

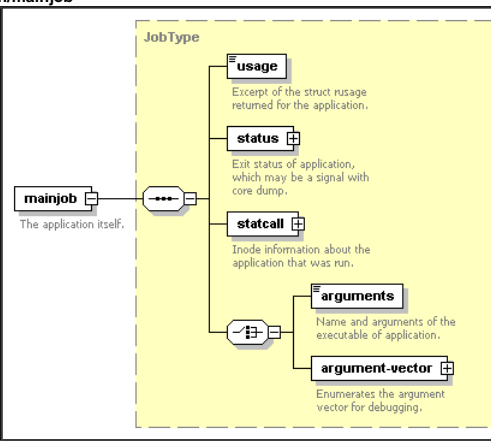


	<div><div>JobType</div><div><div>setup</div><div>Optional job to run independently first.</div></div><div><div>usage</div><div>Excerpt of the struct rusage returned for the application.</div></div><div><div>status</div><div>Exit status of application, which may be a signal with core dump.</div></div><div><div>statcall</div><div>Inode information about the application that was run.</div></div><div><div>arguments</div><div>Name and arguments of the executable of application.</div></div><div><div>argument-vector</div><div>Enumerates the argument vector for debugging.</div></div></div>																								
namespace	http://pegasus.isi.edu/schema/invocation																								
type	JobType																								
children	usage status statcall arguments argument-vector																								
attributes	<table><tr><td>Name</td><td>Type</td><td>Use</td><td>Default</td><td>Fixed</td><td>Annotation</td></tr><tr><td>start</td><td>xs:dateTime</td><td>required</td><td></td><td></td><td></td></tr><tr><td>duration</td><td>PositiveDecimal</td><td>required</td><td></td><td></td><td></td></tr><tr><td>pid</td><td>xs:decimal</td><td>optional</td><td></td><td></td><td></td></tr></table>	Name	Type	Use	Default	Fixed	Annotation	start	xs:dateTime	required				duration	PositiveDecimal	required				pid	xs:decimal	optional			
Name	Type	Use	Default	Fixed	Annotation																				
start	xs:dateTime	required																							
duration	PositiveDecimal	required																							
pid	xs:decimal	optional																							
annotation	documentation Optional job to run independently first.																								

## element invocation/prejob

diagram																									
namespace	http://pegasus.isi.edu/schema/invocation																								
type	JobType																								
children	usage status statcall arguments argument-vector																								
attributes	<table><tr><td>Name</td><td>Type</td><td>Use</td><td>Default</td><td>Fixed</td><td>Annotation</td></tr><tr><td>start</td><td>xs:dateTime</td><td>required</td><td></td><td></td><td></td></tr><tr><td>duration</td><td>PositiveDecimal</td><td>required</td><td></td><td></td><td></td></tr><tr><td>pid</td><td>xs:decimal</td><td>optional</td><td></td><td></td><td></td></tr></table>	Name	Type	Use	Default	Fixed	Annotation	start	xs:dateTime	required				duration	PositiveDecimal	required				pid	xs:decimal	optional			
Name	Type	Use	Default	Fixed	Annotation																				
start	xs:dateTime	required																							
duration	PositiveDecimal	required																							
pid	xs:decimal	optional																							
annotation	documentation Optional job to run before invoking the application.																								

## element invocation/mainjob

<p>diagram</p> 	
namespace	http://pegasus.isi.edu/schema/invocation
type	<b>JobType</b>

children	<b>usage status statcall arguments argument-vector</b>					
attributes	Name start duration pid	Type xs:dateTime PositiveDecimal xs:decimal	Use required required optional	Default	Fixed	Annotation
annotation	documentation The application itself.					

**element invocation/postjob**

diagram						
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
type	<b>JobType</b>					
children	<b>usage status statcall arguments argument-vector</b>					
attributes	Name start duration pid	Type xs:dateTime PositiveDecimal xs:decimal	Use required required optional	Default	Fixed	Annotation
annotation	documentation Optional job to run after invoking the application.					

**element invocation/cleanup**

diagram						
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
type	<b>JobType</b>					
children	<b>usage status statcall arguments argument-vector</b>					
attributes	Name start duration pid	Type xs:dateTime PositiveDecimal xs:decimal	Use required required optional	Default	Fixed	Annotation
annotation	documentation Optional job to run independently last.					

**element invocation/cwd**

diagram						
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
type	restriction of <b>xs:string</b>					
facets	maxLength 4096 whiteSpace preserve					
annotation	documentation Record the current working directory at time of execution.					

**element invocation/usage**

diagram						
---------	--	--	--	--	--	--

	<div> <div>usage</div> Resource usage recorded of gridstart itself. </div>					
	namespace	http://pegasus.isi.edu/schema/invocation				
	type	RUsageType				
attributes	Name	Type	Use	Default	Fixed	Annotation
	utime	xs:decimal	required			documentation Total amount of user time used, in seconds with millisecond fraction.
	stime	xs:decimal	required			documentation Total amount of system time used, in seconds with millisecond fraction.
	minflt	xs:unsignedLong	required			documentation Number of soft page faults (i.e. those serviced by reclaiming a page from the list of pages awaiting reallocation).
	majflt	xs:unsignedLong	required			documentation Number of hard page faults (i.e. those that required I/O).
	nswap	xs:unsignedLong	required			documentation Number of times a process was swapped out of physical memory.
	nsignals	xs:unsignedLong	required			documentation Number of signals delivered.
	nvcsw	xs:unsignedLong	optional			documentation Number of voluntary context switches, i.e. because the process gave up the process before it had to (usually to wait for some resource to be available).
	nivcsw	xs:unsignedLong	optional			documentation Number of involuntary context switches, i.e. a higher priority process became runnable or the current process used up its time slice.
	maxrss	xs:unsignedLong	optional			
	ixrss	xs:unsignedLong	optional			
	idrss	xs:unsignedLong	optional			
	isrss	xs:unsignedLong	optional			
	inblock	xs:unsignedLong	optional			
	outblock	xs:unsignedLong	optional			
	msgsnd	xs:unsignedLong	optional			
	msgrcv	xs:unsignedLong	optional			
annotation	documentation Resource usage recorded of gridstart itself.					

## element invocation/uname

	<div> <div>uname</div> Report architecture information. </div>					
	namespace	http://pegasus.isi.edu/schema/invocation				
	type	extension of xs:token				
attributes	Name	Type	Use	Default	Fixed	Annotation
	archmode	xs:NMTOKEN	optional			documentation IA32, IA64, ILP32, LP64
	system	xs:NMTOKEN	required			
	nodename	xs:NMTOKEN	required			
	release	xs:NMTOKEN	required			
	machine	xs:NMTOKEN	required			
	domainname	xs:NMTOKEN	optional			
annotation	documentation Report architecture information.					

## element invocation/statcall

	<div> <div>StatCallType</div> <div> <div>statcall</div> Inode info on shared and outside apps and streams. </div> <div> <div>file</div> Named file in filesystem. </div> <div> <div>descriptor</div> Pre-opened descriptor. </div> <div> <div>temporary</div> Created temporary file. </div> <div> <div>fifo</div> Auto-created feedback FIFO. </div> <div> <div>statinfo</div> Kernel inode information. </div> <div> <div>data</div> One page of content from temporary files. </div> </div>
--	--

## element invocation/environment


	<div> <div>environment</div> Environment setting as seen by process. </div> <div> <div>env</div> single environment key-value pair. </div>
--	--

## element invocation/environment/env


	<div> <div>env</div> single environment key-value pair. </div>					
	namespace	http://pegasus.isi.edu/schema/invocation				

type	extension of <b>xs:string</b>					
attributes	Name key	Type xs:string	Use required	Default	Fixed	Annotation
annotation	documentation single environment key-value pair.					


**element invocation/resource**

diagram	 <p>Resource limits as imposed by the compute environment.</p>					
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
children	<b>soft</b> <b>hard</b>					
annotation	documentation Resource limits as imposed by the compute enviroment.					

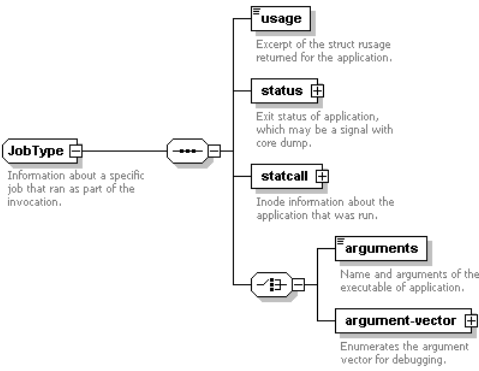
**element invocation/resource/soft**

diagram						
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
type	extension of <a href="#">ResourceValue</a>					
facets	pattern (unlimited d+)					
attributes	Name id	Type xs:NMTOKEN	Use required	Default	Fixed	Annotation


**element invocation/resource/hard**

diagram						
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
type	extension of <a href="#">ResourceValue</a>					
facets	pattern (unlimited d+)					
attributes	Name id	Type xs:NMTOKEN	Use required	Default	Fixed	Annotation

**complexType JobType**

diagram	 <p>Information about a specific job that ran as part of the invocation.</p> <p>usage Excerpt of the struct rusage returned for the application.</p> <p>status Exit status of application, which may be a signal with core dump.</p> <p>statcall Inode information about the application that was run.</p> <p>arguments Name and arguments of the executable of application.</p> <p>argument-vector Enumerates the argument vector for debugging.</p>					
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
children	<b>usage</b> <b>status</b> <b>statcall</b> <b>arguments</b> <b>argument-vector</b>					
used by	elements <a href="#">invocation/cleanup</a> <a href="#">invocation/mainjob</a> <a href="#">invocation/postjob</a> <a href="#">invocation/prejob</a> <a href="#">invocation/setup</a>					
attributes	Name start duration pid	Type xs:dateTime PositiveDecimal xs:decimal	Use required required optional	Default	Fixed	Annotation
annotation	documentation Information about a specific job that ran as part of the invocation.					

**element JobType/usage**

diagram	 <p>Excerpt of the struct rusage returned for the application.</p>					
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>					
type	<b>RUsageType</b>					
attributes	Name utime stime minflt majflt nswap nsignals nvcsw nivcsw maxrss ixrss idrss isrss inblock outblock	Type xs:decimal xs:decimal xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong xs:unsignedLong	Use required required required required required optional optional optional optional optional optional optional optional	Default	Fixed	Annotation documentation Total amount of user time used, in seconds with millisecond fraction. documentation Total amount of system time used, in seconds with millisecond fraction. documentation Number of soft page faults (i.e. those serviced by reclaiming a page from the list of pages awaiting reallocation). documentation Number of hard page faults (i.e. those that required I/O). documentation Number of times a process was swapped out of physical memory. documentation Number of signals delivered. documentation Number of voluntary context switches, i.e. because the process gave up the process before it had to (usually to wait for some resource to be available). documentation Number of involuntary context switches, i.e. a higher priority process became runnable or the current process used up its time slice.



namespace	http://pegasus.isi.edu/schema/invoke												
type	StatCallType												
children	file descriptor temporary fifo statinfo data												
attributes	<table><tr><th>Name</th><th>Type</th><th>Use</th><th>Default</th><th>Fixed</th><th>Annotation</th></tr><tr><td>error</td><td>xs:int</td><td>required</td><td></td><td></td><td>documentation result from the stat call on a named file or descriptor</td></tr></table>	Name	Type	Use	Default	Fixed	Annotation	error	xs:int	required			documentation result from the stat call on a named file or descriptor
Name	Type	Use	Default	Fixed	Annotation								
error	xs:int	required			documentation result from the stat call on a named file or descriptor								
annotation	documentation Inode information about the application that was run.												

#### element JobType/arguments

element <b>arguments</b> type arguments						
diagram	<div><div>arguments</div><div>Name and arguments of the executable of application.</div></div>					
namespace	http://pegasus.isi.edu/schema/invoke					
type	extension of <b>xs:string</b>					
attributes	Name <b>executable</b>	Type xs:string	Use optional	Default	Fixed	Annotation documentation DEPRECATED - redundant attribute will be dropped soon.
annotation	documentation Name and arguments of the executable of application.					

#### element JobType/argument-vector

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
children	<a href="#">arg</a>					
attributes	Name executable	Type xs:string	Use optional	Default	Fixed	Annotation
annotation	documentation Enumerates the argument vector for debugging.					

#### element JobType/argument-vector/arg

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
type	extension of <b>xs:string</b>					
attributes	Name <b>nr</b>	Type <b>xs:nonNegativeInteger</b>	Use <b>required</b>	Default	Fixed	Annotation
annotation	documentation Single argument vector entry.					

#### complexType RUsageType

diagram	<div><div>RUsageType</div><div>Information from the rusage record.</div></div>																																																																																																					
namespace	http://pegasus.isi.edu/schema/invoke																																																																																																					
used by	elements <a href="#">invocation/usage</a> <a href="#">JobType/usage</a>																																																																																																					
attributes	<table><tr><th>Name</th><th>Type</th><th>Use</th><th>Default</th><th>Fixed</th><th>Annotation</th></tr><tr><td>utime</td><td>xs:decimal</td><td>required</td><td></td><td></td><td>documentation Total amount of user time used, in seconds with millisecond fraction.</td></tr><tr><td>stime</td><td>xs:decimal</td><td>required</td><td></td><td></td><td>documentation Total amount of system time used, in seconds with millisecond fraction.</td></tr><tr><td>minflt</td><td>xs:unsignedLong</td><td>required</td><td></td><td></td><td>documentation Number of soft page faults (i.e. those serviced by reclaiming a page from the list of pages awaiting reallocation).</td></tr><tr><td>majflt</td><td>xs:unsignedLong</td><td>required</td><td></td><td></td><td>documentation Number of hard page faults (i.e. those that required I/O).</td></tr><tr><td>nswap</td><td>xs:unsignedLong</td><td>required</td><td></td><td></td><td>documentation Number of times a process was swapped out of physical memory.</td></tr><tr><td>nsignals</td><td>xs:unsignedLong</td><td>required</td><td></td><td></td><td>documentation Number of signals delivered.</td></tr><tr><td>nvcsw</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td>documentation Number of voluntary context switches, i.e. because the process gave up the process before it had to (usually to wait for some resource to be available).</td></tr><tr><td>nivcsw</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td>documentation Number of involuntary context switches, i.e. a higher priority process became runnable or the current process used up its time slice.</td></tr><tr><td>maxrss</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr><tr><td>ixrss</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr><tr><td>idrss</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr><tr><td>isrss</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr><tr><td>inblock</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr><tr><td>outblock</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr><tr><td>msgsnd</td><td>xs:unsignedLong</td><td>optional</td><td></td><td></td><td></td></tr></table>						Name	Type	Use	Default	Fixed	Annotation	utime	xs:decimal	required			documentation Total amount of user time used, in seconds with millisecond fraction.	stime	xs:decimal	required			documentation Total amount of system time used, in seconds with millisecond fraction.	minflt	xs:unsignedLong	required			documentation Number of soft page faults (i.e. those serviced by reclaiming a page from the list of pages awaiting reallocation).	majflt	xs:unsignedLong	required			documentation Number of hard page faults (i.e. those that required I/O).	nswap	xs:unsignedLong	required			documentation Number of times a process was swapped out of physical memory.	nsignals	xs:unsignedLong	required			documentation Number of signals delivered.	nvcsw	xs:unsignedLong	optional			documentation Number of voluntary context switches, i.e. because the process gave up the process before it had to (usually to wait for some resource to be available).	nivcsw	xs:unsignedLong	optional			documentation Number of involuntary context switches, i.e. a higher priority process became runnable or the current process used up its time slice.	maxrss	xs:unsignedLong	optional				ixrss	xs:unsignedLong	optional				idrss	xs:unsignedLong	optional				isrss	xs:unsignedLong	optional				inblock	xs:unsignedLong	optional				outblock	xs:unsignedLong	optional				msgsnd	xs:unsignedLong	optional			
Name	Type	Use	Default	Fixed	Annotation																																																																																																	
utime	xs:decimal	required			documentation Total amount of user time used, in seconds with millisecond fraction.																																																																																																	
stime	xs:decimal	required			documentation Total amount of system time used, in seconds with millisecond fraction.																																																																																																	
minflt	xs:unsignedLong	required			documentation Number of soft page faults (i.e. those serviced by reclaiming a page from the list of pages awaiting reallocation).																																																																																																	
majflt	xs:unsignedLong	required			documentation Number of hard page faults (i.e. those that required I/O).																																																																																																	
nswap	xs:unsignedLong	required			documentation Number of times a process was swapped out of physical memory.																																																																																																	
nsignals	xs:unsignedLong	required			documentation Number of signals delivered.																																																																																																	
nvcsw	xs:unsignedLong	optional			documentation Number of voluntary context switches, i.e. because the process gave up the process before it had to (usually to wait for some resource to be available).																																																																																																	
nivcsw	xs:unsignedLong	optional			documentation Number of involuntary context switches, i.e. a higher priority process became runnable or the current process used up its time slice.																																																																																																	
maxrss	xs:unsignedLong	optional																																																																																																				
ixrss	xs:unsignedLong	optional																																																																																																				
idrss	xs:unsignedLong	optional																																																																																																				
isrss	xs:unsignedLong	optional																																																																																																				
inblock	xs:unsignedLong	optional																																																																																																				
outblock	xs:unsignedLong	optional																																																																																																				
msgsnd	xs:unsignedLong	optional																																																																																																				

	msgrcv xs:unsignedLong optional
annotation	documentation Information from the rusage record.

complexType **StatCallType**

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
children	file descriptor temporary fifo statinfo data					
used by	elements invocation/statcall JobType/statcall					
attributes	Name error	Type xs:int	Use required	Default	Fixed	Annotation documentation result from the stat call on a named file or descriptor.
annotation	documentation Information about a named file or descriptor.					

element **StatCallType/file**

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
type	extension of xs:hexBinary					
attributes	Name name	Type xs:string	Use required	Default	Fixed	Annotation documentation A named file may be a regular file like a shell script or executable, or it may be a device file like /dev/null. Only regular files may incur element content.
annotation	documentation Named file in filesystem.					

element **StatCallType/descriptor**

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
attributes	Name number	Type xs:nonNegativeInteger	Use required	Default	Fixed	Annotation
annotation	documentation Pre-opened descriptor.					

element **StatCallType/temporary**

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
attributes	Name name descriptor	Type xs:string xs:integer	Use required required	Default	Fixed	Annotation
annotation	documentation Created temporary file.					

element **StatCallType/fifo**

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
attributes	Name name descriptor count rsize wsize	Type xs:string xs:integer xs:nonNegativeInteger xs:nonNegativeInteger xs:nonNegativeInteger	Use required required optional optional optional	Default 0 0 0	Fixed	Annotation
annotation	documentation Auto-created feedback FIFO.					


element **StatCallType/statinfo**

diagram						
namespace	http://pegasus.isi.edu/schema/invoke					
attributes	Name	Type	Use	Default	Fixed	Annotation



	size	xs:integer	required	
	mode	xs:token	optional	
	inode	xs:integer	optional	documentation file protection in octal number with leading zero.
	nlink	xs:nonNegativeInteger	optional	
	blocks	xs:nonNegativeInteger	optional	
	blksize	xs:nonNegativeInteger	optional	
	atime	xs:dateTime	optional	
	mtime	xs:dateTime	optional	
	ctime	xs:dateTime	optional	
	uid	xs:integer	optional	
	user	xs:string	optional	
	gid	xs:integer	optional	
	group	xs:string	optional	
annotation	documentation Kernel inode information.			

#### element StatCallType/data

diagram	 <p>One page of content from temporary files.</p>				
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	extension of <b>xs:string</b>				
attributes	Name	Type	Use	Default	Fixed
	truncated	xs:boolean	optional		
annotation	documentation One page of content from temporary files.				

#### simpleType DottedQuad

namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	restriction of <b>xs:string</b>				
used by	attribute <a href="#">invocation/@hostaddr</a>				
facets	minLength 7 maxLength 15 whiteSpace collapse pattern (\\d{1,3})\\.\\{3\\}\\d{1,3}				
annotation	documentation dotted quad notation of a IPv4 host address.				

#### simpleType PositiveDecimal

namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	restriction of <b>xs:decimal</b>				
used by	attributes <a href="#">invocation/@duration</a> <a href="#">JobType/@duration</a>				
facets	minInclusive 0				
annotation	documentation restricted version of the 'decimal' type.				

#### simpleType ResourceValue

namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	restriction of <b>xs:string</b>				
used by	elements <a href="#">invocation/resource/hard</a> <a href="#">invocation/resource/soft</a>				
facets	pattern (unlimited \\d+)				
annotation	documentation value for a resource usage				