched.megapoll.threshold = 100     longServiceWarningDuration = 0.800000     allowUidForSecurityFile = 0     switchToExtBufThresh = 100000     maxNotifyBufferSize = 400000     ...other parameters...</pre> <p>The PARAMDUMP field will return a list of parameters and their default and current values, for example:</p> <pre>vovselect paramdump from trace     sched.megapoll.threshold { default = '100' value = '100' }     longServiceWarningDuration { default = '0.800000' value = '0.800000' }     allowUidForSecurityFile { default = '0' value = '0' }     switchToExtBufThresh { default = '100000' value = '100000' }     maxNotifyBufferSize { default = '1000000' value = '400000' }     ...other parameters...</pre> <p>The PARAM field will retrieve a single parameter by name, similar to the way PROP currently works. For example:</p> <pre>vovselect param.resmap.max.map.length from trace     1024</pre> <p>All 3 fields are case-insensitive.</p>
All	7377		Fixed bug that cause entry fields in node editor to lose focus after double or triple clicking, making it impossible to backspace over the selected text after a double or triple click. Now the focus is retained.
LicenseMonitor	7230	20323	Fixed vovsh -s clock offset to send vovserver a right IP address instead of 0. The message "Found host with different ip: 10.132.26.30 instead of 0.0.0.0" observed when running "vovslavemgr start" has been eliminated.
LicenseMonitor	7318	20529	Restored missing filter negation control in batch report web UI.
LicenseMonitor	7350	20589	Fixed issue with feature filter select menu when feature aliases have been configured.

Products	Internal Number	Case Number	Description
LicenseMonitor	7329	20458	Increased vovnginxd web page processing timeout to allow long-running reports to finish.
LicenseMonitor	7351	20665	Fixed BATCH_OPTIONS variable errors for pie chart reports in the batch reporting facility.
LicenseMonitor	7413		Fixed issue with detecting database status when running within a Windows service.
LicenseMonitor	7428		Fixed issue with peak statistics showing 0 usage for the others object in the legend of the usage comparison plot.
NetworkComput	5308	20141	The preemption facility now retries to create the resumer job for a preempted job until successful.
NetworkComput	7385	20591	Modified LSF bsub emulation to allow multiple -R directives.
NetworkComput	7219	20296	Addressed instances where negative CPU progress was being reported.
NetworkComput	7221	20299	Added -cwd option to bsub LSF emulation utility. This option specifies the run directory for the job being submitted.
NetworkComput	7231	20297	Added support for -cwd option to specify the job execution directory and defaulted VOV_JOB_DESCRIPTION(rundir) to "." so that the variable is present when the NC policy is processed. Also fixed issue with -n option that requests multiple CPUs for a job, as well as added sensitivity to the "span[hosts=1]" resource string that constrains such jobs to a single host.
NetworkComput	7262	20509	The vtk_resourcemap_set command has a new optional argument, -sum. Specify -sum to indicate that a resource is a sum resource, i.e. that it is composed of a boolean OR/AND combination of other resources. For example, to create a resource "License:a" that requires "License:b" or "License:c", the command would be:  <pre>vtk_resourcemap_set [other options...] License:a -sum -map 'License:b OR License:c'</pre>
NetworkComput	7321	20493	Fixed JavaScript error in IE 11 on slave resources page.
NetworkComput	7410	20615	Fixed instances where LSF bsub.config.tcl custom settings are overwritten.
NetworkComput	7418		Improve snapshot property processing to handle a malformed property value that is missing the continue sentinel for large environments.

Products	Internal Number	Case Number	Description
LicenseAllocator	7259	20398	LicenseAllocator will now remove all allocations of a resource to a site if it has been marked as DO_NOT_SHARE.
LicenseAllocator	7265	20460	LA will now convert fully qualified host names into short names before performing matching.
LicenseAllocator	7339	20564	LicenseAllocator UI no longer has buttons for disallowed operations for users when logged in as a non-admin user.
FlowTracer	7341	20542	Duration reporting behavior has been fixed for duration > 10000.
FlowTracer	7360	20551	Corrected the "duration" field behavior in FlowTracer Node Editor.
FlowTracer	7395	20627	Fixed vovconsole crash with READONLY permission.

## 2016.09 Update 6

### New Features and Enhancements

Products	Internal Number	Case Number	Description
NetworkComput	7146	15496	VOV_JOB_DESC(xdur) in FlowTracer bsub emulation.
FlowTracer	7254		Check out separate FT license for each user in multi-user FT.

### Resolved Issues

Products	Internal Number	Case Number	Description
LicenseMonitor	7217		ftlm_lmproject and SSL are not compatible.
LicenseMonitor	7285		ControlCenter issues.
LicenseMonitor	7303		Fixed issue with LM ControlCenter license file deployment jobs that run on a remote machine that does not have access to the LM SWD.
LicenseMonitor	7102		Fixed issue with ftlm_batch_report when using the - breakdownByFeature option and there is a feature in the database that

Products	Internal Number	Case Number	Description
			has an empty tag name. This is a rare, corner-case bug, being as how empty tag names are not allowed in normal configuration and operation.
NetworkComput	7219	20296	Negative percentages in job progress.
NetworkComput	7247	20363	nc gui -slaves does not work.
NetworkComput	7260, 7261	20338	NC bad cpu utilization; NC negative cpu progres.
LicenseAllocator	7040	15647	LA possible 201609 jobs_la license issue.
LicenseAllocator	7265		Host name discovery broken in licensing matching.
FlowTracer	7225		Statistics View should not be editable.

### Known Issues

Products	Internal Number	Case Number	Description
LicenseAllocator			If there is a syntax error in the <code>LA::AddResource</code> command in <code>config.tcl</code> , it can cause the <code>vovlad</code> daemon to exit. In this case, please recheck the syntax of the <code>LA::AddResource</code> command and restart the <code>vovlad</code> daemon.

## 2016.09 Update 5

### New Features and Enhancements

Products	Internal Number	Case Number	Description
LicenseMonitor	5871	20081	LicenseMonitor's FLEXlm monitor will now report the process ID (PID) associated with a checkout, if that support is enabled in the specific vendor's FLEXlm license server.
LicenseMonitor	7025	20259	Added ability to specify custom pie chart dimensions in batch reporting utility. This can be used to increase the width, so that long labels in the legend will not overlap the pie.

Products	Internal Number	Case Number	Description
NetworkComput	7167		As of 2016.09 update 5, cgroups support has changed. Individual cgroups are no longer displayed as extra resources by <code>vovslavemgr</code> or the web UI. Pre-existing cgroups can no longer be individually requested via <code>nc run -r</code> . <code>CGROUP:RAM</code> is still available as an extra resource, and its behavior is unchanged.
LicenseAllocator	6499		Historical metrics can be loaded upon server restart by adding the command <code>reloadHistoricalMetrics</code> to LA's <code>config.tcl</code> . The command requires a parameter specifying a duration (Vov time specification) for which to load the metrics. The duration is the elapsed time going back from "now" to the desired event.

## Resolved Issues

Products	Internal Number	Case Number	Description
LicenseMonitor	6114	20002	Support has been added for multiple wildcard patterns in the wildcard input of the LM filters box. You can now specify a space-separated list of wildcard patterns to match, such as "A* B* C?".
LicenseMonitor	7209		For home page utilization and wait status widgets, if user and/or wait analysis takes longer than 10s, abort the analysis and return. This can occur when a large number of checkouts are being tracked.
LicenseMonitor	7195	20256	Prevent overlap of pie slice labels for skinny slices by disabling labels for slices that represent less than 3% of the total pie.
LicenseMonitor	7190	20234	Added ability to relocate the utilization plot legend to the right-hand (east) side of the plot to allow for a lower custom height when using <code>ftlm_batch_report</code> . The new option is: <code>-utilPlotLegendLocation</code> . Possible values are <code>s</code> and <code>e</code> , with <code>s</code> (south) being the default.

## 2016.09 Update 4

### New Features and Enhancements

Products	Internal Number	Case Number	Description
LicenseMonitor	7194	20235	Added ability to extract images from batch report HTML files.
FlowTracer	7187		Full support for single-user mode (multiuser FT project) in vov1.sfd.

### Resolved Issues

Products	Internal Number	Case Number	Description
All	7162		Accumulation job fields are not reset on job start.
All	7114		2016.09u3_54562_Dec15: installation report broken pipe error in win64.
NetworkComputer	7185	20226	NC preemption doe not work when "-waitingfor" in rule has the following syntax License:name#N.
NetworkComputer	7121		Fully implemented matching disable threshold.

## 2016.09 Update 3

### Resolved Issues

Products	Internal Number	Case Number	Description
All	7085		Previously, accessing the READONLY port of vovserver, caused the vovserver to hang. This issue has been fixed.

Products	Internal Number	Case Number	Description
All	7059		The env-var VOV_LICENSE_KEY can be used to designate a non-standard location for the Runtime license file. (This applies to installing Runtime products.)
License Monitor	7077	20010	The feature selection of LicenseMonitor report filters is now remembered correctly when navigating between report types.
LicenseMonitor	7089	20025	Fixed the issue that caused tag-based notification POCs to be compounded, which resulted in unwanted notification mails going to the POCs.

## 2016.09 Update 2

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	6261	14562	Project rehosting is now allowed at at start time. New options, -rehost and -block now separate the rehosting functionality from the blocking behavior. The following envvars have been renamed, which makes them scheduler agnostic (this feature is not backwards compatible): VOV_BSUB_VOVCONSOLE has been renamed VOVCONSOLE_SUBMIT_CMD VOV_BSUB_VOVSERVER has been renamed VOVPROJECT_SUBMIT_CMD.
All	7017		PostgreSQL 9.6 is now included as the VOV database engine for new instances and as an optional upgrade for existing instances. PostgreSQL 9.6 improves performance for historical reports in LicenseMonitor.
LicenseMonitor	7016		Information specified by the combination of the license tag and feature name can now be excluded from being loaded into the VOV database. This prevents overloading the database with unnecessary information.
FlowTracer	7012		The new API vtk_transition_chown_to_me supports multiuser FT projects. This API allows a user to "take" a job. It is only enabled when the seat_ft_mu_* feature is used.
FlowTracer	7013		The new option -u for vovlsfd supports multiuser FlowTracer projects.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	7050	15698	Fixed: error that caused corruption in LicenseMonitor checkout and denial data files.
All	7064		vovusergroup -unix now iterates over all entries in the UNIX groups database. Previously, only the users from the first entry of the given group were populated.
LicenseAllocator	6994		Fixed custom defined resource map expressions. A resource in site is no longer overwritten by the automatic computation of resource map expression that is in response to the change of resource weights.
LicenseAllocator	7071		LicenseAllocator correctly detects vendor queued tokens. Previously, vendor-queued data was lost when the same feature is served by multiple license servers.
LicenseAllocator	7075		Overbooking boost values are cleared when overbooking is turned OFF. When overbooking is turned OFF, matching is not automatically turned ON. On the resources page, the matching button now shows ON/OFF instead of ENABLE/DISABLE.

## 2016.09 Update 1

### New Features and Enhancements

Products	Internal Number	Case Number	Description
All	6918	15448	The initial vovslave connection timeout for elastic vovslaves can now be configured via the <code>config.tcl</code> file.
FlowTracer	7012		A new API, <code>vtk_transition_chown_to_me</code> supports multiuser FlowTracer projects: a user can "take" a job. <code>vtk_transition_chown_to_me</code> is only enabled when a <code>seat_ft_mu_*</code> feature is used.
	7013		The option <code>-u</code> was added for <code>vovlsfd</code> to support multiuser FlowTracer projects.

## Resolved Issues

Products	Internal Number	Case Number	Description
All	6926		vovset list -all has been fixed; all objects are displayed.
All	7014		The ACL mechanism now includes a new ACL role type called LEADER. Default ACL for LEADER role for jobs is VIEW, EXISTS, CHOWN.
All	6968	15252	With large token capacities, checkouts appear to use a very large number of them. The C/O Stats page sums the (duration * tokens) for each feature, and for this feature that number is much larger than a 32b integer. Added ::bigint to the query in the checkout stats report.
NetworkComput	5699	14154	fairshare.cgi takes fstokens into account for visualization.
NetworkComput	6720		The in-command documentation for the nc run -keepfor option has been clarified: nc run -keepfor <time>: Disables auto-forget. Requires the NetworkComputer administrator to copy the live_keepfor_jobs.tcl script into the tasks directory.
NetworkComput	6821	15317	Indirect slaves no longer crash during failover.
NetworkComput	6930		Prevent the generation of an error concerning LiveRecorder not being enabled when shutting down vovserver or vovslave. For vovserver, this also resulted in an additional log file, generated at shutdown, that contained the error.
LicenseAllocator	6767	15265	Resource tokens are now counted corrected. Previously, the double counting of resource tokens occurred when license servers (FlexLM servers) were restarted.
LicenseAllocator	6684		In grid mode, nodes are now visible at any level. Previously, with many nodes displayed in grid mode (about 40k), when the nodes were drawn very small, the files appeared to vanish.
LicenseAllocator	6912		A crash no longer occurs when using certain features when the vovserver version is older than 2016.09, but the vovsh version is 2016.09. The features that previously caused crashes: vsy, vovwhy, nc why, wx why, or the "Why" tab in vovconsole.
LicenseAllocator	6913		Sorting results and the status column color are now correct. Previously, the sorting and color(s) was incorrect when there were more rows than visible on the table for inputs or output.
LicenseAllocator	6964		Floating Slave Monitor menu is now available for "group" in Slave Monitor.

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When contacting Altair support, please specify the product and version number you are using along with a detailed description of the problem. It is beneficial for the support engineer to know what type of workstation, operating system, RAM, and graphics board you have, so please include that in your communication.

Location	Telephone	E-mail
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