Spring batch command line job runner

java.lang.Object org.springframework.batch.core.launch.support.CommandLineJobRunner public class CommandLineJobRunner extends java.lang.Object Basic launcher to start jobs from the command line. In general, it is assumed that this launcher will primarily be used to start a job via a script from an Enterprise Scheduler. Therefore, exit codes are mapped to integers so that schedulers can use the returned values to determine the next action rate. The returned values can also be useful for operations teams in determining what will happen in the event of failure. For example, a returned code of 5 might mean that some resources were unavailable and that the job should be restarted. However, a code of 10 may mean that something critical has happened and that the query should be escalated. With any launch of a batch job within Spring Batch, a Spring context that includes Job and some execution context must be created. This command-line starter can be used to load the job and its context from a single location. All dependencies of the launcher will then be satisfied by autowiring by type from the combined application context. Default values are provided for all fields except the JobLauncher and JobLocator fields. Therefore, if autowiring fails to set it (it should be noted that dependency control is disabled because most of the fields have default values and thus do not require dependencies to be met via autowiring) then an exception will be discarded. It should also be noted that even if an exception is thrown by this class, it will be mapped to an integer and returned. Notice a property is available to set up SystemExiter. This class is used to exit from the main method, instead of calling System.exit() directly. This is because unit testing a class calls System.exit() is impossible without kicking off the test within a new JWC, which it is possible to do, but it is a complex solution, much more so than strategizing exits. The arguments for this class can be provided at the command line (separated by spaces), or by stdin (separated by new line). They are as follows: jobPath <options> jobIdentifier (jobParameters)* Command-line options are the following jobPath: xml application context that contains a Job restart: (optional) to restart the last failed run -stop: (optional) to stop a run -abandon: (optional) to abandon a stopped run -next: (optional) to start the next in a job parametersincrementer sequence in the jobIdentifier: the name of the job or id of a job execution (for -stop -stop , -abandon or -restart). jobParameters: 0 to many parameters that will be used to start a job specified in the form of key=value pairs. If the -next option uses the parameters at the command line (if any) those taken from the ladder, override someone with the same key. The Combined </Options> </options> context can contain only one instance of JobLauncher. The job parameters submitted to the command line will be converted to Properties by assuming that each individual element is a parameter separated by an equal sign. For example, vendor.id=290232. The resulting properties instance is converted to JobParameters by using a JobParametersConverter from the application context (if there is one, or a DefaultJobParametersConverter other). Below is an example arguments list: java org.springframework.batch.core.launch.support.CommandLineJobRunner testJobjobjob.xml testJob schedule.date=2008/01/24 vendor.id=3902483920 By default, the 'CommandLineLineJobRunner' uses a DefaultJobParametersConverter that implicitly converts key/value pairs to identify job parameters. However, it is possible to explicitly specify which job parameters identify and which are not prefixing them with '+' or '-' respectively. In the following example, 'schedule.date' is an identifying job parameter while 'vendor.id' is not: java org.springframework.batch.core.launch.support.CommandLineJobRunner testJob.xml testJob +schedule.date=2008/01/24 -vendor.id=3902483920 This behavior can be overridden by using a custom 'JobParametersConverter'. When arguments have been successfully interpreted, autowiring will be used to specify different dependencies. The JobLauncher, for example, will be loaded in this way. If no one exists in the bean factory (it searches by type) then a BeanDefinitionStoreException will be discarded. The same exception will also be discarded if there is more than one present. Provided that JobLauncher is set correctly, the jobIdentifier argument will be used to obtain a real Job. If a JobLocator is set, then it will be used, unless the beanFactory will be set, using the jobIdentifier as the bean id. Then: 1.0 Author: Dave Syer, Lucas Ward, Mahmoud Ben Hassine clone, equals,, getClass, hashCode, announce, notifyAll, toString, wait, wait, wait, wait protected static final org.apache.commons.logging.Log logger public CommandLineJobRunner() public set voidLauncher(JobLauncher launcher) Injection setter for the JobLauncher. Parameters: launcher - launcher to set public void setJobRepository(JobRepository jobRepository) Parameters: jobRepository - the jobRepository to set public void setExitCodeerMapp(ExitCodeMapper exitCodeMapper) Injection setter for the ExitCodeMapper. Parameters: exitCodeMapper - the exitCodeMapper to set public static java.lang.String getErrorMessage() GetErrorMessage() Get the error message as an instance of CommandLineJobRunner as it exits. Tom about the last job that was launched succeeded. Returns: public void setSystemExiter(SystemExiter systemExiter) Injection Setter. Parameters: systemExiter - to be used by the CommandLineJobRunner instance. CommandLineJobRunner instance. Delegate to exits to (possibly) end the VM gracefully. Parameters: status - int exit code to be reported. public static void main(java.lang.String[] args) throws java.lang.Exception Start a batch job using a CommandLineJobRunner. Creates a new Spring context for job execution, and uses a common parent for all such contexts. No exception is thrown from this method, rather, exceptions are logged and an integer is returned by the baseline status of a JWCSystemExiter (which can be overridden by defining one in the Spring context). Parameters can be provided in the key=value form, and will be converted using the injected JobParametersConverter. Parameters: args - -restart: (optional) if the job has failed or stopped and most should be restarted. If specified then the jobIdentifier parameter can be interpreted as either the name of the job or the id of the job execution that failed. -next: (optional) if the job has a JobParametersIncrementer that can be used to start the next instance in a jobPath sequence: the xml application context that contains a Job jobIdentifier: the bean id of the job or the id of the failed run in the case of a restart. jobParameters: 0 to many parameters that will be used to start a job. The (-restart, -next)

options can occur anywhere in the command line. Throws: java.lang.Exception - thrown if errors occur. For users who want to run their jobs from an enterprise scheduler, the command line is the primary interface. This is because most schedulers (with the exception of Quartz if not using NativeJob) work directly with operating system processes, primarily kicked off with shell scripts. There are many ways to launch a Java process besides a shell script, such as Perl, Ruby, or even building tools like ant or maven. But since most people are familiar with shell scripts, this example will focus on them. Because the script launch job must kick off a Java Virtual Machine, there must be a class with a main method to serve as the primary starting point. Spring Batch provides an implementation that serves just this purpose: CommandLineJobRunner. It is important to note that this is just a way to bootstrap your application, but there are many ways to launch a Java process, and this class should not in any way be seen as definitive. The CommandLineJobRunner performs four tasks: Load the appropriate ApplicationContext Parse command line arguments in JobParameters Locate the appropriate job based on arguments Use joblauncher provided in the application context to start the job. All these tasks are perfected with only the arguments being passed in. The following are mandatory arguments: Table 1. CommandLineJobRunner argument jobPath The location of the XML file that will be used to create a This file should contain everything needed to run the complete Job Job Namnet på det jobb som ska köras. Dessa argument måste skickas in med sökvägen först och namnet andra. Alla argument efter dessa anses vara jobbparametrar, förvandlas till ett JobParameters-objekt, och måste ha formatet 'name=value'. I följande exempel visas ett datum som har passerats som en jobbparameter till ett jobb som trotsats i XML: <bash$ java= commandlinejobrunner= endofdayjob.xml= endofday= schedule.date(date)=2007/05/05 the= following= example= shows= a= date= passed= as= a= job= parameter= to= a= job= defined= in= java:=></bash$> <bash$ java= commandlinejobrunner= io.spring.endofdayjobconfiguration= endofday= schedule.date(date)=2007/05/05 by= default,= the= commandlinejobrunner= uses= a= defaultjobparametersconverter= which= implicitly= converts= key/value= pairs= to= identifying= job= parameters.= however,= it= is= possible= to= explicitly= specify= which= job= parameters= are= identifying= and= which= are= not= by= prefixing= them= with= += or= -= respectively.= in= the= following= example,= schedule.date= is= an= identifying= job= parameter= while= vendor.id= is= not:=></bash$> <bash$ java= commandlinejobrunner= endofdayjob.xml= endofday= \= +schedule.date(date)=2007/05/05 -vendor.id=123></bash$> <bash$ java= commandlinejobrunner= io.spring.endofdayjobconfiguration= endofday= \= +schedule.date(date)=2007/05/05 -vendor.id=123 this= behaviour= can= be= overridden= by= using= a= custom= jobparametersconverter.= in= most= cases ,= you= would= want= to= use= a= manifest= to= declare= your= main= class= in= a= jar,= but,= for= simplicity,= the= class= was= used= directly.= this= example= is= using= the= same= 'endofday'= example= from= the= domainlanguageofbatch.= the= first= argument= is= 'endofdayjob.xml',= which= is= the= spring= applicationcontext= containing= the= job.= the= second= argument,= 'endofday'= represents= the= job= name.= the= final= argument,= 'schedule.date(date)=2007/05/05', is= converted= into= a= jobparameters= object.= the= following= example= shows= a= sample= configuration= for= endofday= in= xml:=></bash$> <job id=endOfDay> <step id=step1 parent=simpleStep></step> </job> I de <!-- Launcher details removed for clarity --> <beans:bean id=jobLauncher class=org.springframework.batch.core.launch.support.SimpleJobLauncher></beans:bean> flesta fall skulle du vilja använda ett manifest för att deklarera din huvudklass i en burk , men för enkelhetens skull användes klassen direkt. Det här exemplet använder samma 'EndOfDay' exempel från domänenLanguageOfBatch. Det första argumentet är 'io.spring.EndOfDayJobConfiguration', som är det fullständigt kvalificerade klassnamnet till konfigurationsklassen som innehåller Job. Det andra argumentet, 'endOfDay' representerar jobbnamnet. Det slutliga argumentet, 'schema.datum(datum)=2007/05/05' to a JobParameters object. An example of the Java configuration follows: The following example shows an endOfDay sample configuration in Java: @Configuration @EnableBatchProcessing Public Class EndOfDayJobConfiguration { @Autowired private JobBuilderFactory jobBuilderFactory; @Autowired private StepBuilderFactory StepBuilderFactory @Bean public Job endOfDay() { return this.jobBuilderFactory.get(endOfDay) .start(step1()) .build(); } @Bean public Step step1() { return this.stepBuilderFactory.get(step1) .tasklet(contribution, Context chunk) -> null) .build(); } The previous example is too simplistic, because there are many more requirements for a run a batch job in Spring Batch in general, but it serves to show the two most important requirements of CommandLineJobRunner: Job and JobLauncher. When you launch a batch job from the command line, an enterprise scheduler is often used. Most schedulers are pretty mute and only work at the process level. This means that they only know of any operating system process as a shell script that they invoke. In this case, the only way to communicate back to the scheduler is about success or failure of a job through return codes. A return code is a number returned to a scheduler of the process that indicates the result of the execution. In the simplest case: 0 is success and 1 is failure. However, there may be more complex scenarios: If job A returns 4 kick off job B, and if it returns 5 kick off job C. This type of behavior is configured at the scheduler level, but it is important that a processing framework such as Spring Batch provides a way to return a numeric representation of 'Exit Code' for a particular batch job. In Spring Batch this is encapsulated within an ExitStatus, which is addressed in more detail in Chapter 5. To discuss exit codes, the only important thing to know is that an ExitStatus has an exit code property that is set by the framework (or developer) and returned as part of JobExecution returned from JobLauncher. The CommandLineJobRunner converts this string value to a number using the ExitCodeMapper interface: Public Interface ExitCodeMapper { Public IntValue(String exitCode); } The essential contract for an ExitCodeMapper is that, given a string exit code, a number of representation will be returned. The default implementation used by the job runner is SimpleJvmExitCodeMapper that returns 0 for completion, 1 for generic errors, and 2 for all job runner errors such as not being able to find a Job in the provided context. If something more complex than the 3 values above is needed, then a custom implementation of the ExitCodeMapper interface must be delivered. Because CommandLineJobRunner is the class that creates an ApplicationContext, and thus cannot be 'wired together', all values that need to be overwritten must be autowired. This means that if an implementation of ExitCodeMapper is found within the BeanFactory, it will be injected into the runner after the context has been created. All that needs to be done to provide your own ExitCodeMapper is to declare the implementation as a root level bean and make sure that it is part of ApplicationContext that is by the runner. Runner.

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