

# sbt Reference Manual

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## Preface

### sbt $\hat{A}\hat{O}\bullet\hat{E}\hat{O}\hat{\otimes}$

$\text{sbt}\%_0\hat{O}\hat{o}\hat{A}\hat{i}\hat{\otimes}\hat{A}\hat{\infty}\hat{e}\hat{E}\hat{i}\hat{\infty}\hat{A}\hat{o}\hat{N}\hat{A}\hat{a}\hat{\dagger}\%_0^{\text{TM}}\hat{E}\P\hat{C}\hat{A}\hat{o}\hat{\mu}\hat{E}\hat{u}\bullet\hat{E}\hat{i}\hat{O}\hat{E}\hat{i}\hat{e}\hat{A}\hat{E}\hat{E}\hat{A}\hat{A}\hat{\mu}\hat{E}\hat{Y}^a\hat{A}\%_0\hat{i}\hat{A}^{\circ}\hat{A}\hat{\S}\hat{B}\hat{A}\hat{o}\hat{N}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}\hat{a}\hat{a}\hat{a}\hat{A}\hat{O}\hat{\otimes}\hat{A}\hat{E}\hat{e}\hat{A}\hat{O}\%_0^a\hat{n}\hat{A}\hat{o}\hat{N}\hat{E}\hat{u}\hat{N}\hat{A}^a\%_0\hat{N}\hat{i}\hat{A}^a\hat{O}^{\circ}\hat{a}\hat{E}\hat{A}\hat{a}\%_0\hat{i}\hat{A}\P\hat{C}\hat{E}\hat{u}\hat{u}\%_0\hat{O}\hat{\dagger}\hat{E}^{\circ}\hat{E}\hat{u}\hat{a}\hat{A}\hat{u}\hat{a}\hat{E}\hat{o}\hat{a}\hat{E}\hat{n}\hat{a}\hat{E}^{\circ}\hat{\mathcal{E}}\hat{A}\hat{o}\hat{N}\hat{E}\hat{A}\hat{\infty}\hat{U}\%_0^{\circ}\hat{o}\hat{E}\hat{A}\hat{a}\hat{A}\hat{a}\hat{o}\%_0\hat{A}\%_0\hat{o}\hat{A}^a\hat{U}\hat{E}\hat{a}\hat{C}\hat{E}\hat{O}\hat{E}\hat{e}\hat{o}\hat{a}\hat{a}\hat{C}$

$\hat{E}\hat{o}\hat{o}\hat{A}\hat{O}\hat{a}\hat{A}\hat{O}\bullet\hat{E}\hat{o}\hat{\otimes}\hat{E}\hat{a}\hat{a}\hat{A}\hat{\varsigma}\hat{o}\hat{E}\P\hat{U}\hat{A}\hat{o}\hat{n}\%_0\hat{U}\%_0\hat{A}\%_0\hat{o}\%_0\hat{O}\hat{\dagger}\hat{A}\hat{u}\hat{\otimes}\hat{A}\hat{a}\hat{o}\hat{A}^a\hat{A}\hat{i}\hat{a}\hat{A}^a\hat{Y}\hat{E}\hat{a}\hat{\S}\%_0\hat{A}\%_0^{\text{TM}}$   
 $\text{sbt}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}\hat{E}\hat{O}\hat{E}\hat{u}\hat{A}\hat{E}\P\hat{A}\hat{A}\hat{u}\bullet\hat{E}\hat{A}\hat{i}\hat{A}\hat{o}\hat{N}\hat{E}\P\hat{C}\hat{A}\hat{o}\hat{\mu}\hat{a}\hat{a}\hat{C}$

$\hat{A}^{\circ}\hat{A}\hat{E}\hat{a}\hat{A}^a\hat{E}\hat{E}\hat{A}\hat{A}\hat{u}\hat{a}\hat{A}\hat{E}\hat{a}\hat{E}\hat{O}\bullet\hat{A}\hat{O}\bullet\hat{E}\hat{o}\hat{\otimes}\hat{E}\hat{a}\hat{a}\hat{A}\hat{\varsigma}\hat{o}\hat{O}^{\circ}\hat{A}$

$\hat{A}\P\hat{C}\hat{E}\hat{u}\hat{u}\%_0\hat{O}\hat{\dagger}\hat{E}\hat{u}\hat{u}\hat{A}\hat{E}\hat{A}\bullet\hat{A}\hat{a}\hat{a}\hat{O}^{\circ}\hat{a}\%_0\hat{O}\hat{\dagger}\hat{A}\hat{e}\hat{O}\%_0^a\bullet\hat{A}\hat{o}\hat{Y}\hat{E}\hat{e}\bullet\hat{E}\hat{o}\hat{o}\hat{A}\hat{O}\bullet\%_0^a\bullet\%_0\hat{a}\hat{A}\hat{a}\hat{\dagger}\hat{A}\hat{\infty}\hat{e}\hat{E}\hat{a}\hat{C}\%_0\hat{U}\hat{E}\hat{B}\hat{\mathcal{E}}\hat{E}\hat{u}\hat{A}\hat{E}\hat{a}\hat{\varsigma}\hat{E}\hat{E}\text{.sbt}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}\hat{O}^{\circ}\hat{a}\hat{\text{scopes}}\hat{O}^{\circ}\hat{a}\hat{E}\hat{o}\hat{Y}\hat{A}\hat{\S}\hat{o}\hat{A}\hat{O}\%_0\hat{e}\hat{E}\hat{E}\hat{a}\hat{E}\hat{A}\hat{O}\hat{E}\hat{a}\hat{a}\hat{C}\%_0\hat{U}\hat{E}\hat{o}\hat{O}\hat{E}\hat{a}\hat{e}\%_0^a\hat{a}\hat{a}\hat{C}\%_0\hat{o}\hat{u}\hat{E}\hat{O}\hat{A}\hat{E}\hat{E}\hat{o}\hat{a}\hat{E}\hat{E}$

$\hat{E}\hat{u}\hat{A}\hat{A}\bullet\hat{O}\hat{E}\hat{o}\hat{O}\hat{E}\hat{a}\hat{a}\hat{E}^{\circ}\hat{A}\hat{e}\hat{E}\hat{o}\hat{O}\hat{E}\hat{O}^a\hat{O}^{\circ}\hat{a}\hat{A}\hat{o}\hat{\dagger}\%_0\hat{E}\hat{O}\bullet\hat{E}\hat{a}\hat{a}\hat{A}\hat{\varsigma}\hat{o}\%_0\hat{A}\hat{e}\hat{e}\hat{E}\hat{u}\hat{e}\hat{A}\hat{o}\hat{N}\hat{A}\hat{\infty}\hat{e}\hat{E}\hat{a}\hat{C}\hat{A}^a\hat{A}^{\circ}\hat{a}\hat{A}\hat{u}\hat{\otimes}\hat{A}\hat{a}\hat{\varsigma}\hat{E}\hat{u}\hat{e}\%_0^a\hat{a}\hat{A}^a\hat{E}\hat{N}\hat{u}\hat{E}\hat{\infty}\hat{e}\hat{A}\hat{\infty}\hat{u}\hat{E}\hat{O}\hat{i}\text{sbt}\hat{A}\%_0\hat{i}\%_0\hat{O}\hat{i}\hat{E}^{\text{TM}}\hat{a}\hat{A}\hat{O}\%_0\hat{A}\hat{o}\hat{N}\%_0\hat{e}\hat{E}\hat{\mathcal{L}}\hat{O}^{\circ}\hat{A}$

### $\hat{A}\hat{E}\hat{a}\hat{E}\hat{\mathcal{E}}\hat{O}\text{sbt}$

$\hat{A}\hat{a}\hat{o}\hat{A}^a\%_0\hat{A}\%_0^{\text{TM}}\text{sbt}\hat{A}\bullet\hat{A}\hat{\otimes}\hat{a}\hat{O}^{\circ}\hat{a}\%_0\hat{O}\hat{\dagger}\hat{E}\hat{u}\hat{A}\hat{E}\P\hat{A}\hat{A}^a\hat{e}\hat{E}\hat{o}\hat{a}\%_0^a\bullet\%_0\hat{a}\hat{A}\hat{a}\hat{\dagger}\hat{E}\bullet\hat{O}^{\circ}\hat{o}$

- $\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$  sbt  $\hat{A}$   $\%_0$   $\hat{1}\hat{A}\hat{\alpha}\hat{\omega}\hat{A}^a$   $\hat{E}\hat{N}\hat{o}\hat{E}\hat{u}^{\cdot}\hat{E}\hat{u}$  •  $\hat{E}\hat{o}\hat{e}\hat{E}^{\circ}\hat{a}\hat{A}\hat{B}\hat{E}$ „ $\hat{A}\hat{C}$
- $\hat{A}^a$   $\hat{A}^{\cdot}\hat{a}\%_0$   $\hat{A}\%_0$   $\text{TM}$   $\hat{A}\hat{B}\hat{A}\hat{A}\hat{c}\hat{i}\hat{A}\hat{o}\hat{N}$  hello world  $\hat{A}$  •  $\hat{A}\hat{\otimes}\hat{a}$ 
  - $\hat{A}\hat{\alpha}\hat{\omega}\hat{A}^a$   $\%_0$   $\hat{A}\%_0$   $\text{TM}$   $\hat{A}$  •  $\hat{A}\hat{\otimes}\hat{a}\hat{A}\hat{o}\hat{B}\hat{A}\hat{\Omega}\hat{i}\hat{A}$   $\%_0$   $\hat{1}\hat{A}\hat{\infty}\hat{U}\hat{E}$   $\hat{e}\hat{E}\hat{n}\hat{a}\%_0^a$   $\hat{E}\hat{1}\hat{a}\hat{A}\hat{u}\hat{\otimes}\hat{A}\hat{O}$   $\%_0$  „ $\hat{A}\hat{C}$
  - $\hat{A}\hat{\alpha}\hat{\omega}\hat{A}^a$   $\%_0\hat{\Omega}\dagger\hat{A}\hat{o}\hat{N}\hat{E}\hat{u}\hat{N}\hat{A}^a$   $\hat{A}\hat{B}\hat{o}\%_0$   $\hat{a}$ „ $\hat{A}\hat{C}$
- $\hat{A}^a\hat{B}\hat{A}^a$   $\hat{A}\hat{a}\hat{c}\hat{A}\hat{x}\hat{A}$   $\hat{E}\hat{o}\hat{e}\hat{E}^{\circ}\hat{a}$  sbt  $\hat{A}$   $\P\%_0$   $\dagger\hat{E}\hat{A}\hat{e}\%_0$   $\hat{a}\hat{E}\hat{o}\hat{e}\hat{E}^{\circ}\hat{a}$  sbt„ $\hat{A}\hat{C}$
- $\hat{A}\hat{N}$   $\hat{A}\hat{e}\hat{e}\hat{A}\hat{a}\hat{c}\hat{A}\hat{x}\hat{A}$  .sbt  $\hat{E}\hat{u}\hat{N}\hat{A}^a$   $\hat{A}\hat{B}\hat{o}\%_0$   $\hat{a}$   $\hat{A}$   $\P\%_0$   $\dagger\hat{E}\hat{o}\P\hat{A}\hat{s}\hat{o}\hat{A}\hat{O}$   $\%_0$   $\hat{e}\hat{E}\hat{u}\hat{N}\hat{A}^a$   $\hat{A}\hat{o}\hat{N}\hat{A}\hat{B}\hat{o}\%_0$   $\hat{a}$ „ $\hat{A}\hat{C}$

$\hat{E}\hat{u}\hat{A}\hat{A}\hat{e}\hat{e}\hat{O}^{\circ}\hat{a}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}\hat{E}$  •  $\hat{E}^{\text{TM}}\hat{s}\hat{A}\hat{\infty}\pm\hat{A}\hat{B}\hat{A}\hat{A}\hat{a}\hat{n}\%_0$   $\%_0$   $\hat{A}\%_0$   $\text{TM}$  Jar  $\hat{E}\hat{n}\hat{a}\%_0^a$   $\hat{A}\hat{1}\hat{a}\%_0$   $\hat{A}\%_0$   $\text{TM}$   
Shell  $\hat{E}\hat{N}\hat{o}\hat{E}\hat{u}^{\cdot}\hat{O}^{\circ}\hat{a}\%_0\hat{\Omega}\hat{U}\hat{E}\hat{o}\hat{O}\hat{A}\hat{e}\hat{n}\hat{A}\hat{U}$   $\%_0$   $\hat{e}\%_0\hat{\Omega}\dagger\hat{A}\hat{o}\hat{N}\hat{A}$   $\hat{A}\hat{e}\hat{\infty}\hat{O}^{\circ}\hat{a}\hat{E}\hat{a}\hat{e}\%_0^a$   $\hat{E}\hat{e}\hat{e}\%_0\hat{a}\hat{o}\%_0$   $\hat{U}\hat{A}$  •  $\hat{\Omega}\hat{A}\hat{a}\dagger\hat{A}\hat{\beta}\hat{c}\hat{E}\hat{n}$   $\hat{A}^{\circ}\hat{e}\hat{E}\hat{u}$  •  $\%$   
Mac $\hat{O}^{\circ}\hat{a}$ Windows $\hat{O}^{\circ}\hat{a}$ Linux $\hat{O}^{\circ}\hat{a}$ Typesafe Activator $\hat{O}^{\circ}\hat{a}$  $\hat{E}\hat{a}\hat{n}\hat{E}\hat{a}\hat{a}\hat{A}\hat{a}\hat{\otimes}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$   
 $\hat{E}\hat{e}\hat{e}\%_0\hat{a}\hat{o}\%_0$   $\hat{U}\hat{A}\hat{o}$   $\hat{A}$   $\hat{1}\hat{A}\hat{o}\hat{N}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}\hat{E}$  •  $\hat{E}^{\text{TM}}\hat{s}$ „ $\hat{A}\hat{C}$

$\hat{E}\hat{e}\hat{e}\hat{A}\hat{s}$   $\hat{A}\hat{1}\hat{a}\hat{E}\hat{a}\hat{A}\hat{B}$

$\hat{A}\P\hat{c}\hat{E}\hat{u}\hat{u}\%_0\hat{\Omega}\dagger\hat{A}\hat{u}\hat{\otimes}\hat{E}\hat{o}\hat{e}\hat{E}^{\circ}\hat{a}$  sbt  $\hat{E}\hat{o}$   $\hat{E}\hat{A}\hat{a}\hat{A}\hat{\alpha}\%_0$   $\hat{a}\hat{a}\%_0\hat{\Omega}\hat{i}\hat{E}\hat{o}\hat{B}\hat{E}\hat{c}\hat{o}\hat{O}^{\circ}\hat{a}\hat{E}\hat{u}$  •  $\hat{A}\hat{u}\hat{a}$   
 $\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}\hat{A}^a$   $\hat{E}\hat{B}\hat{B}\%_0$   $\hat{A}\hat{o}\hat{N}\hat{A}^a\hat{a}\hat{A}^{\cdot}\hat{O}\hat{A}^{\circ}\hat{n}\hat{A}\dagger\hat{A}\hat{O}^{\circ}\hat{a}$ terminal encoding $\hat{O}^{\circ}\hat{a}\hat{O}^{\circ}\hat{a}$ HTTP  
 $\%_0^a\hat{\mathbb{L}}\hat{A}\hat{e}\hat{U}\hat{O}^{\circ}\hat{a}$ JVM  $\hat{A}\hat{e}\hat{C}\hat{E}\hat{i}\hat{\infty}$ „ $\hat{A}\hat{C}$

$\hat{A}\hat{u}\hat{\otimes}$  Mac  $\%_0$   $\hat{a}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$  sbt

$\hat{E}\hat{A}\hat{o}\hat{E}\hat{o}\hat{a}\hat{A}$   $\cdots\%_0$   $\hat{a}\hat{E}\hat{n}$   $\hat{A}\hat{o}\hat{N}\hat{A}\hat{a}\hat{O}\hat{A}\hat{e}\hat{O}\hat{E}\hat{E}\hat{\Omega}\hat{E}$   $\hat{O}\hat{E}\hat{u}\hat{a}\hat{E}\hat{e}\hat{e}\%_0\hat{a}\hat{o}\hat{E}\hat{u}\hat{A}\hat{E}\hat{n}\hat{\infty}\hat{A}\hat{o}\hat{N}\hat{A}\hat{a}\hat{a}\hat{E}\hat{u}^{\cdot}\hat{O}^{\circ}\hat{a}\hat{E}\hat{O}$   $\hat{E}\hat{B}\hat{\infty}\hat{A}\hat{x}\hat{o}\hat{A}\hat{\infty}$

$\hat{E}\hat{A}\hat{o}\hat{E}\hat{o}\hat{a}$  Macports  $\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$

$\$$  port install sbt

$\hat{E}\hat{A}\hat{o}\hat{E}\hat{o}\hat{a}$  Homebrew  $\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$

$\$$  brew install sbt

$\hat{E}\hat{A}\hat{o}\hat{E}\hat{o}\hat{a}\hat{E}\hat{A}\hat{o}\hat{A}\hat{1}\hat{\otimes}\hat{A}\hat{o}\hat{N}\hat{A}\hat{a}\hat{O}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$

$\%_0$   $\hat{a}\hat{E}\hat{\Omega}\hat{\Omega}$  ZIP  $\hat{E}\hat{a}\hat{n}\hat{E}\hat{A}\hat{O}$  TGZ  $\hat{A}\hat{a}\hat{O}\hat{A}$   $\hat{E}\hat{B}\hat{\mathbb{L}}\hat{A}\hat{e}\hat{a}$ „ $\hat{A}\hat{C}$

Typesafe Activator

$\hat{A}\hat{e}\hat{C}\hat{E}\hat{B}\hat{A}$  Typesafe Activator $\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}\hat{E}\hat{a}\hat{a}\hat{A}\hat{c}\hat{o}$ .

$\hat{E}\hat{a}\hat{a}\hat{A}\hat{a}\hat{\otimes}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}$

$\hat{A}\hat{e}\hat{C}\hat{E}\hat{B}\hat{A}\hat{E}\hat{a}\hat{a}\hat{A}\hat{a}\hat{\otimes}\hat{A}\hat{B}\hat{a}\hat{E}\hat{\mathbb{L}}\hat{O}\hat{E}\hat{a}\hat{a}\hat{A}\hat{c}\hat{o}$ „ $\hat{A}\hat{C}$

Âú® Windows %äÂÆâĚŁÖ sbt

ĚÄöĚøá Windows ÂÆâĚŁÖÂăÖÂÆâĚŁÖ

%äĚΩΩ msi ÂÆâĚŁÖÂăÖ Â ÂÆâĚŁÖ,,ĂÇ

ĚÄöĚøáĚÄöÁî®ĂöŇÂÆâĚŁÖÂăÖÂÆâĚŁÖ

%äĚΩΩ ZIP ÊàñĚÄÖ TGZ ÂăÖÂ ĚßŁĂéă,,ĂÇ

**Typesafe Activator**

ĂèÇĚBĂ Typesafe ActivatorÂÆâĚŁÖÊăăĂçó.

ÊăăÂă®ÂÆâĚŁÖ

ĂèÇĚBĂÊăăÂă®ÂÆâĚŁÖÊăăĂçó,,ĂÇ

Âú® Linux %äÂÆâĚŁÖ sbt

ĚÄöĚøáĚÄöÁî®ĂöŇÂÆâĚŁÖÂăÖÂÆâĚŁÖ

%äĚΩΩ ZIP ÊàñĚÄÖ TGZ ÂăÖÂ ĚßŁĂéă,,ĂÇ

UbuntuÂíăÂÖ %ăñÂü %éDebianĂöŇÂèĚĚ°ăĂăă

DEB ÂÆâĚŁÖÂăÖÁî±sbtÂÆòĚñ ÊiØÊăĂ,,ĂÇ

UbuntuÂíăÂÖ %ăñÂü %éDebianĂöŇÂèĚĚ°ăĂăă%ΩøÁî®DEBĚ†°Â°èÖ°ă%ΩŮĚÄöÂ %Ω†%ç%ăéĚú˘Â  
Ö°ăÂ¶ÇSynapticÖ°ă,,ĂÇ %ăéĂ°ăÁ´ØĚøĚĚ°ă%ăĚĚcĂöŇÂèΩ%ă§ÂÆâĚŁÖsbtÖ°ă%Ω†ĚúĂĚ¶ĂĚ ÖÁ BĂ

```
echo "deb https://dl.bintray.com/sbt/debian /" | sudo tee -a /etc/apt/sources.list.d/sbt.list
sudo apt-key adv --keyserver hkps://keyserver.ubuntu.com:80 --recv 642AC823
sudo apt-get update
sudo apt-get install sbt
```

ĚΩØ%ă ÂăÖĂÆ°ĂêŮÂô®Â∞ŮĚŁĂĚü•Ěă•Â %™ĚèĚ%æôÂÆâĚŁÖĚΩØ%ă ÂăÖĂöŇĚÖçÁΩÆÂ òĂÇ  
%ăĚøôĂà Êñă%ă ÂèĚĂ ÉĂà∞ BintrayÖ°ăĚĂăBintray Êñ %æøĂú∞ĚèĚ%æô% ŮAPTĚµŇĚ êĂ ì,,ĂÇ%Ω  
%ĂĚó¶ÂÆâĚŁÖ% ŮsbtÖ°ă%Ω†%öĚĚΩĂşüĂú®aptitudeÊàñSynapticĂöŇÂăÖÁîĂ òĚôŸĚñ∞ĂééĂÆ  
Settings -> Software & Updates -> Other SoftwareÖ°ö



Figure 1: Ubuntu Software & Updates Screenshot

Á ¢Â Ω%°Á% öÁââLinuxÁíâÂÖ %°ñÂü % éRPMÁöÑÂèëË°âÁââ

RPM ÂÆâË£ÖÂâÖÁî±sbtÂÆðÊñ ÊiØÊâÂ,,ÃÇ

Á ¢Â Ω%°Á% öÁââLinuxÁíâÂÖ %°ñÂü % éRPMÁöÑÂèëË°âÁââ%ΩøÁiØRPMÊ†°Â°è,,ÃÇ  
%°éÁââÁ´ØËøêË°â% ãÈùcÁöÑÂèΩ%°§ÂÆâË£ÖsbtÔ°à%Ω†ÊúÄË¶ÄË ÖÁ ßÁiØÊâ ÊùÉËòêÔ°âÂö†Ê §È

curl https://bintray.com/sbt/rpm/rpm > bintray-sbt-rpm.repo

sudo mv bintray-sbt-rpm.repo /etc/yum.repos.d/

sudo yum install sbt

sbt % ãËøðÂâ Êñá%° ÆèÂ ÉÁâ∞ BintrayÔ°âËÂâBintray Êñ %øæøÁú∞Ëèè%øæð% ÜRPMËµÑÊ êÂ ì,,ÃÇ

Ê ®ÊÑèÔ°ö ËØ Á∞Û%°aa%ΩîÁíâËøð% §% ™ÂâÖÁö ÂÖ ÁöÑÈóÆËcòÂèçÈ¶àÂâ∞  
sbt-launcher-package Ë° ÁõÆ,,ÃÇ

## Gentoo

Áú@ sbt ÂÆðÊñ ÁöÑÊ†ê% Ê °ÊúâÊèè%øæð ebuild,,ÃÇ %ΩÛÊðØÊúâ%°é% ãËøðÂâ ÂèâÂ

sbt ÁöÑ ebuilds,,ÃÇ ÂèØ%° • ÈÄöËøá%° • % ãÊñ Á°è%°éËøð% ò ebuilds

% ÂèâÂ sbtÔ°ö

mkdir -p /usr/local/portage && cd /usr/local/portage

git clone git://github.com/whiter4bbit/overlays.git

echo "PORTDIR\_OVERLAY=\$PORTDIR\_OVERLAY /usr/local/portage/overlays" >> /etc/make.conf

emerge sbt-bin

Ê ®ÊÑèÔ°ö ËØ Á∞Û%°aa%ΩîÁíâ ebuild Áö ÂÖ ÁöÑÈóÆËcòÂèçÈ¶àÂâ∞  
ËøðÊââ,,ÃÇ

## Typesafe Activator

ÂèÇËßÂ Typesafe ActivatorÂÆâË£ÖÊââÂÇó.

ÊââÂä®ÂÆâË£Ö

ÂèÇËßÂÊââÂä®ÂÆâË£ÖÊââÂÇó,,ÃÇ

ÊââÂä®ÂÆâË£Ö sbt

ÊââÂä®ÂÆâË£ÖÊúÄË¶Á% ãËΩΩ sbt-launch.jarÔ°âÁÑ ÂééÂâðÂ° ÊÑöÊú´Êù • ËøêË°âÂÆÉ,,ÃÇ

## Unix

Á∞Û sbt-launch.jar Êñá%° ÊîæÁú® ~/bin % ã,,ÃÇ ÂâðÂ° % Ä% ™ÊÑöÊú´Êù • ËøêË°âËøð% ™  
jarÔ°âÊÑöÊú´ ~/bin/sbt ÁÜÖÂÆ Á¶Ç% ã:

```
#!/bin/bash
SBT_OPTS="-Xms512M -Xmx1536M -Xss1M -XX:+CMSClassUnloadingEnabled -XX:MaxPermSize=256M"
java $SBT_OPTS -jar `E 0ÃæÑÃêç $0`/sbt-launch.jar "$@"
Á°ôËØ•ËÑöÊú``Êµã% òÀèØÊâßË°âÊùÉÈôêÔ°ö
$ chmod u+x ~/bin/sbt
```

## Windows

```
Áú@ Windows % ãÊããÃä@ÃÆâË£ÖÁöÑÊ •È™$Ê† ÊçÆËðØÂê¶%ΩøÁî@
Cygwin ÁíãÁ°ãÁ´ØÁöÑ% çÊêãËÃä% çÊêã,,ÃÇ Áú@%ªª%ΩìÊÉÖÃÛµ% ãÔ°ãÃ∞Û
batch Êñá%ª ÊãñÊÃÖËÑöÊú`Êñá%ª Ê °Ãä†Ãà∞ path % Ò°ã%ΩøÃæóÀèØ%ª•Áú@%ªªÊÑèË ØÃæÑ%
sbt Êù•ËøêË°ã sbt,,ÃÇ ÊêãËó Ô°ãÃ¶ÇÊùúÊùÃË¶ÃÁöÑËËØùÔ°ãÊ† ÊçÆËú Ãð@Ë∞ÉËäÇ% Æ% ã
JVM ÁöÑÃèÇË∞ËÆæÁΩÆ,,ÃÇ
```

## Non-Cygwin

```
ÃØ % é%ΩøÁî@Ê†áÃáÛ Windows Á°ãÁ´ØÁöÑÈùû Cygwin Áî@Êà Ô°ãÃàöÃ° Ã¶Ç
sbt.bat ÁöÑ batch Êñá%ª Ô°ö
set SCRIPT_DIR=%~dp0
java -Xms512M -Xmx1536M -Xss1M -XX:+CMSClassUnloadingEnabled -XX:MaxPermSize=256M -jar "%SCRIP
ÃÑ ÊêéÃ∞Û% ãËΩΩÃ•ΩÁöÑ sbt-launch.jar ÊîæÁú@Ãíã sbt.bat Ãó ÊêãÃöÑË ØÃæÑ% ã,,ÃÇ
```

## Cygwin ÁíãÊ†áÃáÛÃöÑ Windows Á°ãÁ´Ø

```
Ã¶ÇÊùú%ΩøÁî@ Cygwin ÁíãÊ†áÃáÛÃöÑ Windows Á°ãÁ´ØÔ°ãÃàöÃ° Ã¶Ç% ãÃöÑ
bash ÊÑöÊú``~/bin/sbtÔ°ö
SBT_OPTS="-Xms512M -Xmx1536M -Xss1M -XX:+CMSClassUnloadingEnabled -XX:MaxPermSize=256M"
java $SBT_OPTS -jar sbt-launch.jar "$@"
Áî@% ãËΩΩÃ•ΩÁöÑ sbt-launch.jar Êñá%ª ÁöÑË ØÃæÑËöøÊççÊéã sbt-
launch.jarÔ°ãÃ¶ÇÊùúÊùÃË¶ÃÁöÑËËØùËÆ∞Ãæó%ΩøÁî@ cygpath,,ÃÇÃ°öÊÑöÊú``Êµã% òÀèØÊâßË°âÊùÉ
$ chmod u+x ~/bin/sbt
```

## Cygwin Áíã Ansi Á°ãÁ´Ø

```
Ã¶ÇÊùú%ΩøÁî@ Cygwin Áíã Ansi Á°ãÁ´ØÔ°ãÊîØÊãÃ Ansi ÈΩ`% ãÊ èÃàóÃ % íÀèØ%ª•ËÃöËöá
stty ÈÖÇÃΩÆÔ°ãÔ°ãÃàöÃ° % Æ%™ bash Êñá%ª ~/bin/sbtÔ°ö
SBT_OPTS="-Xms512M -Xmx1536M -Xss1M -XX:+CMSClassUnloadingEnabled -XX:MaxPermSize=256M"
stty -icanon min 1 -echo > /dev/null 2>&1
java -Djline.terminal=jline.UnixTerminal -Dsbt.cygwin=true $SBT_OPTS -jar sbt-launch.jar "$@"
stty icanon echo > /dev/null 2>&1
```



```

Áî®% ãÊΩΩÂ•ΩÁõÑ sbt-launch.jar Êñá%ª ÁõÑÊ ØÂæÑÊõøÊçcÊéá sbt-
launch.jarÔªâÂ¶ÇÊûúÊúÃÊ¶ÁÁõÑÊØùÊÆ∞Âæø%ΩøÁî cygpath„ÃÇÁªøÊÑõÊú“Êµã% àÂèØÊâßÊªÊûÊ
$ chmod u+x ~/bin/sbt
% % ÜÊÆ©ÊÄÄÊ†°ÔªàbackspaceÔªâÊÊΩÂ§üÁú@ Scala ÁõÑÊéßÂà Êè% Ê £Â Â •%ΩúÔªâ%Ω†Êú
characterÔªâÔªâÁíâÁú@ stty % ÊÖçÁΩÆÁõÑ% ÄÊ† „ÃÇÂØ % éÊªðÊÆ§ÁõÑ
cygwin ÁªàÁ´ØÔªàminttyÔªâÔªâ Áú@ÊÆæÁΩÆÊÄâÊ° -> ÊìÆ% ÔªâÂ¶ÇÊûú%Ω†ÁõÑÂà†Êø§Á“¶ÊòØ
cygwin ÊªðÊÆ§ÁõÑ ^HÔªâ,ÁúÊÄÄÊ†°ÄèÊÄÁ ^H,Äù ÊúÃÊ¶ÁÊc´ÊÄâ% „ÃÇ
Ê®ÊÑÊÔªö ÂîÂâçÂÖ %ªñÁõÑÊÖçÁΩÆÊøð% çÊìØÊâÁ„ÃÇÊØ
Êèè% § pull request ÂÊûÁé∞ÊànÊÄÖÊèèÊø∞Â ÁªèÊìØÊâÁÁõÑÊÖçÁΩÆ„ÃÇ

```

## ÂÆâÊ£Ö Typesafe Activator (ÂãÖÂê´sbt)

Typesafe Activator ÊòØsbtÁõÑ% Ä% ™Êá™ÂÆø% âÁââÊú“ÔªâÂÆÊÊªÄä†% §% ™ÊcùÂ§ñÁõÑÂèΩ%  
 uiÁíâactivator new„ÃÇactivatorÂèΩ%ª§ÂÆÄÊ@Â% ãÂ∞±ÊòØsbtÁõÑ% Ä% ™Ê ÖÊõÜ„ÃÇ  
 %Ω†ÂèØ%ª•%ªé typesafe.comÊÊ ÂæóActivator„ÃÇ

If you see a command line such as `sbt ~test` in the documentation, you will also be able to type `activator ~test`. Any Activator project can be opened in sbt and vice versa because Activator is “sbt powered.”

```

Â¶ÇÊûú%Ω†Áú@ÊñáÊ°£% ÁúâÂà∞% Ä% ™ÂèΩ%ª§ÊªâÂ¶Çsbt
~testÔªâ%Ω†% üÂ∞ÜÂèØ%ª•ÊìÆÄÖ•activator ~test„ÃÇ%ªªÊÑè% Ä% ™ActivatorÂ •Á®ãÊÊÖÊ
Activator% ãÊΩΩÂâÖÊã“activatorÊÑöÊú“Áíâ% Ä% ™activator-launch.jarÔªâÂâÜÂà´Áò Âî% ÊÊ
  • ÊìÆÄÖ•% çÂ ¶ÂèÇÊï∞ÁõÑactivatorÂ∞ÜÂ∞ùÊØìÁâúÊµãÊèØÂê¶ÊøðÄÖ•activator
    shellÊâñactivator uiÊ®°ÂªèÔªöÊìÆÄÖ•activator shellÊù•ÊðéÁ°ÆÊøðÄÖ•ÂèΩ%ª§ÊªâÊèèÁ§
  • activator newÄÖÄÊÆ %Ω†%ªé% Ä% ™Â§ßÁõÑÊ° ÁõÆÊ®°ÊùøÁõÆÂΩî% ÂàõÂª Ê° ÁõÆÔªª%
    FrameworkScalaÂ íÁî@Á®ãÂ èÊ™®Êû
  • activator uiÂèØÄã®% ÄÁßçÂø´ÊÄüÂèØÂã®Áî@Êà ÁíãÊùcÔªâÂèØÁî®% é%ªªéÊ®°ÊùøÁõÆÂΩîÊµ
ActivatorÊèè%æø% §Áßç% ãÊΩΩÔªöÂ∞èÁõÑ“minimal”% ãÊΩΩÂâÖÂÊ™ÂâÖÂê´ÂãÖÊ£ÖÊÑöÊú“Áíâ

```

## Hello, World

```

Êøð% ÄÂ∞èÊäÇÂÁáÊÆæ%Ω†Â Áªè ÂÆâÊ£Ö sbt % Ü„ÃÇ

```

```

ÂàõÂª % Ä% ™ÊúâÊ èÁ†ÂÁõÑÊ° ÁõÆÁõÆÂΩî

```

```

% Ä% ™ÂèÊ ìÁõÑ sbt Ê° ÁõÆÂèØ%ª•ÊòØ% Ä% ™ÂâÖÂê´Âçî% ™Ê èÁ†ÂÊñá%ª ÁõÑÁõÆÂΩî„ÃÇ
Â∞ùÊØìÂàõÂª % Ä% ™hello ÁõÆÂΩîÔªâÄãÖÂê´ ÁÜÖÂÆ Â¶Ç% ãÁõÑÊ èÁ†ÂÊñá%ª
hw.scalaÔªö

```

```

object Hi {
  def main(args: Array[String]) = println("Hi!")
}

Áé∞Áú®Áú® hello ÁõÆÂΩî% ãÂêØÄä® sbtÔ°ãÃÑ ÂêéÊâβÊ°ã run
Äè%°ª§ÊøöÄÖ•Äà∞ sbt ÁõÑ% §% íÃ°èÂè%ª§Ê°ã,,ÃÇÁú® Linux
ÊãñÊÄÖ OS X % ãÄõÑÂè%ª§ÄèØÊÊΩÈðØÊøöÊ† Ô°ö

$ mkdir hello
$ cd hello
$ echo 'object Hi { def main(args: Array[String]) = println("Hi!") }' > hw.scala
$ sbt
...
> run
...
Hi!

Áú®Êøö%™%æãÂ ê% Ô°ãsbt ÂÆãÄÖ®ÊääÄÖßÁ ¶ÂÆöÂ •%Ωú,,ÃÇsbt
Ä∞Û%°öÊã™Ää®ÊâæÄà∞%ª•% ãÄÛÖÄÆ Ô°ö

  • Ê° ÁõÆÊ† ÁõÆÂΩî% ãÄõÑÊ êÊñá%ª
  • src/main/scala Êñ src/main/java % ÄõÑÊ êÊñá%ª
  • src/test/scala Êñ src/test/java % ÄõÑÊµãÊØîÊñá%ª
  • src/main/resources Êñ src/test/resources % ÄõÑÊï∞ÊÇÆÊñá%ª
  • lib % ÄõÑ jar Êñá%ª

Ê°ðÊÆ§ÊÊÖÄÛµ% ãÔ°ãsbt %°öÁî®ÃíãÂêØÄä®Êã™Ê ´Ãõ ÂêãÃääÊú´ÄõÑ
Scala Êù•ÊûÑÃª Ê° ÁõÆ,,ÃÇ %Ω†ÂèØ%ª•ÊÄöÊøáÊâβÊ°ã sbt run
Êù•ÊøèÊ°ãÊ° ÁõÆÊãñÊÄÖÊÄöÊøá sbt console ÊøöÄÖ• Scala REPL,,ÃÇsbt
console Ä Ä°èÄ Æ%Ω† ÊÆæÄΩÆÄ•ΩÊ° ÁõÆÄõÑ classpathÔ°ãÊãÄ%ª•%Ω†ÂèØ%ª•Ê† ÊÇÆÊ° ÁõÆÄ
Scala Ä§ %æã,,ÃÇ

ÊûÑÃªª ÄÆö%ª â

Ä§ßÄ§öÊï∞Ê° ÁõÆÊúÄÊ¶Ä% Ä% ðÊääÄä®ÊÆæÄΩÆ,,ÃÇÄü Êú´ÄõÑÊûÑÃª ÊÆæÄΩÆÊÊΩÊêæÄú®Ê° Ä
build.sbt Êñá%ª Êää,,ÃÇ %æãÄ¶ÇÔ°ãÄ¶ÇÊúú%Ω†ÄõÑÊ° ÁõÆÊêæÄú®
hello % ãÔ°ãÁú® hello/build.sbt % ÄèØ%ª•ÊøöÊ† ÄÛöÔ°ö

lazy val root = (project in file(".")).
  settings(
    name := "hello",
    version := "1.0",
    scalaVersion := "2.11.7"
  )

Áú®.sbt ÊûÑÃªª ÄÆö%ª â ÊøöÊäÇ% %Ω†Ä∞Û%°öÄ ¶Äà∞Êö¥Ä§öÄÖ % é
Ä¶Ç%ΩîÃ°ñÄÛö build.sbt ÊÑöÊú´ÄõÑ% úÊ•ø,,ÃÇ

Ä¶ÇÊúú%Ω†ÄáÜÄ§áÄ∞Û%Ω†ÄõÑÊ° ÁõÆÊâîÄäÖÊæè% Ä%™ jar
ÄãÖÔ°ãÁú® build.sbt % Êá Ä∞èÊ¶ÄÄÛö% ã name Äíã version,,ÃÇ

```

ËÆæÁΩÆ sbt ÁâàÊú´

%Ω‡ÂèØ%ª•ÈÄöËøáÂàõÂª hello/project/build.properties Êñá%ª Â° Âà ÊääÂÆö% Ä% ¯ÄääÊú´  
sbt„ÄÇÁú®Ëøø% ¯ÄÊñá%ª ÈääÔªÁ°ñÁÛøÄ¶Ç% ãÄÛÖÂÆ Êù•Â° Âà %ΩøÁí®  
0.13.11Öö

sbt.version=0.13.11

sbt Áú®% çÄêäÄöÑ release ÁâàÊú´% ÊðØ 99% ÂÖ°ÂÆ ÁöÑ„ÄÇ%ΩÛÊðØÁú®  
project/build.properties Êñá%ª % ÊÆæÁΩÆ sbt ÁöÑÁâàÊú´%ªçÄÑ ËÉΩÈÄøÄÖç% Ä% öÊΩúÁú®.

ÁõÆÂΩîÁªÊûÑ

Ëøø% ÄÂ∞èËÇÄÁäËÆæ%Ω‡Â Áªè ÂÆäË£Ö sbt Â % îÂ ÁªèÈðÖËØªËøá  
Hello, World % Û„ÄÇ

Äü Á°ÄÄõÆÂΩî

Áú® sbt ÁöÑÊúØËØ ÈääÔª„ÄúÄü Á°ÄÄõÆÂΩî„ÄüÊðØÄªÖÂè´È° ÄõÆÁöÑÁõÆÂΩî„ÄÇÊäÄ%ª•ÔªÄ¶Ç  
Hello, World % ÄÊ‡ ÁöÑÈ° ÄõÆ hello ÔªÄÄªÖÂè´ hello/build.sbt Áíá  
hello/hw.scalaÔª hello Á∞±ÊðØÄü Á°ÄÄõÆÂΩî„ÄÇ

Ê è%ª£Ä‡Â

Ê è%ª£Ä‡ÂÄèØ%ª•ÂÉè hello/hw.scala % ÄÊ‡ ÁöÑÊîæÁú®È° ÄõÆÁöÑÄü Á°ÄÄõÆÂΩî% „ÄÇÄÑ ÈÄ  
sbt Áíá Maven ÁöÑÈªðËÆ\$ÁöÑÊ èÊñá%ª ÁöÑÁõÆÂΩîÁªÊûÑÊðØ% ÄÊ‡ ÁöÑÔªÈäÄÊúäÁöÑË ØÄæÑË

```
src/  
  main/  
    resources/  
      <files to include in main jar here>  
    scala/  
      <main Scala sources>  
    java/  
      <main Java sources>  
  test/  
    resources  
      <files to include in test jar here>  
    scala/  
      <test Scala sources>  
    java/  
      <test Java sources>
```

src/ % ÄÖ %ªñÁöÑÁõÆÂΩîÁ∞ÛË´ÂøΩÁí•„ÄÇËÄª% îÔªÈäÄÊúäÁöÑËöèËöèÄõÆÂΩî% ü%°ðË´Ä

sbt ÊûÑÂª ÂÆö%ª âÊñª%ª

%ªΩ†Â ÁªèÂú®È° ÁõÆÁöÑÂü Á°ÃÁõÆÂΩî%ª ÁúãÂà∞%ª Û build.sbt„ÄÇÃÖ %ªªñÁöÑ  
sbt Êñª%ª Âú® project Â èÁõÆÂΩî%ª „ÄÇ project ÁõÆÂΩîÂèØ%ª•.ÃäÖÂê´  
.scala Êñª%ª ÔªäÊøø%ª õÊñª%ª ÊúÃÂêé%ªöÁíá .sbt Êñª%ª ÂèàÂ ÁÖ±ÂèäÊûÑÊàèÂÆâÊÿ¥ÁöÑÊûÑÂ  
ÃªÑÃªäÊûÑÃª „ÄÇ

build.sbt  
project/  
Build.scala

%ªΩ†ÂèØÊÊΩÂú® project/ %ª %ª üÁúãÂà∞%ª Û .sbt Êñª%ª Ôªä%ªΩÛÊèØÂÆÉ%ª çÁ âÂèª%ª éÈ° ÁõÆ  
.sbt Êñª%ª „ÄÇÊøøÁ∞ÛÂú® Á®çÂêé Êß£ÊäªÔªÃõ†%ª È¶ñÂÖª%ªΩ†ÊúÃÊ¶Ã%ª Ä%ª õÊÊäÊøØÁü•ÊØ

ÊûÑÂª %ª ßÂìÃ

ÊûÑÂª Âá Êù•.ÁöÑÊñª%ª ÔªäÁªñÊØëÁöÑ classesÔªäÊàiÃªÖÃöÑ jarsÔªäÊàøÂÆ°Êñª%ª Ôªäcaches  
ÃíáÊñªÊ°£ÔªäÊªðÊÆ§ÂÛôÂú® target ÁõÆÂΩî%ª „ÄÇ

ÈÖçÃΩÆÃääÊú¨.ÁÆ°ÁèÛ

%ªΩ†ÁöÑ .gitignore Êñª%ª ÔªäÊànÊÄÖÃÖ %ªªñÃääÊú¨ÊéßÃà ÁªÁªüÃ âÂèäÁöÑÊñª%ª ÔªäÂ îÊØ•.Ãª  
target/  
Ê®ÊÑèÔªöÊøøÊääÂêéÊùcÊúÃÊ¶ÃÊ ü%ª Ä%ª™ / ÔªäÂè™Ãª ÈÖçÃõÆÂΩîÔªä%ª îÃâçÊùc%ª çÊÊΩÊúâ  
/ ÔªäÈø§%ª ÛÃª ÈÖçÊøÆÊÄöÁöÑ target/ ÊøøÃª ÈÖç project/target/  
Ôªä„ÄÇ

ÊøèÊÊª

Êøø%ª ÃÃ∞èÊäÇÃ∞ÛÊÆ Êø∞Âú®%ªΩ†Ãª Á´ãÃ•ΩÈ° ÁõÆ%ª ãÂèéÃ¶Ç%ªΩîÃéª%ªΩøÃî®  
sbt„ÄÇÃÃäÊÆæ%ªΩ†Ãª Áªè ÂÆâÊ£Ö sbt Â %ª îÃ ÁªèÃäöÃª Êøá Hello,  
World È° ÁõÆÊànÃÖ %ªªñÈ° ÁõÆ„ÄÇ

%ª §%ª îÊ®°Âªè

Âú®%ªΩ†ÁöÑÈ° ÁõÆÁõÆÂΩî%ª ãÊøèÊÊª sbt %ª çÊ ü%ªªª%ªΩîÃèÇÊï∞Ôªö

\$ sbt

ÊâßÈªsbt %ª çÊ ü%ªªª%ªΩîÃëΩ%ª§ÊªÃèÇÊï∞Ã∞Û%ªöÊøöÃÖ•%ª §%ª îÊ®°Âªè„ÄÇ%ª §%ª îÊ®°ÂªèÊúâ  
tab Êä™Ãâ®Êª•.ÃÖ®ÃäüÊÊΩÃíáÃéÛÂè ÊÆ∞ÃΩïÔªä„ÄÇ

%ªæãÃ¶ÇÔªäÂú® sbt ÃëΩ%ª§ÊªãÊääÊæìÃÖ• compileÔªö

> compile

ÂÛÇÊˆˆ° compileÔ°âÂê™ÈúÄË¶ÄÊääÂêë% äÄöÑÊñ ÂêëÈìÆÔ°âÄÑ ÂêéÄõüÊÖ¶,ÄÇ  
ÊæìÄÖ • run Êù • ÂêØÄä@Ä@äÄ è,,ÄÇ ÊæìÄÖ • exit ÊänÊÄÖ Ctrl+D Ô°àU-  
nixÔ°âÊänÊÄÖ Ctrl+Z Ô°àWindowsÔ°âÂêØ%°â • ÊÄÄÄá % §% iÊ®°Ä°è,,ÄÇ

Êâ Â§ÑÄêÛÊ®°Ä°è

%Ω†% üÂêØ%°â • Äì®Êâ Â§ÑÄêÛÊ®°Ä°èÊù • ÊøêÊ°â sbtÔ°âÂêØ%°â • %°â • Ä© Ê†°% ÄàÛÊöìÁˆ¶ÊääÄÆ  
sbt ÄêÖ%°â§Ô°âÄ∞ÛÄêÖ%°â§ÄíäÂêÇÊï∞Äì®Ä°ìÄè Ä°ìÊµ Êù • % ÄÊµ %Ω†Ä°ô  
sbt,,ÄÇ%æäÄ¶ÇÔ°ö

\$ sbt clean compile "testOnly TestA TestB"

Äú®Êøô%™%æäÄ ê% Ô°âtestOnly Êúâ% §%™ÄêÇÊï∞ TestA Äíä  
TestB,,ÄÇÊøô%™ÄêÖ%°â§%°ôÊääÊ° Ä èÊâßÊ°âÔ°âcleanÔ°â compileÔ°â  
ÄÑ Âêé testOnlyÔ°â,,ÄÇ

ÊâÄÄ°â ÊùÑÄ°â ÄíäÊµäÊØï

% % ÛÄä†Äø´Ä°ñÊæë-Ä°ñÊØë-ÊµäÊØïÄæ™ÄéØÔ°â%Ω†ÄêØ%°â • ÊÆ©  
sbt Äú®%Ω†%øùÄ òÊ èÊñä%°â Êó Êá™Ää®ÊácÊñ∞Ä°ñÊØëÊänÊÄÖÊ ëÊµäÊØï,,ÄÇ  
Äú®ÄêÖ%°â§ÄäÇÈùcÄä†% äÄäÇÄ°Ä ~ ÂêéÔ°âÊØèÄÑìÊúâ% Ä%™ÊänÄ§ö%™Ê èÊñä%°â ÂêëÄíüÄèòÄär

> ~ compile

ÊääÄõüÊÖ¶ÊìÆÄÄúÊ ¢ÄöëËßÛÄèòÄän,,ÄÇ %Ω†ÄêØ%°â • Äú®% §% iÊ®°Ä°èÊänÊÄÖÊâ Â§ÑÄêÛÊ®°Ä°è  
~ ÄäÇÄ°Ä,,ÄÇ ÄêÇËßÄ Êß¶ÄèëÊâßÊ°â Êë ÄèñÊØ¶Ä°Û%°êÊÄØ,,ÄÇ

Ä Äì®ÄêÖ%°â§

% äÊùcÊòØ% Ä% òÊùüÄ Ä Äì®ÄöÑÄöÑ sbt ÄêÖ%°â§,,ÄÇÊö¥Ää†ÊÖ¶Ä°ÛÄöÑÄàóÊ°®ÊØ ÄêÇËßÄ  
ÄêÖ%°â§Ê°âÄêÇËÄÉ,,ÄÇ

<td><tt>clean</tt></td>

<td>Ää†Êö§ÊâÄÊúäÄíüÊäëÄöÑÊñä%° Ò°âÄú® <tt>target</tt> ÄöÆÄÑì% äÒ°â,,ÄÇ</td>

<td><tt>compile</tt></td>

<td>Ä°ñÊØëÊ èÊñä%° Ò°âÄú® <tt>src/main/scala</tt> Äíä

src/main/java ÄöÆÄÑì%° äÔ°â,,ÄÇ

<td><tt>test</tt></td>

<td>Ä°ñÊØëÄíäÊøëÊ°âÊâÄÊúäÊµäÊØï,,ÄÇ</td>

<td><tt>console</tt></td>

<td>ÊøöÄÖ•Ääm% Ä% ÄäÜÄê´ÊâÄÊúäÄ°ñÊØëÄöÑÊñä%° ÄíäÊâÄÊúä%æüÊµñÄöÑ classpath ÄöÑ Scala ÊßæÊüëÄö®,

Ctrl+D Ô°àUnixÔ°âÔ°âÊänÊÄÖ Ctrl+Z Ô°àWindowsÔ°â ÊöìÄõüÄà∞

sbt,,ÄÇ



ÊûÑÂª ÂÆö% âÁöÑ% âÁßçÈ£éÊ†°

ÊûÑÂª ÂÆö% âÊúâ% âÁßçÈ£éÊ†°„ÄÇ

1. Â§öÂ • Á@ã .sbt ÊûÑÂª ÂÆö% â
2. bare .sbt ÊûÑÂª ÂÆö% â
3. .scala ÊûÑÂª ÂÆö% â

Ëøø% ÂÂ∞èÈäÇÂ∞ÛÈÆ@ÈÆ ÊúÄÊñ∞ÁöÑÂ§öÂ • Á@ã.sbt ÊûÑÂª ÂÆö% âÔªÂÆÉÁªiÂêà% Û% §Áf  
.sbt ÊûÑÂª ÂÆö% â|[Bare-Def]Áíä.scala ÊûÑÂª ÂÆö% âÔªâÁú@ÄÖ • Èó@ÈääÁçóÁöÑÂééÈùcÈÉ@ÂàÛÖª  
Ê §Á§ñÔªâÊûÑÂª ÂÆö% âÂèØ%ª • ÂâÖÂê´%ª • .scalaÁªiÂ∞æÄöÑÊñª%ª Ôªª%Ωç% éÄü ÄöÆÄΩiÄö

%ªÄ% âÊðØÊûÑÂª ÂÆö% âÔü

sbt Áú@Ê£.ÄÊü • È° ÄöÆÄíäÂ§ÑÁéÛÊûÑÂª ÂÆö% âÊñª%ª %ª ãÄééÔªâÂΩcÈàè% Ä% ™ProjectÂÆö%  
Áú@build.sbt% %Ω†ÂèØ%ª • ÂâöÂª %ª Ä% ™Êú¨ÄöÆÄΩiÄöÑProjectÂ • Á@ãÂÆö% âÔªÂÆèÈøøÊ†  
lazy val root = (project in file("."))

ÊØè% Ä% ™Â • Á@ãÄØ Á i% Ä% ™% çÂèØÂèöÁöÑÊð†Â∞ÑÈ°@Ôªaimmutable  
mapÔªâÔªà% Ä% òÈiÆÄÄ°ÄØ ÄöÑÈòÛÂèàÔªâÊü • ÈèèÈø∞Â • Á@ã„ÄÇ

%ªæãÄ¶ÇÔªâ% Ä% ™Âè´ÂÄö name ÄöÑ keyÔªâÊð†Â∞ÑÂà∞% Ä% ™Â óÁ¨¶% ÄöÑÂÄ°ÔªâÂç È° Äö.  
ÊûÑÂª ÂÆö% âÊñª%ª %ª ç%ª °öÄö¥Èé • ÁΩ±Áìç sbt ÄöÑ map„ÄÇ

ÂèñÈÄª%ª£%ª ãÄöÑÊðØÔªâÊûÑÂª ÂÆö% â%ª°öÂâöÂª %ª Ä% ™Â±ªÂûª%  
Setting[T] ÄöÑÂ ûÂ§ßÁöÑÂØ È±°ÂàóÈ°@ÔªâT ÈðØÊð†Â∞ÑÈ°@%ª ÂÄ°ÔªâvalueÔªâÄöÑÂ±ªÂûª„ÄÇ%ª  
Setting ÈèèÈø∞ÁöÑÊðØ%ª ÂÈ¨° ÄØ Êð†Â∞ÑÈ°@ÔªâmapÔªâÄöÑÈΩ¨ÊçcÔªâ  
ÂÈèÄcûÄä†%ª Ä% ™Êñ∞ÁöÑÈiÆÄÄ°ÄØ ÈànÈÄÖÈøΩÄä†Âà∞% Ä% ™Â ÁªèÂ òÁú@ÄöÑ  
value %ª ä„ÄÇÔªâÁú@ÄÁΩÈi∞ÂªèÁªñÂ@ãÄÖ %ª é%ªΩøÄí%ª çÂèØÂèöÈi∞ÈçÆÁªiÊûÑÂíäÂÄ°ÄöÑÈÄùÈi  
„Äi„Äi ÂÆÉ%ª ç%ª°öÂ∞±Áú∞Èö¥Èñ∞ÈößÄöÑ map„ÄÇÔªâ

%Ω†ÂèØ%ª • %ª Êú¨ÄöÆÄΩi%ª ãÄöÑÈ° ÄöÆÄèçÁß∞ÄÖ ÈÄi%ª Ä% ™  
Setting[String]ÔªâÂÆèÈøøÊ† Ôªö

```
lazy val root = (project in file(".")).
  settings(
    name := "hello"
  )
```

Ëøø% ™ Setting[String] %ª°öÈÄöÈøªÄcûÄä†ÔªâÈànÈÄÖÈøøÈçcÔªânameÈiÆÄöÑÂÄ°%ª  
"hello" Êü • ÄØ map ÁÄö%ª ÂÈ¨°ÈΩ¨Êçc„ÄÇÈΩ¨ÊçcÂééÄöÑ map Èàè%ª  
sbt Êñ∞ÁöÑ map„ÄÇ

%ª %ª ÛÂâöÂª Èøø% ™ mapÔªâsbt %ª°öÄÖàÄØ ÈäÄÊúâÈÆæÁΩÆÄöÑÂàóÈ°@ÈøðÈªÈéiÁ èÔªâÈøðÊ† Â  
key ÄöÑÈi ÂèöÂèØ%ª • ÈiæÁú@%ª ÄÊµ Èìç%ªΩúÔªâÈÄª% iÄ¶ÇÊú value  
%ªæùÈµñ%ª éÄÖ %ªªñÄöÑ keyÔªâ%ª°öÄÖàÂ§ÑÁéÛÜÄÖ %ªªñÈc´%ªæùÈµñÄöÑ  
key„ÄÇ ÁÑ ÂééÔªâ sbt %ª°öÄØ Settings ÈéiÁ • ΩÂ èÄöÑÂàóÈ°@ÈøðÈªÈèÄçÁéÛÜÔªâÈääÈ° Á èÈääÈØè%ª  
map %ª „ÄÇ







TaskKey[File] ÁöÑ taskÔ°â ÂÆÉÁöÑÊøíÂöúÂÄ°ÊðÔÄÖ ÁüÊæÄöÑ jar  
Êñá%<sup>a</sup> „ÄÇ

ÊØèÂΩì%Ω†ÊâßÊ°â% Ä%<sup>TM</sup> taskÔ°â%æâÂ¶ÇÁú® sbt ÄëΩ%â§Ê°â% ÊæìÄÖ •  
compileÔ°âsbt Â∞Û%°öÂØ Ê âÄèäÂà∞ÄöÑÊØè%<sup>TM</sup> task ÊÄ∞Ä • ΩÊâßÊ°â% ÄÊ°° „ÄÇ

sbt ÊèèÊø∞Ê° ÁðÆÁöÑ map %°öÂ∞ÛÊæÁΩÆÔ°âsettingÔ°â%øùÂ ò% Âð ÂÆöÁöÑÂ óÁ°¶% Ô°âÊØ  
nameÔ°ö%ΩÛÊðÔÄÆÊ% çÄæó% ç%øùÂ ò task ÁöÑÂèØÊâßÊ°â%â£Á†ÂÔ°âÊØíÂ¶Ç  
compile – ÄÇ %ΩøÊøðÊÆµÄèØÊâßÊ°âÁöÑ%â£Á†ÂÊúÄÄ°âÊøíÂöú% Ä%<sup>TM</sup> Â óÁ°¶% Ô°âÂÆÉ% üÈúÄ

% Ä%<sup>TM</sup> Ä<sup>a</sup>ôÄÆöÄöÑ key ÊÄ°ÊðÔÊâäÄêë% Ä%<sup>TM</sup> task ÊânÊÄÖ  
% Ä%<sup>TM</sup> ÊðÆÊÄöÄöÑÊÆæÁΩÆÔ°âsettingÔ°â„ÄÇ % üÂ∞±ÊðØÊØ¥Ô°â“taskiness”  
(ÊðÔÄê¶ÊØèÊ°°ÊÉΩÊâÇÊñ∞ÊâßÊ°âÔ°âÊðØ key ÁöÑ% Ä%<sup>TM</sup> Â±üÊÄßÔ°âpropertyÔ°âÔ°âÊÄâ% çÊðØ%

## ÂÆö% â tasks Âíâ settings

%Ω†ÂèØ%<sup>a</sup> • %ΩøÄí® := Ä°ð% Ä%<sup>TM</sup> setting Êµâ% Ä%<sup>TM</sup> ÂÄ°ÊânÊÄÖÄ°ð% Ä%<sup>TM</sup>  
task Êµâ% ÄßÇÊÆ°ÁÆó„ÄÇÂØ % é settingÔ°âÊøð%<sup>TM</sup> ÂÄ°Ô°âvalueÔ°âÄê<sup>TM</sup>%°öÄú@Ê° ÁðÆÄä†ÊΩΩÄ  
taskÔ°âÊøð%<sup>TM</sup>ÊÆ°ÁÆó%°öÄú@ task ÊØèÊ°°ÊâßÊ°âÁöÑÊó ÂÄðÊâÇÊñ∞ÊÆ°ÁÆó„ÄÇ

%æâÂ¶ÇÔ°âÂÆûÁé∞ÂâÇÊùc% ÄÊÉ@ÄàÛ% ÁöÑ hello taskÔ°ö

```
lazy val hello = taskKey[Unit]("An example task")
```

```
lazy val root = (project in file(".")).  
  settings(  
    hello := { println("Hello!") }  
  )
```

Êâë%<sup>a</sup>·Â Ä°èÄú@ÂÆö% âÊ° ÁðÆÄêçÁß∞Êó ÊßÄÊøáÂÆö% â settings  
ÁöÑ%æâÄ êÔ°â

```
lazy val root = (project in file(".")).  
  settings(  
    name := "hello"  
  )
```

## Tasks Âíâ Settings ÁöÑÄ±âÄüâ

%°éÄ±âÄüâÄ°Ä°üÁöÑÊßíÂ ¶Êù•ÊÆ Ô°âÊÄöÊøá task key ÂàòÄ° ÁöÑ  
Setting ÂíâÊÄöÊøá setting key ÂàòÄ° ÁöÑ Setting ÊúâÄ@çÄæÆ% çÄêâ„ÄÇtaskKey  
:= 42 ÁöÑÄ±âÄüâÊðØ Setting[Task[T]] ÊÄâ settingKey := 42  
ÁöÑÄ±âÄüâÊðØ Setting[T] „ÄÇÊøðÂØ % éÄ°üÄ§ßÄ§öÊï∞ÊÉÖÄÛµÄ Êó†ÂΩ±ÄìÇÔ°ötask  
key Äú@ÊâßÊ°âÁöÑÊó ÂÄð%âçÄÑ ÂàòÄ° % Ä%<sup>TM</sup> Ä±âÄüâ% T  
ÁöÑÂÄ°Ô°âvalueÔ°â„ÄÇ

T Ä±âÄüâÄíâ Task[T] Ä±âÄüâÁöÑ% çÄêâÁöÑÂê°% âÊðØÔ°ö% Ä%<sup>TM</sup>  
setting % çÊÉΩ%æùÊµñ% Ä%<sup>TM</sup> taskÔ°âÄö†% % Ä%<sup>TM</sup> setting  
Äê<sup>TM</sup>%°öÄú@Ê° ÁðÆÄä†ÊΩΩÄöÑÊó ÂÄðÊÆ°ÁÆó% ÄÊ°°Ô°â% ç%°öÊâÇÊñ∞ÊÆ°ÁÆó„ÄÇÊð¥Ä§öÄÖ %  
ÁöÑÄÛÖÄÆ ÂæàÂø°Ä∞±%°öÊÆ Âà∞„ÄÇ

sbt % \$ % iÊ°Â°è% ÁöÑ Keys

Áú@ sbt ÁöÑ% \$ % iÊ°Â°è% ãÔ°â%Ω†ÂèØ%ª • ÈæìÄÖ • %ªª%Ωì task  
ÁöÑ name Èù • ÈâßÈ°âÈØ • task „ÄÇÈøôÁ∞±ÈðØ% %ªÄ% àÈæìÄÖ •  
compile Á∞±ÈðØÈâßÈ°â compile task „ÄÇcompile Á∞±ÈðØÈØ • task  
ÁöÑ key „ÄÇ

Á¶ÇÈúú%Ω†ÈæìÄÖ • ÁöÑÈðØ% Ä%™ setting key ÁöÑ name ÈÄâ% çÈðØ% Ä%™  
task key ÁöÑ nameÔ°âsetting key ÁöÑÄÄ°Ô°âvalueÔ°â%°öÈðæÄ\$ Áá Èù • „ÄÇÈæìÄÖ • % Ä%™  
task key ÁöÑ name %°öÈâßÈ°âÈØ • task %ΩÜÈðØ% ç%°öÈðæÄ\$ ÈâßÈ°âÄ°ìÈúúÁöÑÄÄ°Ô°âvalueÔ°âÔ°ö  
show <task name> ÈÄâ% çÈðØ ÁÆÄÇìÁöÑ <task name> ÂèØ%ª • ÁúãÄà∞ÈØ •  
task ÁöÑÈâßÈ°âÄ°ìÈúú „ÄÇÄØ % é key name ÁöÑ% Ä%™ Á ¶ÄæÔÁ∞±ÈðØ%ΩøÄì@  
camelCaseÔ°âÈøôÊ† Âè%ª\$È°âÈääÁöÑ name Áíâ Scala ÁöÑÊ†âÈØÜÁ¶¶Ä∞±% ÄÊ† % Ü „ÄÇ  
% ÜÈß£Èö¥Ä\$öÄÖ % é%ªª%Ωì key ÄÜÖÄÆ Ô°âÂèØ%ª • Áú@ sbt  
% \$ % iÊ°Â°èÁöÑÄè%ª\$È°âÈääÈæìÄÖ • inspect <keyname> „ÄÇÈðΩÄÑ  
inspect ÈðæÄ\$ ÁöÑ% Ä%° ö%°öÈÄØÈ °ÈúâÈÑè% âÔ°â%ΩÜÈðØÁú@È° ÈÈ®%°öÈðæÄ\$  
setting ÁöÑ value ÁöÑÄ±ªÄûãÄíâ setting ÁöÑÄÆÄ%ªã „ÄÇ

build.sbt % ÁöÑÄ°ìÄÖ •

%Ω†ÂèØ%ª • Á∞Ü import ÈØ Âè • ÈìæÄú@ build.sbt ÁöÑÈ° ÈÈ®Ô°öÄÆÈ%ª° ÂèØ%ª • % çÄì®Ä© È°â  
% âÈùèÈðØ% Ä%° öÈ°ðÈÆ\$ÁöÑÄ°ìÄÖ • Ô°ö  
import sbt.\_  
import Process.\_  
import Keys.\_  
Ô°âÂè¶Ä\$ñÔ°âÄ¶ÇÈúú%Ω†Èúâ .scala Èñá%ª Ô°âÈøð%° öÈñá%ª % %ªª%Ωì  
Build ÄØ È±°ÈànÈÄÖ Plugin ÄØ È±°ÈääÁöÑÄÜÖÄÆ ÈÈΩ%°öÈè´Ä°ìÄÖ • „ÄÇÈö¥Ä\$öÄÖ % éÈøð%° ö  
.scala ÈúÑÄª ÄÆö%ª â „ÄÇÔ°â

ÈªÄä†%æùÈµñÄ ì

Èúâ% \$ÁßçÈñ Â°èÈªÄä†Ä°°% âÈñ ÁöÑ%æùÈµñ „ÄÇ% ÄÁßçÈðØÁ∞Ü  
jar Èñá%ª ÈìæÄÖ • lib/Ô°âÈùùÈâðÁÆ° ÁöÑ%æùÈµñÔ°â% Ô°âÂè¶Ä\$ ÄÁßçÈðØÄú®  
build.sbt % ÈªÄä†ÈâðÁÆ° ÁöÑ%æùÈµñÔ°âÄÈèÈøôÊ† Ô°ö

val derby = "org.apache.derby" % "derby" % "10.4.1.3"

lazy val commonSettings = Seq(  
 organization := "com.example",  
 version := "0.1.0",  
 scalaVersion := "2.11.7"  
)

lazy val root = (project in file(".")).

```

settings(commonSettings: _*).
settings(
  name := "hello",
  libraryDependencies += derby
)

```

Á∞±ÊðØÁÊèÊðÊ† Ê ºÁä†ÁâàÊúˆ‰ 10.4.1.3 ÁõÑ Apache Derby  
 Á î‰Ωú‰ ‰æùÊµñ„ÄÇ

key libraryDependencies ÁâÖÂêˆ‰ §‰ ™Êñ ÈùçÁõÑÂ§çÊùÇÊÄßÔö+=  
 Êñ Ê îÊÂâ‰ çÊðØ :=ÔºâÁˆˆ‰ º‰ ™Á∞±ÊðØ % Êñ Ê î„ÄÇ+= Êñ Ê îÊðØÁ∞ÛÊñ∞ÁõÑÂÄºÊðΩÁä†ÊØ •  
 key ÁõÑÊðßÁÂºÁêéÈùçÊâ‰ çÊðØÊðøÊççÁÆÊÔºâÊðøÁ∞ÛÁú® ÊðŸÁ§ðÊÆæÁΩÆ  
 ‰‰ ‰ºââÁç„ÄÇ% Êñ Ê îÊðØÁí®Êù •‰ºéÁ óÁˆ¶‰ ÊûÑÈÄ† Ivy Ê®ºÁùó ID  
 ÁõÑÔºâÁ∞ÛÁú® Á î‰æùÊµñ ‰‰ ‰ºââÁç„ÄÇ

ÁðÆÂâçÔºâ‰ ÁÄõŸÁà∞ÁÖ •Êó®ÊââÁçóÁõÑÂêéÈùçÈÉ®ÁâÛÔºâÊæ‰ººº Ê Êðá‰ ÛÁ î‰æùÊµñÁõÑ‰  
 Á î‰æùÊµñ Êù •‰ºââÁçÊðø‰ ðÄÛÖÄÆ „ÄÇ

## Scope

Êðø‰ ÁÄ∞èÊäÇ‰ºâÁç scope„ÄÇÁÄâÊæ‰Ω†Á ÁºèÈðÖÊºÁ ‰º íÁèÛÈß£‰ ÛÁâç‰ ÁÄ∞èÊäÇ  
 .sbt ÊûÑÂº ÁÆö‰ â„ÄÇ

ÄÖ ‰º é Key ÁõÑÊâÄÊúâÊ†Ö‰ º

Áâç‰ ÁÄ∞èÊäÇ Êâè‰ººº ÊÆ§‰ ÁÉè name ÁõÑ‰ Á‰ ™ key Áð ÁΩì‰ é  
 sbt ‰ðùÁ ðÈîÆÁÁºÁØ ÁõÑ map ‰º ÁõÑ‰ ÁÊùºÊÆ∞ÁΩ†ÔºâÊðøÁê™ÊðØ‰ ÁÄßçÁÆÄÂñ„ÄÇ

‰º âÁÊù‰ºº äÔºâÊðè‰ Á‰ ™ key ÁèØ‰ºº • Áú®Á§ð‰ ™‰ºº ä‰ºº âÊñá‰ ÁÖ ÊÄ†‰ Á‰ ™ÁÄºÔºâÊðè‰  
 „Äúscope,Äù„ÄÇ

‰º Á‰º ðÄÖ ‰ºΩìÁõÑ‰ººæâÁ èÔºº

- Á¶ÇÊùúÁú®‰Ω†ÁõÑÊùÑÂº ÁÆö‰ â‰ ÊúâÁ§ð‰ ™Èº ÁðÆÔºâÁú®Êðè‰ ™Èº ÁðÆ‰ Áêâ‰ Á key ÁèØ‰ºº • Êúâ‰ çÁêâÁõÑÂÄº„ÄÇ
- Á¶ÇÊùú‰Ω†ÊÉ Ê† ÊçÆ‰ çÁêâÁõÑÊÉÖÁΩçÁºñÊðèÁÆÉ‰ººº Ôºâkey compile ÁØ ‰º é main Ê èÊñá‰ºº Áíâ test Ê èÊñá‰ºº ÁèØ‰ºº • Êúâ‰ çÁêâÁõÑÂÄº„ÄÇ
- Key packageOptionsÔºâÁâÖÂêˆÁâºÁº jar ÁâÖÁõÑ‰ Á‰ºº ðÊÄâÊº ÔºâÁèØ‰ºº • Êúâ‰ çÁêâÁõÑÂÄº class Êñá‰ºº ÊâìÁâÖÊó ÊðØ packageBinÔºâÁØ Ê è‰ºº£Á†ÁÊâìÁâÖÊó ÊðØ packageSrc„ÄÇ

ÁºðÁÆöÁõÑ key name Ê ºÊúâÁç‰ ÁÄõÑÂÄºÔºâÁð†‰ Áú®‰ çÁêâÁõÑ  
 scope ‰º âÁÆÉÁõÑÂÄº‰ çÁêâ„ÄÇ

ÁÑ ÊÄâÔºâÁººÁÆöÁõÑ scoped key ÁõÑÂÄºÊðØÁç†‰ ÁÄõÑ„ÄÇ

Á¶ÇÊùú‰Ω†ÊÉ Êµ ÁâçÈùç Êâè‰ººº ÊÆ®ÊÆ ÊðáÁõÑÔºâsbt ÁíùÊâè‰ Á‰ ™  
 map Êù • Á§ÑÁèÛÈèÊð∞Èº ÁðÆÁõÑ settings ÁàðÊº®ÔºâÊðø‰ ™ map  
 ‰º ÁõÑ key Á∞±ÊðØ scope ‰º áÄõÑ key„ÄÇÊùÑÂº ÁÆö‰ â‰ ÁÆö‰ âÄõÑÊðè‰ Á‰ ™

settingÔ°à%œãÂ¶ÇÁú@ build.sbt % Ò°àÈÉΩÊúâ% Æ%™ scope  
% ãÄöÑ key,,ÄÇ

% ÄÈà" scope ÊðØÈöêÂ°èÄöÑÊãñÈÄÖÊðØÈ°ðËÆ§ÁöÑÔ°à%ΩÛÊðØ% ÄÊð¶È°ðËÆ§ÁöÑÊðØÈîðËØØÄöÑ  
build.sbt % ÊääÄÆö%Ω†ÊúüÄæÖÄöÑ scope,,ÄÇ

## Scope ÊΩ¥

Scope ÊΩ¥ ÊðØ% ÄÁßçÁ±ªÂûãÔ°ðËØ • Á±ªÂûãÄöÑÊØè%™ÂÆú%œãÈÉΩÊÉΩÄÆö% äÊá™Â ±ÄöÑ  
scopeÔ°à% üÄ∞±ÊðØËØ¥Ô°ðËØè%™ÂÆú%œãÄöÑ key ÄèØ%ª • ÊúâÊá™Â ±ÄîØ% ÄÄöÑÄÄ°Ô°ã,,Ä  
Êúâ% äÁßçÁ±ªÂûãÄöÑ scope ÊΩ¥Ô°ð

- Projects
- Configurations
- Tasks

## ÈÄöËøá Project ÊΩ¥ÄâíÄàÛ Scope

Â¶ÇÊûú%Ω†Â∞Û Â§ö%™È° ÄöÆ ÊîæÂú@Âêâ% Æ%™ÊûñÂª % Ò°àÊØè%™È° ÄöÆÈúÄË¶ÄÊúâÄ±  
settings,,ÄÇ% üÄ∞±ÊðØËØ¥Ô°ðËØè% • Ê† ÊçÆÈ° ÄöÆËç´Â±ÄÈðêÂú@% çÄêâÄöÑ% ä% äÊñá%

Project ÊΩ¥ÄèØ%ª • ÊÆæÁΩÆÊàêÊûñÂª ÄÖ@Â±ÄÄöÑÔ°ðÄö†Ê §% Æ%™  
setting ÄèØ%ª • Ä îÄî@Äà∞ÄÖ@Â±ÄÊûñÂª ÈÄâ% çÊðØÄçï%™È° ÄöÆ,,ÄÇÄΩî% Æ%™È° ÄöÆÈ °Êú  
setting ÄöÑÊó ÄÄöÔ°ðÊûñÂª Ä±ÇÄ ßÄöÑ setting ÈÄöÄ %Ωú% È°ðËÆ§ÁöÑËÆæÁΩÆ,,ÄÇ

## ÈÄöËøá Configuration ÊΩ¥ÄâíÄàÛ Scope

% Æ%™ configuration ÄÆö% â% ÄÁßçÄâ ÄÆöÄöÑÊûñÂª Ô°ðÄèØËÉΩÄâÖÄê´ÄÆËËá™Â ±ÄöÑ  
classpathÔ°ðÄÊ êÊñá%ª ÄîâÄüÊàêÄöÑÄâÖÄ â,,ÄÇConfiguration ÄöÑÈ¶ÇÁøµÊû • Êá™% éÄÆËÄî@Êû • Ä  
Ä î%œûÊµñ ÄöÑ Ivy Äîâ MavenScopes,,ÄÇ

Äú@ sbt % %Ω†ÄèØ%ª • ÄúâÄà∞Ëðð% ò configurationsÔ°ð

- Compile ÄÆö% â%ªÊûñÂª Ô°ðsrc/main/scalaÔ°ð
- Test ÄÆö% äÂ¶Ç%ΩîÊûñÂª ÊµäËÖïÔ°ðsrc/test/scalaÔ°ð
- Runtime % task run ÄÆö% â classpath

È°ðËÆ§ËËÖÄÛµ% ãÔ°ðÄîâÄ°ñËØè,,ÄÄÊàíÄâÖ,,ÄÄËðêË°ðÄö ÄÖ ÄöÑÊâÄÊúâ  
key ÈÉΩÄ±ÄÈðè% é% Æ%™ configurationÔ°ðÄö†Ê §Äú@% çÄêâÄöÑ con-  
figuration % ÄèØËÉΩ% ßÄîü% çÄêâÄöÑÊîâÊûñ,,ÄÇÊúÄËðéËðæÄöÑ%œãÄ êÄ∞±ÊðØ  
task keyÔ°ðcompileÔ°ðpackage Äîâ runÔ°ð ÄÑ ÈÄâËËΩÄ§ü ÄΩ±Äîç  
Äà∞Ëðð% ò key ÄöÑÊâÄÊúâÄÖ %ªñ keyÔ°ð%œãÂÂ¶Ç sourceDirectoriesÔ°ðscalacOptions  
Äîâ fullclasspathÔ°ð% üÈÉΩÄ±ÄÈðè% éËØ • configuration,,ÄÇ

## ÈÄöËøá Task ÊΩ¥ÄâíÄàÛ Scope

Settings ÄèØ%ª • ÄΩ±Äîç% Æ%™ task Â¶Ç%ΩîÄ •%Ωú,,ÄÇ%œãÂÂ¶ÇÔ°ðtask  
packageSrc Ä∞±%°ðËç´ setting packageOptions ÄΩ±Äîç,,ÄÇ

%\_ %\_ ÜÊiØÊâÄËøóÁßçÁâ ÊÄßÔ°â%\_ Ä%\_ ™ task keyÔ°à%\_æãÄ¶Ç  
packageSrcÔ°âÄèØ%\_ª • %\_Ωú%\_ Äè¶%\_ Ä%\_ ™ keyÔ°à%\_æãÄ¶Ç packageOptionsÔ°âÄöÑ  
scope,,ÄÇ

%\_ Ä%\_ òÁíâÊàìÄâÖÁõ ÄÖ ÄöÑ taskÔ°âpackageSrcÔ°âpackageBinÔ°âpackageDocÔ°âÄèØ%\_ª • ÄÖ±%\_ ´Ä  
keyÔ°â%\_æãÄ¶Ç artifactName Äíâ packageOptions,,ÄÇËøð%\_ ò key  
ÄØ %\_ éËØè%\_ ™ÊàìÄâÖÄöÑ task ÄèØ%\_ª • ÊúâÄiØ%\_ ÄÄöÑÄÄ°,,ÄÇ

## ÄÖ®Ä±Ä Scope

ËØè%\_ ÄÄßç scope ËΩ¥ÈÉΩÄèØ%\_ª • Äí®ÄíâËØ • ËΩ¥Ä±ªÄüâ%\_ ÄËá¥ÄöÑÄÆú%\_æã%\_ª£ËøðÔ°â%\_æãÄ  
task ËΩ¥ÄèØ%\_ª • Äí®%\_ Ä%\_ ™ task %\_ª£ËøðÔ°âÔ°âÊàñËÄÖËØ • ËΩ¥ÄèØ%\_ª • Ë´Äâ ÄÆöÄöÑÄÄ°  
Global %\_ª£Ëøð,,ÄÇ

Global ÄöÑËË%\_ª âÄ±±ËðØ%\_Ω†ÊâÄÊúüÄæÖÄöÑÔ°öÄ±Ü setting  
ÄöÑÄÄ°Ä íÄí®Äâ∞ËØ • ËΩ¥ÊâÄÊúâÄöÑÄÆú%\_æã%\_ª ä,,ÄÇ%\_æãÄ¶ÇÄ¶ÇËËú%\_ Ä%\_ ™  
task ËΩ¥ÄöÑÄÄ°ËðØ GlobalÔ°âËÇ£%\_ª àËØ • setting ÄöÑÄÄ°Ä±ÜË´Ä íÄí®Äâ∞ËÊâÄÊúâÄöÑ  
task %\_ª ä,,ÄÇ

## %\_ª£ÄêÜ

Ä¶ÇËËúÄü®%\_ Ä%\_ ™ scope %\_ Êüè%\_ Ä%\_ ™ key Ê °ÊúâÄÖ ËÄíÄöÑÄÄ°Ô°âËÇ£%\_ª àËØ •  
key Ä±±ËðØËË™ÄÆö%\_ª âÄöÑ,,ÄÇ

ÄØ %\_ª éËØè%\_ Ä%\_ ™ scopeÔ°âsbt ÊúâÄí±ÄÖ %\_ªñ scope ÊüÑËâèÄöÑËøð%\_ª£ËÄâË° ÄöÑËêúÄ¥çË ØÄæ:  
key Äü®Äâ ÄÆöÄöÑ scope %\_ª âË °ÊúâÄÖ ËÄíÄöÑÄÄ°Ô°âsbt %\_ªòÄ±üËËØi%\_ªéËø¥Äâ†%\_ ÄËà´ÄöÑ  
scopeÔ°â%\_æãÄ¶Ç Global scope ÊàñËÄÖËüÑÄª ÄÖ®Ä±Ä scopeÔ°â%\_ Êé ÄèñÄÄ°,,ÄÇ

Ëøð%\_ ™Äâ ÊÄßÄÖÄËÆ %\_Ω†%\_ ÄËó¶Äú®Ëø¥Äâ†%\_ ÄËà´ÄöÑ scope  
%\_ ÊÆæÄΩÆ%\_ ÜÊüè%\_ ÄË° ÊÆæÄΩÆÄöÑÄÄ°%\_ª äÄèéÔ°â%\_ΩøÄæóÄ§ø%\_ ™Äâ ÄÆöÄöÑ  
scope ËËΩÄ§üÄªßÊâøËØ • ÄÄ°,,ÄÇ

%\_Ω†ÄèØ%\_ª • ÄËè%\_ª âËùçËøðË† Äí® inspect ÄèΩ%\_ª§Ëü • Äúâ%\_ Ä%\_ ™  
key ÄöÑËøð%\_ª£ËËÄâË° ÄöÑËü • ÊâæË ØÄæÑËàñËÄÖ,Äú%\_ª£ÄêÜ,Äü,,ÄÇÄæÄ%\_ª äÄúâ,,ÄÇ

## ËøèË°â sbt Êó Ê âÄèä scope %\_ª äÄöÑ key

Äü®ÄèΩ%\_ª§Ë°âÄöÑ%\_ª §%\_ª íË®°Ä°è%\_ª äÔ°âsbt ÄËèËøðË† ÊðæÄ§ Ô°âÄíâËß£ËËüèÔ°âscope  
%\_ª äÄöÑ keysÔ°ö

{<build-uri><project-id>/config:intask::key

- {<build-uri><project-id> Ê†áËØÜ project ËΩ¥,,ÄÇÄ¶ÇËËú  
project ËΩ¥ÊúâËüÑÄª ÄÖ®Ä±Ä scopeÔ°âÄ±ÜË °Êúâ <project-id>  
ËË®ÄâÜ,,ÄÇ
- config Ê†áËØÜ configuration ËΩ¥,,ÄÇ
- intask Ê†áËØÜ task ËΩ¥,,ÄÇ
- key Ê†áËØÜ scope %\_ª äÄöÑ key,,ÄÇ

```
,Äú*,ÄùÂè ÂèØ%ª • Äá Áé∞Äú®%ªªÊÑèÈΩ¥ÔªªÂèÇËÄÉ Global scope,,ÄÇ
Ä¶ÇÊûú%Ω†ÄúÄÄĩ • ÈÉ®ÄàÛ scoped keyÔªªÄÆÉ%ªªÄÉè%ªª äÈùcÈøðÊ† Êé®Êñ Ôªª
• Ä¶ÇÊûúÄúÄÄĩ • projectÔªªÄΩìÄâçÄöÑ project %ªªøÈc' %ªªΩøÄî®,ÄÇ
• Ä¶ÇÊûúÄúÄÄĩ • configuration ÊànËÄÖ taskÔªªª%ªªªÈá™Ää®Ê£ÄÊµä
key ÊäÄÊúä%ªªæùÊµñÄöÑ configuration,,ÄÇ
Êø¥Ä§øÈØ¶ªªÜÄÜÖÄÆ ÔªªäÈØ ÂèÇËÄª %ªª é Configuration ÄªÄªü%ªª §%ªª í,,ÄÇ
```

```
%ªªΩøÄî® scoped key Ê†áÈØÜÄöÑ%ªªæäÄ ê
```

- `fullClasspath %ªªªÖ%ªªªÖÊääÄÆø%ªª Ü%ªª Ä%ªª™ keyÔªªäÊäÄ%ªªª • %ªªª%ªªΩøÄî®ÈªªðÈÆ§ÄöÑ`  
scopeÔªªªÖΩìÄâçÄöÑ projectÔªªªkey ÊäÄ%ªªæùÊµñÄöÑ configuration  
ÄíäÄÖ®Ä±Ä task ÄöÑ scope,,ÄÇ
- `test:fullClasspath ÊääÄÆø%ªª configurationÔªªäÊäÄ%ªªª • Èøø%ªª™`  
`fullClasspath Ä∞±Äú® test configuration scope %ªª äÔªªÄÖ %ªªªñ%ªª §%ªª™`  
scope ÈΩ¥Äùä%ªª ÈªªðÈÆ§ÄÄª,,ÄÇ
- `*:fullClasspath Ä∞Ü configuration ÊääÄÆø%ªª GlobalÔªªäÊäÄ%ªª çÈðØÈªªðÈÆ§ÄöÑ`  
configuration,,ÄÇ
- `doc::fullClasspath Ä∞Ü key fullClasspath Ä±ÄÈøêÄú® doc task`  
%ªª äÔªªªproject ÈΩ¥Äíä configuration ÈΩ¥ÈøðÈðØÈªªðÈÆ§ÄöÑ,,ÄÇ
- `{file:/home/hp/checkout/hello/}default-aea33a/test:fullClasspath`  
`ÊääÄÆø%ªª Ü%ªª Ä%ªª™ projectÔªªäÄú® {file:/home/hp/checkout/hello/}default-aea33a`  
%ªª Ôªªª{file:/home/hp/checkout/hello/} Ê†áÈØÜ projectÔªªä
- `{file:/home/hp/checkout/hello/}/test:fullClasspath Ä∞ÜÊûÑÄª %ªª`  
`{file:/home/hp/checkout/hello/} ÄöÑ project ÈΩ¥ÈÆæÄΩÆ%ªª ÄÖ®Ä±ÄÊûÑÄª,,ÄÇ`
- `{.}/test:fullClasspath Ä∞ÜÊûÑÄª %ªª {.} ÄöÑ project ÈΩ¥ÈÆæÄΩÆ%ªª ÄÖ®Ä±ÄÊûÑÄª,,ÄÇ`  
ÄèØ%ªªª • Äú® Scala %ªªª£Ä†Ä%ªª ÄÜøÈàè ThisBuild,,ÄÇ
- `{file:/home/hp/checkout/hello/}/compile:doc::fullClasspath`  
`ÈÆæÄΩÆ%ªª ÜÄÖ®ÈÉ®ÄöÑ%ªª ä%ªª™ scope ÈΩ¥,,ÄÇ`

```
ÄÆªÊü • scope
```

```
Äú® sbt ÄöÑ%ªª §%ªª íÊ®ªªªªªª äÔªªª%ªªΩ†ÄèØ%ªªª • %ªªΩøÄî® inspect
ÄëΩ%ªªª§Êù • ÄêÜË£ key ÄíäÄÆÉÄØ Ä íÄöÑ scope,,ÄÇÄ∞ùÈØĩ inspect
test:fullClasspathÔªªä
```

```
$ sbt
```

```
> inspect test:fullClasspath
```

```
[info] Task: scala.collection.Seq[sbt.Attributed[java.io.File]]
```

```
[info] Description:
```

```
[info] The exported classpath, consisting of build products and unmanaged and managed, internal
```

```
[info] Provided by:
```

```
[info] {file:/home/hp/checkout/hello/}default-aea33a/test:fullClasspath
```





```

GlobalOptions.fullClasspathOptions,AC
• ÁΩiÄÖ®Ä±ÄÊûÑÄª %  Ê °ÉúâÉääÄÆöÄâ ÄÆöÄöÑ project Êö Öªproject
%öÖÊ¢´ÊÆæÄΩÆÊâê {.} ÊànÊÄÖ ThisBuild,,AC
• Á∞Ü project ÊΩ¥ÊÆæÄΩÆÊâê GlobalOptions/test:fullClasspathOptionsÊÆ∞%ΩèÖª% ÊÉääÄÆö
project Ê®Ä§ Ái®ÄΩiÄâÇÄöÑ currentOptionsÊÄÄ%ª • ÊøðÊääÊü • Êâæ
Global ÊðØ% Ä% ™Êñ∞ÄöÑÊñ Ä°èÖ°ö%æâÄ¶ÇÖ°ö* Áiª ,ÄúÊðæÄ§ Ê °Éúâ
project,Äù ÄØ % é project ÊΩ¥ÊðØ% Ç% ÄÊ† ÄöÑÖ°ö%æâÄ¶ÇÖ°ö*/test:fullClasspath
Áiª test:fullClasspath % ÇÊðØ% ÄÄöü% äÖª,,AC
• project ÊΩ¥Áiª configuration ÊΩ¥ÊÉΩ%öÊ¢´ÊÆæÄΩÆÊâê
GlobalOptions/*:fullClasspathOptionsÊøðÊÆ∞ÄæóÊâê%ª· Ä Ä°èÖØ¥Êøá% ÇÊääÄÆö
task Ê®Ä§ Ái® GlobalOptionsÊÄÄ%ª • /*:fullClasspath Ê®Ä§ % ä% ™ÊΩ¥ÊÉΩÄi®
GlobalOptions,,AC

Ä∞ùÊÖiÁi® inspect fullClasspathOptionsÄiª% äÊù¢%æâÄ ê% ÄöÑ inspect
test:fullClasspath Äö ÄØ ÖªÊù • Êü • ÁúâÄÆÉ%ª· ÄöÑ% ÇÄê,,ACÄö†%
configuration Ê¢´ÁúÄÄi·% ÜÖªsbt Êá™Äâ®Ê£ÄÊµâÄ ÊÆæÄΩÆ%
compile,,AC Äö†Ê § inspect compile:fullClasspath ÄæóÄà∞ÄöÑÄªiÊüúÁúâÊµ Êù • Ä iÊØ • Áiª
inspect fullClasspath ÄæóÄà∞ÄöÑÄªiÊüú% ÄÊ† ,,AC

Ä∞ùÊÖiÁi® inspect *:fullClasspath %Ωú% ÄØ ÊÖi,,ACÊªðÊÆ§ÊÊÖÄÜµ% äÖªfullClasspath
Ê °ÉúâÄÆö% äÄú® Global configuration % ,,AC

Êö¥Ä§öÊØ¶ÄªÜÄöÑÄÜÖÄÆ ÊØ ÄèÇÊßÄ % é Configuration ÄªÄªü% §% í,,AC

Äú®ÊûÑÄª ÄÆö% ä% Ê äÄèä scope

Ä¶ÇÊüú%Ω†ÄàöÄª ÄöÑ build.sbt % Êúâ% Ä% ™bare keyOptionsÄÆÉÄöÑ%ΩúÄi®% éÄ∞ÜÊðØÄΩiÄâÇ
project % äÖªconfiguration Áiª task Äúª% GlobalOptions

lazy val root = (project in file(".")).
  settings(
    name := "hello"
  )

ÄêØÄâ® sbt Ä % iÊâßÊª inspect name ÄèØ%ª • ÁúâÄà∞ÄÆÉÄi±
{file:/home/hp/checkout/hello/}default-aea33a/*:name Êèè%æöÖª% üÄ∞±ÊðØÊØ¥Öªproject
ÊðØ {file:/home/hp/checkout/hello/}default-aea33aÖª configuration
ÊðØ *ÖªÊ®Ä§ ÄÖ®Ä±ÄÖªÖªtask Ê °ÉúâÊðæÄ§ Äá Êù • ÖªÄÆüÊöÖ% ä% üÊðØÄÖ®Ä±ÄÖª,,AC

Keys %öÖÊ∞ÉÄi®% Ä% ™ÊáÇÊΩΩÄöÑ in Êñ Ê iÊÆæÄΩÆ scope,,AC%ö†Äªö
in Êñ Ê iÄöÑÄèÇÊi∞ÄèØ%ª • ÊðØ%ªª%Ωi scope ÊΩ¥ÄöÑÄÆü%æâ,,ACÊÖiÄ¶ÇÊÖ¥Öª%Ω†ÄèØ%ª •
name Ä±ÄÊêêÄú® Compile configuration % ÖªÄ∞ΩÄÆ°Ê °ÉúâÄúüÄÆüÄöÑÄèÜÄi±Ê¶ÄÊøðÊ† ÄÄöÖö
name in Compile := "hello"

ÊànÊÄÖ%Ω†ÄèØ%ª • Êää name Ä±ÄÊêêÄú® packageBin task % ÖªÊ °Éúâ%ªÄ% äÊÑè% äÖªÄ%ªÖ%
name in packageBin := "hello"

ÊànÊÄÖ%Ω†ÄèØ%ª • Êää name Ä±ÄÊêêÄú®Ä§ö% ™ scope ÊΩ¥% Öª%æâÄ¶ÇÄú®
Compile configuration ÄöÑ packageBin task % Öªö

```

```

name in (Compile, packageBin) := "hello"

ÊàñÊÄÖ%Ω†ÂèØ%ª•Áî®Global Ê°®Á§ ÊâÊËúâÁöÑÊΩ¥Ôö

name in Global := "hello"

Ô°àname in Global ÊöêÂ°èÁöÑÊää scope ÊΩ¥ÁöÑÂÄ°Global ÊΩ~Êçç%
scope ÊâÊËúâÊΩ¥ÁöÑÂÄ°Âùâ% GlobalÔ°otask Áíâ configuration
ÊªðÊÆ§ÊðØ GlobalÔ°âÁö†Ê §ÊøðÊääÁöÑÊíâÊúúÊðØÂ∞Û project
ÊÆæÁΩÆÊâê GlobalÔ°â % üÂ∞±ÊðØÊØ¥Ô°âÂÆö% â% Û */*:name
ÊÄâ% çÊðØ {file:/home/hp/checkout/hello/}default-aea33a/*:nameÔ°â

Â¶ÇÊúú%Ω†% âÂâç% çÁÛüÊÇâ ScalaÔ°âÊèèÊÛí% Ä% âÔ°öin Áíâ :=
%ªÔ°ªª°ÔÊðØÊñ Ê îÔ°ª% çÊðØÊ îÊ îÔ°ªÁêÛÊß£ÊøðÁÇ ÁæàÊáçÊ¶Á,,ÄÇScala
ÊÊ©%Ω†Áî®% ÄÁßçÊö¥Á•ΩÁöÑÊñ Á°èÁ°ñÂÛðÂÆÊ%ª~Ô°ª%ΩÛÊðØ%Ω†% üÂèØ%ª•Áî®
Java ÁöÑÊ£éÊ†°Ô°ö

name.in(Compile).:=("hello")

ÊØ´Êó†ÁêÛÁí±%ΩøÁî®ÊøðÁßç% èÊðâÁöÑÊØ Ê îÔ°ª%ΩÛÊðØÂÆÊÊðèÊðèÊøðÂÆúÊðÖ% äÊðØÊñ Ê î,

ÊääÂÆö scope ÁöÑÊó Êú

Â¶ÇÊúú% Ä% ™ key ÊÄöÂ ÁöÑ%ΩúÁî®ÂüüÊúâÊóÆÊçòÔ°ª%Ω†ÊúÄÊ¶ÁÊääÂÆö
scope,,ÄÇ%ªªªÂ¶ÇÔ°ªcompile task ÊªðÊÆ§ÊðØÁú®Compile Áíâ Test con-
figuration ÁöÑ scope % Ô°âÊÄâ% íÁú®Êøð% õ scope % âÁ§ñÂÆÊÄ % çÁ òÁú®,ÄÇ
% % ÛÊî Âèø key compile ÁöÑÂÄ°Ô°ª%Ω†ÊúÄÊ¶ÁÛðÊâê compile
in Compile ÊàñÊÄÖ compile in Test,,ÄÇÁî®ÊðÆÊÄöÁöÑ compile
%ªøªÁú®ÂîÂâç project ÁöÑ scope % ÂÆö% â% Ä% ™Êñ∞ÁöÑ
taskÔ°ªÊÄâ% çÊðØÊ¶ÛÁõñ configuration ÁöÑ scope Ê†áÁâÛÁöÑ compile
task,,ÄÇ

Â¶ÇÊúú%Ω†ÊÄâÂà∞ÁÉè ,ÁúÁ°iÁî®Êú™ÂÆö% áÁöÑÊÆæÁΩÆ,Áú
ÊøðÊ† ÁöÑÊîðÊØØÔ°âÊöÂ ÊðØ%Ω†ÊääÂÆö scope Á§±Ê¥•% ÛÔ°âÊàñÊÄÖ%Ω†ÊääÂÆö% Û% Ä%
scope,,ÄÇ%Ω†%ΩøÁî®ÁöÑ key ÂèØÊÊΩÂÆö% áÁú®ÂÖ %ªñÁöÑ scope
% ,ÄÇsbt %ªøª∞üÊØîÁú®ÊîðÊØØÊ âÊÄØÊääÊùçÊèèÁ§ %Ω†ÁöÑÊÊ Ê îÊðØ%ªÄ% àÔ°ðÂ¶Ç
,Áú%Ω†ÊðØÊää compile:compileÔ°ü,Áú

% ÄÁßçÊñ Á°èÊðØ%Ω†ÂèØ%ª•ÊøðÊ† ÊÆ§% Ô°àname Âè™ÊðØ key
ÁöÑ % ÁÊÊ®ÁàÛ,,ÄÇÂÆúÊðÖ% äÔ°âÊâÊËúâÁöÑ key ÊÊΩÊúâ name Áíâ
scope ÁªÑÊâèÔ°àscope Êúâ% â% ™ÊΩ¥Ô°â,,ÄÇÊççÂè•ÊØùÊØ¥Ô°âpackageOptions
in (Compile, packageBin) ÊðØÊ°®Á§ key name ÁöÑÂÆâÊí¥ÁöÑÊ°®ÊææÂ°è,,ÄÇ
ÂÖ ÁÆÄÂÛð packageOptions % üÊðØ% Ä% ™ key nameÔ°ª%ΩÛÊðØÊðØ% çÁêâÁöÑÔ°âÂØ %ªéÊ °Ê
in Êñ Ê îÁöÑ keyÔ°ª%ªøèèÂ°èÁöÑÂÄâÊÆæ% Ä% ™ scopeÔ°ªÂΩîÂâçÁöÑ
projectÔ°ªglobal configÔ°ªglobal taskÔ°â,,ÄÇ

```

ÊõŸÂ§öÂÖ %ø éËÆæÁΩÆ

Ëøø%ø ÂÂ∞èËäÇÂ∞Û%øªãÁªÇÈø§%ø ÛÁí®Äü Êú´ ÁöÑ := Êñ Ê ïÄàöÂª ËÆæÁΩÆÔªËËøøÊúâÄÖ %øªñÁöÑ  
.sbt ÊûÑÂª ÂÆö%ø â Äíâ scope,,ÄÇ

ÄöûÈ°æÔ°öËÆæÁΩÆ

ËøøËÆ∞ÄæóÄú® .sbt ÊûÑÂª ÂÆö%ø â %ø Ôªª%ø Ä%ø ™ÊûÑÂª ÂÆö%ø âÄàöÂª %ø Û%ø Ä%ø ™  
Setting ÄàöÈ°®ÔªªÄÑ ÂêéËøø%ø ò Setting Ëç´ Áí®Êû• ÄØ sbt ÁöÑÊûÑÂª ÈèèËø∞ÄÄöËΩ´ËÇçÔªªÄÆÉ  
mapÔªª,,ÄÇ%ø Ä%ø ™ Setting Ä∞±ÈòØÄ∞Û sbt %ø äÄâÇÄöÑ map  
%øΩú%ø ËæìÄÖ•Ä %ø îËæìÄá %ø Ä%ø ™Êñ∞ÄöÑ map ÄöÑËΩ´ËÇç,,ÄÇ  
Ëøø%ø ™Êñ∞ÄöÑ map Ä∞±ÈòØ sbt ÁöÑÊñ∞Ää ÊÄÄ,,ÄÇ

%ø ÇÄêä setting ÈÄöËøª%ø ÇÄêäÁöÑÊñ Ä°èÄØ ËØ• map ËøøÈ°ªËΩ´ËÇç,,ÄÇ%ø äÄâÇÄú®  
.sbt ÊûÑÂª ÂÆö%ø â %ø Ôªª%øΩ†Ä ÄªèÈòËØªª%ø Û := Êñ Ê ïÄö ÄÖ ÄöÑÄÛÖÄÆ ,,ÄÇ

ÈÄöËøª := ÄàöÂª ÁöÑ Setting %ø°öÄæÄËΩ´ËÇç%ø äÄêéÊñ∞ÄöÑ map  
%ø ÊîæÄÖ•%ø Ä%ø ™Äö ÄÆöÄöÑÄ Èäè,,ÄÇ%øæäÄ¶ÇÔªªÄ¶ÇËûú%øΩ†ÈÄöËøª  
name := "hello" ÄØ map ÄÄö%ø ÄË´°ËΩ´ËÇçÔªªÊñ∞ÄöÑ map %ø key  
name Ä∞±%øøùÄ òÄùÄ%ø Ä%ø ™Ä óÄ´¶%ø "hello",,ÄÇ

ËøΩÄä†ÄÄ°Ô°ö += Äíâ +=

ÈÄöËøª := Êñ Ê ïËµâÄÄ°ÈòØÊúÄÄÆÄÄÇíÁöÑËΩ´ËÇçÔªªΩÛÈòØ key  
%ø üÊúâÄæàÄ§öÄÖ %øªñÁöÑÊñ Ê ï,,ÄÇÄ¶ÇËûú SettingKey[T] %ø ÁöÑ T  
ÈòØ%ø Ä%ø ™ÄàöÈ°®ÔªªæäÄ¶ÇÔªªÄ%ø ™key ÁöÑÄÄ°ÄöÑÄ±ªÄúâÈòØ  
sequenceÔªª%øΩ†Ä∞±ÄèØ%øª•ÄæÄÄàöÈ°®%ø ËøΩÄä†ÈÄª%ø ÇÈòØËøøËÇç,,ÄÇ

- += %ø°öËøΩÄä†ÄÇí%ø ™ÄÖÉÄŸ†Äà∞ÄàöÈ°®%ø ,,ÄÇ
- += %ø°öËøûÈé•%ø §%ø ™ÄàöÈ°®,ÄÇ

%øæäÄ¶ÇÔªªÄ%ø ™key sourceDirectories in Compile ÄöÑÄÄ°ÈòØ  
Seq[File],ÄÇÈªòËÆ§ÈÈÖÄÛµ%ø äËØ• key ÄöÑÄÄ°%ø°öÄâÖÄê´  
src/main/scala,,ÄÇÄ¶ÇËûú%øΩ†%ø üÈÈ Ä°ñËØèÄê´ÄÄö source ÄöÑÄöÆÄΩí%ø äÄöÑÈ è%øª£Ä†ÄÖªÄöÑ

sourceDirectories in Compile += new File("source")

ÊànÈÄÖÔªªÈÄµÄæ™Ä ¶ÄÆö%øΩøÄí®sbt ÄâÖ%ø ÄöÑ file() ÄáΩÊí∞Ô°ö

sourceDirectories in Compile += file("source")

Ôªªfile() Äè™ÈòØÄàöÂª %ø Û%ø Ä%ø ™Êñ∞ÄöÑFile,,ÄÇÔªª

%øΩ†ÄèØ%øª•Äí® += %ø ÄË´°Ë Ää†Ä§ö%ø ™ÄöÆÄΩíÔ°ö

sourceDirectories in Compile += Seq(file("sources1"), file("sources2"))

Seq(a, b, c, ...) ÈòØ Scala Áí®Êû•ÊûÑÂª ÄàöÈ°®ÄöÑË†áÄáÛÈØ Ê ï,,ÄÇ

Ë¶ÄÄÆâÄÖ®ÈøøËÇçÈªòËÆ§ÁöÑ source ÄöÆÄΩíÔªªÄΩìÄÑ ÄèØ%øª•%øΩøÄí®  
:= Êñ Ê ïÔ°ö

```
sourceDirectories in Compile := Seq(file("sources1"), file("sources2"))
```

```
%øæùĚμñ% éÂÖ %ªñ key ÄöÑÄÄ°ĚÆ°ÁÆóÄÄ°
```

```
Ä°íÁí@Äè¶% Ä% ™ task ÈāñĚÄÖ setting ÄöÑÄÄ°Äè™ĚúÄĚ¶ÄĚ∞ÉÁí@ÄÆÉ%ª· ÄèÑĚá™ÄöÑ
value Èñ È ĭ,,ÄÇĚØ • value Èñ È ĭĚØĭĚæĚÁâ ĚÆäĚÄª% ĭÄè™ĚĚΩÄú@
:=Ö°ª+= ÈāñĚÄÖ += Èñ È ĭÄöÑÄèÇĚĭ∞% äĚ∞ÉÁí@,,ÄÇ
```

```
%Ωú% Ä°·% Ä% ™%øæäÄ èÖªĚÄĚĚðèÄÆö% â% Ä% ™ÄèÇÁβ∞Áíâ
project % ÄĚ† ÄöÑ organization,,ÄÇ
```

```
// name our organization after our project (both are SettingKey[String])
organization := name.value
```

```
ÈāñĚÄÖÖªĚÆæÁΩÆÄöÑÄíâÈ° ÄöÆÄöÆÄΩĭÄèÇÁβ∞% ÄĚ† Ö°ö
```

```
// name is a Key[String], baseDirectory is a Key[File]
// name the project after the directory it's inside
name := baseDirectory.value.getName
```

```
Ěøð% ™ĚΩ·ĚÇç% ÈááÁí@ java.io.File ÈáâĚùçÄöÑĚ†áÄáÜĚñ È ĭ
getName ÄèñÄæó% Ü baseDirectory ÄöÑÄÄ°,,ÄÇ
```

```
ÈááÁí@Ä§ö% ™ĚæĭÄÖ • ĚðØÁ±ª%∞ÄöÑ,,ÄÇ%øæäÄ¶ÇÖª
```

```
name := "project " + name.value + " from " + organization.value + " version " + version.val
```

```
ĚÄöĚøáÄ∞Ü name % äÄâÇÄöÑÄÄ°Äíâ organization %ª • Äèä version
ÄöÑÄÄ°Ěä°Ěé • Ěμ Ěù • Ö°äªñĚäè name ÄöÑĚñ∞ÄÄ°,,ÄÇ
```

```
ÄäÖÄè°%øæùĚμñÄöÑĚÆæÁΩÆ
```

```
Äú@ name := baseDirectory.value.getName ĚÆæÁΩÆ% Ö°āname %°ö
%øæùĚμñ% é baseDirectory,,ÄÇÄ¶ÇĚúú%Ω†Ä∞Ü% äĚùçÄöÑ%ªĚÁ†ÄÄÜðÄÖ •
build.sbt % Ö°äÄ % ĭÄèØÄä@ sbt ÄöÑ% §% ĭĚ®°Ä°èÖ°äÄÑ ÄéèĚæĭÄÖ •
inspect nameÖª%Ω†Ä ĭĚØ • ÁúâÄà∞Ö°àĚĚ®ÄàÜÄú∞Ö°äÖ°ö
```

```
[info] Dependencies:
[info] *:baseDirectory
```

```
ĚøðÄ∞±ĚðØ sbt Äü • ÈÄĭ% Ä% ™ setting Ä¶Ç%Ωĭ%øæùĚμñ% éÄè¶% Ä% ™
setting,,ÄÇĚøðĚÆ∞Äæó% Ä% ö setting ÈèèĚø∞% Ü taskÖªĚÄÄ°ª • ĚøðÁβÇĚñ Ä°è% üÄàðÄª % Ü
task % äĚó¥ÄöÑ%øæùĚμñÄÖ Äª,,ÄÇ
```

```
%øæäÄ¶ÇÖªÄ¶ÇĚúú%Ω†ĚâβĚª inspect compile %Ω†%°öÄúâÄà∞ÄÆÉ%øæùĚμñ% ÜÄè¶% Ä% ™
key compileInputsÖªĚÄª% ĭÄ¶ÇĚúú%Ω†ĚâβĚª inspect compileInputs
ÄÆÉĚøð%°ø%øæùĚμñ% éÄÖ %ªñÄöÑ key,,ÄÇ% ÄÄö¥ĚøΩĚ Ø%øæùĚμñĚìæ%°öĚúâĚ ĭĚ ĭÄèèÄĭü,,ÄÇ%
compile Ěó Öª sbt Ěá™Ää@ĚâβĚª% Ü update,,ÄÇÄÆÉÄèØ%ª • Ä • %ΩúĚðØÄö†%
compile ĚÆ°ÁÆóĚúĚĚ¶ÄÄöÑĚæĭÄÖ • ÄöÑÄÄ°ĚúÄĚ¶Ä sbt ÄÖàĚâβĚª
update ĚÆ°ÁÆó,,ÄÇ
```



```

    ÀèÇÂêëÁõÑÊìç%ΩúÊòØ % çÁèØĒĒΩ ÁõÑ,,ÄÇ% üÂ∞±ÊòØĒØŸÔ°â% Ä% ™
    setting ÁõÑ key % çĒĒΩ%æùĒμñ% é% Ä% ™ task ÁõÑ key,,ÄÇĒòØÄô†% % Ä% ™
    setting ÁõÑ key Âè™%°öÁú®Ē° ÁõÆÄä†ĒΩΩÁõÑĒó ÁÄòĒÆ°ÁÆó% ÄĒ°°Ô°âĒâ%°•
    task % ç%°öĒØèĒ°ĒĒΩĒÉäÇĒñ∞ĒâßĒ°âÔ°âĒâ task ÊúüÄæÖĒØèĒ°ĒĒΩĒÉäÇĒñ∞ĒÆ°ÁÆó,,ÄÇ

    // checksums setting % çĒĒΩ%æùĒμñ scalacOptions task Êü•ÄÆô% â
    checksums := scalacOptions.value

```

```

ĒøΩÄä†%æùĒμñÔ°ö+= Áíá ++=

```

```

    ÁñĒĒΩÄä†Áà∞% Ä% ™Ä Á°èÄ òÁú®ÄõÑ setting ÊànĒÄÖ task
    Êó ÄèØ%°•%ΩøÄí®Äè¶% Ä% ò keyÔ°âÄ∞±ÁĒèÄÆĒ%°°ÄèØ%°°•ĒÄöĒøá
    := ĒμāÄÄ% ÄĒ† „ÄÇ%æāÄ¶ÇÔ°âĒØíĒñ ĒØŸ%Ω†Ēúá% Ä% ™%°°•Ē° ÁõÆÄêçÁβ∞ÄèΩÄêçÁõÑĒ¶Ÿ
    cleanFiles += file("coverage-report-" + name.value + ".txt")

```

Ä î%æùĒμñ

```

    ĒòÖĒØ°Ēøó% ÄÄ∞èĒäÇĒó Ô°âÄÄáĒÆæ%Ω†Ä Á°èĒòÖĒØ°ĒøáĒñ∞ĒââÄÖ•Ēó®ÄâçĒÈçÁõÑÄÜÖÄÆ Ç
    .sbt ÊüÑÄ° ÄÆó% âÔ°âScopes Áíá ĒóŸÄ§öÄÖ % éĒÆæÄΩÆ,,ÄÇ

    ÄèØ%°°•ĒÄöĒøá% âĒÈçĒøó% §ÁβçĒñ Á°èĒ °Ää†Ä î%æùĒμñÔ°ö
    • ÊüüĒĒâòÁÆ%æùĒμñ % ÊîæÄú® lib ÁõÆÄΩî% äÄõÑ jar Êñá%° ÊîæÄú® lib
    • ÊâòÁÆ%æùĒμñ ĒÖçÁΩÆÄú®ÊüÑÄ° ÄÆó% â% Ô°âÄ % î%°°öĒÄ™Äâ®%°°é%°°îÄ îÔ°arepository

```

ÊüüĒĒâòÁÆ°%æùĒμñ

```

    Á§ßÄ§öĒî∞% %°öÁí®ĒâòÁÆ°æùĒμñĒĒâ% çĒòØĒüüĒĒâòÁÆ°æùĒμñ,,ÄÇ%ΩÜĒòØĒüüĒĒâòÁÆ°æùĒμñ
    ĒüüĒĒâòÁÆ°æùĒμñÄĒèĒøóĒ† Ä •%ΩúÔ°öÄ∞Ü jar Êñá%° ÊîæÄú® lib
    Êñá%°° Á§ % äÔ°âÄÑ ÄêéÄÆĒ%°°Ä∞Ü%°öĒç´Ē °Ää†Áà∞Ē° ÁõÆÄõÑ
    classpath % „ÄÇĒ °ĒúáĒóŸÄ§öÁõÑ% äĒĒÖ% ÜÔ°Ä

    %Ω†% üÄèØ%°°•Ä∞ÜĒμāĒĒØî%æùĒμñÄõÑ jar Êñá%° ÊîæÄú® lib
    ÁõÆÄΩî% äÔ°âĒØíÄ¶Ç ScalaCheckÔ°âSpecs2Ô°âScalaTest,,ÄÇ

    lib ÁõÆÄΩî% äÄõÑĒĒâĒĒúâ%æùĒμñĒĒĒΩ%°öÁú® classpathsÔ°âÄØ
    compileÔ°â testÔ°â run Áíá console ĒĒΩĒâêÄ´âÔ°â,,ÄÇÄ¶ÇĒúú%Ω†ĒĒ ÄØ ÄÖ % ÄõÑ% Ä% ™Êî Äè
    classpathÔ°â %Ω†ĒúÄĒ¶ÄÄÄöĒÄÇÄΩĒĒĒŸÔ°â%æāÄ¶Ç dependencyClasspath
    in Compile ÊànĒÄÖ dependencyClasspath in Runtime,,ÄÇ

    Ä¶ÇĒüüÁí®ĒüüĒĒâòÁÆ°æùĒμñÄõÑĒĒØùÔ°â% çÁí®ÄæÄ build.sbt
    Êñá%°° % Ê°Ää†%°°%ΩîÄÜÖÄÆ Ô°â% çĒøá%Ω†ÄèØ%°°•Êî Äèò
    unmanagedBase keyÔ°âÄ¶ÇĒüü%Ω†ĒĒ Äí®% Ä% ™% çÄêâÄõÑÄõÆÄΩîĒĒâĒĒü
    lib,,ÄÇ

    Äí® custom_lib Êõø%°£ libÔ°ö

    unmanagedBase := baseDirectory.value / "custom_lib"

```



```
baseDirectory ÊðØÈ° ÁðÆÁðÑÊ† ÁðÆÁÑiÔ°âÊâÄ%a • Áú®ÊððÊää%0†%0æùÊÇÆ
baseDirectory ÁðÑÄÄ°Êî Äèð%0 Û unmanagedBaseÔ°âÊÄðáÄú®
Êð¥Á§ðÄÖ %0 éÊÆæÄΩÆ %0 %0ªÄªÇÄöÑ%0 Ä%0 ™Äâ ÊÆääöÑ value
Êñ Ê î,,ÄÇ
```

```
ÄêâÊó %0 üÊúâ%0 Ä%0 ™Äàð%0 æ unmanagedBase ÁðÆÁÑi%0 äÊâÄÊúâ jar
Êñá%a ÄöÑ task Äè´ unmanagedJars,,ÄÇÄ¶ÇÊúú%0†ÊÊ Äî®Á§ð%0 ™ÄðÆÁÑiÊànÊÄÖÄÄð%0 Ä%0 òÊð¥
task ÊððÊÇÇÊÏ¥%0 ™ unmanagedJars taskÔ°â %0æâÄ¶ÇÊ ÖÄ© Compile
configuration ÁðÑÄàðÊ°®Ô°ª%0 ÇÊÄÊÊðë lib ÁðÆÁÑi%0 äÄöÑÊñá%a Ô°ö
unmanagedJars in Compile := Seq.empty[sbt.Attributed[java.io.File]]
```

ÊâðÄÆ°%<sub>0</sub>æùÊµñ

```
sbt %0ΩðÁî® Apache Ivy Êù • ÄÆúÁé∞ÊâðÄÆ°%0æùÊµñÔ°âÊâÄ%a • Ä¶ÇÊúú%0†ÄØ
Ivy ÊànÊÄÖ Maven ÊØiÊæÊÄÜüÊÇâÄöÑÊØùÔ°ª%0†%0 Ç%0°òÊúâÄ§™Á§ðÄöÑÈªÄÉ¶,,ÄÇ
```

**libraryDependencies Key**

```
Á§ßÄ§ðÊï∞Êó ÄÄðÔ°ª%0†ÄèØ%a • ÄæâÄÆÄÄÇiÄöÑÄú® libraryDependencies
ÊÆæÄΩÆÈ° %0 ÄàóÄª %0†ÄöÑ%0æùÊµñ,,ÄÇ%0 üÄèØ%a • ÊÄðÊðá Maven
POM Êñá%a ÊànÊÄÖ Ivy ÈÖÇÄΩÆÊñá%a Êù • ÈÖÇÄΩÆ%0æùÊµñÔ°âÊÄâ%0 îÄèØ%a • ÈÄöÊðá
sbt Êù • Ê∞ÉÁi®Êðð%0 òÄ§ñÊÊ®ÄöÑÈÖÇÄΩÆÊñá%a ,,ÄÇ %0†ÄèØ%a • %0ªéÊððÊääÊé ÄènÊð¥ÊØ¶ÄªÜ
ÄèØ%a • ÄéèÊððÊ† ÄÆð%0 â%0 Ä%0 ™%0æùÊµñÔ°âÄÖ %0 groupIdÔ°ª
artifactId Äiâ revision ÈÊΩÈðØÄ ÁÄ´¶%0 Ô°ö
```

```
libraryDependencies += groupId % artifactID % revision
```

```
ÊànÊÄÖÄÊéèÊððÊ† Ô°ª Äi®Ä ÁÄ´¶%0 ÊànÊÄÖ Configuration val ÄΩiÄÄö
configurationÔ°ö
```

```
libraryDependencies += groupId % artifactID % revision % configuration
```

```
libraryDependencies Äú® Keys %0 ÄÉèÊððÊ† Ä£∞ÊðéÔ°ö
```

```
val libraryDependencies = settingKey[Seq[ModuleID]] ("Declares managed dependencies.")
```

```
Êñ Ê î % %0ªéÄ ÁÄ´¶%0 ÄàðÄª ModuleID ÄØ Ê±°Ô°ªÄÑ ÄééÄ∞Ü ModuleID
ÊªÄä†Äà∞ libraryDependencies %0 ,,ÄÇ
```

```
ÄΩiÄÑ Ô°ªÊ¶ÄÊÆ© sbtÔ°ªÊÄöÊðá IvyÔ°ªÄü • ÈÄi%0ªéÄi™Êää%0 ãÊΩΩÊ®°Äùó,,ÄÇÄ¶ÇÊúú%0†ÄöÑÊ®
sbt Êù • Êä™Äö ÄêâÄöÑÊüè%0 ™ÊªðÊÆ§ÄöÑ%0ªiÄ îÔ°ªÊððÊ† Ä∞±%0°öÄ • %0Ωú,,ÄÇ%0æâÄ¶ÇÔ°ªApach
Derby Äú®Ê†áÄÄÜÄöÑ Maven2 %0ªiÄ î%0 Ô°ö
```

```
libraryDependencies += "org.apache.derby" % "derby" % "10.4.1.3"
```

```
Ä¶ÇÊúú%0†Äú® build.sbt %0 ÊæiÄÖ • %0 äÊùÇÊðð%0 òÄÜÖÄÆ Ô°ªÄÑ ÄééÊâßÈ°ª
updateÔ°ªsbt %0°öÄ∞Ü Derby %0 äÊΩΩÄà∞ ~/.ivy2/cache/org.apache.derby/,,ÄÇÔ°ªÈ° %0æðÊèè%0 Ä
compile%0æùÊµñ%0 é updateÔ°ªÊâÄ%a • Á§ßÄ§ðÊï∞Êó ÄÄð%0 ÇÊúÄÊ¶ÄÊääÄä®ÄöÑÊâßÈ°ª
update,,ÄÇÔ°ª
```

```
ÄΩiÄÑ Ô°ª%0†%0 üÄèØ%a • ÊÄðÊðá ++= %0 ÄÊ´°Ä∞ÜÊâÄÊúâ%0æùÊµñ%0Óú%0 %0 Ä%0 ™ÄàðÊ®ÊªÄ
```

```
libraryDependencies += Seq(
  groupId % artifactID % revision,
  groupId % otherID % otherRevision
)

Áú@ÂæàÂ∞ëÊÊÖÄÜµ% ãÔ°ã%Ω†% ü%°öÊúÄË¶ÁÁú@libraryDependencies
% ãÁí@ := Êñ Ê ï,,ÄÇ
```

**ÈÄöÊøá %% Êñ Ê ïÊé ÂèñÊ £Á°ÆÁöÑ Scala ÁääÊú"**

```
Á¶ÇÊúú%Ω†Áí@Êð groupID %% artifactID % revision ÈÄã% çÊðØ
groupId % artifactID % revisionÔ°àÄã Äà´Áú@% é groupId ÄêéÊèçÊðØ
%%Ô°àÔ°äsbtt %°öÁú@ Ä •%° ÄêçÁß∞% Ää†% äÊ° ÁðÆÁöÑ Scala
ÁääÊú"Àè „ÄÇ ÊøðÂè™ÊðØ% ÄÁßçÁø´Êç Êñ Ê ï,,ÄÇ%Ω†ÂèØ%° • ÊøðÊ† ÁÜð% çÁí@
%%Ô°ö
```

```
libraryDependencies += "org.scala-tools" % "scala-stm_2.11.1" % "0.3"
```

```
ÄÄáÊÆæÊøð%™ÊúÑÄª ÁöÑ scalaVersion ÊðØ 2.11.1Ô°ã% äÊèçÊøðÁßçÊñ Á°èÊðØÁ äÊïàÁöÑÔ°äÊ @
"org.scala-tools" ÄêéÊèçÊðØ %%Ô°àÔ°ö
```

```
libraryDependencies += "org.scala-tools" %% "scala-stm" % "0.3"
```

```
Êøð%™ÊÉ Ê ïÊðØÂæàÂ§ö%æùÊµñÈÊÉΩ%°öÊç´Á°ñÊØëÁ°âÂ§ö%™
Scala ÁääÊú"Ô°äÊÄã%Ω†ÊÉ Á°Æ%øùÁíäÊ° ÁðÆÄã ÊØçÁöÑjarÊðØ% äÊøðÄà ÄÔ°ÂÆ ÁöÑ,,ÄÇ
ÄÊúÊ µ% ÁöÑÄ§çÊùÇÄ ¶Áú@% éÈÄöÄ % Ä%™%æùÊµñ%°öÁíäÁ@çÄæÆ% çÄêäÁöÑ
Scala ÁääÊú"% ÄÊµ Ä •%ΩúÔ°ö%ΩÜÊðØ %% Ä∞±Ê °ÊúäÊÇ£% äÊð ÊÉΩ% Ü,,ÄÇÊäÄ%° • Ä¶ÇÊúú%
2.10.1Ô°ä%ΩÜÊðØ%Ω†%ΩøÁí@ÁöÑ scalaVersion := "2.10.4"Ô°ä
%Ω†Êó†Ê ï%ΩøÁí@%% Êñ Ê ïÄç %Ωø 2.10.1 ÁöÑÄääÊú"ÂæàÂèØÊÉΩ% üÄèØ%° • Ä •%Ωú,,ÄÇÄ¶ÇÊúú%
%% Êó†Ê ïÊææÄà∞ÁðÆÁöÑÔ°äÂè™ÊúÄË¶ÁÄéªÊ£ÄÊü • ÊÇ£%™%æùÊµñÊðØÄü % éÁí™%™
Scala ÁääÊú"ÊúÑÄª ÁöÑÔ°äÄÑ ÄêéÁ°´Á°ñÁ†Ä%Ω†ÊÆ§% ÄèØ%° • Ä •%ΩúÁöÑÄääÊú"Àè Ô°äÄÄäÊä
ÄèÇËßÄ % §ÄèäÊúÑÄª Êé ÂèñÊø¥Ä§ö%ø°ÊÄØ,,ÄÇ
```

**Ivy %øøÆÊ £**

```
groupId % artifactID % revision % ÁöÑ revision % çÊúÄË¶ÁÊðØ% Ä%™Äð ÄÆöÁöÑÄääÊú"Àè „Ä
ÊÉΩÄ§üÊ† ÊçÆ%Ω†ÊääÄÆöÁöÑÄ ¶ÊúüÈÄäÊä@% Ä%™Ê®°ÄúóÁöÑÊúÄÊñ∞ÄääÊú" „ÄÇ%Ω†ÊääÄÆ
"latest.integration"Ô°ä"2.9.+" ÊànÈÄÖ "[1.0,) "Ô°äÈÄã% çÊðØ
% Ä%™Äð ÄÆöÁöÑÄääÊú"Àè Ô°äÄÊè "1.6.1" „ÄÇÄèÇÁúä Ivy %øøÆÊÊç
ÊñäÊ°£Êé ÂèñÊØ¶ÁªÜÄÜÖÄÆ „ÄÇ
```

**Èß£ÊúèÄð@**

```
% çÊðØÊèÄÊÊúäÁöÑ%æùÊµñÄäÖÈÊÉΩÊíæÁú@Äèª% ÄÄè∞ÊúçÄä°Äð% äÔ°äsbtt
ÈªðÊÆ§%ΩøÁí@Ê†áÄáÜÄöÑ Maven2 %ªíÄ ï,,ÄÇÄ¶ÇÊúú%Ω†ÁöÑ%æùÊµñ% çÁú@ÈªðÊÆ§ÁöÑ%ªíÄ ï%
resolver Êü • Ä ÄÄ@ Ivy ÊææÄà∞ÄÆÊ,,ÄÇ
ÈÄöÊøá%° • % ãÄΩçÄ°èÊ Ää†ÊèùÄ§ñÁöÑ%ªíÄ ïÔ°ö
```



```

resolvers += name at location

Áú@% §% ™Á óÁ`¶% % Èó¥Êúâ% ¤% ™Áâ ÊÆäÁöÑ at„ÄÇ
%æãÂ¶ÇÔ°ö

resolvers += "Sonatype OSS Snapshots" at "https://oss.sonatype.org/content/repositories/snapshots"
resolvers key Áú@ Keys % ÊÉèËøôÊ† ÂÆö% âÔ°ö

val resolvers = settingKey[Seq[Resolver]]("Áî@Êâ % ÊäðÁÆ°%æùËµñÂÆö% äÁöÑÊçùÂ§ñÁöÑÊß£ÊûêÂð„ÄÇ
at Êñ Ê ìÈÄöËøá% §% ™Á óÁ`¶% ÂàöÂª % Û% ¤% ™ Resolver
ÄØ Ê±°„ÄÇ

sbt %°öÊêúÁ¥ç%Ω†ÁöÑÊú`Áú∞ Maven %ªî îÂ¶ÇÊúú%Ω†Â∞ÛÂÆÉÊªÂä†% % ¤% ™%ªî îÔ°ö

resolvers += "Local Maven Repository" at "file://" + Path.userHome.absolutePath + "/.m2/repository"
ÊñÊÄÖÔ°ª% % ÛÊñ %æøËµ ÊßÁÔ°ö

resolvers += Resolver.mavenLocal

ÀèÇÊßÄ Êß£ÊûêÂð@ Êé ÂèñÊö¥Â§öÂÖ % éÂÆö% äÄÖ %ªñÁ±ªÂûäÁöÑ%ªî îÁöÑÂÛÖÂÆ „ÄÇ

```

## Ê¶ÛÂÛðÊªðÊÆ§ÁöÑÊß£ÊûêÂð@

```

resolvers % çÄäÖÂê´ÈªðÊÆ§ÁöÑÊß£ÊûêÂð@Ô°ª%ªÖ%ªÖÈÄöËøáÊûÑÂª ÂÆö% äÊªÂä†ÊçùÂ§ñÁöÑ
sbt Â∞Û resolvers Áíª% ¤% òÊªðÊÆ§ÁöÑ%ªî îÁªÑÂêàËµ Êù•ÊûÑÊàè
externalResolvers„ÄÇ

ÁÑ ÊÄäÔ°ª% % ÛÊî ÂèðÊànÊÄÖÁßªÈð§ÊªðÊÆ§ÁöÑÊß£ÊûêÂð@Ô°ª%Ω†ÊúÄÊ¶ÄÊ¶ÛÂÛðexternalResolvers
ÊÄä% çÊòØ resolvers„ÄÇ

```

## Per-configuration dependencies

```

ÈÄöÂ %°°Êúâ%æùËµñÂè™Êç´ÊµäËØî%ª£.Á†Â%ΩøÁî@Ô°ªÁú@ src/test/scala
% Ô°ªÈÄöËøá Test configuration ÁñÊØèÔ°ªÈÄäÊ °ÊúâÁú@%ªÂ îÁî@% %ΩøÁî@„ÄÇ

Â¶ÇÊúú%Ω†ÊÉ Ê¶Á% ¤% ™%æùËµñÂè™Áú@ Test configuration ÁöÑ
classpath % Áá Áé∞ÊÄª% çÊòØ Compile configurationÔ°ªÂÊÉèËøôÊ† ÊªÄä†
% "test"Ô°ö

libraryDependencies += "org.apache.derby" % "derby" % "10.4.1.3" % "test"

% üÂèØÊÉΩ% ü%°öÂÊÉèËøôÊ† %ΩøÁî@Á±ªÂûäÂÆäÂÖ@ÁöÑ Test configurationÔ°ö

libraryDependencies += "org.apache.derby" % "derby" % "10.4.1.3" % Test

Áé∞Áú@Ô°ªÂ¶ÇÊúú%Ω†Áú@ sbt ÁöÑÂè%ª§ÊèèÁ§ ÊªÄÊäâÊæîÄÖ•
show compile:dependencyClasspathÔ°ª%Ω†% çÄ îËØ•ÁúâÂ∞ derby
jar„ÄÇ%ΩÛÊðØÂ¶ÇÊúú%Ω†ÊæîÄÖ• show test:dependencyClasspathÔ°ª
%Ω†Á îËØ•Áú@ÂàðÊ°% ÁúâÂ∞ derby jar„ÄÇ

```

```

ÈÃöÂ Ô°ãÊµäËÖïÃö ÂÖ ÁöÑ%æùËµñÔ°ãÂ¶Ç ScalaCheckÔ°ã Specs2 Âíã
ScalaTest Â∞Û%°öËc´ÂÆö%° â%° % "test",,ÃÇ
Â ì%æùËµñËö¥ËÖ¶¶Ã°ÛÂöÑÂÛÖÂÆ ÂíãÊäÃÂ ßÂú®ËøðÈää,,ÃÇ

```

## Â§öÈ° ÁõÆÊûÑÂª

```

Ëøð%° ÂÃ∞èËäÇ%°ªãÃªÇÂú®%° Ä%° ™ÊûÑÂª %° ÂÆö%° âÂ§ö%° ™È° ÁõÆ,,ÃÇ
ËÖ ÂÖªÈðÖËÖ°ÂÖ •Èó®ÊääÃçóÃâçÈùcÁöÑÂÛÖÂÆ Ô°ãÂ∞§ÂÖ ÈúÄË¶ÃÂú®ÈðÖËÖ°Êú´Â∞èËäÇ%° ã
.sbt ÊûÑÂª ÂÆö%° â,,ÃÇ

```

## Â§öÈ° ÁõÆ

```

Â∞ÛÂ§ö%° ™Ãö ÂÖ ÁöÑÈ° ÁõÆÂÆö%° âÂú®%° Ä%° ™ÊûÑÂª %° ÈðÖÂæàÊúªÁí®ÁöÑÔ°ãÂ∞§ÂÖ ÈðÖ
ËÖè%° ™Ã èÈ° ÁõÆÂú®ÊûÑÂª %° ÈÉÖÊúªÂÆÉ%°ª´Ëª™Â ±ÁöÑÊ èÊñª%°ª Â§ Ô°ãÂΩìÊàìÃäÖËó ÁíüÊª
jar Êñª%°ª Ô°ãËÃª%° ìËÃöÂ ÂíãÂÖ %°ªñÂöÑÈ° ÁõÆ%° ÂÊ† ËøèËÖ´,,ÃÇ
ÈÃöËøªÂ£∞Èðé%° Ä%° ™Ã±ªÂûª%° Project ÁöÑ lazy val ÂÆö%° â%° Ä%° ™È° ÁõÆÔ°ã%æãÂ¶ÇÔ°ö
lazy val util = project

lazy val core = project

val ÁöÑÂêçÁß∞Ëc´Áí®%°ΩúÈ° ÁõÆÁöÑ ID ÂíãÂü ÁõÆÂΩìÂêç,,ÃÇËÖ • ID
Áí®%° éÂú®ÂèΩ%°ª§Ë°ª%° Â°íÁí®ËÖ • È° ÁõÆ,,ÃÇÂú ÁõÆÂΩìÂèÖËËÖÈÃöËøª
in Êñ Ê ìÊî Àèð,,ÃÇ%°æãÂ¶ÇÔ°ã%° ãÈùcÈðÖ%° Ä%° ™Ëö¥Ãä†ÈðæÃ§ ÁöÑÊñ Â°èÊù • ÂÆûÁé∞Ââç%° Ä%°
lazy val util = project.in(file("util"))

lazy val core = project in file("core")

```

## ÂÖ´ÂÖ±ËÆæÂÆö

To factor out common settings across multiple projects, create a sequence named `commonSettings` and call `settings` method on each project. Note `*` is required to pass sequence into a vararg method.

```

Ë¶ÃË ®Â§ö%° ™Ë° ÁõÆËèèÂèñÂÖ´ÂÖ±ËÆæÃΩÆÔ°ãËÖ ÂàöÂª %° Ä%° ™Âêç%° commonSettingsÁöÑÂª

lazy val commonSettings = Seq(
  organization := "com.example",
  version := "0.1.0",
  scalaVersion := "2.11.7"
)

lazy val core = (project in file("core")).
  settings(commonSettings: _*).
  settings(

```

```

    // other settings
)

lazy val util = (project in file("util")).
  settings(commonSettings: _*).
  settings(
    // other settings
  )

Áé∞Áú®Êàë%ª·ÂèØ%ª·Áú®% ¨Ä$Ñ%øÆÊî versionÔªÄΩîÊáçÊñ∞Ää†ÊΩΩÊûÑÂª Êó ÔªÄ∞ÛÁú®
%æùÊµñ

ÊûÑÂª % ¨ÄÑÊº ¨ÄÆÄÆªÄÖ®ÂèØ%ª·ÂΩºÊ §Äª·Á´ãÔª%ΩÛÊðØÈÄöÄ ÊÉÖÄÛµ% ¢ÄÆÉ%ª·%º
Äíª classpath„ÄÇ

Aggregation

Aggregation ÊÑèÄë ÁùÄÁú® aggregate Êº ÄöÆ% ¢ÊâßÊºª ¨Ä%™ task
%ü%öÁú® aggregated ¨ÄÑÊº ¨ÄÆÊâßÊºª„ÄÇ%æªÄ¶ÇÔª
lazy val root = (project in file(".")).aggregate(util, core)

lazy val util = project

lazy val core = project

Áú®% ¢ÊùcÄöÑ%æªÄª Êº Ôªroot Êº ÄöÆÊÄöÂèª Û util Áíª
core„ÄÇÄÉè%æªÄª Êº % ¨ÄÊ† ÔªÊöèÁùÄÊúª% §%™Äª Êº ÄöÆÄöÑÊÉÖÄÛµ% ¢ÄÊèÖÄª®
sbtÔªÄÑ ÂééÄ∞ùÊØîÁºñÊØë„ÄÇ%Ω†Ä îÊØ·%ºöÁúªÄà∞ÄÖ®ÊÉ®ÄöÑ%ªª%™Êº ÄöÆÊÉΩÊç´ÁºñÊ
Äú®ÊøøÊªÊöÄêèÄöÑÊº ÄöÆ% ÔªÄÊèÊøø%™%æªÄª Êº ÄöÑ root
Êº ÄöÆ% ¨ÄÊ† Ôªª%Ω†ÂèØ%ª·Êªª task Êù·ÊéßÄà ÊÄöÂèª„ÄÇ%æªÄ¶ÇÔªª% % ÛÈÄøÄÖÇÊöÂèª
update taskÔª

lazy val root = (project in file(".")).
  aggregate(util, core).
  settings(
    aggregate in update := false
  )

[...]

aggregate in update ÊðØ update task ÄöÑ scope % ¢ÄöÑÊÄöÂèÄöÑ
key„ÄÇÔªàÄèÇÊßÄ scopes„ÄÇÔª
Ê®ÊÑèÔªöÊöÂèªºÄ ÊªÄöÑÊâßÊºªÊöÂèªÄöÑ taskÔªtask % ¢Êó¥ÄöÑÊº ÄªÊèØ% çÄºÆÄÆöÄö

```

## Classpath %æùĚμñ

% Ä% ™È° ÁðÆÄèØĚÉΩ%æùĚμñÄè¶% Ä% ™È° ÁðÆÁðÑ%ªŁÁ†Ā,,ÄÇĚððĚðØĚÄðĚðªĚªÄä†  
dependsOn Ěñ Ě ĩĚù•ÄÆûÁé∞ÄöÑ,,ÄÇ%æäĀ¶ÇÔªĀ¶ÇĚûú core Äú@  
classpath % ĚûÄĚ¶Ā utilÔª%Ω†Ā∞ÛĚððĚ† ÄÆð% â coreÔª

lazy val core = project.dependsOn(util)

Áé∞Äú@ core % ÄöÑ%ªŁÁ†ĀÄèØ%ª•%ΩðĀî@ util ÄöÑĀ±ª,,ÄÇĀú@Ā°ñĚØēĚð % ü%ººÄú@% §% ™  
core % äĀäÇÔªutil ĀðĚÈªĚc´ĚðŸĚñ∞ĀĭĀĀ°ñĚØēĚðª,,ÄÇ

% % Û%æùĚμñÄšö% ™È° ÁðÆÔªäĀĚèĚððĚ† dependsOn(bar, baz) Áªð  
dependsOn Äšö% ™ÄèÇĚĭ∞,,ÄÇ

## configuration Á ĭĀ ¶ÄöÑ classpath %æùĚμñ

foo dependsOn(bar) Ě°@Ä§ foo % ÄöÑ compile configuration %æùĚμñ% é  
bar % ÄöÑ compile configuration,,ÄÇ%Ω†ĀèØ%ª•ĚðæÄ§ ÄöÑĀÛðĚäĚĚððĚ† ÔªðdependsOn(bar  
% "compile->compile"),ÄÇ

"compile->compile" % ÄöÑ -> Ě°@Ä§ “depends on”ÔªäĚĀ%ª•  
"test->compile" Ě°@Ä§ foo % ÄöÑ test configuration Ä∞Û%æùĚμñ% é  
bar % ÄöÑ compile configuration,,ÄÇ

ÄúĀĀĭ• ->config ĚÉ@ĀäÛĚðóÄ§ ->compileÔªäĚĀ%ª• dependsOn(bar  
% "test") Ě°@Ä§ foo % ÄöÑ test configuration %æùĚμñ% é bar % ÄöÑ  
Compile configuration,,ÄÇ

% Ä% ™ÄÆûĀĭ@ÄöÑĀŁ∞Ěðé "test->test" Ě°@Ä§ test %æùĚμñ% é  
test,,ÄÇ%æäĀ¶ÇÔªäĚððĚ† ÄÖĀĚÆ %Ω†Ā∞ÛĚμäĚØĭĀ•ÄÖ%ªŁÁ†ĀĚĭæĀú@  
bar/src/test/scala % ÔªäĀÑ ĀêéĀú@ foo/src/test/scala % %ΩðĀî@Ěðð% ò%ªŁÁ†ĀÔª

ÄØ % é% Ä% ™%æùĚμñ%Ω†ĀèØ%ª•ĚûĀÄšö% ™ configurationÔªª%ª•.ĀäÛÄè ÄäÛĚðĭÔªª%æäĀ¶Ç  
% "test->test;compile->compile"),ÄÇ

## ĚªðĚÆ§ÄöÑ root Ě° ÄðÆ

Ä¶ÇĚûúĀú@ĚûÑĀª % Ě† ÄðÆĀΩĭĚ°ĚûäĀÆð% äĚ° ÄðÆÔªsbt %ººĀú@ĚûÑĀª % ÄäðĀª % Ä% ™È°

Äð†% hello-foo Ě° ÄðÆĀÆð%ªª% Û base = file("foo")ÔªäĀÆĚÄ∞Û%ººĚc´ĀäÖĀê´Āú@  
foo ÄêÄðÆĀΩĭ%,,ÄÇ ÄÆĚÄöÑĚêĚñª%ªÄèØ%ª•ÄðŸĚē•ĚĭæĀú@  
foo % äÔªäĀĚè foo/Foo.scalaÔªäĚñĚĀÖĀú@ foo/src/main/scala  
%,,ÄÇĚÄðĀ sbt ÄöÑ ÄðÆĀΩĭĀªĭĚûÑ Ā ĭĀĭ@Āú@ foo ÄðÆĀΩĭ% äĚðš% ÛĚûÑĀª ÄÆð% äĚñª%ª,,ÄÇ

foo % ÄöÑ%ªª%Ωĭ.sbt Ěñª%ªª ÔªäĚØĭĀ¶ÇĚØŸ foo/build.sbtÔªäĀ∞Û%ººĀĭäĚĭŸ% ™ĚûÑĀª ÄèäĀ  
hello-foo Ě° ÄðÆÄöÑ scope %,,ÄÇ

Ä¶ÇĚûú%Ω†ÄöÑÄöÑĚĭŸ% ™È° ÄðÆĚÉΩĀú@ hello % ÔªäĀ∞ùĚØĭĀú@  
hello/build.sbtÔªähello/bar/build.sbt Āĭä hello/foo/build.sbt  
% ÄÆð%ªª% Ä% ™% ÇĚäÄöÑĀäĚĚû´Ôªäversion := "0.6"Ôªä,,ÄÇ

Áé∞Äú@Āú@sbt ÄöÑÄèΩ%ª§Ěª% ĚäðĚªª show version,,ÄÇ%Ω†Ā ĭĚØ•ÄæðÄä∞ĚððĚ† ÄöÑ%ðºĚÄØ

```

> show version
[info] hello-foo/*:version
[info] 0.7
[info] hello-bar/*:version
[info] 0.9
[info] hello/*:version
[info] 0.5

hello-foo/*:version ÂÆö% âÂú® hello/foo/build.sbt % Ò°âhello-bar/*:version
ÂÆö% âÂú® hello/bar/build.sbt % Ò°âhello/*:version ÂÆö% âÂú®
hello/build.sbt % „ÄÇ ÊÆ∞%Ωè scoped keys ÁöÑÊØ Ê ï„ÄÇÊØè% ™
version key Âú®ÄØ Ä îÄöÑÈ° ÁðÆÁöÑ scope % Ò°âÄü % é build.sbt
Êñá%ª ÁöÑ%ΩÇÁΩÆ„ÄÇ%ΩÛÊðØÊâÄÊúâÁöÑ% â% ™ build.sbt
Êñá%ª ÊÉΩÂè™ÊðØÊï¥% ™ÊûÑÂª ÂÆö% âÁöÑ% ÄÊÉ®ÄàÜ„ÄÇ
ÊØè% ™Ê° ÁðÆÁöÑÊÆæÁΩÆÊÉΩÂèØ%ª • ÊïæÊØ • Ê° ÁðÆÁü ÁðÆÁΩï% ãÁöÑ
.sbt Êñá%ª % Ò°âÄÑ ÊÄª .scala Êñá%ª ÂèØ%ª • Äíâ% äÊùcÄ±íÁ§ ÁöÑ% ÄÊ† ÁÆÄÄÇïÔ°âÄòÁá Ê
.scala Êñá%ª % „ÄÇ

ÄÑ ÊÄªÔ°ª% % ÛÄ∞ÛÊâÄÊúâÊûÑÂª ÂÆö% âÊÉΩÊïæÄú®% Ä% ™Ê° ÁðÆÁðÆÁΩï% ãÔ°ª%Ω†%ª
.scala % %°öÄ ÄªÄÄæàÄ§ö„ÄÇÁí±%Ω†ÄÄö%ª „ÄÇ

Äú®Ä êÈ° ÁðÆ% Ò°ª%Ω†% ÇÊÉΩÊúâÈ° ÁðÆÁöÑÂ êÄðÆÁΩïÊànÊÄÖ
project/*.scala Êñá%ª „ÄÇfoo/project/Build.scala Ä∞Û%°öÊc´ÄøΩÄï•„ÄÇ

```

% §% íÂ°èÂ°iÂØ°È° ÁðÆ

```

Äú®sbt ÁöÑÂè%ª§Ê°ª% Ò°âÊæiÄÖ • projects ÄòóÄª %Ω†ÁöÑÈ° ÁðÆÔ°âÊâßÊ°â
project <projectname> ÂèØ%ª • ÊÄâÊã©ÄΩiÄâÇÈ° ÁðÆ„ÄÇÄΩi%Ω†ÊâßÊ°â
task ÁÊè compileÔ°âÂÆÊ%°öÄú®ÄΩiÄâÇÈ° ÁðÆ% äÊâßÊ°â„ÄÇ ÊâÄ%ª • %Ω†Ê °ÊúâÄøÖÊ¶ÄÄéªÁ°ñÊ
root È° ÁðÆÔ°ª%Ω†ÂèØ%ª • Âè™Á°ñÊØèÄ êÈ° ÁðÆ„ÄÇ

%Ω†ÂèØ%ª • ÊÄöÊøáÊðæÁ§ ÁöÑÊâªÂÆöÈ° ÁðÆ ID Äú®Äè¶%ª Ä% ™Ê° ÁðÆ% äÊâßÊ°ª% Ä% ™
taskÔ°ª%æãÄ¶Ç subProjectID/compile„ÄÇ

```

ÊÄöÄí®%ª£Ä†Ä

```

Äú®%ª Ä% ™ .sbt Êñá%ª % ÁöÑÂÆö% âÄØ % éÄÖ %ªñÁöÑ .sbt
Êñá%ª % ÇÄèØÊßÄ„ÄÇ% % ÛÄú®% ÇÄêâÁöÑ .sbt Êñá%ª % ÄÖ±% ´%ª£Ä†ÄÔ°âÄú®ÊûÑÂª Ê† Ä
project/ ÁðÆÁΩï% ãÂÆö% â% Ä% ™ÊànÄ§ö% ™ Scala Êñá%ª „ÄÇ

ÄèÇÊßÄ ÄªÑÄªâÊûÑÂª Êé ÂèñÊØ¶ÄªÛÜÜÖÄÆ „ÄÇ

```

%ΩøÄí®Êèi%ª

```

ÊØ ÄÖàÊèÖÊØªÄÖ • Êó®ÊâªÄÇóÄâÇÈèÄöÑÄÛÖÄÆ Ô°âÄ∞§ÄÖ ÊúÄÊ¶¶ÄÄú®ÊèÖÊØªÊú´Ä∞èÊäÇ%ª ã
build.sbt Äíâ Ä î%æùÊµñ„ÄÇ

```

%<sup>a</sup>Ä% ãÊðØÊèí%<sup>a</sup>

Êèí%<sup>a</sup> Á<sup>a</sup>ßÊâð% ÛÊûÑÄ<sup>a</sup> ÂÆö% ãÔ<sup>°</sup>âÄ\$ßÄ\$öÊï∞ÈÄöÂ ÊðØÈÄöÊðáÊ<sup>a</sup>Ää†ÊÆæÁΩÆ,,ÄÇÊñ∞ÁöÑÈÆæ  
task,,ÄÇ%æäÄ¶ÇÔ<sup>°</sup>â% Ä%<sup>TM</sup>Êèí%<sup>a</sup> ÂèØ%<sup>a</sup>•Ê<sup>a</sup>Ää†% Ä%<sup>TM</sup>codeCoverage  
task Êù•ÄïüÊàé% Ä%<sup>TM</sup>ÊµãÊØïÊ¶ÛÄõñÁéáÊä•Ää,,ÄÇ

Â£∞Êðé% Ä%<sup>TM</sup>Êèí%<sup>a</sup>

Ä¶ÇÊûú%Ω†ÄöÑÈ<sup>°</sup> ÄöÆÄú@hello ÄöÆÄΩï% ãÔ<sup>°</sup>âÊÄä% î%Ω†Ê £Äú@ÄæÄÊûÑÄ<sup>a</sup> ÂÆö% ã% Ê<sup>a</sup>Ää  
sbt-site Êèí%<sup>a</sup> Ô<sup>°</sup>âÄäðÄ<sup>a</sup> hello/project/site.sbt Ä % îÊÄöÊðá%<sup>°</sup>†ÊÄíÊèí%<sup>a</sup> ÄöÑ  
Ivy Ê<sup>°</sup>Äúó ID Â£∞ÊðéÊèí%<sup>a</sup> %æùÊµñ Ä<sup>°</sup> addSbtPluginÔ<sup>°</sup>

addSbtPlugin("com.typesafe.sbt" % "sbt-site" % "0.7.0")

Ä¶ÇÊûú%Ω†Ê<sup>a</sup>Ää†sbt-assemblyÔ<sup>°</sup>âÄÊè% ãÈùçÊððÊ† ÂäðÄ<sup>a</sup> hello/project/assembly.sbt  
Ô<sup>°</sup>

addSbtPlugin("com.eed3si9n" % "sbt-assembly" % "0.11.2")

% çÊðØÊäÄÊúâÄöÑÊèí%<sup>a</sup> ÈÉΩÄú@Äêâ% Ä%<sup>TM</sup>Ê<sup>a</sup>ðÊÆ\$ÄöÑ%<sup>a</sup>î î% Ô<sup>°</sup>âÊÄä% î% Ä%<sup>TM</sup>Êèí%<sup>a</sup> Äö  
resolvers += Resolver.sonatypeRepo("public")

Êèí%<sup>a</sup> ÈÄöÂ Êèè%æðÊÆæÁΩÆÄ∞ÛÂÆÉÊ<sup>a</sup>Ää†Äà∞È<sup>°</sup> ÄöÆÄ % îÄ<sup>°</sup>ÄÄêØÊèí%<sup>a</sup> ÄüÊÉΩ,,ÄÇÊðð% ç

ÂêØÄî@ÄíäÄ¶ÄÄî@Êä<sup>TM</sup>Ää@Êèí%<sup>a</sup>

% Ä%<sup>TM</sup>Êèí%<sup>a</sup> ÈÉΩÄ\$üÄ£∞ÊðéÂÆÉÊä<sup>TM</sup>Ä ±ÄöÑÈÆæÁΩÆËç´Êä<sup>TM</sup>Ää@Ê<sup>a</sup>Ää†Äà∞ÊûÑÄ<sup>a</sup> ÂÆö% ã%

%Ωú% 0.13.5 ÄäâÊú˘ÄöÑ sbtÔ<sup>°</sup>âÊúâ% Ä%<sup>TM</sup>Êñ∞ÄöÑÄâ ÊÄßÂè´Êä<sup>TM</sup>Ää@Êèí%<sup>a</sup> Ô<sup>°</sup>âÂÆÉÊÉΩÄ\$üÄú

Ä¶ÇÊûú%Ω†Ê £Äú@%ΩøÄî@% Ä%<sup>TM</sup>ÊüÄÊ¶ÄÊðæÄ\$ Ä<sup>°</sup>ÄÄêØÄöÑÈä<sup>TM</sup>Ää@Êèí%<sup>a</sup> Ô<sup>°</sup>âÈÇ£% ã%Ω†Ê  
build.sbt Êñä%<sup>a</sup> Ô<sup>°</sup>

```
lazy val util = (project in file("util")).
  enablePlugins(FooPlugin, BarPlugin).
  settings(
    name := "hello-util"
  )
```

enablePlugins Êñ Ê ïÄÖÄÊÆ È<sup>°</sup> ÄöÆÊðæÄ<sup>°</sup>èÂÆö% âÂÆÉ%<sup>a</sup>˘ÊúÄÊ¶Ä%ΩøÄî@ÄöÑÈä<sup>TM</sup>Ää@Êèí%<sup>a</sup> „Ä

È<sup>°</sup> ÄöÆ% üÄèØ%<sup>a</sup>•%ΩøÄî@disablePlugins Êñ Ê ïÊéíÈð\$Êéâ% Ä% ðÊèí%<sup>a</sup> „ÄÇ%æäÄ¶ÇÔ<sup>°</sup>âÄ¶ÇÊûú

util % Äß<sup>a</sup>Êð\$ IvyPlugin Êèí%<sup>a</sup> ÄöÑÈÆæÁΩÆÔ<sup>°</sup>âÊàé%<sup>a</sup>Ä∞Û

build.sbt %øÆÊî Ä¶Ç% ãÔ<sup>°</sup>

```
lazy val util = (project in file("util")).
  enablePlugins(FooPlugin, BarPlugin).
  disablePlugins(plugins.IvyPlugin).
  settings(
    name := "hello-util"
  )
```

```

Éá™Äâ®Êèí%ª %ªªöÁú®ÊñáÊ°£%ª ÊØ¥ÊðéÊðØÄê¶ÊúÄÊ¶ÄÊðæÁ§ ÁöÑÂ°ÄÄêØ„ÄÇÄ¶ÇÊúú%ªΩ†ÄØ %
sbt ÄêΩ%ª§Ê°â%ª ÊâßÊ°â plugins ÄêΩ%ª§„ÄÇ
%ªæâÄ¶ÇÔ°ö
> plugins
In file:/home/jsuereth/projects/sbt/test-ivy-issues/
  sbt.plugins.IvyPlugin: enabled in scala-sbt-org
  sbt.plugins.JvmPlugin: enabled in scala-sbt-org
  sbt.plugins.CorePlugin: enabled in scala-sbt-org
  sbt.plugins.JUnitXmlReportPlugin: enabled in scala-sbt-org
ÊðôÊääÔ°â plugins ÁöÑÊæìÄá ÊðæÁ§ sbt Ê°ðÊÆ§ÁöÑÊèí%ª ÊÊΩÊç´Ä°ÄÄêØ%ª Û„ÄÇsbt
Ê°ðÊÆ§ÁöÑÊÆæÁΩÆÊÄöÊðá3%ª ™Êèí%ª Êèè%ªæöÔ°ö
  1. CorePlugin: Êèè%ªæöÄØ task ÁöÑÊ† ÄøÊÄ Ê°âÊéßÄà „ÄÇ
  2. IvyPlugin: Êèè%ªæöÄêèÄ Ê„ÄÄÊß£ÊûêÊ®°ÄùóÁöÑÊú Äà „ÄÇ
  3. JvmPlugin: Êèè%ªæöÄ°ñÊØë„ÄÄÊµãÊØï„ÄÄÊâßÊ°â„ÄÄÊâìÄäÖ
    Java/Scala Ê° ÄöÆÄöÑÊú Äà „ÄÇ
Äê¶Ä§ñÔ°âJUnitXmlReportPlugin Êèè%ªæöÄØ ÁíüÊàê junit-xml ÁöÑÊØìÊ™âÊÄßÊìØÊâÄ„ÄÇ
ÊÄÄÄöÑÊèüüÊá™Äâ®ÁöÑÊèí%ª ÊÄöÄ ÊúÄÊ¶ÄÊðæÁ§ ÁöÑÊ °Ää†ÊÆæÁΩÆÔ°â%ª • Êá¥%ª éÄ§öÊ° Äö
%ªæâÄ¶ÇÔ°âÄØ %ª é sbt-site Êèí%ª Ô°â%ª %ª ÛÁú®Ê° ÄöÆ%ª Ä°ÄÄêØÄÊÉÔ°âÊúÄÊ¶ÄÄàöÄ° ÄäÖÄê
site.sbt Êñá%ª Êù „ÄÇ
site.settings
Ä¶ÇÊúúÊûÑÄ° ÄÆö%ª â%ª ÛÄ§ö%ª ™Ê° ÄöÆÔ°âÄæÄÈ° ÄöÆ%ª Äö¥Êé • Ê °Ää†Ä¶Ç%ª ãÄÛÖÄÆ ÊöøÊ
// Äú® `util` Ê° ÄöÆ% % Ç%ΩøÄê® site Êèí%ª
lazy val util = (project in file("util"))

// Äú® `core` Ê° ÄöÆ% Ä°ÄÄê® site Êèí%ª
lazy val core = (project in file("core")).
  settings(site.settings : _*)

ÄÖ®Ä±ÄÊèí%ª

ÄèØ%ª • %ª ÄÊ°°Á°ðÊâÄÊúâÊ° ÄöÆÄÆâÊ£ÖÊèí%ª Ô°âÄè™Ê¶ÄÄú®
~/sbt/0.13/plugins/ %ª Ä£∞ÊðéÄÆÉ%ªª„ÄÇ~/sbt/0.13/plugins/
ÊðØ%ª Ä%ª ™Ä∞ÛÊá™Ä ±ÁöÑ classpath ÄØ°Äá Ä°ðÊâÄÊúâÊ° ÄöÆÄöÑ
sbt ÊûÑÄ° ÄÆö%ª â„ÄÇ Ê¶ÇÁí • Äú∞ÊÆ Ô°âÄú® ~/sbt/0.13/plugins/
%ª ÁöÑ%ªªª%ªΩì .sbt ÊànÊÄÖ .scala Êñá%ª Ä∞±ÄíâÊâÄÊúâÊ° ÄöÆÄöÑ
project/ ÄöÆÄΩì%ª ãÄöÑ%ª ÄÊ† „ÄÇ
%ª %ª Û%ª ÄÊ°°Á°ðÊâÄÊúâÄöÑÊ° ÄöÆÊ °Ää†Êèí%ª Ô°â%ªΩ†ÄèØ%ª • ÄàöÄ°
~/sbt/0.13/plugins/build.sbt Ä %ª îÊ °Ää† addSbtPlugin() Ê°®ÊææÄ°è„ÄÇÄö†%ª ÊðôÊ† ÄÄö%ªö.
ÄèÇÊßÄÊúÄ%ªΩ ÄÆûÊ µ„ÄÇ

```

ÀèØÁí®ÁöÑÊèí%ª

ËøòÈáâÊúâ% Æ% ™ÀèØÁí®ÁöÑÊèí%ª ÀàóÈ°®,ÄÇ

% Æ% òÁâ Àà´ÊµÁÈ°âÁöÑÊèí%ª Á¶Ç% ãÔ°ö

- ÁØ IDE ÁöÑÊíØÊâÁÔ°à% % ÛÁ∞Û sbt È° ÁõÆÁØ°ÁÖ•Áà∞ IDEÔ°â
- ÁØ web Ê°ÛÊû ÁöÑÊíØÊâÁÔ°à%æâÁ¶Çxsbt-web-plugin,,ÄÇ

Ëø¥Á§öÈØ¶ÁªÛ%ø°ÊÄØÔ°âÁâÖÂê´Á°ÄÂèèÊèí%ª ÁöÑÊñ Ê ïÔ°âÂèÇÈßÁÊèí%ª ,,ÄÇ  
ÁÖ % éÊúÁ%Ω ÁÆûÊ µÔ°âÂèÇÈßÁÊèí%ª ÊúÁ%Ω ÁÆûÊ µ,,ÄÇ

Ëá™ÁÆö% âÈÆæÁΩÆÁíª%ªªÁä°

Ëøó% ÁÁ∞èÈäÇÈÆ Èß£Á¶Ç%ΩíÁàòÁ Èá™ÁÆó% âÈÆæÁΩÆÁíª%ªªÁä°,ÄÇ

Áú®ÁèÛÈß£Êú¨ÈäÇ% ãÁâçÔ°âÈØ ÁÖàÈòÖÈØª sbt ÁÖ•Èó®ÁâçÈùcÁöÑÁ´†ÈäÇÔ°âÁ∞§ÁÖ ÈòØ  
.sbt ÊûÑÁª ÁÆö% âÁíâÈö¥Á§öÁÖ % éÈÆæÁΩÆ,,ÄÇ

ÁÆö% â% Æ% ™ÈìÆ

ËøòÈáâ%ªªÁª% ÛÁ¶Ç%ΩíÁÆö% âÈìÆ,,ÄÇÁ§ßÁ§öÊí∞ÁöÑÈªòÈÆ§ÈìÆÁÆö% âÁú®ÈøòÈáâ,,ÄÇ

ÈìÆÊúâ% âÁßçÁ±ªÁûã,,ÄÇSettingKey Áíâ TaskKey Áú®.sbt ÊûÑÁª ÁÆö% âÈÆ Èß£,,ÄÇÁÖ % é  
InputKey ÁöÑÁÛÖÁÆ Áú®ÈæìÁÖ•%ªªÁä°È°µÈùc,,ÄÇ

Áàó% æ% Æ% òÈû•Ëá™ Keys ÁöÑ%æâÁ èÔ°ö

```
val scalaVersion = settingKey[String] ("scalaÁöÑÁââÊú¨")
val clean = taskKey[Unit] ("Áâ†Èö§ÊûÑª % ßÁíûÁöÑÈñªª °ªâÁâÛÈã¨ÁíûÈæèÁöÑ source Èñªª °ªâÁ°ñÈ
```

ÈìÆÁöÑÊûÑÈÄ†ÁáΩÊí∞Êúâ% §% ™Á óÁ¨¶% ÀèÇÊí∞Ô°öÈìÆÁöÑÁèçÁß∞Ô°à  
,ÁúscalaVersion,Áû Ô°âÁíâÈñáÈ°£Á óÁ¨¶% Ô°à ,ÁúÁí®% éÊûÑÁª Á•Á®ãÁöÑscalaÁöÑÁââÊú¨,,ÄÇ  
,Áû Ô°â,,ÄÇ

ËøòÈÆ∞Áæó.sbt ÊûÑÁª ÁÆö% â% Ô°âÁ±ªÁûã T Áú® SettingKey[T]  
% È°®Á§ ÁöÑÈÆæÁΩÆÁöÑÁÄ°ÁöÑÁ±ªÁûã,,ÄÇÁ±ªÁûã T Áú® TaskKey  
[T] % ÈááÁ§ %ªªÁä°ÁöÑÁªìÊúúÁöÑÁ±ªÁûã,,ÄÇ Áú®.sbt ÊûÑÁª ÁÆö% â% Ô°â% Æ% ™ÈÆæÁΩÆÊ  
ÈìÆÄèØ%ª•Áú®ÁÆö% âÁú®.sbt ÊûÑÁª ÁÆö% âÔ°â.scala Èñª%ª Èàn% Æ% ™Ëá™Áä®Êèí%ª % ,,Ä  
val Á∞ÛÈc´Ëá™Áä®ÁØ°ÁÖ• Áà∞%Ω†ÁöÑ .sbt Èñª%ª ,,ÄÇ

ËâßÈ°ª%ªªÁä°

% ÄÈó¶%Ω†ÁÆö% â% Û% Æ% ™%ªªÁä°ÁöÑÈìÆÔ°ª%Ω†ÈúÄÈ¶ÁÁí®ÁÆÉÁÆâÈàè%ªªÁä°ÁÆö% â  
:= %Ωø%ªªÁä°ÁöÑÈìÆÁíâÈÈ®ÁâÛ%ª£Á†ÁÁö ÁÖ ÈÁíÔ°ö



```
val sampleStringTask = taskKey[String]("A sample string task.")
val sampleIntTask = taskKey[Int]("A sample int task.")
```

```
lazy val commonSettings = Seq(
  organization := "com.example",
  version := "0.1.0-SNAPSHOT"
)
```

```
lazy val library = (project in file("library")).
  settings(commonSettings: _*).
  settings(
    sampleStringTask := System.getProperty("user.home"),
    sampleIntTask := {
      val sum = 1 + 2
      println("sum: " + sum)
      sum
    }
  )
```

```
Áú@Êõ¥Â§öÂÖ %0 éËÆæÁΩÆÈääÊúâÊèèÊø∞Ô°âÂ¶ÇÊúú%0aaÂä°Êúâ%0æùÊµñÂÖ Á °Ô°â%0Ω†%0ΩøÁî@
value Êù•Â°iÁî@ÂÄ°,ÄÇ
```

```
ÊúâÂÖ %0aaÂä°ÂÆûÁé∞ÊúÂÄö∞ÈöæÁöÑÈÉ@ÂàÛÂæÂÄæÄ%0 çÊðØ sbt
%0 iÁî@Ô°õ%0aaÂä°Âè™ÊðØ Scala %0a£Á†Â,,ÄÇÂö∞ÈöæÁöÑÈÉ@ÂàÛÂèØÈÉΩÊðØÂÛð%0Ω†ÄöÑ%0aaÂä°
HTMLÔ°âÁú@ÊøóÁßçÊÉÖÂÛµ%0 ãÔ°â%0Ω†ÂèØÈÉΩÊúÄÊ¶Á%0ΩøÁî@%0 Ä%0 ™
HTML Á iÔ°à%0 üÊÆ %0Ω†Â∞Û%0 ÊùÑÂ° ÂÆö%0 âÊ °Âä†%0 Ä%0 ™Â iÁöÑ%0æùÊµñÊù•Á°ñÂÛôÂü %0
HTML Á i%0a£Á†ÂÖâ,,ÄÇ
```

```
sbt ÂÖ Êúâ%0 Ä%0 òÂÆûÁî@Â •ÂÖ Á iÁiâÊñ %0æøÁöÑÂáΩÊi∞Ô°âÂâ Âà´ÊðØÂèØ%0°•Á°èÂ %0ΩøÁî@
API %0 ÁöÑ IO Êù•Êìç%0ΩúÊñâ%0° ÂiâÁöÆÂΩî,,ÄÇ
```

```
%0aaÂä°ÁöÑÊâßÈ°âÈØ %0 â
```

```
ÂΩi%0°aé%0æùÊµñ%0 éÂÖ %0°âñ%0aaÂä°ÁöÑÊá™ÂÆö%0 â%0aaÂä°%0 %0ΩøÁî@valueÊó Ô°â%0 Ä%0 ™Ê¶ÁÊ
%0°•sampeIntTask%0 %0æâÔ°â%0aaÂä°%0Ωì%0 ÁöÑÊØè%0 ÄÊ°âÂ î%0 •Ê†°Âú∞%0 Ä%0 ™Êé•%0 Ä%0 ™
```

```
sampleIntTask := {
  val sum = 1 + 2 // first
  println("sum: " + sum) // second
  sum // third
}
```

```
Áú@Áé∞ÂÆû%0 Ô°âJVMÂèØÈÉΩÂÛÖÊÁsum%0 3Ô°â%0ΩÛ%0aaÂä°ÂèØÈßÇÂØüÂà∞ÁöÑÊ°d%0 %0açÂ
Áé∞Áú@ÂÄâÊÆæÊàè%0°ÂÆö%0 â%0 ÛÂè¶Á§ñ%0 §%0 ™ÁöÑÊá™ÂÆö%0 â%0aaÂä°startServerÂiâstopS
```

```
val startServer = taskKey[Unit]("start server")
val stopServer = taskKey[Unit]("stop server")
val sampleIntTask = taskKey[Int]("A sample int task.")
```

```

val sampleStringTask = taskKey[String]("A sample string task.")

lazy val commonSettings = Seq(
  organization := "com.example",
  version := "0.1.0-SNAPSHOT"
)

lazy val library = (project in file("library")).
  settings(commonSettings: _*).
  settings(
    startServer := {
      println("starting...")
      Thread.sleep(500)
    },
    stopServer := {
      println("stopping...")
      Thread.sleep(500)
    },
    sampleIntTask := {
      startServer.value
      val sum = 1 + 2
      println("sum: " + sum)
      stopServer.value // THIS WON'T WORK
      sum
    },
    sampleStringTask := {
      startServer.value
      val s = sampleIntTask.value.toString
      println("s: " + s)
      s
    }
  )

```

```
%00^ésbt%00 $%00 íÂ°èÊèèÁ$ Á°%00 ÊøèÊ°âsampleIntTaskÂ∞ÛÂæóÂà∞Â¶Ç%00 ãÁ°âîÊûúÔ°ö
```

```
> sampleIntTask
```

```
stopping...
```

```
starting...
```

```
sum: 3
```

```
[success] Total time: 1 s, completed Dec 22, 2014 5:00:00 PM
```

```
Ëã•Ê¶ÂÊü•ÁúãÂèèÁíü%00 Û%00^Â%00 à%00 ãÔ°ãÊÆ©Êèè%00^ Áúã%00 Ä%00 ãsampleIntTaskÂðæÂΩcÊ°@Á$ Ô°
```

```
%00 çÂè%00 éÊôÆÊÄöÄöÑScalaÊñ Ê îÊ∞ÉÁî®Ô°âÊ∞ÉÁî®%00^â Äã°ÄöÑvalueÊñ Ê îÂ∞Û%00 çÊc´%00 •Ê†°Äè
```

- Âú®ÂØ sampleIntTaskÂèñÂÄ°ÂâçÂØ %00æùÊµñ%00^â Âã°ÂèñÂÄ°Ô°àÂÂèÂ èÔ°â
- Â¶ÇÊûú%00æùÊµñ%00^â Ââ©ÊðØÁö %00 íÁã°Á´ãÄöÑÔ°âÂ∞ùÊØîÁ Ê°âÂèñÂÄ°Ô°âÂ Ê°âÔ°â
- ÊØèÊ°°ÄèΩ%00^\$ÊâßÊ°âÔ°âÊØè%00 ^M%00^â Âã°%00æùÊµñÊ° Â∞ÛÊc´ÊØÑ%00^∞%00 î%00^â ÔÊc´ÊØÑ%00^∞%00

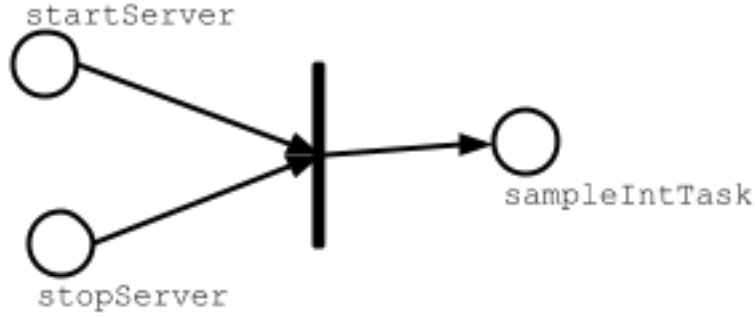


Figure 2: task-dependency

```
%aaÄ°%æùËµñÈ° ÄéªÈáç
% ÆØÄÈðéËøóËúÄÄêé% ÄÄÇ ÖªâÊàë%ª·ÄèØ%ª•%ªé sbt % §% íÄ°èÊèÄ§ Ä°¶ËøêÈ°â
sampleStringTask,,ÄÇ
> sampleStringTask
stopping...
starting...
sum: 3
s: 3
[success] Total time: 1 s, completed Dec 22, 2014 5:30:00 PM
Äõ†% sampleStringTask%æùËµñ% éstartServerÄíäsampleIntTask% §% TM%aaÄª°ÖªâËÄsampleInt
Scala Êñ Ê ïË∞ÉÁî®ÖªâÄÆÈ%°öËç´ËÆ°ÄÆó% §Ê°°Öªâ%ΩÛÄî±% é%aaÄª°ÄõÑ%æùËµñÈ° Ëç´Ê†äËÄ
```

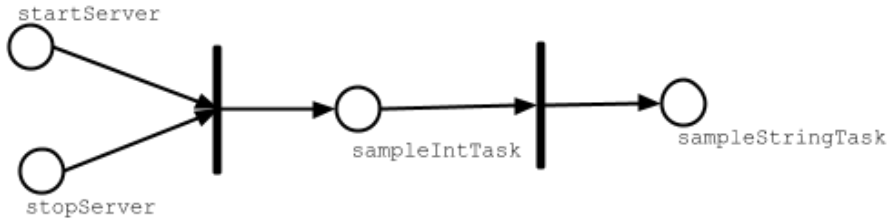


Figure 3: task-dependency

```
Ä¶ÇÊúúÊàë%ª·% çÄÄöÈáçÄ§ç%aaÄª°Äõ ÄÖ È° ÄõÑÄéªÈáçÖªâÄàôÄΩîÊàë%ª·ÊâßÈ°âtestÊó ÊúÄÄªà%
in Test%Ωú% test in TestÄõÑ%æùËµñÈ° Äá Äé∞% ÛÄæàÄ§öÈ°,,ÄÇ
```

```
Ê ÖÄéÛ%aaÄª°
Ä ïËØ•Ä¶Ç%ΩîÄÆúÄé∞stopServer%aaÄª°ÖªüÊ ÖÄéÛ%aaÄª°ÄõÑÊ¶ÇÄøµÄ % çÈÄÇÄèà%aaÄª°ÄõÑ
sampleStringTask,,ÄÇ
```

```

lazy val library = (project in file("library")).
  settings(commonSettings: _*).
  settings(
    startServer := {
      println("starting...")
      Thread.sleep(500)
    },
    sampleIntTask := {
      startServer.value
      val sum = 1 + 2
      println("sum: " + sum)
      sum
    },
    sampleStringTask := {
      startServer.value
      val s = sampleIntTask.value.toString
      println("s: " + s)
      s
    },
    sampleStringTask := {
      val old = sampleStringTask.value
      println("stopping...")
      Thread.sleep(500)
      old
    }
  )

```

```

%00 %00 ÜÊØÅÊðéÂÆÉÂèØ%00ª•Â •%00ΩúÔ°ãÂú®%00 §%00 íÂ°èÊèéÁ§ Á°¶%00 ÊðêË°ã
sampleStringTaskÔ°ö

```

```

> sampleStringTask
starting...
sum: 3
s: 3
stopping...
[success] Total time: 1 s, completed Dec 22, 2014 6:00:00 PM

```

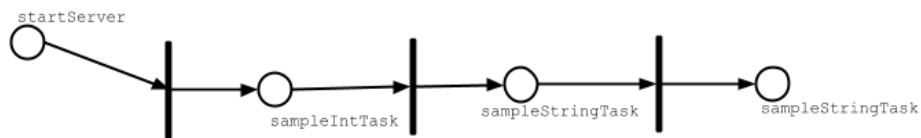


Figure 4: task-dependency

Ãõ¥Êé • %00ΩøÁî@Scala

```

Á°Æ%øù% Æ% ò% ãÀèéÁüÁú@ÂÖ ÂÆÉ% Æ% ò% ãÁâ©% ãÂèéÁöÑÂè¶% ÄÁßçÊñ Â°èÊðØ%ΩøÁi@S
sampleIntTask := {
  ServerUtil.startServer
  try {
    val sum = 1 + 2
    println("sum: " + sum)
  } finally {
    ServerUtil.stopServer
  }
  sum
}

Ãð†% ÊðÆÈÃöÁöÑÊñ Ê îÊ∞ÉÁí@ÈÁµÁæ™È° Â èÊØ % ãÔ°ãÊãÄÊúã% ãÊÉÖÊããÈ° Â èÀèéÁü.,ÄÇËððí

Â∞ÜÂÆÉ%ª¨ÊΩ¨% Êèí%ª

Â¶ÇÊûú%Ω†ÂèéÁé∞Ëá™Â ±ÊúãÂæàÂ§öËá™ÂÆö% ã%ª£Á†ÂÔ°ãÂèØ%ª • ÈÄÉÈðèÂ∞ÜÂÖ ÁßªÄã@Â
ÄãðÂª % Æ% ™Êèí%ª ÂæàÂÆ ÊðìÔ°ãÁú@%ΩøÁí@Êèí%ª ÁíãÊèí%ª % ÊúãÊØ¶ÁªÜÊÆ@ÊÆ „ÄÇ
Êú¨Â∞èÈäÇÊðØ% ™Âø´ÈÄüÁöÑÂèèÂØ°Ô°ðÊö¥Â§öÂÖ % éËá™ÂÆö% ã%ªªÂä°ÂèØ%ª • Áú@%ªªÂä
ª

ÁªÑÁªáÊûÑÂª

Êú¨È°µÈùcÂ∞ÜÊÆ@ÊÆ ÊûÑÂª ÁªìÊûÑÁöÑÁªÑªáª.,ÄÇ
Êú¨Â∞èÈäÇÁªÄáÊæ%Ω†Â ÁªèÈðÖÊØª% Ü% ãÄäçÁöÑÁ´†ËäÇÔ°ãÂ∞§ÂÖ ÊðØ
build.sbtÔ°ãÂ î%æùÊµñÁíãÂ§öÂ • Á@ãÊûÑÂª „ÄÇ

sbtÊðØÈÄíÂΩíÁöÑ

build.sbt ÂæàÁÆÄÂÇïÔ°ãÈèèÈóè% Ü sbt ÊðØÂ¶Ç%ΩíÂ • %ΩúÁöÑ.,ÄÇsbt
ÊûÑÂª ÊðØÁí@ Scala %ª£Á†ÂÂÆö% ãÁöÑ.,ÄÇ%ª£Á†ÂÊú¨È´% üÂøÖÈ°ãÊðØËÉΩËç´ÊûÑÂª ÁöÑ.,ÄÇ
sbt Êö¥Á • ΩÁöÑÁª Á´ãÊñ Á°è% àÔ°ü

project ÁõÆÂΩí ÊðØ%Ω†ÁöÑÂ • Á@ãÄÜÖÂè¶% Æ% ™Â • Á@ãÄöÑÈ° ÁõÆÔ°ãÂÆÉÁü • ÈÄíÂ¶Ç%ΩíÊ
project% ÁöÑÊûÑÂª „ÄÇÁú@ÂÖÉÊûÑÂª % ÁöÑÈ° ÁõÆËÉΩÁÃö%ªª%ΩíÂÖ %ªñÈ° ÁõÆÂèØ%ª • Á
%Ω†ÁöÑÊûÑÂª ÂÆö% ãÊðØ% Æ% ™ sbt È° ÁõÆ.,ÄÇ

ÈÄíÂΩíÂèØ%ª • ÁªßÁª % ãÁéª.,ÄÇÂ¶ÇÊûú%Ω†ÂñúÊ¨c, %Ω†ÂèØ%ª • ÈÄöÊøáÄãðÂª
project/project/ ÁõÆÂΩíÁ@çÁ@çÊ∞ÉÊí¥È° ÁõÆÁöÑÊûÑÂª ÂÆö% ãª.,ÄÇ
% ãÈùcÊðØ% Æ% ™%æãÂ ÊÔ°ö

hello/ # È° ÁõÆÁöÑÄü ÁõÆÂΩí

Hello.scala # % Æ% È° ÁõÆÊ èÊñªªª Ô°ã% üÂèØ%ª•Áú@src/main/scalaÔ°ã

```

```

build.sbt      # build.sbt ÊðØproject/ % ÃÖÊÊûÑÃª Ê† È° ÁðÆÁõÑÊ º%ª£Á†Ã,,ÃÇÊðØÊûÑÃª Æö% æÈº

project/      # ÃÖÊÊûÑÃª Ê† È° ÁðÆÁõÑÃü ÁðÆÃΩî

Build.scala   # ÃÖÊÊûÑÃª Ê† È° ÁðÆÁõÑ% Ã% Ê ºÊñª% ÒºªÊðØ%Ω†ÁõÑÊûÑÃª Æö% ºÁõÑÊûÑÃª Æö% ºÆ

build.sbt     # ÃÖÊÃÖÊÊûÑÃª ÁõÑÊ† È° ÁðÆ,Ãî,Ãîproject/projectÃõÑÊ º%ª£Á†ÃÖºðÊûÑÃª Æö% ºÁõÑÊûÑÃª Æö% ºÆ

project/      # ÃÖÊÃÖÊÊûÑÃª ÁõÑÊ† È° ÁðÆÁõÑÃü ÁðÆÃΩîîØºðÊûÑÃª Æö% ºÁõÑÊûÑÃª Æö% ºÃ •Ãã

Build.scala # project/project/ ÃÖÊÃÖÊÊûÑÃª ÁõÑÊ† È° ÁðÆ% ÁõÑÊ ºÊñª%ª

% çÁ®ÊãÖÁøÉÖºÁ Á§ßÊÉ®ÃaÛÊó ÁÃð% çÈúÃÊ¶Á project/project/
ÁðÆÃΩî,,ÃÇ%ΩÛÊðØÁèÛÊß£ÁÆÊÊðØÊúâÃ ÆÃã©ÃõÑ,,ÃÇ

Ãè¶Á§ñÔºª%ªª%Ωî%ª • .scala ÊàñÊÃÖ .sbt ÁªÃ∞æÃõÑÊñª%ª ÊÉΩ%ººðÊç´%ΩøÁî®ÔºªÃèΩÃèç%
build.sbt Áî Build.scalaÃè™ÊðØÊÉØ%æã,,ÃÇÃ§ð%™Êñª%ª % üÊðØÃÖÃÊÆ ÁõÑ,,ÃÇ

Ãú®Ãêã%ª Ã%™Ãú∞Êñ Ê üÊ™%æüÊµñÊº

Ãî®project%ªãÃõÑ.scalaÊñª%ª ÁªÑÊàèÊûÑÃª Æö%ª ºÃõÑ%ª Ã%™ÃÊüÊðÖÃî®%æãÊðØÃàõÃª pr

import sbt._

object Dependencies {
  // Versions
  lazy val akkaVersion = "2.3.8"

  // Libraries
  val akkaActor = "com.typesafe.akka" %% "akka-actor" % akkaVersion
  val akkaCluster = "com.typesafe.akka" %% "akka-cluster" % akkaVersion
  val specs2core = "org.specs2" %% "specs2-core" % "2.4.14"

  // Projects
  val backendDeps =
    Seq(akkaActor, specs2core % Test)
}

DependenciesÃØ Ê±ºÃ∞ÛÃú®build.sbt%ª ÃèØÃî®,ÃÇÃ¶ÇÊúúÊ¶ÁÊÆ©%ΩøÃî®valÃõÑ%ª£Á†ÃÊðª

import Dependencies._

lazy val commonSettings = Seq(
  version := "0.1.0",
  scalaVersion := "2.11.7"
)

lazy val backend = (project in file("backend")).

```

```

settings(commonSettings: _*).
settings(
  libraryDependencies ++= backendDeps
)

Áú@ .scala Êñá%a Òa%Ω†ÂèØ%a • ÁÛó%aaÊÑèÁöÑ Scala %a£Á†ÁÔoâÁâÖÊã˘È° Á±ÇÁöÑÁ±aÁíÁÇ
Êé@ÊçêÁöÑÊñ È ìÊòØÂÆó%âÂ§ßÈÉ@ÂàÛËÆæÁΩÆÁú@Â§öÁ • Á@ãÁöÑ
build.sbt Êñá%a %Ω ÒaâÁ %Ω ì%ΩØÁí@project/* .scala Êñá%a Èù • ÁÅó%aaÂä°ÂÆûÁé∞ÊànÁú@Â§

ÂÆó%âÊáTMÂä@Êèí%a

ÂØ %éÊó¥È˘òÁ ÂÁöÑÁí@Êà ÒaâÂè¶%Ω ÁÂßçÊñ ÁoèÁaÑÁa%Ω†ÁöÑÊùÑÁa ÈòØÁú@project/* .scala%

ÊÄaÁaì

Êøó%ÄÊÇÁ∞ÛÂÖ • Èó@ÊääÂçóÊÄaÁaì%Ä Ä%ä„ÄÇ
%Ω %Û Û%ΩØøÁí@ sbtÔaâÊúá%Ä Ä%ö òÊ¶ÇÁøµ%Ω†ÂøÖÈoâÁêÛËß£„ÄÇÊøóÊúá%Ä %ö òÁ ¶%Ω †Êó Á øÔaâ
Êó§%Û Êøó%ö òÊ¶ÇÁøµÂØ %é sbt Á %çÂ§ö„ÄÇsbt Áí@%Ä ÁÂ∞èÊÉ@ÂàÛË† ÂøÊÊ¶ÇÁøµÈù • %ΩØÁâ
Â¶ÇÊùú%Ω†Â ÁaèÊóÖÊØaÊøáÊâÄÊúâÁöÑÂÖ • Èó@ÊääÂçóÔaâÁé∞Áú@%Ω†Áü • ÊÁì%Û Û%ΩØ†ÈúÄÊ¶Á

sbt: Ê† ÂøÊÊ¶ÇÁøµ

• Scala Áü ÁÄ„ÄÇ%çÂèØÂè¶ÊÆ§ÔaâÁÛËÊÇâ Scala ÊØ È ìÈùûÁ ÊúâÂÆÄä@„ÄÇProgramming
in ScalaÔaâScala ÁöÑ%ΩúÊÄÖÁÛòÁöÑÈùûÁ Á • ΩÁöÑ%aâÁaç„ÄÇ
• .sbt ÊùÑÁa ÂÆó%â
• %Ω†ÁöÑÊùÑÁa ÂÆó%âÈòØ%Ä %TMÂ§ßÁöÑ Setting ÂØ Ê±°ÂàóÊo@Ôaâsbt
%ΩØøÁí@ Setting ÈΩ˘Êçç%âÂééÁöÑÈìÆÄoÂØ ÊâßÊoâ task„ÄÇ
• %Ω %Û ÛÂàòÁa SettingÔaâÁú@%Ä %TMkey %äÊ∞ÉÁí@ÂÖ %Ω ÁöÑ%Ä %TMÊñ È ìÔoö:=Ôaâ+=
ÊànÊÄÖ ++=„ÄÇ
• È°ÊúâÂèØÂèòÁöÑÁä ÊÄÄÔaâÊá %éÈΩ˘ÊççÔoö%æâÂ¶ÇÔaâ%Ä %TM
Setting Á∞Û sbt ÁöÑÈìÆÄoÂØ ÊóÛÂèàÈΩ˘ÊççÊàè%Ä %TMÊñ∞ÁöÑÈòÛÂèà„ÄÇ%ç%oöÁ∞±/
• ÊØè%Ä %TMÊÆæÁΩÆÈÉΩÊúá%Ä %TMÁâ ÂÆöÁ±aÁüâÁöÑÁoâÁí±
key ÁÛ ÂÆö„ÄÇ
• tasks ÈòØÁâ ÊÆäÁöÑÈÆæÁΩÆÔaâÈÄöÊøá key %Ω ÂÁíü value
ÁöÑÈÆ°ÁÆóÁú@ÊØèÈ˘°Áá Âèè task ÁöÑÊó ÁÄöÊÉΩ%oöÊäçÊñ∞ÊâßÊoâ„ÄÇNon-
task ÊÆ°ÁÆóÂèTM%oöÁú@ÊùÑÁa ÂÆó%âÁöÑÁ˘%Ä Ê˘°Äâ†ÊΩΩÉó ÊâßÊoâ„ÄÇ
• Scopes
• ÊØè%Ä %TMkey ÈÉΩÂèØÊÉΩÊúâÂ§ö%TMvalueÔaâÊääÁÖß scope
ÁàíÂàÛ„ÄÇ

```

- scope %<sub>00</sub>öÁî@%<sub>00</sub> â%<sub>00</sub> <sup>TM</sup>ÊΩ¥Ô°öconfigurationÔ°âprojectÔ°âtask,,ÃÇ
- scope ÄÖÄÊÆ %<sub>00</sub>Ω†ÊââÊ° ÄöÆ,,ÄÄÊââ task,,ÄÄÊââ configuration Êúâ%<sub>00</sub> çÄêâÄöÑÊ°â%<sub>00</sub> „ÃÇ
- %<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>configuration ÊðØ%<sub>00</sub> ÄÄßçÁ±<sup>a</sup>ÄûâÄöÑÊûÑÄ<sup>a</sup> Ô°â%<sub>00</sub>æâÄ¶Ç Compile ÊânÊÄÖ Test,,ÃÇ
- project ÊΩ¥%<sub>00</sub> üÊìØÊâÄ “ÊûÑÄ<sup>a</sup> ÄÖ@Ä±Ä” scope,,ÃÇ
- scopes ÄöûÊ°öÊân %<sub>00</sub><sup>a</sup>ℒÁêÛ Äà∞Êö¥ÊÄöÁî@ÄöÑ scope,,ÃÇ
- Ä∞ÜÄ§ßÊÊ@ÄàÜÊÖçÁΩÆÊîæÄú@ build.sbt %<sub>00</sub> Ô°â%<sub>00</sub>ΩÜÊðØÁî@ .scala ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> âÊñâ%<sub>00</sub><sup>a</sup> ÄÆö%<sub>00</sub> âÄ±<sup>a</sup>ÄíâÊö¥Ä§ßÄöÑ task ÄÆûÄé∞,,ÃÇ
- ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> âÊðØ%<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>sbt Ê° ÄöÆÔ°âÊû• Êá<sup>TM</sup>%<sub>00</sub> éÊ° ÄöÆÄöÆÄΩî,,ÃÇ
- Êèí%<sub>00</sub><sup>a</sup> ÊðØÄØ ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> âÄöÑÊâ@Ä±î
- ÊÄöÊøáÄú@ addSbtPlugin Êñ Ê îÄú@ project/plugins.sbt %<sub>00</sub> Ê <sup>a</sup>Ää†Êèí%<sub>00</sub><sup>a</sup> „ÃÇÔ°â%<sub>00</sub> çÊðØÄú@Ê build.sbt %<sub>00</sub> Ô°â,,ÃÇ

Ä¶ÇÊûú%<sub>00</sub>Ω†ÊÄÄÄñêÊøð%<sub>00</sub> òÄ<sup>a</sup>ÜÊûùÊú´ÊäÇ%<sub>00</sub> ÄöÑ%<sub>00</sub><sup>aa</sup>%<sub>00</sub>Ωî%<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>Ô°âÊØ ÄØ<sup>a</sup>Ê±çÄ ÆÄâ@Ô°âÊø sbt ÄöÑ%<sub>00</sub> §%<sub>00</sub> íÄ°èÄë%<sub>00</sub>â§Ê°â%<sub>00</sub> ÄÄöÄÆûÊ<sup>TM</sup>â,,ÃÇ

Ä•ù%<sub>00</sub>Ω†Ä•ΩÊøêÔ°Ä

ÊöÑÄΩî

Äö†%<sub>00</sub> sbt ÊðØ%<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>Ä°ÄÊ êÊ° ÄöÆÔ°âÄà´ÄøðÊÆ∞Ä æÄá Ê° ÄöÆÊ ê%<sub>00</sub><sup>a</sup>£Ä†ÄÔ°Ä

ÊöÑÄΩîÔ°öBare .sbt ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â

Êøð%<sub>00</sub> ÄÄ∞èÊäÇÊÆ Êø∞%<sub>00</sub> ÄÄßçÊÄÄÄ°èÊ£éÊ†°ÄöÑ .sbt ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â,,ÃÇ Äé∞Äú@Êé@Êçè%<sub>00</sub>ΩØÄî@ Ä§öÊ° ÄöÆ .sbt ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â,,ÃÇ

%<sub>00</sub><sup>a</sup>Ä%<sub>00</sub> âÊðØbare .sbt ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â

%<sub>00</sub> çÄÊè Ä§öÊ° ÄöÆ .sbt ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â Äíâ .scala ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â ÊðæÄ°èÄú∞ÄÆö%<sub>00</sub> â%<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>Ê° ÄöÆÔ°â bareÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> â%<sub>00</sub>öÊ† ÊçÆ .sbt Êñâ%<sub>00</sub><sup>a</sup> ÊâÄÄú@ÄöÑ%<sub>00</sub>ΩçÁΩÆÊöêÄ°èÄú∞ÄÆö%<sub>00</sub> â%<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>Ê° ÄöÆ,,ÃÇ

bare .sbt ÊûÑÄ<sup>a</sup> ÄÆö%<sub>00</sub> âÄî±%<sub>00</sub> Ä%<sub>00</sub> <sup>TM</sup>Setting[\_] Ê°@ÊææÄ°èÄöÑÄàðÊ°@Ä<sup>a</sup>ÑÊâèÔ°âÊÄâ%<sub>00</sub> çÊðØÄÆö Project,,ÃÇ

name := "hello"

version := "1.0"

scalaVersion := "2.11.7"



(Áú@ 0.13.7 % ¯ââç) ÊÆæÁΩÆÊ° ÂøÖÊ°ª%ª • Á© Ê°âÂâÜÊöî

Ê ®ÊÑêÖ°öÊøðÁßçÁ© Ê°âÊêêÂÆöÁú@ 0.13.7 % ¯ââééÂ∞Û% çÂÛçÈúÄÊ¶Á,,ÄÇ

%Ω†% çÊÊΩÂÊèÊøðÊ† ÂÛðbare build.sbtÖ°ö

// Ê °ÊûâÁ© Ê°âÖ°â% °öÁ°ñÊøê% çÊøá

name := "hello"

version := "1.0"

scalaVersion := "2.10.3"

sbt ÈúÄÊ¶ÁÊúâÂâÜÊöîÁ°¶Êù • Êæ®Âà´% Ä% ™Ê°®ÊææÂ°è%ªéÂì™ÊääÂ°ÄÂßäÖ°ªÂâ∞Âì™ÊääÂªîÊ

ÊöÑÂΩîÖ°ö.scala ÊûÑÂª ÂÆö%ª â

Êú°µÊùcÊèèÊø∞% Û .scalaÊûÑÂª ÂÆö%ª âÄöÑÊóßÄöÑÊ£éÊ†°,,ÄÇÁú@%ª • ÂâçÁöÑÁââÊú° ÁöÑsbt%  
0.13 Êªââ†% ÛÂ§öÊ° ÁðÆ.sbt ÁñüÊàèÂÆö%ª âÖ°âÊøð% üÊðØÊé®ÊçèÁöÑÊ† Â°è,,ÄÇ

ÊøðÊääâÂÁâÊÆæ%Ω†Â ÁªèÈðÖÊøª% Û% ¯ââçÁöÑÂ°†ÊäÇÖ°ªÂ∞§ÄÖ ÊèØ  
.sbt ÊûÑÂª ÂÆö%ª âÁíâÊö¥Â§öÄÖ % éÊÆæÁΩÆ,,ÄÇ

ÄÖ ÊÂî build.sbt Âíâ Build.scala

% % ÛÊûçÂèà.sbt Áíâ .scala Êñá%ª Âú@%Ω†ÄöÑÊûÑÂª ÂÆö%ª â% Ö°ª%Ω†ÈúÄÊ¶ÁÄêÜÊß£%ªñ

% ¯âÊùc% §% ™Êñá%ª ÊèèÊø∞% ÛÊøð% ™ÊøáÁ®ã,,ÄÇÁ°°% ÄÖ°ªÂ¶ÇÊúú%Ω†ÁöÑÈ° ÁðÆÁú®  
hello Êñá%ª Â§ ÂÛÖÖ°ªÂâðÂª hello/project/Build.scalaÖ°ö

```
import sbt._  
import Keys._
```

```
object HelloBuild extends Build {  
  val sampleKeyA = settingKey[String]("demo key A")  
  val sampleKeyB = settingKey[String]("demo key B")  
  val sampleKeyC = settingKey[String]("demo key C")  
  val sampleKeyD = settingKey[String]("demo key D")  
  
  override lazy val settings = super.settings ++  
    Seq(  
      sampleKeyA := "A: in Build.settings in Build.scala",  
      resolvers := Seq()  
    )  
  
  lazy val root = Project(id = "hello",  
    base = file("."),  
    settings = Seq(  
      sampleKeyB := "B: in the root project settings in Build.scala"
```

```

    })
  }

  Áé∞Áú®Ô°âÂâöÂª hello/build.sbtÔ°ö

  sampleKeyC in ThisBuild := "C: in build.sbt scoped to ThisBuild"

  sampleKeyD := "D: in build.sbt"

  ÊàìÂ°Ä sbt ÁªâÁ´ØÂëΩ%ª§Á™óÂë£,,ÄÇÊì ÂÖ • inspect sampleKeyAÔ°â%Ω†Â∞Û%°öÁúãÂà∞Ô°ö

  [info] Setting: java.lang.String = A: in Build.settings in Build.scala
  [info] Provided by:
  [info] {file:/home/hp/checkout/hello/}/*:sampleKeyA

  ÁÑ ÂêéÊì ÂÖ • inspect sampleKeyCÔ°â%Ω†Â∞Û%°öÁúãÂà∞Ô°ö

  [info] Setting: java.lang.String = C: in build.sbt scoped to ThisBuild
  [info] Provided by:
  [info] {file:/home/hp/checkout/hello/}/*:sampleKeyC

  Ê®ÊÑè “Provided by” ÊðæÁ§ % §%™ value ÂÖ ÊúâÁð Âêâ%ΩúÁì®ÊâÉÂö¥,,ÄÇÈÇ£ÊðØ
  .sbt Êñá%ª % ÁöÑ sampleKeyC in ThisBuild Á âÂêâ% éÊìæÁΩÆÁú®
  .scala Êñá%ª Build.settings ÂàöÊ°®% ÁöÑ% Ä%™ÊÆæÁΩÆ,,ÄÇsbt
  %°ö%ªé% §%™ Áú∞Êñ ÊäΩÂènÊûÑÂª ÊâÉÂö¥ÂÛÖÁöÑÊÆæÁΩÆÔ°âÊù • ÂàöÂª ÊûÑÂª ÂÆö% â,,ÄÇ
  ÁÑ ÂêéÔ°âinspect sampleKeyBÔ°ö

  [info] Setting: java.lang.String = B: in the root project settings in Build.scala
  [info] Provided by:
  [info] {file:/home/hp/checkout/hello/}hello/*:sampleKeyB

  Ê®ÊÑè sampleKeyB ÊðØÊç´%ΩúÁì®ÁöÑÊðð%™Ê° ÁöÆÔ°ö ({file:/home/hp/checkout/hello/}hello/
  ÊÂâ% çÊðØÊì¥%™ÊûÑÂª ({file:/home/hp/checkout/hello/}),,ÄÇ
  %Ω†Â ìÊØ • ÁªèÁáúÊµãÂà∞% ÛÔ°âinspect sampleKeyD Á âÂêâ% é
  sampleKeyBÔ°ö

  [info] Setting: java.lang.String = D: in build.sbt
  [info] Provided by:
  [info] {file:/home/hp/checkout/hello/}hello/*:sampleKeyD

  sbt %ªé .sbt Êñá%ª ÊóÑÁäÊÆæÁΩÆÂà∞ Build.settings Áíâ
  Project.setting ÁöÑÊÆæÁΩÆÔ°âÊççÂè • ÊØùÊØ¥Ô°â.sbt ÊÆæÁΩÆÊâ • Êúâ%°ðÂÖàÊùÉ,,ÄÇ
  Á∞ùÊØìÊì Âèò Build.scalaÔ°â%ΩøÂæóÂÆÊÉÊΩÊÆæÁΩÆÂª • Áª°
  sampleC ÊànÊÄÖ sampleDÔ°â%ªñ%ª“ ÁªèÁú® build.sbt ÊÆæÁΩÆÊøá,,ÄÇbuild.sbt
  % ÁöÑÊÆæÁΩÆÂ ìÊØ • ÊÉΩ,ÁúÊµç,ÄùÊøá Build.sbt,,ÄÇ

  %Ω†% ùÊÆ %°öÊ®ÊÑèÂà∞Âè¶% ÄÊ¶ÁÄÇ Ô°ösampleKeyC Áíâ sampleKeyD
  ÊðØÂèØ%ª • Áú® build.sbt ÂÛÖÊÉ®Êé ÂæóÁöÑ,,ÄÇÊððÊðØÂö†% sbt
  Á°ìÂÖ • Build % ÁöÑÂÛÖÂÆ Âà∞ .sbt Êñá%ª % „ÄÇÂú®ÊøðÁßçÊÊÖÂÛµ% ãÔ°âimport
  HelloBuild._ ÊðØÊç´ÊèèÂê´Á°ìÂÖ • Áú® build.sbt Êñá%ª % „ÄÇ
  ÊÂªÁªìÔ°ö

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