

# sbt Reference Manual

## Contents

Preface . . . . .	3
<b>sbt</b> . . . . .	<b>3</b>
sbt . . . . .	3
EèèÁ§ ÁíáÊäÄÄ ß . . . . .	4
Áú® Mac %äÄÊäÊ£Ö sbt . . . . .	4
ÊÄöÊøáÄ´´´%äÊñ ÁöÑÄäÖÄÊäÊ£Ö . . . . .	4
ÊÄöÊøáÊÄöÁí®ÁöÑÄäÖÄÊäÊ£Ö . . . . .	4
Typesafe Activator . . . . .	4
ÊääÄä®ÄÊäÊ£Ö . . . . .	4
Áú® Windows %äÄÊäÊ£Ö sbt . . . . .	5
ÊÄöÊøá Windows ÄÊäÊ£ÖÄäÖÄÊäÊ£Ö . . . . .	5
ÊÄöÊøáÊÄöÁí®ÁöÑÄÊäÊ£ÖÄäÖÄÊäÊ£Ö . . . . .	5
Typesafe Activator . . . . .	5
ÊääÄä®ÄÊäÊ£Ö . . . . .	5
Áú® Linux %äÄÊäÊ£Ö sbt . . . . .	5
ÊÄöÊøáÊÄöÁí®ÁöÑÄÊäÊ£ÖÄäÖÄÊäÊ£Ö . . . . .	5
UbuntuÁíáÄÖ %äñÄü %é DebianÁöÑÄèèÈ°äÄää . . . . .	5
Ä çÄ Ö%äÄ%äöÄääLinuxÁíáÄÖ %äñÄü %é RPMÄöÑÄèèÈ°äÄää . . . . .	7
Gentoo . . . . .	7
Typesafe Activator . . . . .	7
ÊääÄä®ÄÊäÊ£Ö . . . . .	7
ÊääÄä®ÄÊäÊ£Ö sbt . . . . .	7
Unix . . . . .	7
Windows . . . . .	8
ÄÊäÊ£Ö Typesafe Activator (ÄäÖÄê´sbt) . . . . .	9
Hello, World . . . . .	9
ÄäöÄª %Ä %Ä´´´ÊüâÊ éÄ†ÄÄöÑÈ° ÄöÆÄöÆÄÖï . . . . .	9
ÊüÑÄª ÄÆö%ä ä . . . . .	10
ÊÆæÄÖÆ sbt ÄääÊü´ . . . . .	11
ÄöÆÄÖïÄªÊüÑ . . . . .	11
Äü Ä°ÄÄöÆÄÖï . . . . .	11
Ê é%äÄÄÄ†Ä . . . . .	11
sbt ÊüÑÄª ÄÆö%ä äÊñä%ä . . . . .	12

ÊûÑÂª %ò ßÂîÂ	12
ÈÖçÁΩÆÁâàÊúˆ ÁÆ°ÁêÛ	12
ËøêÊ°â	12
%ò §%ò íÊ®°Á°è	12
Êâ Á§ÑÁêÛÊ®°Á°è	13
ÊâÁÁª ÊûÑÂª ÁíâÊµâÊØî	13
Â Áî®ÁêΩ%ª§	13
Tab Êá™Âä®Ê°•ÂÖ®	14
ÂêΩ%ª§ÁéÛÂè ÊÆ∞ÂΩî	14
.sbt ÊûÑÂª ÁÆö%ò â	14
ÊûÑÂª ÁÆö%ò âÁöÑ%ò âÁßçÊ£éÊ†°	15
%ªÁ%ò àÊðØÊûÑÂª ÁÆö%ò âÖ°ü	15
Â¶Ç%òΩîÂú® build.sbt %ò ÁÆö%ò âÊÆæÁΩÆ	16
ÊîÆÖ°àKeysÖ°â	17
ÁÆö%ò â tasks Áíâ settings	18
sbt %ò §%ò íÊ®°Á°è%ò ÁöÑ Keys	19
build.sbt %ò ÁöÑÂ°íÂÖ•	19
ÊªÁä†%òæùÊµñÂ ì	19
Scope	20
ÂÖ %ò é Key ÁöÑÊâÁÊúâÊîÖ%ò â	20
Scope ÊΩ¥	21
ÂÖ®Â±Â Scope	22
%ª£ÁêÛ	22
ËøêÊ°â sbt Êó Ê âÁêâ scope %ò âÁöÑ key	22
%òΩøÁî® scoped key Ê†âÊÖÛÁöÑ%òæâÂ ê	23
ÁÆ°Êü• scope	23
Âú®ÊûÑÂª ÁÆö%ò â%ò Ê âÁêâ scope	25
ÊââÁÆö scope ÁöÑÊó Êú	26
Êò¥Á§öÂÖ %ò éÊÆæÁΩÆ	27
ÂöùÊ°æÖ°ðÊÆæÁΩÆ	27
ËøΩÂä†ÂÁ°Ö°ö += Áíâ +=	27
%òæùÊµñ%ò éÂÖ %ªñ key ÁöÑÂÁ°ÊÆ°ÁÆóÂÁ°	28
ËøΩÂä†%òæùÊµñÖ°ö += Áíâ +=	30
Â ì%òæùÊµñ	30
ÈùùÊâðÁÆ°%òæùÊµñ	30
ÊâðÁÆ°%òæùÊµñ	31
Â§öÊ° ÁöÆÊûÑÂª	34
Â§öÊ° ÁöÆ	34
%òæùÊµñ	35
ÊªðÊÆ§ÁöÑ root Ê° ÁöÆ	36
%ò §%ò íÁ°èÂ°íÂÖ°Ê° ÁöÆ	37
ÊÄöÁî®%ª£Á†Â	37
%òΩøÁî®Êèì%ª	37
%ªÁÄ%ò àÊðØÊèì%ª	38
Â£∞Êðé%ò Ä%ò™Êèì%ª	38
ÂêØÁî®ÂíâÁ¶ÁÁî®Êá™Âä®Êèì%ª	38

$\hat{A}\hat{O}\hat{\otimes}\hat{A}\pm\hat{A}\hat{E}\hat{e}\hat{i}\%_0^a$ . . . . .	39
$\hat{A}\hat{e}\hat{O}\hat{A}\hat{i}\hat{\otimes}\hat{A}\hat{o}\hat{N}\hat{E}\hat{e}\hat{i}\%_0^a$ . . . . .	40
$\hat{E}\hat{a}^{\text{TM}}\hat{A}\hat{E}\hat{o}\%_0\hat{a}\hat{E}\hat{E}\hat{a}\hat{E}\hat{A}\hat{i}\hat{a}\%_0^{aa}\hat{A}\hat{a}^\circ$ . . . . .	40
$\hat{A}\hat{E}\hat{o}\%_0\hat{a}\%_0\hat{A}\%_0^{\text{TM}}\hat{E}\hat{i}\hat{E}$ . . . . .	40
$\hat{E}\hat{a}\hat{B}\hat{E}^\circ\hat{a}\%_0^{aa}\hat{A}\hat{a}^\circ$ . . . . .	40
$\%_0^{aa}\hat{A}\hat{a}^\circ\hat{A}\hat{o}\hat{N}\hat{E}\hat{a}\hat{B}\hat{E}^\circ\hat{a}\hat{E}\hat{O}\%_0\hat{a}$ . . . . .	41
$\hat{A}\hat{\infty}\hat{U}\hat{A}\hat{E}\hat{E}\%_0^a\hat{E}\hat{O}\%_0\hat{E}\hat{e}\hat{i}\%_0^a$ . . . . .	45
$\hat{A}^a\hat{N}\hat{A}^a\hat{a}\hat{E}\hat{u}\hat{N}\hat{A}^a$ . . . . .	45
$\text{sbt}\hat{E}\hat{o}\hat{O}\hat{E}\hat{A}\hat{i}\hat{A}\hat{O}\hat{i}\hat{A}\hat{o}\hat{N}$ . . . . .	45
$\hat{A}\hat{u}\hat{\otimes}\hat{A}\hat{e}\hat{a}\%_0\hat{A}\%_0^{\text{TM}}\hat{A}\hat{u}\hat{\infty}\hat{E}\hat{n}\hat{E}\hat{u}\hat{E}^{\text{TM}}\%_0\hat{a}\hat{u}\hat{E}\hat{\mu}\hat{n}\hat{E}^\circ$ . . . . .	46
$\%_0\hat{O}\hat{i}\hat{E}\hat{O}\hat{A}\hat{i}\hat{\otimes}. \text{scala}\hat{E}\hat{n}\hat{a}\%_0^a$ . . . . .	47
$\hat{A}\hat{E}\hat{o}\%_0\hat{a}\hat{E}\hat{a}^{\text{TM}}\hat{A}\hat{a}\hat{\otimes}\hat{E}\hat{e}\hat{i}\%_0^a$ . . . . .	47
$\hat{E}\hat{A}^a\hat{A}^a\hat{i}$ . . . . .	47
$\text{sbt}:\hat{E}\hat{\dagger}\hat{A}\hat{o}\hat{E}\hat{E}\P\hat{C}\hat{A}\hat{o}\hat{\mu}$ . . . . .	47
$\hat{E}\hat{o}\hat{N}\hat{A}\hat{O}\hat{i}$ . . . . .	48
$\hat{E}\hat{o}\hat{N}\hat{A}\hat{O}\hat{i}\hat{O}^\circ\hat{B}\hat{a}\hat{r}\hat{e}. \text{sbt}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}$ . . . . .	48
$\%_0^a\hat{A}\%_0\hat{a}\hat{E}\hat{o}\hat{O}\hat{b}\hat{a}\hat{r}\hat{e}. \text{sbt}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}$ . . . . .	48
$(\hat{A}\hat{u}\hat{\otimes}0.13.7\%_0\hat{a}\hat{A}\hat{a}\hat{\zeta})\hat{E}\hat{E}\hat{a}\hat{E}\hat{A}\hat{O}\hat{E}\hat{E}^\circ\hat{A}\hat{o}\hat{O}\hat{E}^{\circ a}\%_0^a\bullet\hat{A}\hat{\otimes}\hat{E}^\circ\hat{a}\hat{A}\hat{a}\hat{U}\hat{E}\hat{o}\hat{i}$ . . . . .	49
$\hat{E}\hat{o}\hat{N}\hat{A}\hat{O}\hat{i}\hat{O}^\circ. \text{scala}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}$ . . . . .	49
$\hat{A}\hat{O}\hat{E}\hat{A}\hat{i}\text{ build.sbt}\hat{A}\hat{i}\hat{a}\text{ Build.scala}$ . . . . .	49
$\%_0\S\%_0\hat{i}\hat{E}\hat{\otimes}^\circ\hat{A}^\circ\hat{e}\%_0\hat{A}\hat{o}\hat{N}\hat{E}\hat{u}\hat{N}\hat{A}^a\hat{A}\hat{E}\hat{o}\%_0\hat{a}\hat{E}^\circ\hat{A}\hat{o}\hat{E}$ . . . . .	51
$\hat{E}\hat{e}\hat{e}\hat{E}\hat{U}\hat{i}\hat{O}^\circ\hat{o}\hat{A}\hat{E}\hat{E}\hat{E}\hat{A}^a\hat{E}\hat{o}\hat{O}\%_0\hat{\zeta}\hat{A}\hat{e}\hat{O}\hat{A}\hat{e}\hat{o}\hat{A}\hat{o}\hat{N}$ . . . . .	51

## Preface

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

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

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

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

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

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

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

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

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

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

$\hat{E}\hat{e}\hat{e}\hat{A}\hat{\S} \hat{A}\hat{\imath}\hat{a}\hat{E}\hat{a}\hat{A} \hat{\beta}$

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

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

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

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

$\$ \text{ port install sbt}$

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

$\$ \text{ brew install sbt}$

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

$\%_0 \hat{a}\hat{E}\hat{\Omega}\hat{\Omega} \text{ZIP} \hat{E}\hat{a}\hat{n}\hat{E}\hat{A}\hat{O} \text{TGZ} \hat{A}\hat{a}\hat{O}\hat{A} \hat{E}\hat{\beta}\hat{\mathbb{L}}\hat{A}\hat{e}\hat{a},,\hat{A}\hat{C}$

**Typesafe Activator**

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

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

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

Âú® Windows %äÂÆâĚŁÖ sbt

ĚÄöĚøá Windows ÂÆâĚŁÖÂăÖÂÆâĚŁÖ

%äĚΩΩ msi ÂÆâĚŁÖÂăÖ Â ÂÆâĚŁÖ,,ĂÇ

ĚÄöĚøáĚÄöÁî®ĂöŇÂÆâĚŁÖÂăÖÂÆâĚŁÖ

%äĚΩΩ ZIP ÊàñĚÄÖ TGZ ÂăÖÂ ĚßŁĂéă,,ĂÇ

**Typesafe Activator**

ÂèÇĚBĂ Typesafe ActivatorÂÆâĚŁÖÊăăĂçó.

ÊăăÂă®ÂÆâĚŁÖ

ÂèÇĚBĂÊăăÂă®ÂÆâĚŁÖÊăăĂçó,,ĂÇ

Âú® Linux %äÂÆâĚŁÖ sbt

ĚÄöĚøáĚÄöÁî®ĂöŇÂÆâĚŁÖÂăÖÂÆâĚŁÖ

%äĚΩΩ ZIP ÊàñĚÄÖ TGZ ÂăÖÂ ĚßŁĂéă,,ĂÇ

UbuntuÂíăÂÖ %äñÂü %éDebianĂöŇÂèĚĚ°ăĂă

DEB ÂÆâĚŁÖÂăÖÁî±sbtÂÆòĚñ ÊiŒÊăĂ,,ĂÇ

UbuntuÂíăÂÖ %äñÂü %éDebianĂöŇÂèĚĚ°ăĂă%ΩøÁî®DEBĚ†°Â°èÖ°ă%ΩŮĚÄöÂ %Ω†%ç%äĚü˘ÂŮ°ăÂ¶ÇSynapticŒ°ă,,ĂÇ %äéĂ°ăÁ’ŒĚøĚĚ°ă%ăĚĚcĂöŇÂèΩ%ä§ÂÆâĚŁÖsbtŒ°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
```

ĚΩŒ%ä ÂăÖĂÆ°ĂĚŮÂô®Â∞ŮĚŁĂĚü•Ěă•Â %™ĚèĚ%æôÂÆâĚŁÖĚΩŒ%ä ÂăÖĂöŇĚÖçÁΩÆÂ òĂÇ  
%ăĚøôĂà Êñă%ä ÂèĚĂ ÉĂà∞ BintrayŒ°ăĚĂăBintray Êñ %æøĂú∞ĚèĚ%æô% ŮAPTĚµŇĚ ĚĂ ì,,ĂÇ%Ω  
%ĂĚó¶ÂÆâĚŁÖ% ŮsbtŒ°ă%Ω†%öĚĚŒĂşüÁú®aptitudeÊàñSynapticĂöŇÂăÖÁîĂ òĚôŸĚñ∞ĂĚéĂÆ  
Settings -> Software & Updates -> Other SoftwareŒ°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%ΩøÁi®RPMÊ†°Â°è,,ÃÇ  
%°éÁââÁ´ØËøèË°â% ãÈùcÁöÑÂèΩ%°§ÂÆâË£ÖsbtÔ°à%Ω†ÈúÄË¶ÄË ÖÁ ßÁi®Êâ ÈùÉËðèÔ°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%øð% ÜRPMËµÑÊ êÂ ì,,ÃÇ

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

## Gentoo

Áú®sbt ÂÆðÊñ ÁöÑÊ†è% Ê °ËúâËèè%øð ebuild,,ÃÇ %ΩÛËèØËúâ%°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 ÈØ Á∞Û%°aa%ΩîÁíâ ebuild Áö ÂÖ ÁöÑÈóÆËcòÂèçÈ¶àÂâ∞  
ËøðËââ,,ÃÇ

## Typesafe Activator

ÂèÇËßÂ Typesafe ActivatorÂÆâË£ÖÊââÂÇó.

ÊââÂâ®ÂÆâË£Ö

ÂèÇËßÂÊââÂâ®ÂÆâË£ÖÊââÂÇó,,ÃÇ

ÊââÂâ®ÂÆâË£Ö sbt

ÊââÂâ®ÂÆâË£ÖËúÄË¶Á% ãËΩΩ sbt-launch.jarÔ°âÁÑ ÂééÂâðÂ° ÊÑöËú´Èù • ÈøèË°âÂÆÉ,,ÃÇ

## Unix

Á∞Û sbt-launch.jar Êñá%° ÊîæÁú® ~/bin % ã,,ÃÇ ÂâðÂ° % Ä% ™ËÑöËú´Èù • ÈøèË°âËøð% ™  
jarÔ°âËÑöËú´ ~/bin/sbt ÁÛÖÂÆ 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°âÊùÉÊôêÔ°ö
$ chmod u+x ~/bin/sbt
```

## Windows

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

## Non-Cygwin

```
ÃØ % é%ΩøÁî@Ê†áÃáÛ Windows Á°ãÁ´ØÁöÑÈù Cygwin Áî@Êà Ô°ãÃàöÃª 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°ãÃàöÃª 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¶ÇÊùúÊúÃË¶ÃÁöÑËËØùËÆ∞Ãæó%ΩøÁî@ cygpath,,ÃÇÃ°ÊÑöÊú``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 % îÃèØ%ª•ËÃöËöá
stty ÈÖÇÃΩÆÔ°ãÔ°ãÃàöÃª % 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„ÃÇÁªõÊÑõÊú“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®°ÂªèÔªõÊìÆÄÖ•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% ãÊΩΩÔªõÂ∞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 ÁõÆÂΩîÔªªâÄÖÂê´ 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°èÄè%ª§Ê°ã,,ÄÇÁú® Linux
ÊañÊÄÖ OS X % ãÄõÑÄè%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 ¶ÄÆöÄ •%Ωú,,ÄÇsbt
Ä∞Û%°öÊä™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®Êä™Ê ´Äõ ÂêãÄääÊú´ÄõÑ
Scala Êù•ÊûÑÃª Ê° ÁõÆ,,ÄÇ %Ω†ÄèØ%ª•ÊÄöÊøáÊâβÊ°ã sbt run
Êù•ÊøéÊ°ãÊ° ÁõÆÊañÊÄÖÊÄöÊøá sbt console ÊøöÄÖ• Scala REPL,,ÄÇsbt
console Ä Ä°èÄ Æ%Ω† ÊÆæÄΩÆÄ•ΩÊ° ÁõÆÄõÑ classpathÔ°ãÊäÃ%ª•%Ω†ÄèØ%ª•Ê† ÊÇÆÊ° ÁõÆÄ
Scala Ä§ %æã,,ÄÇ

ÊûÑÃªª ÄÆö%ª â

Ä§ßÄ§öÊï∞Ê° ÁõÆÊúÄÊ¶Ä% Ä% ðÊääÄä®ÊÆæÄΩÆ,,ÄÇÄü Êú´ÄõÑÊûÑÃª ÊÆæÄΩÆÊÊΩÊîæÄú®Ê° Ä
build.sbt Êñá%ª Êää,,ÄÇ %æãÄ¶ÇÔ°ãÄ¶ÇÊúú%Ω†ÄõÑÊ° ÁõÆÊîæÄú®
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,,ÄÇ

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

```

ĖÆæÁΩÆ sbt ÁâàÊúˆ

%Ω‡ÂèØ%ª•ÈĂöĖøáÂàõÂª hello/project/build.properties Ėñá%ª Â° Âà ÊääÂÆö% Ä% ™ÁâàÊúˆ  
sbt„ĂÇÁú®Ėøð% ™Ėñá%ª ÈááÔªÁ°ñĂŮðĂ¶Ç% ãĂŮŎĂÆ Êù•Â° Âà %ΩøÁı®  
0.13.11Ŏö

sbt.version=0.13.11

sbt Áú®% çĂêäĂöŇ release ÁâàÊúˆ% ÊðØ 99% ÂŎ°ĂÆ ÁöŇ„ĂÇ%ΩŮÛÊðŎÁú®  
project/build.properties Ėñá%ª % ĖÆæÁΩÆ sbt ÁöŇÁâàÊúˆ%ªçĂŇ ĖĖΩĖĂøĂŎç% Ä% öĖΩúÁú®

ĂõÆÂΩıÁªĖŮŇ

Ėøð% ÄÂ∞èĖĂÇĂÁáĖÆæ%Ω‡Ă Áªè ĂÆáĖŁŎ sbt Ă % îĂ ÁªèĖòŎĖŎªĖøá  
Hello, World % Ů„ĂÇ

Ăü Á°ĂĂõÆÂΩı

Áú® sbt ÁöŇĖúØĖŎ ÈááÔª„ĂúĂü Á°ĂĂõÆÂΩı„ĂùÊðŎĂáŎĂê´Ė° ĂõÆĂöŇĂõÆÂΩı„ĂÇÊäĂ%ª•ŎªĂ¶Ç  
Hello, World % ĂĖ‡ ÁöŇĖ° ĂõÆ hello ŎªĂĂáŎĂê´ hello/build.sbt Áıá  
hello/hw.scalaŎª hello Ă∞±ĖðŎĂü Á°ĂĂõÆÂΩı„ĂÇ

Ė ê%ªŁĂ‡Ă

Ė ê%ªŁĂ‡ĂÂèØ%ª•ĂĖè hello/hw.scala % ĂĖ‡ ÁöŇĖıæĂú®Ė° ĂõÆĂöŇĂü Á°ĂĂõÆÂΩı% „ĂÇĂŇ ĖĂ  
sbt Áıá Maven ÁöŇĖªðĖÆ\$ĂöŇĖ êĖñá%ª ĂöŇĂõÆÂΩıÁªĖŮŇĖðØ% ĂĖ‡ ÁöŇŎªÊäĂĖúáĂöŇĖ ŎĂæŇĖ

```
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/ % ĂŎ %ªñĂöŇĂõÆÂΩıĂ∞ŮĖĖ´ĂøΩÁı•„ĂÇĖĂª% îŎªÊäĂĖúáĂöŇĖöèĖöèĂõÆÂΩı% ü%°ðĖĖ´Ă

sbt ÊûÑÂª ÂÆö%ª âÊñª%ª

%ªΩ†Â ÁªèÂú®È° ÁõÆÁöÑÂü Á°ÃÁõÆÂΩî%ª ÁúãÂà∞%ª Û build.sbt„ÄÇÃÖ %ªªñÁöÑ  
sbt Êñª%ª Áú® project Â èÁõÆÂΩî%ª „ÄÇ project ÁõÆÂΩîÂèØ%ª•.ÃäÖÂê´  
.scala Êñª%ª ÔªäÊøø%ª õÊñª%ª ÊúÃÂêé%ªöÁíá .sbt Êñª%ª ÂèàÂ ÄÖ±ÂèäÊûÑÊàèÂÆâÊÿ¥ÁöÑÊûÑÂ  
ÂªÑÂªäÊûÑÂª „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® Â®çÂêé Êß£ÊäãÔªäÂõ†%ª È¶ñÂÖª%ªΩ†ÊúÃÊ¶Ã%ª Ä%ª õÊÊäÊøØÁü•ÊØ

ÊûÑÂª %ª ßÂìÂ

ÊûÑÂª Áá Êù•ÁöÑÊñª%ª ÔªäÁªñÊØëÁöÑ classesÔªäÊàiÂªÖÁöÑ jarsÔªäÊàòÁÆ°Êñª%ª Ôªäcaches  
ÁíáÊñªÊ°£ÔªäÊªðÊÆ§ÂÛôÁú® target ÁõÆÂΩî%ª „ÄÇ

ÈÖçÁΩÆÁääÊú´ÁÆ°ÁèÛ

%ªΩ†ÁöÑ .gitignore Êñª%ª ÔªäÊànÊÄÖÃÖ %ªªñÁääÊú´ÊéßÂà ÁªÁªüÁ âÂèäÁöÑÊñª%ª ÔªäÂ îÊØ•.Ã  
target/  
Ê®ÊÑèÔªöÊøøÊääÂêéÊùcÊúÃÊ¶ÃÊ ü%ª Ä%ª ™ / ÔªäÂè™Âª ÈÖçÁõÆÂΩîÔªä%ª îÂâçÊùc%ª çÊÊΩÊúâ  
/ ÔªäÈø§%ª ÛÃª ÈÖçÊøÆÊÄöÁöÑ target/ ÊøðÃª ÈÖç project/target/  
Ôªä„ÄÇ

ÊøèÊÊª

Êøø%ª ÄÃ∞èÊäÇÂ∞ÛÊÆ Êø∞Âú®%ªΩ†Âª Á´ãÂ•ΩÈ° ÁõÆ%ª ãÂèéÂ¶Ç%ªΩîÁéª%ªΩøÁî®  
sbt„ÄÇÃÁÃäÊÆæ%ªΩ†Âª Áªè ÂÆâÊ£Ö sbt Â %ª îÂ ÁªèÂäöÃª Êøá Hello,  
World È° ÁõÆÊànÂÖ %ªªñÈ° ÁõÆ„ÄÇ

%ª §%ª îÊ®°Âªè

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

\$ sbt

ÊâßÈ°ª sbt %ª çÊ ü%ªªª%ªΩîÂèΩ%ª§ÊªÂèÇÊî∞Â∞Û%ªöÊøöÃÖ•%ª §%ª îÊ®°Âªè„ÄÇ%ª §%ª îÊ®°ÂªèÊúâ  
tab Êä™Âä®Ê°•.ÄÖ®ÂäüÊÊΩÂíáÂéÛÂè ÊÆ∞ÂΩîÔªä„ÄÇ

%ªæãÂ¶ÇÔªäÂú® sbt ÂèΩ%ª§ÊªäÊääÊæìÂÖ• 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†°% ÄàÛÊõìÁˆ¶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 ÊûÑÄ°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 ¢ÄõëËÛÛÄèòÄän,,ÄÇ %Ω†ÄêØ%°â • Äú®% §% iÊ®°Ä°èÊänÊÄÖÊâ Â§ÑÄêÛÊ®°Ä°è  
~ ÄäÇÄ°Ä,,ÄÇ ÄêÇËBÄ ÊB¶ÄèëÊâßÊ°â Êë ÄèñÊØ¶Ä°Û%°êÊÄØ,,ÄÇ

Ä Äì®ÄêÖ%°â§

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

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

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

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

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

src/main/java ÄõÆÄÑì% äÔ°â,,ÄÇ

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

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

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

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

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

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∞èËäÇÂ∞ÛËÆ@ËÆ ÊúÄËñ∞ÁöÑÂ§öÂ • Á@ã.sbt ÊûÑÂª ÂÆö% âÔªÂÆÉÁªiÂêà% Û% §Áf  
.sbt ÊûÑÂª ÂÆö% â|[Bare-Def]Áíä.scala ÊûÑÂª ÂÆö% âÔªâÁú@ÄÖ • Èó@ËääÁçóÁöÑÂééÈùcËË@ÂàÛÖª  
Ê §Á§ñÔªâÊûÑÂª ÂÆö% âÄèØ%ª • ÄâÖÄê´%ª • .scalaÄªiÂ∞æÄöÑËñª%ª Ôªª%Ωç% éÄü ÄöÆÄΩiÄö

%ªÄ% âÊðØÊûÑÂª ÂÆö% âÔü

sbt Äú@Ê£.ÄÊü • È° ÄöÆÄíäÂ§ÑÄéÛÊûÑÂª ÂÆö% âÊñª%ª %ª äÄééÔªâÂΩcÊàè% Ä% ™ProjectÂÆö%  
Äú@build.sbt% %Ω†ÄèØ%ª • ÄâöÄª %ª Ä% ™Êú¨ÄöÆÄΩiÄöÑProjectÄ • Á@ãÂÆö% âÔªâÄÉèËøøÊ†  
lazy val root = (project in file("."))

ÊØè% Ä% ™Ä • Á@ãÄØ Ä i% Ä% ™% çÄèØÄèöÄöÑËð†Â∞ÑË°@Ôªàimmutable  
mapÔªâÔªâ% Ä% òËiÆÄÄ°ÄØ ÄöÑËòÛÄèàÔªâÊü • ÈèèËø∞Ä • Á@ã„ÄÇ

%ªæâÄ¶ÇÔªâ% Ä% ™Äè´ÄÄö name ÄöÑ keyÔªâÊð†Â∞ÑÄà∞% Ä% ™Ä óÄ¨¶% ÄöÑÄÄ°ÔªâÄç È° Äö.  
ÊûÑÂª ÂÆö% âÊñª%ª %ª ç%ª °öÄö¥Ëé • ÄΩ±Äìç sbt ÄöÑ map„ÄÇ

ÄèñËÄª%ª£%ª äÄöÑËðØÔªâÊûÑÂª ÂÆö% â%ª°öÄâöÄª %ª Ä% ™Ä±ªÄüª%  
Setting[T] ÄöÑÄ üÄ§ßÄöÑÄØ Ê±°ÄàóË°@ÔªâT ÊðØËð†Â∞ÑË°@%ª ÄÄ°ÔªâvalueÔªâÄöÑÄ±ªÄüª„ÄÇ%  
Setting ÈèèËø∞ÄöÑËðØ%ª ÄË¨° ÄØ Êð†Â∞ÑË°@ÔªâmapÔªâÄöÑË°¨ËçÔªâ  
ÄÉèÄcûÄä†% Ä% ™Ëñ∞ÄöÑËiÆÄÄ°ÄØ ÈànËÄÖËΩÄä†Äà∞% Ä% ™Ä ÄªèÄ òÄú@ÄöÑ  
value %ª ä„ÄÇÔªâÄú@ÄÄΩËi∞ÄªèÄªñÄ@ãÄÖ %ª é%ªΩøÄi%ª çÄèØÄèðËi∞ËçÆÄªiÊûÑÄíäÄÄ°ÄöÑËÄüË  
„Äi„Äi ÂÆË% ç%ª°öÄ∞±Äú∞Ëö¥Ëñ∞ËößÄöÑ map„ÄÇÔªâ

%Ω†ÄèØ%ª • %ª Êú¨ÄöÆÄΩi%ª äÄöÑË° ÄöÆÄêçÄß∞ÄÖ ËÄi%ª Ä% ™  
Setting[String]ÔªâÄÉèËøøÊ† Ôªö

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

Ëøø% ™ Setting[String] %ª°öËÄöËøªÄcûÄä†ÔªâÈànËÄÖËðøËççÔªânameËiÆÄöÑÄÄ°%  
"hello" Êü • ÄØ map ÄÄö% ÄË¨°Ë°¨Ëçç„ÄÇË°¨ËççÄééÄöÑ map Èàè%  
sbt Ëñ∞ÄöÑ map„ÄÇ

%ª %ª ÛÄâöÄª Ëøø% ™ mapÔªâsbt %ª°öÄÖàÄØ ÈäÄÊúâËÆæÄΩÆÄöÑÄàóË°@ËøðËªèËiÄ èÔªâËøðÊ† Ä  
key ÄöÑËiÄèðÄèØ%ª • ÈiæÄú@%ª ÄËµ Èìç%ªΩúÔªâËÄª% iÄ¶ÇÊúú value  
%ªæùËµñ%ª éÄÖ %ªªñÄöÑ keyÔªâ%ª°öÄÖàÂ§ÑÄéÛÄÖ %ªªñË´%ªæùËµñÄöÑ  
key„ÄÇ ÄÑ ÄééÔªâ sbt %ª°öÄØ Settings ÈéiÄ • ΩÄ èÄöÑÄàóË°@ËøðËªèËÄçÄéÛÔªâÈääÈ° Ä èËääËØè%ª  
map %ª „ÄÇ

```

    ÊÃ±Á±îÔ°ö% Æ% ™ÊûÑÃ± Æö% âÊð% Æ% ™ProjectÔ°âÊ±•Êúâ% Æ% ™Ã±±Âûâ%
    Setting[T] ÁöÑÃàóÊ°@Ô°âSetting[T] Êð%°öÔ±ÂîçÃà∞ sbt %øùÃ òÊîÆÃ°ÃØ ÁöÑ
    map ÁöÑ% ÆÃßçÊΩ°ÊççÔ°âT Êð%Êð% Æ% ™ value ÁöÑÃ±±Âûâ,,ÃÇ

    Â¶Ç%ΩîÃú@ build.sbt % Æö% âÊÆæÃΩÆ

    build.sbt Æö% â% Û% ™ProjectÔ°âÆÊÊ±ÂÊúâ% Æ% ™Âêç% settingsÁöÑscalaÊ°@Êææ
    % âÊùçÊð% Æ% ™%æâÊ êÔ°ö

    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"
      )

    Êð% Æ° Setting ÊÊΩÆö% â% % Æ% ™ Scala Ê°@ÊææÊ°è,,ÃÇÃú@
    settings % ÁöÑÊ°@ÊææÊ°èÊð%Áö % íÃ±Á´âÁöÑÔ°âÊÃ±% íÆÊ%ª%ªÖ%ªÖÊð%Ê°@ÊææÊ°èÔ°â
    Scala ÊØ Àè•,,ÃÇ

    Êð% òÊ°@ÊææÊ°èÊð%ª•Ãî@ valÔ°âlazy valÔ°âdef Â£∞Êðé,,ÃÇ
    build.sbt % çÃÖÆÊ %ΩøÃî@Ê° Â±ÇÁöÑ object Áíã class,,ÃÇÆÊ%ªªÆøÊ°ªÃÛòÃà∞
    project/ ÁöÆÃî% ã%Ωú% Æ±Êÿ¥ÁöÑ Scala Ê êÊñª%ª,,ÃÇ

    Ãú@Â ¶Êæ Ô°ânameÔ°â version Áíã scalaVersion ÊÊΩÊð% ÊîÆÔ°âkeysÔ°â,,ÃÇ% Æ% ™ÊîÆÔ°âkeyÔ°â
    SettingKey[T] Ô°âTaskKey[T] ÊànÊÃÖ InputKey[T] ÁöÑÆÊû%æâÔ°âT
    Êð%ÊúüÊúóÁöÑ value ÁöÑÃ±±Âûâ,,ÃÇ key ÁöÑÃ±±Âà´Ã∞ÛÃú@% ãÊùçÊÆ Êß£,,ÃÇ

    ÊîÆÔ°âKeysÔ°âÊúâ% Æ% ™ÊøíÃòû Setting[T] ÁöÑ := Êñ Ê î,,ÃÇ%Ω†Âè%ª•ÂÊè%ΩøÃî@
    Java ÁöÑÊØ Ê î% ÆÊ† Ê∞ÉÁî@ÊØ•Êñ Ê îÔ°ö

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

    %ΩÛÊð%Ô°âScala ÂÖÆÊ name := "hello" Êð%Ê† Ê∞ÉÁî@Ô°âÃú@ Scala
    % Ô°ª% Æ% ™Âè™ÊúâÃçî% ™ÂèÇÊî∞ÁöÑÊñ Ê îÂè%ª•%ΩøÃî@%ªª%Ωî% ÆÃßçÊØ Ê îÊ∞ÉÁî@

    ÊîÆÔ°âkeyÔ°âname % äÁöÑ := Êñ Ê î%ªöÊøíÃòû% Æ% ™SettingÔ°âÃú@Êð%Ê±±Ã± Ê±±
    Setting[String]„ÃÇString % üÃ± Áé∞Ãú@ name Ê±™Ê´ÁöÑÃ±±Âûâ
    SettingKey[String] % „ÃÇ Ãú@Êð% ™%æâÊ ê% Ô°âÊøíÃòûÁöÑ
    Setting[String] Êð% Æ% ™Ãú@ sbt ÁöÑ map % ÆûÃ±Ê±Ê±ÊÃÖÊð%ÊççÊîÆ%
    name ÁöÑÊΩ°ÊççÔ°âÊî±Ã±% "hello",„ÃÇ

```





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

ÊØèÂΩì%Ω†ÊâßÊ°â% Ä%<sup>TM</sup> taskÔ°â%æâÄ¶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†ÄÔ°âÊØíÄ¶Ç  
compile – ÄÇ %ΩøÊøðÊÆµÄèØÊâßÊ°âÁöÑ%â£Á†ÄÊúÄÄ°âÊøíÂöü% Ä%<sup>TM</sup> Ä óÁ°¶% Ô°âÄÆÉ% 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> Ä±üÊÄßÔ°âpropertyÔ°âÔ°âÊÄâ% çÊðØ%

## ÄÆö% â tasks Äíâ settings

%Ω†ÄèØ%<sup>a</sup> • %ΩøÄí® := Ä°ð% Ä%<sup>TM</sup> setting Êµâ% Ä%<sup>TM</sup> ÄÄ°ÊânÊÄÖÄ°ð% Ä%<sup>TM</sup>  
task Êµâ% ÄÄßÇÊÆ°ÄÆó„ÄÇÄØ % é settingÔ°âÊøð%<sup>TM</sup> ÄÄ°Ô°âvalueÔ°âÄê<sup>TM</sup>%°öÄú@Ê° ÁðÆÄä†ÊΩΩÄ  
taskÔ°âÊøð%<sup>TM</sup>ÊÆ°ÄÆó%°öÄú@ task ÊØèÊ°°ÊâßÊ°âÁöÑÊó ÄÄðÊâÇÊñ∞ÊÆ°ÄÆó„ÄÇ

%æâÄ¶ÇÔ°âÄÆûÄé∞ÄâÇÊùc% 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> Ä Ä°èÄú@ÄÆö% âÊ° ÁðÆÄêÇÄß∞Êó ÊßÄÊøáÄÆö% â settings  
ÁöÑ%æâÄ êÔ°â

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

## Tasks Äíâ Settings ÁöÑÄ±âÄûâ

%°èÄ±âÄûâÄ°Ä°üÁöÑÊßíÄ ¶Êù•ÊÆ Ô°âÊÄöÊøá task key ÄàòÄ° ÁöÑ  
Setting ÄíâÊÄöÊøá setting key ÄàòÄ° ÁöÑ Setting ÊúâÄ@ÇÄæÆ% çÄêâ„ÄÇtaskKey  
:= 42 ÁöÑÄ±âÄûâÊðØ Setting[Task[T]] ÊÄÅ settingKey := 42  
ÁöÑÄ±âÄûâÊðØ Setting[T] „ÄÇÊøðÄØ % é Ä°ùÄ§ßÄ§öÊï∞ÊÉÖÄÛµÄ Êó†ÄΩ±ÄìÇÔ°ötask  
key Äú@ÊâßÊ°âÁöÑÊó ÄÄð%âÇÄÑ ÄàòÄ° % Ä%<sup>TM</sup> Ä±âÄûâ% T  
ÁöÑÄÄ°Ô°âvalueÔ°â„ÄÇ

T Ä±âÄûâÄíâ Task[T] Ä±âÄûâÁöÑ% çÄêâÁöÑÄê°% 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 ÄÄðÊÆ°ÄÆó% ÄÊ°°Ô°â% ç%°öÊâÇÊñ∞ÊÆ°ÄÆó„ÄÇÊð¥Ä§öÄÖ %  
ÁöÑÄÛÖÄÆ ÄæàÄø°Ä∞±%°öÊÆ Äà∞„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 • ÁúâÄà∞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% °%°ø°ÈÄØÈ °ÈúâÈÑè% âÔ°â%ΩÜÈðØÁú@È° ÈÈ®%°öÈðæÄ\$  
setting ÁöÑ value ÁöÑÄ±ªÄûâÄíâ 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% °È°ðÈÆ\$ÁöÑÄ°ìÄÖ • Ô°ö  
import sbt.\_  
import Process.\_  
import Keys.\_  
Ô°âÂè¶Ä\$ñÔ°âÄ¶ÇÈúú%Ω†Èúâ .scala Èñá%ª Ô°âÈøô% °Èñá%ª % %ªª%Ωì  
Build ÄØ È±°ÈànÈÄÖ Plugin ÄØ È±°ÈääÁöÑÄÜÖÄÆ ÈÈΩ%°öÈè´Ä°ìÄÖ • „ÄÇÈö¥Ä\$öÄÖ % éÈøô% ö  
.scala ÈúÑÄª ÄÆö% â „ÄÇÔ°â

ÈªÄä†%æùÈµñÄ ì

Èúâ% \$ÁßçÈñ Â°èÈªÄä†Ä°°% âÈñ ÁöÑ%æùÈµñ „ÄÇ% ÄÁßçÈðØÁ∞Ü  
jar Èñá%ª ÈìæÄÖ • lib/Ô°âÈúúÈâðÁÆ°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∞±ÊðØÁÊèÊððÊ† 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‰ çÊðØÊððÊççÁÆÊÔºâÊððÁ∞ÛÁú® ÊðŸÁ§ðÊÆæÁΩÆ  
 ‰ ‰ºââÁç„ÄÇ% Êñ Ê îÊðØÁî®Êù • ‰ºéÁ óÁˆ¶‰ ÊûÑÈÄ† Ivy Ê®ºÁùó ID  
 ÁõÑÔºâÁ∞ÛÁú® Á î‰æùÊµñ ‰ ‰ºââÁç„ÄÇ

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

## Scope

Êðð‰ ÁÄ∞èÊäÇ‰ºâÁç scope„ÄÇÁÄâÊæ‰Ω†Á ÁºèÈðÖÊºÁ ‰ îÁèÛÈß£‰ ÛÁâç‰ ÁÄ∞èÊäÇ  
 .sbt ÊûÑÂº ÁÆð‰ â„ÄÇ

ÄÖ ‰ é Key ÁõÑÊâÄÊúâÊ†Ö‰ º

Áâç‰ ÁÄ∞èÊäÇ Êâè‰ººº ÊÆ§‰ ÁÉè name ÁõÑ‰ Ä‰ ™ key Áð ÁΩì‰ é  
 sbt ‰ðùÁ ðÈîÆÁÁºÁØ ÁõÑ map ‰ ÁõÑ‰ ÁÊùºÊÆ∞ÁΩ†ÔºâÊððÁê™ÊðØ‰ ÁÄßçÁÆÄÂñ„ÄÇ  
 ‰ ºâÁÊù‰ ººº ºººÊðè‰ Ä‰ ™ key ÁèØ‰ºº • Áú®Á§ð‰ ™‰ ºº ºâÊñá‰ ÄÖ ÊÄ†‰ Ä‰ ™ÁÄºÔºâÊðè‰  
 „Äúscope„Äù„ÄÇ

‰ Ä‰ ðÄÖ ‰ΩìÁõÑ‰æâÄ êÔö

- Á¶ÇÊùúÁú®‰Ω†ÁõÑÊùÑÂº ÁÆð‰ â‰ ÊúâÁ§ð‰ ™Èº ÁðÆÔºâÁú®Êðè‰ ™Èº ÁðÆ‰ Áêâ‰ Ä key ÁèØ‰ºº • Êúâ‰ çÄêâÁõÑÂÄº„ÄÇ
- Á¶ÇÊùú‰Ω†ÊÉ Ê† ÊçÆ‰ çÄêâÁõÑÊÉÖÁΩçÁºñÊðèÄÆÉ‰ººº Ôºâkey compile ÁØ ‰ é main Ê êÊñá‰ºº Áíâ test Ê êÊñá‰ºº ÁèØ‰ºº • Êúâ‰ çÄêâÁõÑÂÄº„ÄÇ
- Key packageOptionsÔºâÄâÖÂêˆ‰ººº jar ÁâÖÁõÑ‰ Ä‰ ðÊÄêººº ÔºâÁèØ‰ºº • Êúâ‰ çÄêâÁõÑÂÄº class Êñá‰ºº ÊâîÄâÖÊó ÊðØ packageBinÔºâÁØ Ê ê‰ºº£Á†ÁÊâîÄâÖÊó ÊðØ packageSrc„ÄÇ

ÁºðÁÆðÁõÑ key name Ê ºÊúâÁç‰ ÁÄõÑÂÄºÔºâÁð†‰ Áú®‰ çÄêâÁõÑ  
 scope ‰ ºâÁÆÉÁõÑÂÄº‰ çÄêâ„ÄÇ

ÁÑ ÊÄâÔºâºººººº ÁÆðÁõÑ scoped key ÁõÑÂÄºÊðØÁç†‰ ÁÄõÑ„ÄÇ

Á¶ÇÊùú‰Ω†ÊÉ Êµ ÁâçÈùç Êâè‰ººº ÊÆ®ÊÆ ÊðáÁõÑÔºâsbt ÁüÊâè‰ Ä‰ ™  
 map Êù • Á§ÑÁèÛÊèèÊð∞Èº ÁðÆÁõÑ settings ÁàðÊº®ÔºâÊðð‰ ™ map  
 ‰ ÁõÑ key Á∞±ÊðØ scope ‰ áÄõÑ key„ÄÇÊùÑÂº ÁÆð‰ ºº ÁÆð‰ ººººÊðè‰ Ä‰ ™

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

% ÄÈà" scope ÊðØÈöêÁ°èÄöÑÊãñÈÄÖÊðØÈ°ðËÆ§ÁöÑÔ°à%ΩÜÊðØ% ÄÊð¶È°ðËÆ§ÁöÑÊðØÈîðÈØØÄö  
build.sbt % ÊääÄÆö%Ω†ÊúüÄæÖÄöÑ scope,,ÄÇ

## Scope ÊΩ¥

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

- Projects
- Configurations
- Tasks

## ÈÄöËøá Project ÊΩ¥ÄâíÄàÜ Scope

Ä¶ÇÊûú%Ω†Ä∞Ü Â§ö%™È° ÄöÆ ÊîæÄú@Äêâ% Ä%™ ÊûñÄª % Ò°àÊØè%™È° ÄöÆÈúÄÊ¶ÄÊúâÄ±  
settings,,ÄÇ% üÄ∞±ÊðØÈØ¥Ô°ðËØè%ª • Ê† ÊçÆÈ° ÄöÆÈç´Ä±ÄÈðêÄú@% çÄêâÄöÑ% ä% äÊñá%

Project ÊΩ¥ÄèØ%ª • ÊÆæÁΩÆÊàêÊûñÄª ÄÖ@Ä±ÄÄöÑÔ°ðËØ†Ê §% Ä%™  
setting ÄèØ%ª • Ä îÄî@Äà∞ÄÖ@Ä±ÄÊûñÄª ÈÄâ% çÈðØÄçï%™È° ÄöÆ,,ÄÇÄΩî% Ä%™È° ÄöÆÈ °Êú  
setting ÄöÑÊó ÄÄöÔ°ðÊûñÄª Ä±ÇÄ ßÄöÑ setting ÈÄöÄ %Ωú% È°ðËÆ§ÁöÑËÆæÁΩÆ,,ÄÇ

## ÈÄöËøá Configuration ÊΩ¥ÄâíÄàÜ Scope

% Ä%™ configuration ÄÆö% â% ÄÁßçÄâ ÄÆöÄöÑÊûñÄª Ô°ðËØÈÉΩÄâÖÄê´ÄÆÈÊá™Â ±ÄöÑ  
classpathÔ°ðË êÊñá%ª ÄîâÄüÊàêÄöÑÄâÖÄ â,,ÄÇConfiguration ÄöÑÊ¶ÇÁøµÊû • Êá™% éÄÆÊÄî@Êû • Ä  
Ä î%œûÊµñ ÄöÑ Ivy Äîâ MavenScopes,,ÄÇ

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

- Compile ÄÆö% â%ª ÊûñÄª Ô°ðsrc/main/scalaÔ°ð
- Test ÄÆö% äÄ¶Ç%ΩîÊûñÄª ÊµäÈÖïÔ°ðsrc/test/scalaÔ°ð
- Runtime % task run ÄÆö% â classpath

È°ðËÆ§ÈÉÖÄÜµ% äÔ°ðÄîâÄ°ñÈØè,,ÄÄÊàîÄâÖ,,ÄÄÈðêÈ°ðÄö ÄÖ ÄöÑÊâÄÊúâ  
key ÈÉΩÄ±ÄÈðè% é% Ä%™ configurationÔ°ðÄö†Ê §Äú@% çÄêâÄöÑ con-  
figuration% ÄèØÈÉΩ% ßÄîü% çÄêâÄöÑÊîâÊûñ,,ÄÇÊúÄÈðéÈðæÄöÑ%œãÄ êÄ∞±ÊðØ  
task keyÔ°ðcompileÔ°ðpackage Äîâ runÔ°ð ÄÑ ÈÄâÈÉΩÄ§ü ÄΩ±Äîç  
Äà∞Èðø% ò key ÄöÑÊâÄÊúâÄÖ %ªñ keyÔ°ð%œãÄ¶Ç sourceDirectoriesÔ°ðscalacOptions  
Äîâ fullclasspathÔ°ð% üÈÉΩÄ±ÄÈðè% éÈØ • configuration,,ÄÇ

## ÈÄöËøá Task ÊΩ¥ÄâíÄàÜ Scope

Settings ÄèØ%ª • ÄΩ±Äîç% Ä%™ task Ä¶Ç%ΩîÄª •%Ωú,,ÄÇ%œãÄ¶ÇÔ°ðtask  
packageSrc Ä∞±%°ðÈç´ 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%\_ öÁíâÊàìÄâÖÁö ÁÖ ÁöÑ taskÔ°âpackageSrcÔ°âpackageBinÔ°âpackageDocÔ°âÄèØ%\_ª • ÄÖ±%\_ ´Ä  
keyÔ°â%\_æãÄ¶Ç artifactName Áíâ packageOptions,,ÄÇËøð%\_ ö key  
ÄØ %\_ éËØè%\_ ™ÊàìÄâÖÁöÑ task ÄèØ%\_ª • ÊúâÄiØ%\_ ÄÄöÑÄÄ°,,ÄÇ

## ÄÖ®Ä±Ä Scope

ËØè%\_ ÄÁßç scope ËΩ¥ÈÉΩÄèØ%\_ª • Áí®ÄíâËØ • ËΩ¥Ä±ªÄüâ%\_ ÄËá¥ÁöÑÄÆú%\_æã%\_ª£ËøðÔ°â%\_æãÄ  
task ËΩ¥ÄèØ%\_ª • Áí®%\_ Ä%\_ ™ task %\_ª£ËøðÔ°âÔ°âÊàñËÄÖËØ • ËΩ¥ÄèØ%\_ª • Ëç´Äâ ÄÆöÁöÑÄÄ°  
Global %\_ª£Ëøð,,ÄÇ

Global ÁöÑËË%\_ª âÄö±ÊðØ%\_Ω†ÊâÄÊúüÄæÖÁöÑÔ°öÄ∞Ü setting  
ÄöÑÄÄ°Ä íÄí®Äâ∞ËØ • ËΩ¥ÊâÄÊúâÄöÑÄÆú%\_æã%\_ª ä,,ÄÇ%\_æãÄ¶ÇÄ¶ÇËüú%\_ Ä%\_ ™  
task ËΩ¥ÁöÑÄÄ°ÊðØ GlobalÔ°âËÇ£%\_ª àËØ • setting ÁöÑÄÄ°Ä∞ÜËç´Ä íÄí®Äâ∞ËÊâÄÊúâÄöÑ  
task %\_ª ä,,ÄÇ

## %\_ª£ÄêÜ

Ä¶ÇËüúÄü®%\_ Ä%\_ ™ scope %\_ Êüè%\_ Ä%\_ ™ key Ê °ÊúâÄÖ ËÄíÁöÑÄÄ°Ô°âËÇ£%\_ª àËØ •  
key Ä∞±ÊðØËÜ™ÄÆö%\_ª âÄöÑ,,ÄÇ

ÄØ %\_ª éËØè%\_ Ä%\_ ™ scopeÔ°âsbt ÊúâÄí±ÄÖ %\_ªñ scope ÊüÑËâèÄöÑËøð%\_ª£ËÄâÈ° ÁöÑËêúÄ¥çË ØÄæ:  
key Äü®Äâ ÄÆöÁöÑ scope %\_ª âË °ÊúâÄÖ ËÄíÁöÑÄÄ°Ô°âsbt %\_ªöÄ∞üËØi%\_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  
%\_ ÊÆæÁΩÆ%\_ ÜÊüè%\_ ÄÈ° ÊÆæÁΩÆÄöÑÄÄ°%\_ª äÄèéÔ°â%\_ΩøÄæóÄ§ø%\_ ™Äâ ÄÆöÁöÑ  
scope ËËΩÄ§üÄªßÊâøËØ • ÄÄ°,,ÄÇ

%\_Ω†ÄèØ%\_ª • ÄËè%\_ª äËüçËøðË† Äí® inspect ÄèΩ%\_ª§Ëü • Äúâ%\_ Ä%\_ ™  
key ÁöÑËøð%\_ª£ËÄâÈ° ÁöÑËü • 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¶ÇËüú  
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@%ªªÊÑèÊΩ¥ÔªªÂèÇËÄÉ Global scope,,ÄÇ
Ä¶ÇÊûú%Ω†ÄúÄÄï • ÊÉ@ÄàÜ scoped keyÔªªÄÆÉ%ªªÄÉè%ªª äÈùcÊøðÊ† Êé@Êñ Ôªª
• Ä¶ÇÊûúÄúÄÄï • projectÔªªÄΩìÄâçÄöÑ project %ªªøÊc' %ªªΩøÄî@,,ÄÇ
• Ä¶ÇÊûúÄúÄÄï • configuration ÊànÊÄÖ taskÔªªª%ªªøÊä™Ää@Ê£ÄÊµä
key ÊäÄÊúä%ªªæùÊµñÄöÑ configuration,,ÄÇ
Êø¥Ä§øÊØ¶ÄªÜÄÜÖÄÆ ÔªªäÊØ ÂèÇËßª %ªª é Configuration ÄªÄªü%ªª §%ªª í,,ÄÇ
```

```
%ªªΩøÄî@ scoped key Ê†äÊØÜÄöÑ%ªªæäÄ ê
```

- `fullClasspath %ªªªÖ%ªªªÖÊääÄÆø%ªª Ü%ªª Ä%ªª™ keyÔªªäÊäÄ%ªªª • %ªªª%ªªΩøÄî@ÊªøÊÆ§ÄöÑ`  
scopeÔªªªÖΩìÄâçÄöÑ projectÔªªªkey ÊäÄ%ªªæùÊµñÄöÑ configuration  
ÄîäÄÖ@Ä±Ä task ÄöÑ scope,,ÄÇ
- `test:fullClasspath ÊääÄÆø%ªª configurationÔªªäÊäÄ%ªªª • Êøø%ªª™`  
`fullClasspath Ä∞±Äú@test configuration scope %ªª äÔªªÄÖ %ªªªñ%ªª §%ªª™`  
scope ÊΩ¥Äùä%ªª ÊªøÊÆ§ÄÄª,,ÄÇ
- `*:fullClasspath Ä∞Ü configuration ÊääÄÆø%ªª GlobalÔªªäÊäÄ%ªª çÊøØÊªøÊÆ§ÄöÑ`  
configuration,,ÄÇ
- `doc::fullClasspath Ä∞Ü key fullClasspath Ä±ÄÊøêÄú@ doc task`  
%ªª äÔªªªproject ÊΩ¥Äîä configuration ÊΩ¥ÊøøÊøØÊªøÊÆ§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†äÊØÜ projectÔªªä
- `{file:/home/hp/checkout/hello/}/test:fullClasspath Ä∞ÜÊûÑÄª %ªª`  
`{file:/home/hp/checkout/hello/} ÄöÑ project ÊΩ¥ÊÆæÄΩÆ%ªª ÄÖ@Ä±ÄÊûÑÄª,,ÄÇ`
- `{.}/test:fullClasspath Ä∞ÜÊûÑÄª %ªª {.} ÄöÑ project ÊΩ¥ÊÆæÄΩÆ%ªª ÄÖ@Ä±ÄÊûÑÄª,,ÄÇ`  
ÄèØ%ªªª • Äú@ Scala %ªªª£Ä†Ä%ªª ÄÜøÊàè ThisBuild,,ÄÇ
- `{file:/home/hp/checkout/hello/}/compile:doc::fullClasspath`  
`ÊÆæÄΩÆ%ªª ÜÄÖ@ÊÉ@ÄöÑ%ªª ä%ªª™ scope ÊΩ¥,,ÄÇ`

```
ÄÆªÊü • scope
```

```
Äú@ sbt ÄöÑ%ªª §%ªª íÊªªÄªè%ªª äÔªªª%ªªΩ†ÄèØ%ªªª • %ªªΩøÄî@ inspect
ÄëΩ%ªªª§Êù • ÄêÜËß£ key ÄîäÄÆÉÄØ Ä îÄöÑ scope,,ÄÇÄ∞ùÊØï 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
```

```

[info] Dependencies:
[info]   test:exportedProducts
[info]   test:dependencyClasspath
[info] Reverse dependencies:
[info]   test:runMain
[info]   test:run
[info]   test:testLoader
[info]   test:console
[info] Delegates:
[info]   test:fullClasspath
[info]   runtime:fullClasspath
[info]   compile:fullClasspath
[info]   *:fullClasspath
[info]   {.}/test:fullClasspath
[info]   {.}/runtime:fullClasspath
[info]   {.}/compile:fullClasspath
[info]   {.}/*:fullClasspath
[info]   */test:fullClasspath
[info]   */runtime:fullClasspath
[info]   */compile:fullClasspath
[info]   */*:fullClasspath
[info] Related:
[info]   compile:fullClasspath
[info]   compile:fullClasspath(for doc)
[info]   test:fullClasspath(for doc)
[info]   runtime:fullClasspath

Áú@Á´´´% ÄË°áÔ°á%Ω†ÄèØ%ª • ÁúãÄà∞ËøôÊøØ% Ä% ™ taskÔ°àÁíã
.sbt ÊûÑÄª ÄÆø% â % %ªãÄªÇÁöÑ setting Áó ÄØ Ô°ã„ÄÇËØ • task
ÄæöÄà∞ÄöÑÄÄ°ÄöÑÄ±ªÁüã% scala.collection.Seq[sbt.Attributed[java.io.File]],ÄÇ
,ÄúProvided by,Äù Ê°@ÊðéÄÆø% âÊØ • ÄÄ°ÄöÑ scoped keyÔ°ãÁú@Ëøô% ™%æãÄ ê% ÊðØ
{file:/home/hp/checkout/hello/}default-aea33a/test:fullClasspathÔ°àfullClasspath
Áú@ test configuration % % íÁú@ {file:/home/hp/checkout/hello/}default-aea33a
project % äÔ°ã„ÄÇ

,ÄúDependencies,Äù ÄèØÉÉÊÊ °ÊúãÊÑè% âÔ°öÊØ ÁªÁª ÈðÖÊØª
% ä% ÄËÇ„ÄÇ

%Ω†% üÄèØ%ª • ÁúãÄà∞% Ä% ö%ª£ÄêÜÔ°öÄ¶ÇÊúúÊ °ÊúãÄÆø% âÔ°ãsbt
%°öÊÄöÊøªª • % äÊÄîÄæÑÊü • ÊææÔ°ö

• ÄÖ %ªñ% §% ™ configurationÔ°àruntime:fullClasspath Áíã
  compile:fullClasspathÔ°ã„ÄÇÁú@Ëøô% ö scoped key% Ô°ãproject
  Ê °ÊúãÊääÄÆöÄöÑÊØùÄ∞±ÊÑèÄê ÁùÄÊðØ ,ÄúÄΩìÄâÇ project,Äù
  ÊÄª% î task Ê °ÊúãÊääÄÆöÄöÑÊØùÄ∞±ÊÑèÄê ÁùÄÊðØ Global„ÄÇ
• ÄΩì project Ê °ÊúãÊääÄÆö ,ÄúÄΩìÄâÇ project,Äù Ä % î task
  Ê °ÊúãÊääÄÆö% Global Êó Ô°ãconfiguration %°öÊc´ÊÆæÄΩÆÊèè

```





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

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

name in Global := "hello"

Ô°àname in Global ÊöêÂ°èÄöÑÊää scope ÊΩ¥ÁöÑÄÂ° Global ÊΩ~Êçç%  
scope ÊâÊËúâÊΩ¥ÁöÑÄÂ°Âùâ% GlobalÔ°otask Áíâ configuration  
Ê°ðÊÆ§ÊðØ GlobalÔ°âÂö†Ê §ÊøðÊëââÁöÑÊíâÊúúÊðØÂ∞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°%ªÔ°ÊðØÊñ Ê îÔ°ª% çÊðØÊ îÊ îÔ°ªÁêÛÊß£ÊøðÁÇ ÁæâÊáçÊ¶Á,,ÄÇScala  
ÊÆ©%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 ì,

ÊääÂÆö scope ÁöÑÊó Êú

Â¶ÇÊúú% Ä% ™ key ÊÄöÂ ÁöÑ%ΩúÁî®ÂüüÊúâÊóÆÊçòÔ°ª%Ω†ÊúÄÊ¶ÁÊääÂÆö  
scope,,ÄÇ%ªªâÂ¶ÇÔ°ªcompile task Ê°ðÊÆ§ÊðØÁú® Compile Áíâ Test con-  
figuration ÁöÑ scope % Ô°âÊÄâ% íÁú®Êøð% õ scope % âÁ§ñÂÆÊÄ % çÁ òÁú®,ÄÇ

% % ÛÊî Âèø key compile ÁöÑÄÂ°Ô°ª%Ω†ÊúÄÊ¶ÁÛðÊâê compile  
in Compile ÊàñÊÄÖ compile in Test,,ÄÇÁî®ÊðÆÊÄöÁöÑ compile  
%ªöÁú®ÂÑîÂâç project ÁöÑ scope % ÁÆö% â% Ä% ™Êñ∞ÁöÑ  
taskÔ°ªÊÄâ% çÊðØÊ¶ÛÁõñ configuration ÁöÑ scope Ê†âÁâÛÁöÑ 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 %ªöÁ∞ùÊØîÁú®ÊîðÊØØÊ âÊÄØÊääÊùçÊèèÁ§ %Ω†ÁöÑÊÊ Ê îÊðØ%ªÄ% àÔ°öÂ¶Ç  
,Áú%Ω†ÊðØÊää compile:compileÔ°ü,Áú

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

ÊõŸÂ§öÂÖ %ø éËÆæÁΩÆ

Ëøø%ø ÂÄ∞èËäÇÄ∞Û%øªãÄªÇÈø§%ø ÜÁí®Äü Êú´ ÁöÑ := Êñ Ê ïÄàöÄª ËÆæÁΩÆÖªäËøøÊúâÄÖ %øªñÁöÑ  
.sbt ÊûÑÄª ÄÆö%ø â Äíâ scope,,ÄÇ

ÄöûÈ°æÖ°öËÆæÁΩÆ

ËøøËÆ∞ÄæóÄú® .sbt ÊûÑÄª ÄÆö%ø â %ø Öªª%ø Ä%ø ™ÊûÑÄª ÄÆö%ø âÄàöÄª %ø Û%ø Ä%ø ™  
Setting ÄàöÈ°®ÖªäÄÑ ÄêéËøø%ø ò Setting Ëç´ Áí®Êû• ÄØ sbt ÁöÑÊûÑÄª ÈèèËø∞ÄÄöËΩ´ËÇçÖªäÄÆÉ  
mapÖªä,,ÄÇ%ø Ä%ø ™ Setting Ä∞±ÈòØÄ∞Û sbt %ø äÄâÇÄöÑ map  
%øΩú%ø ËæìÄÖ•Ä %ø îËæìÄá %ø Ä%ø ™Êñ∞ÄöÑ map ÁöÑËΩ´ËÇç,,ÄÇ  
Ëøø%ø ™Êñ∞ÄöÑ map Ä∞±ÈòØ sbt ÁöÑÊñ∞Ää ÊÄÄ,,ÄÇ

%ø ÇÄêä setting ÈÄöËøá%ø ÇÄêäÁöÑÊñ Ä°èÄØ ËØ• map ËøöÈ°äËΩ´ËÇç,,ÄÇ%ø äÄâÇÄú®  
.sbt ÊûÑÄª ÄÆö%ø â %ø Öªª%øΩ†Ä ÄªèËöÖËØª%ø Û := Êñ Ê ïÄö ÄÖ ÁöÑÄÜÖÄÆ ,,ÄÇ

ÈÄöËøá := ÄàöÄª ÁöÑ Setting %ø°öÄæÄËΩ´ËÇç%ø äÄêéÊñ∞ÄöÑ map  
%ø ÊîæÄÖ•%ø Ä%ø ™Äö ÄÆöÄöÑÄ Èäè,,ÄÇ%øæäÄ¶ÇÖªäÄ¶ÇÊúú%øΩ†ÈÄöËøá  
name := "hello" ÄØ map ÄÄö%ø ÄË´°ËΩ´ËÇçÖªäÊñ∞ÄöÑ map %ø key  
name Ä∞±%øøùÄ òÄùÄ%ø Ä%ø ™Ä óÄ´¶%ø "hello",,ÄÇ

ËøΩÄä†ÄÄ°Ö°ö += Äíâ +=

ÈÄöËøá := Êñ Ê ïËµâÄÄ°ËòØÊúÄÄÆÄÄÇíÁöÑËΩ´ËÇçÖªä%øΩÛÈòØ key  
%ø üÊúâÄæàÄ§öÄÖ %øªñÁöÑÊñ Ê ï,,ÄÇÄ¶ÇÊúú SettingKey[T] %ø ÁöÑ T  
ÈòØ%ø Ä%ø ™ÄàöÈ°®Öªä%øæäÄ¶ÇÖªä%ø Ä%ø ™key ÁöÑÄÄ°ÄöÑÄ±ªÄúâÈòØ  
sequenceÖªª%øΩ†Ä∞±ÄèØ%øª•ÄæÄÄàöÈ°®%ø ËøΩÄä†ÈÄª%ø ÇÈòØËöøËÇç,,ÄÇ

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

%øæäÄ¶ÇÖªä%ø Ä%ø ™key sourceDirectories in Compile ÁöÑÄÄ°ÈòØ  
Seq[File],ÄÇÈªòËÆ§ÈÈÖÄÜµ%ø äËØ• key ÁöÑÄÄ°%ø°öÄäÖÄê´  
src/main/scala,,ÄÇÄ¶ÇÊúú%øΩ†%ø üÊÈ Ä°ñËØèÄê´ÄÄö source ÁöÑÄöÆÄΩí%ø äÄöÑÈ è%øª£Ä†ÄÖªàÄö

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

ÊànÈÄÖÖªäÈÄµÄæ™Ä ¶ÄÆö%øΩøÁí®sbt ÄäÖ%ø ÁöÑfile() ÄáΩÊí∞Ö°ö

sourceDirectories in Compile += file("source")

Öªäfile() Äè™ÈòØÄàöÄª %ø Û%ø Ä%ø ™Êñ∞ÄöÑFile,,ÄÇÖªä

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

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

Seq(a, b, c, ...) ÈòØ Scala Áí®Êû•ÊûÑÄª ÄàöÈ°®ÁöÑÊ†áÄáÜÈØ Ê ï,,ÄÇ

Ë¶ÄÄÆâÄÖ®ËöøËÇçÈªòËÆ§ÁöÑ source ÄöÆÄΩíÖªäÄΩìÄÑ ÄèØ%øª•%øΩøÁí®  
:= Êñ Ê ïÖ°ö

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

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

```
Ä°íÄí@Äè¶% Ä% ™ task ÈāñĚÄÖ setting ÄöÑÄÄ°Äè™ĚúÄĚ¶ÄĚ∞ÉÄí@ÄÆÉ%ª· ÄèÑĚá™ÄöÑ  
value Èñ È ĭ,,ÄÇĚØ • value Èñ È ĩĚØĭĚæĚÄâ ĚÆäĚÄâ% ĭÄè™ĚĚΩÄú@  
:=Ö°â+= ÈāñĚÄÖ += Èñ È ĩÄöÑÄèÇĚĭ∞% äĚ∞ÉÄí@,,ÄÇ
```

```
%Ωú% Ä°·% Ä% ™%øæäÄ èÖ°äĚÄĚĚöèÄÆö% â% Ä% ™ÄèÇÁβ∞Äíä  
project % ÄĚ† ÄöÑ organization,,ÄÇ
```

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

```
ÈāñĚÄÖÖ°äĚÆæÁΩÆÄöÑÄíäÈ° 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
```

```
Ěøø% ™ĚΩ·ĚÇç% ÈááÄí@ java.io.File ÈáäĚùçÄöÑĚ†áÄáÜĚñ È ĭ  
getName ÄèñÄæó% Ü baseDirectory ÄöÑÄÄ°,,ÄÇ
```

```
ÈááÄí@Ä§ö% ™ĚæĭÄÖ • ĚòØÄ±ª%∞ÄöÑ,,ÄÇ%øæäÄ¶ÇÖ°ä
```

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

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

```
ÄäÖÄè°%øæùĚμñÄöÑĚÆæÁΩÆ
```

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

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

```
ĚøøÄ∞±ĚòØ sbt Äü • ÈÄĭ% Ä% ™ setting Ä¶Ç%Ωĭ%øæùĚμñ% éÄè¶% Ä% ™  
setting,,ÄÇĚøðĚÆ∞Äæó% Ä% ö setting ÈèèĚø∞% Ü taskÖ°äĚäÄ%ª • ĚøøÄβÇĚñ Ä°è% üÄàöÄª % Ü  
task % äĚó¥ÄöÑ%øæùĚμñÄÖ Äª,,ÄÇ
```

```
%øæäÄ¶ÇÖ°äÄ¶ÇĚúú%Ω†ÈâβĚ°ā inspect compile %Ω†%°öÄúäÄà∞ÄÆÉ%øæùĚμñ% ÜÄè¶% Ä% ™  
key compileInputsÖ°äĚÄª% ĭÄ¶ÇĚúú%Ω†ÈâβĚ°ā inspect compileInputs  
ÄÆÉĚøð%°ø%øæùĚμñ% éÄÖ %ªñÄöÑ key,,ÄÇ% ÄÄö¥ĚøΩĚ Ø%øæùĚμñÈĭæ%°öĚúäĚ ĭĚ ĭÄèèÄĭü,,ÄÇ%  
compile Ěó Ö°ä sbt Ěá™Ää@ĚâβĚ°ä% Ü update,,ÄÇÄÆÉÄèØ%ª • Ä • %ΩúĚòØÄö†%  
compile ĚÆ°ÁÆóĚúÄĚ¶ÄÄöÑĚæĭÄÖ • ÄöÑÄÄ°ĚúÄĚ¶Ä sbt ÄÖàĚâβĚ°ä  
update ĚÆ°ÁÆó,,ÄÇ
```

```

ĖøðÊ† Ő°äsbť   % ĖăĖĖúăĂőŃĖŭŃĀª %œüĖġñĖĖΩĖðŦ   Ėă™Āă@ĀőŃ
ĖĀă% ħĖðŦĖðæĀ§ ĀĤ∞ĖðéĂőŃ,,ĂĤĀĶĶĖŭŭ%Ω†Āú@ĀèĶ% Ā% ™ĖĖ°ĀĖó% Āî@Āà∞% ŬĖŦ •
key   ĀőŃĀĀ°Ő°ăĖĤĤ% àĖĤĤ% ™ĖĖ°ĀĖóĀ∞±%°ö%œüĖġñĖĖŦ •
key,,ĂĤĀĖĖĀ∞±ĖðŦĀèŦ%ª • Ā • %ΩŭŐ°Ā

```

ĀŃîĖĖæĀΩĖĖŭ™ĀĖö% âĖó

```

Ėó†ĖĖ %ΩîĖó % Ā% ™ĖĖæĀΩĖĖĀî@ :=Ő°ă+= ĖănĖĖĖ ++= Ėó %œüĖġñ% éĖă™Ā ±ĖănĖĖĖĖĖĖ% Ā%
key ĀőŃĀĀ°Ő°ăĖĖ%œüĖġñĀőŃĀĀ°ĀøŐ°ª Ā ðĀú@,,ĂĤĀĶĶĖŭŭ% ħĀ ðĀú@Ő°äsbť
Ā∞±%°öĖă±ĖĖ@,,ĂĤ%œăĀĶĶŐ°ăĖĖĖĖĖĖ%°öĖŦ¥ ,ĀúĀ°îĀî@% ŬĖŭ™ĀĖö% âĀőŃĖĖæĀΩĖĖ,Ā
ĀŃîĖøðĀĖèĀîŭĖó Ő°ăĀ°ĖĖĖ§% Ā% ā%Ω†%ŦŦĀî@ĀőŃ key Āú@ scope
% Ā % îĀ ĀªĖĖĖ% ā% Ŭ,,ĂĤ

```

```

Āú@sbt% ĀàðĀª Āæ™ĀéŦĀ°îĀî@ĖðŦĀèŦĖĖΩĀőŃŐ°ăĖøðĖðŦĖîðĖŦŦŦĀőŃŐ°ðĀĶĶĖŭŭ%Ω†Āæ™ĀéŦĀ°
%°öĀĖăĖĖŦ%Ω†,,ĂĤ

```

%œüĖġñ% éĀŦ %ªñ key ĀőŃĀĀ°ĀőŃ task

```

%Ω†ĀèŦ%ª • ĖĖ°ĀĖó% Ā% ō task ĖănĖĖĖ setting ĀőŃĀĀ°Ėŭ • ĀĖö% âĖĖ% Ā% ™
task ĖănĖĖĖ% ĖĖ% Ā% ™ task ĖøŦĀă†ĀĀ°,,ĂĤĖĖĖøð%ŦŦĀî@
Def.task ĀîĀ taskValue %Ŧŭ% :=Ő°ă+= ĖănĖĖĖ ++=ĀőŃĀĖĤĖî∞ĀĖŦ%ª • ĀĀöĀà∞,,ĂĤ
%Ŧŭ% Ā°°% Ā% ™%œăĀĖ ĖŐ°ăĖĖĖðĖĖŦĀă†% Ā% ™%ŦŦĀî@Ė° ĀőĖĀŭ ĀőĖĀŦîĀîĀ°ñĖŦĖ
classpath ĀőŃ source generator,,ĂĤ

```

```

sourceGenerators in Compile += Def.task {
  myGenerator(baseDirectory.value, (managedClasspath in Compile).value)
}.taskValue

```

ĀăŦĀĖ`%œüĖġñĀőŃ task

```

Āú@ .sbt ĖŭŃĀª ĀĖö% â % ĖèĖĀà∞ĖøăŐ°ăĀŦ%Ω†ĖĖĖøă :=
ĖănĖĖŦ %ªñĖŭ Ė îĀàðĀª % Ā% ™ĖĖæĀΩĖĖĖ Ő°ătask key ĀàðĀª ĀőŃĖðŦ
Setting[Task[T]] ĖĀă% ħĖðŦ Setting[T],ĂĤ Setting ĀèŦ%ª • ĖðŦ Task
ĀőŃĖæîĀŦ • Ő°ă%ŦŬ Task % ħĖĖΩĖðŦ Setting ĀőŃĖæîĀŦ •,,ĂĤ
%ª • Ėøð% §% ™ key % %œăĖŐ°ă%ªé Keys % Ő°ăŦö
val scalacOptions = taskKey[Seq[String]]("Options for the Scala compiler.")
val checksums = settingKey[Seq[String]]("The list of checksums to generate and to verify for
Ő°ăscalacOptions ĀîĀ checksums % íĀŦ Ė °ĖúăĀŦ ĀªŐ°ăĀĖĖ%ª° ĖĖ™ĖðŦĖúăĀŦ ĖĖăĀĀ°Ā±ªĀŭăĀőŃ
keyŐ°ăĀŦ % % Ā% ™ĖðŦ task,,ĂĤŐ°ă
ĀèŦ%ª • Ā°ñĖŦĖ build.sbt Ā∞Ŭ scalacOptions Ėð†Ā∞ŃĀà∞ checksumsŐ°ă%ŦŬĖðŦĀĖĤĖøăĖŭ • % ħĀ
// scalacOptions task %°ö%œüĖġñ checksums setting Ėŭ•ĀĖö% â
scalacOptions := checksums.value

```

```

    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®ÄâçĒùçÁõÑÄÜÖÄÆ Ç
    .sbt ÊüÑÄ° ÄÆó% âÔ°âScopes Áíá ĒóŸÄ§öÄÖ % éĒÆæÄΩÆ,,ÄÇ
    ÄèØ%°°•ĒÄöĒøá% âĒùçĒøó% §ÁβçĒñ Á°èĒ °Ää†Ä î%æùĒμñÔ°ö
    • ÊúüĒĒòÄÆ%æùĒμñ % ÊîæÄú® lib ÁõÆÄΩî% äÄõÑ jar Êñá%° ÊîæÄú® lib
    • ÊâðÄÆ%æùĒμñ ĒÖçÁΩÆÄú®ÊüÑÄ° ÄÆó% â% Ô°âÄ % î%°°öĒÄ™Äâ®%°°é%°°îÄ îÔ°arepository

```

ÊùüĒâðÄÆ°%æùĒμñ

```

    Á§ßÄ§öĒî∞% %°öÁí®ĒâðÄÆ°æùĒμñĒĒâ% çĒòØĒùüĒâðÄÆ°æùĒμñ,,ÄÇ%ΩÜĒòØĒùüĒâðÄÆ°æùĒμñ
    ÊùüĒâðÄÆ°æùĒμñÄĒèĒøóĒ† Ä •%ΩúÔ°öÄ∞Ü jar Êñá%° ÊîæÄú® lib
    Êñá%°° Á§ % äÔ°âÄÑ ÄêéÄÆĒ%°°Ä∞Ü%°öĒç´Ē °Ää†Äà∞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% ™ĒĒ Äè
    classpathÔ°â %Ω†ĒúÄĒ¶ÄÄÄöĒÄÇÄΩĒĒĒŸÔ°â%æāÄ¶Ç dependencyClasspath
    in Compile ÊànĒÄÖ dependencyClasspath in Runtime,,ÄÇ
    Ä¶ÇĒúüÁí®ÊùüĒâðÄÆ°æùĒμñÄõÑĒĒØùÔ°â% çÁí®ÄæÄ build.sbt
    Êñá%°° % Ê°Ää†%°°%ΩîÄÜÖÄÆ Ô°â% çĒøá%Ω†ÄèØ%°°•ĒĒ Äèò
    unmanagedBase keyÔ°âÄ¶ÇĒúü%Ω†ĒĒ Äí®% Ä% ™% çÄêÄõÑÄõÆÄΩîĒĒâĒĒ
    lib,,ÄÇ
    Äí® custom_lib Êöø%°£ 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 ÊððÊÇÇÊÿ¥%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§ßÁ§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 óÄ´¶%0 Ô°ö
```

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

```
ÊànÊÄÖÄÊéèÊððÊ† Ô°ª Äi®Ä óÄ´¶%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 óÄ´¶%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†áÄÜÄöÑ 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§ßÁ§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∞ëÊÊÖÄÛµ% 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 ÄêéÊùçÊðØ
%%Ô°àÔ°äsbtt %°öÁú@ Ä •%° ÄêçÁß∞% Ää†% äÊ° ÁðÆÁöÑ Scala
ÁääÊú´´Äè „ÄÇ ÊøðÄè™ÊðØ% ÄÁßçÁø´Êç Êñ Ê ï,,ÄÇ%Ω†ÄèØ%° • ÊøðÊ† ÄÛð% çÁí@
%%Ô°ö
```

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

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

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

```
Êøð%™ÊÉ Ê ïÊðØÄæàÄ§ö%æùÊµñÈÊÉΩ%°öÊç´Á°ñÊØëÄª°Ä§ö%™
Scala ÁääÊú´´Ô°äÊÄã%Ω†ÊÉ Á°Æ%øùÄíäÊ° ÁðÆÄã ÊÖçÁöÑjarÊðØ% äÊøðÄà ÄÖ°ÄÆ ÁöÑ,,ÄÇ
ÄÊúÊ µ% ÁöÑÄ§çÊùÇÄ ¶Áú@% éÈÄöÄ % Ä%™%æùÊµñ%°öÄíäÄ@çÄæÆ% çÄêäÁöÑ
Scala ÁääÊú´´% ÄÊµ Ä •%ΩúÔ°ö%ΩÛÊðØ %% Ä∞±Ê °ÊúäÊÇ£% äÊð ÊÉΩ% Û,,ÄÇÊäÄ%° • Ä¶ÇÊúú%
2.10.1Ô°ä%ΩÛÊðØ%Ω†%ΩøÁí@ÁöÑ scalaVersion := "2.10.4"Ô°ä
%Ω†Êó†Ê ï%ΩøÁí@%% Êñ Ê ïÄç %Ωø 2.10.1 ÁöÑÄääÊú´´ÄæàÄèØÊÉΩ% üÄèØ%° • Ä •%Ωú,,ÄÇÄ¶ÇÊúú%
%% Êó†Ê ïÊææÄà∞ÁðÆÁöÑÔ°äÄè™ÊúÄË¶ÁÄª°£ÄÊú • ÊÇ£%™%æùÊµñÊðØÄü % éÄí™%™
Scala ÁääÊú´´ÊúÑÄª ÁöÑÔ°äÄÑ ÄêéÄ´´Á°ñÄ†Ä%Ω†ÊÆ§% ÄèØ%° • Ä •%ΩúÄöÑÄääÊú´´Äè Ô°äÄÄäÊä
ÄèÇËÄ% §ÄèäÊúÑÄª Êé ÂèñÊö¥Ä§ö%ø°ÊÄØ,,ÄÇ
```

**Ivy %øøÆÊ £**

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

**Èß£ÊúèÄð@**

```
% çÊðØÊèÄÊúäÁöÑ%æùÊµñÄäÖÈÊÉÊíæÄú@Äèª% ÄÄè∞ÊúçÄä°Äð% äÔ°äsbtt
ÈªðÊÆ§%ΩøÁí@Ê†áÄáÛÄöÑ Maven2 %ªíÄ ï,,ÄÇÄ¶ÇÊúú%Ω†ÁöÑ%æùÊµñ% çÁú@ÈªðÊÆ§ÁöÑ%ªíÄ ï%
resolver Êù • Ä ÄÄ@ Ivy ÊææÄà∞ÄÆÊ,,ÄÇ
ÈÄöÊøá%° • % ãÄΩçÄ°èÊ Ää†ÊùÄ§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 % ÊÉèÊøôÊ† ÂÆö% âÔ°ö

val resolvers = settingKey[Seq[Resolver]]("Áî@Êâ % ÊäðÁÆ°%æùÊµñÂÆö% äÁöÑÊçùÂŞñÁöÑÊß£ÊûêÂð„ÄÇ
at Êñ Ê ìÊÄöÊøá% §% ™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"
ÊñÊÊÄÖÔ°ª% % ÛÊñ %æøÊµ ÊßÄÔ°ö

resolvers += Resolver.mavenLocal

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

```

## Ê¶ÛÂÛðÊªðÊÆŞÁöÑÊß£ÊûêÂð@

```

resolvers % çÄäÖÂê´ÊªðÊÆŞÁöÑÊß£ÊûêÂð@Ô°ª%ªÖ%ªÖÊÄöÊøáÊûÑÂª ÂÆö% äÊªÂä†ÊçùÂŞñÁöÑ
sbt Â∞Û resolvers Áíª% ¤% òÊªðÊÆŞÁöÑ%ªî îÁªÑÂêàÊµ Êù•ÊûÑÊàè
externalResolvers„ÄÇ

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

```

## Per-configuration dependencies

```

ÊÄöÂ %°°Êúâ%æùÊµñÂè™Êç´ÊµäÊØî%ª£.Á†Â%ΩøÁî@Ô°ªÁú@ src/test/scala
% Ô°ªÊÊöÊøá Test configuration ÁñÊØèÔ°ªÊÄäÊ °ÊúâÁú@%ªÂ îÁî@% %ΩøÁî@„ÄÇ

Â¶ÇÊúú%Ω†ÊÉ Ê¶Á% ¤% ™%æùÊµñÂè™Áú@ Test configuration ÁöÑ
classpath % Áª Áé∞ÊÄª% çÊòØ Compile configurationÔ°ªÂÊÉèÊøôÊ† ÊªÄ†
% "test"Ô°ö

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

% üÂèØÊÉΩ% ü%°öÂÊÉèÊøôÊ† %ΩøÁî@Á±ªÂûäÂÆäÄÖ@ÁöÑ Test configurationÔ°ö

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

Áé∞Áú@Ô°ªÂ¶ÇÊúú%Ω†Áú@ sbt ÁöÑÂè%ªŞÊèèÁŞ ÊªÊäâÊæîÄÖ•
show compile:dependencyClasspathÔ°ª%Ω†% çÄ îÊØ•ÁúâÂ∞ derby
jar„ÄÇ%ΩÛÊðØÂ¶ÇÊúú%Ω†ÊæîÄÖ• show test:dependencyClasspathÔ°ª
%Ω†Á îÊØ•Áú@ÂàöÊ°% 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®ÈðÖËÖªÊú´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 %°ªñÃöÑÈ° 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°ª%° ãÈùcÈðÖ%° Ä%° ™Ëö¥Ãª†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±ËÆæÂΩÆÔ°ãËÖ ÂàöÂª %° Ä%° ™Âêç%° commonSettingsÁöÑÂ
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 ¨ÄÆÂÆªÄÖ®ÂèØ%ª·ÂΩºÊ §Äã·Á´ãÔª%ΩÛÊðØÈÄöÂ ÊÉÖÄÛµ% ¢ÄÆÉ%ª·%º
Äíá classpath,,ÄÇ

Aggregation

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

lazy val util = project

lazy val core = project

Áú®% ¢ÊùcÄöÑ%æãÄ ê% Ôªroot Êº ÄöÆÊÄöÂèà% Û util Áíá
core,,ÄÇÄÉè%æãÄ ê% % ¨ÄÊ† ÔªâÊöèÁùÄÊúá% §% ™Ä êÊº ÄöÆÄöÑÊÉÖÄÛµ% ¢ÄêÖÄä®
sbtÔªÄÑ ÂééÄ∞ùÊØîÁºñÊÖë,,ÄÇ%Ω†Ä îÊØ·%ºöÁúãÄà∞ÄÖ®ÊÉ®ÄöÑ% â% ™Êº ÄöÆÊÉΩÊc´ÁºñÊ
Äú®ÊøøÊªÊöÄêàÁöÑÊº ÄöÆ% ÔªÄÊèÊøø% ™%æãÄ ê% ÄöÑ root
Êº ÄöÆ% ¨ÄÊ† Ôªª%Ω†ÂèØ%ª·Êââ task Êù·ÊéßÄà ÊÄöÂèà,,ÄÇ%æãÄ¶ÇÔªª% % ÛÈÄøÄÖÇÊöÂèà
update taskÔª

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

[...]

aggregate in update ÊðØ update task ÄöÑ scope % ¢ÄöÑÊÄöÂèàÄöÑ
key,,ÄÇÔªàÄèÇÊßÄ scopes,,ÄÇÔª
Ê ®ÊÑèÔªöÊöÂèà%öÄ ÊªÄöÑÊâßÊºªÊöÂèàÄöÑ taskÔªtask % ¢Êó¥ÁöÑÊº Ä èÊðØ% çÄºÆÄÆöÄö

```

## Classpath %æùĚμñ

% Ä% ™È° ÁðÆÄèØĚÉΩ%æùĚμñÄè¶% Ä% ™È° ÁðÆÁðÑ%ªŁÁ†Ä,,ÄÇĚððĚðØĚÄðĚðªĚªÄä†  
dependsOn Ěñ Ě ĩĚù•ÄÆûÁé∞ÄðÑ,,ÄÇ%æäÄ¶ÇÔªÄ¶ÇĚúú core Äú@  
classpath % ĚúÄĚ¶Ä utilÔª%Ω†Ä∞ÜĚððĚ† ÄÆð% â coreÔª

lazy val core = project.dependsOn(util)

Áé∞Äú@ core % ÄðÑ%ªŁÁ†ÄÄèØ%ª•%ΩðÄî@ util ÄðÑÄ±ª,,ÄÇÄú@Ä°ñĚØēĚð % ü%ª°Äú@% §% ™  
core % äÄäÇÔªutil ÄðĚÈªĚc´ĚðŸĚñ∞ÄíäÄ°ñĚØēĚðª,,ÄÇ

% % Ü%æùĚμñÄ§ö% ™È° ÁðÆÔªÄÄĚèĚððĚ† dependsOn(bar, baz) Äªð  
dependsOn Ä§ö% ™ÄèÇĚĩ∞,,ÄÇ

## configuration Ä íÄ ¶ÄðÑ classpath %æùĚμñ

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

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

ÄúÄÄî• ->config ĚÉ@ÄäÜĚðóÄ§ ->compileÔªäĚÄ%ª• dependsOn(bar  
% "test") Ě°@Ä§ foo % ÄðÑ test configuration %æùĚμñ% é bar % ÄðÑ  
Compile configuration,,ÄÇ

% Ä% ™ÄÆûÄî@ÄðÑÄŁ∞Ěðé "test->test" Ě°@Ä§ test %æùĚμñ% é  
test,,ÄÇ%æäÄ¶ÇÔªäĚððĚ† ÄÖÄĚÆ %Ω†Ä∞ÜĚμäĚØĩÄ•ÄÖ%ªŁÁ†ÄĚîæÄú@  
bar/src/test/scala % ÔªäÄÑ ÄēéÄú@ foo/src/test/scala % %ΩðÄî@Ěðð% ò%ªŁÁ†ÄÔª

ÄØ % é% Ä% ™%æùĚμñ%Ω†ÄèØ%ª•ĚúäÄ§ö% ™ configurationÔªª%ª•ÄäÜÄēÄäÜĚðĩÔªª%æäÄ¶Ç  
% "test->test;compile->compile"),ÄÇ

## ĚªðĚÆ§ÄðÑ root Ě° ÄðÆ

Ä¶ÇĚúúÄú@ĚûÑÄª % Ě† ÄðÆÄΩĩĚ°ĚúäÄÆð% äĚ° ÄðÆÔªsbt %ª°Äú@ĚûÑÄª % ÄäðÄª % Ä% ™È°

Äð†% hello-foo Ě° ÄðÆÄÆð%ªâ% Ü base = file("foo")ÔªäÄÆÉÄ∞Ü%ª°öĚc´ÄäÖÄē´Äú@  
foo ÄēÄðÆÄΩĩ%,,ÄÇ ÄÆÉÄðÑĚēĚñª%ªÄèØ%ª•ÄðŸĚē•ĚîæÄú@  
foo % äÔªäÄĚè foo/Foo.scalaÔªäĚñĚÄÖÄú@ foo/src/main/scala  
%,,ÄÇĚÄðÄ sbt ÄðÑ ÄðÆÄΩĩÄªĚûÑ Ä íÄî@Äú@ foo ÄðÆÄΩĩ% äĚð§% ÜĚûÑÄª ÄÆð% äĚñª%ª,,ÄÇ

foo % ÄðÑ%ªª%Ωĩ.sbt Ěñª%ªÔªäĚØĩÄ¶ÇĚØŸ foo/build.sbtÔªäÄ∞Ü%ª°öÄíäĚĩŸ% ™ĚûÑÄª ÄēäÄ  
hello-foo Ě° ÄðÆÄðÑ scope %,,ÄÇ

Ä¶ÇĚúú%Ω†ÄðÑÄðÑĚĩŸ% ™È° ÄðÆĚÉΩÄú@ hello % ÔªäÄ∞üĚØĩÄú@  
hello/build.sbtÔªähello/bar/build.sbt Äíä hello/foo/build.sbt  
% ÄÆð%ªâ% Ä% ™% ÇÄēäÄðÑÄäĚú´Ôªäversion := "0.6"Ôªä,,ÄÇ

Áé∞Äú@Äú@ sbt ÄðÑÄēΩ%ª§Ěª% ĚäðĚªª show version,,ÄÇ%Ω†Ä ĩĚØ•ÄæðÄä∞ĚððĚ† ÄðÑ%ðªÄÄØ

```

> 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 î„ÄÇÊØè% ™
version key Âú@ÂØ Â îÁöÑÊ° ÁðÆÁöÑ scope % Ò°âÄü % é build.sbt
Êñá%ª ÁöÑ%ΩÇÁΩÆ„ÄÇ%ΩÛÊðØÊâÄÊúâÁöÑ% â% ™ build.sbt
Êñá%ª ÊÉΩÂè™ÊðØÊî¥% ™ÊûÑÂª ÂÆö% âÁöÑ% ÄÊÉ@ÂàÜ„ÄÇ
ÊØè% ™Ê° ÁðÆÁöÑÊÆæÁΩÆÊÉΩÂèØ%ª • ÊîæÊØ • Ê° ÁðÆÁü ÁðÆÁΩî% ãÁöÑ
.sbt Êñá%ª % Ò°âÂN ÊÄâ .scala Êñá%ª ÂèØ%ª • Áíâ% äÊùcÂ±íÁ§ ÁöÑ% ÄÊ† ÁÆÄÄÇîÔ°âÂòÁá Ê
.scala Êñá%ª % „ÄÇ

ÂN ÊÄâÔ°â% % ÛÂ∞ÛÊâÄÊúâÊûÑÂª ÂÆö% âÊÉΩÊîæÂú@% Ä% ™Ê° ÁðÆÁðÆÁΩî% ãÔ°â%Ω†%ª
.scala % %°öÂ ÂáÄÂæàÂ§ö„ÄÇÁí±%Ω†ÂÄö%ª „ÄÇ

Âú@Â êÈ° ÁðÆ% Ò°â%Ω†% ÇÊÉΩÊúâÊ° ÁðÆÁöÑÂ êÄðÆÁΩîÊànÊÄÖ
project/*.scala Êñá%ª „ÄÇfoo/project/Build.scala Â∞Û%°öÊc´ÂøΩÁï•„ÄÇ

```

% §% íÂ°èÂ°iÂØ°È° ÁðÆ

```

Âú@sbt ÁöÑÂè%ª§Ê°â% Ò°âÊæiÄÖ • projects ÂòóÁá %Ω†ÁöÑÊ° ÁðÆÔ°âÊâßÊ°â
project <projectname> ÂèØ%ª • ÊÄâÊã©ÂΩiÂâÇÈ° ÁðÆ„ÄÇÂΩî%Ω†ÊâßÊ°â
task ÁÊè compileÔ°âÂÆÊ%°öÂú@ÂΩiÂâÇÈ° ÁðÆ% äÊâßÊ°â„ÄÇ ÊâÄ%ª • %Ω†Ê °ÊúâÂøÖÊ¶ÂÄéªÁ°ñÊ
root È° ÁðÆÔ°â%Ω†ÂèØ%ª • Âè™Á°ñÊØèÂ êÈ° ÁðÆ„ÄÇ

%Ω†ÂèØ%ª • ÊÄöÊøáÊðæÁ§ ÁöÑÊââÂÆöÈ° ÁðÆ ID Âú@Âè¶%ª Ä% ™Ê° ÁðÆ% äÊâßÊ°â%ª Ä% ™
taskÔ°â%æãÂ¶Ç subProjectID/compile„ÄÇ

```

ÊÄöÁî@%ª£Á†Â

```

Âú@%ª Ä% ™ .sbt Êñá%ª % ÁöÑÂÆö% âÂØ % éÄÖ %ªñÁöÑ .sbt
Êñá%ª % ÇÂèØÊßÄ„ÄÇ% % ÛÂú@% ÇÂêâÁöÑ .sbt Êñá%ª % ÄÖ±% ´%ª£Á†ÂÔ°âÂú@ÊûÑÂª Ê† Á
project/ ÁðÆÁΩî% ãÂÆö% â% Ä% ™ÊànÂ§ö% ™ Scala Êñá%ª „ÄÇ

ÂèÇÊßÂ ÁªÑÁªâÊûÑÂª Êé ÂèñÊØ¶ÁªÛÂÛÖÂÆ „ÄÇ

```

%ΩøÁî@Êèi%ª

```

ÊØ ÂÖâÊèÖÊØªÄÖ • Êó@ÊââÄÇóÄâÇÈùcÁöÑÂÛÖÂÆ Ô°âÂ∞§ÄÖ ÊúÄÊ¶ÂÄú@ÊèÖÊØªÊú´Â∞èÊäÇ%ª ã
build.sbt Âíâ Â 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°ãÄ\$ßÄ\$öÊï∞ÈÄöÂ ÊðØÈÄöÊðáÊ<sup>a</sup>Ää†ÊÆæÁΩÆ,,ÄÇÊñ∞ÁöÑÈÆæ  
task,,ÄÇ%æãÄ¶ÇÔ°ã% 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 • Äëä,,ÄÇ

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

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

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

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

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

% çÊðØÊäÄÊüäÄöÑÊèí%<sup>a</sup> ÈÉΩÄú@Äêã% Ä%<sup>TM</sup>Ê<sup>a</sup>ðÊÆ\$ÄöÑ%<sup>a</sup>î î% Ô°ãÊÄä% 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° ÄöÆÄ % îÄ°ÄÄêØÊèí%<sup>a</sup> ÄäüÈÉΩ,,ÄÇÊðð% ç

ÂêØÄí@ÄíäÄ¶ÄÄí@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 ÄääÊú¨ÄöÑ sbtÔ°ãÊüä% Ä%<sup>TM</sup>Êñ∞ÄöÑÄä ÊÄßÂè´Êä<sup>TM</sup>Ää@Êèí%<sup>a</sup> Ô°ãÂÆÉÊÉΩÄ\$üÄú

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

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

enablePlugins Êñ Ê ïÄÖÄÊÆ È° ÄöÆÊðæÄ°èÂÆö% ãÂÆÉ%<sup>a</sup>¨ÊüÄÊ¶Ä%ΩøÄí@ÄöÑÈä<sup>TM</sup>Ää@Êèí%<sup>a</sup> „Ä

È° ÄöÆ% üÄèØ%<sup>a</sup> • %ΩøÄí@ disablePlugins Êñ Ê ïÊéíÈð\$Êéä% Ä% ðÊèí%<sup>a</sup> „ÄÇ%æãÄ¶ÇÔ°ãÄ¶ÇÊûú

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

build.sbt %øÆÊî Ä¶Ç% ãÔ°ö

```
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 ÁöÑÊØïÊ™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°ÄÄêØÄÆÊÔ°âÊúÄÊ¶ÄÄàöÄ° ÄäÖÄê
site.sbt Êñá%ª Êù „ÄÇ
site.settings
Ä¶ÇÊúúÊúÑÄ° 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°ÄÄêØ 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£∞ÊðéÄÆÊ°ª„ÄÇ~/sbt/0.13/plugins/
ÊðØ%ª Ä%ª ™Ä∞ÛÊá™Ä ±ÁöÑ classpath ÄØ°Äá Ä°ðÊâÄÊúâÊ° ÄöÆÄöÑ
sbt ÊúÑÄ° ÄÆö%ª â„ÄÇ Ê¶ÇÁí•Äú∞ÊÆ Ô°âÄú® ~/sbt/0.13/plugins/
%ª ÁöÑ%ªªª%ªΩï.sbt ÊànÊÄÖ .scala Êñá%ª Ä∞±ÄíâÊâÄÊúâÊ° ÄöÆÄöÑ
project/ ÄöÆÄΩï%ª ãÁöÑ%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 ÊøðÊ† ÄÄö%ªö.
ÄèÇÊßÄÊúÄ%ªΩ ÄÆûÊ µ„ÄÇ

```

ÀèØÁí®ÁöÑÊèí%<sup>a</sup>

ÈøòÈáâÊúâ% Æ%<sup>TM</sup>ÀèØÁí®ÁöÑÊèí%<sup>a</sup> ÀàóÈ°®,ÄÇ

% Æ% òÁâ Àà´ÊµÁÈ°âÁöÑÊèí%<sup>a</sup> Á¶Ç% ãÔ°ö

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

Èõ¥Á§öÈØ¶Á<sup>a</sup>Û%ø°ÈÁØÔ°âÁâÖÂê´Á°ÄÂèèÊèí%<sup>a</sup> ÁöÑÊñ È ïÔ°âÂèÇÈßÁÊèí%<sup>a</sup> ,,ÄÇ  
ÁÖ % éÊúÁ%Ω ÁÆûÈ µÔ°âÂèÇÈßÁÊèí%<sup>a</sup> ÊúÁ%Ω ÁÆûÈ µ,,ÄÇ

Ëá<sup>TM</sup>ÂÆö% ãÈÆæÁΩÆÁíâ%<sup>aa</sup>Âä°

Èøó% ÁÁ∞èÈäÇÈÆ Èß£Á¶Ç%ΩíÁàòÁ Èá<sup>TM</sup>ÂÆó% ãÈÆæÁΩÆÁíâ%<sup>aa</sup>Âä°,ÄÇ

Áú®ÁèÛÈß£Êú´ÈäÇ% ãÁâÇÔ°âÈØ ÁÖàÈòÖÈØ<sup>a</sup> sbt ÁÖ•Èó®ÁâÇÈùÇÁöÑÁ´†ÈäÇÔ°âÁ∞§ÁÖ ÈòØ  
.sbt ÊûÑÁ<sup>a</sup> ÁÆö% ãÁíâÈõ¥Á§öÁÖ % éÈÆæÁΩÆ,,ÄÇ

ÂÆö% â% Æ%<sup>TM</sup>ÈìÆ

ÈøòÈáâ%<sup>a</sup>âÁ<sup>a</sup>Ç% ÛÁ¶Ç%ΩíÁÆö% ãÈìÆ,,ÄÇÁ§ßÁ§öÈí∞ÁöÑÈ°òÈÆ§ÈìÆÁÆö% ãÁú®ÈøòÈáâ,,ÄÇ

ÈìÆÊúâ% ãÁßÇÁ±<sup>a</sup>Âûã,,ÄÇSettingKey Áíâ TaskKey Áú®.sbt ÊûÑÁ<sup>a</sup> ÁÆö% ãÈÆ Èß£,,ÄÇÁÖ % é  
InputKey ÁöÑÁÛÖÁÆ Áú®ÈæìÁÖ•%<sup>aa</sup>Âä°È°µÈùÇ,,ÄÇ

Áàó% æ% Æ% òÈû•Ëá<sup>TM</sup> Keys ÁöÑ%æâÁ èÔ°ö

```
val scalaVersion = settingKey[String] ("scalaÁöÑÁââÊú´")
val clean = taskKey[Unit] ("Áâ†Èõ§ÈûÑÁ % ßÁíûÁöÑÈñá%a Ô°âÁâÛÈã´ÁíûÈæèÁöÑ source Èñá%a Ô°âÁ°ñÈ
```

ÈìÆÁöÑÊûÑÈÄ†ÁáΩÈí∞Êúâ% §%<sup>TM</sup>Á óÁ´¶% ÀèÇÈí∞Ô°òÈìÆÁöÑÂèÇÁß∞Ô°à  
,ÁúscalaVersion,Àù Ô°âÁíâÈñáÈ°£Á óÁ´¶% Ô°à ,ÁúÁí®% éÊûÑÁ<sup>a</sup> Á•Á®ãÁöÑscalaÁöÑÁââÊú´,,ÄÇ  
,Àù Ô°â,,ÄÇ

ÈøòÈÆ∞Áæó.sbt ÊûÑÁ<sup>a</sup> ÁÆö% â% Ô°âÁ±<sup>a</sup>Âûã T Áú® SettingKey[T]  
% È°®Á§ ÁöÑÈÆæÁΩÆÁöÑÁÄ°ÁöÑÁ±<sup>a</sup>Âûã,,ÄÇÁ±<sup>a</sup>Âûã T Áú® TaskKey  
[T] % ÈááÁ§ %<sup>aa</sup>Âä°ÁöÑÁ<sup>a</sup>ìÊúúÁöÑÁ±<sup>a</sup>Âûã,,ÄÇ Áú®.sbt ÊûÑÁ<sup>a</sup> ÁÆö% â% Ô°â% Æ%<sup>TM</sup>ÈÆæÁΩÆÈ  
ÈìÆÁèØ%<sup>a</sup>•Áú®ÁÆö% ãÁú®.sbt ÊûÑÁ<sup>a</sup> ÁÆö% ãÔ°â.scala Èñá%<sup>a</sup> Èàn% Æ%<sup>TM</sup>Ëá<sup>TM</sup>Âä®Èèí%<sup>a</sup> % ,,ÄÇ  
val Á∞ÛÈÇ´Ëá<sup>TM</sup>Âä®ÁØ°ÁÖ• Áà∞%Ω†ÁöÑ .sbt Èñá%<sup>a</sup> ,,ÄÇ

ËâßÈ°â%<sup>aa</sup>Âä°

% ÄÈó¶%Ω†ÁÆö% â% Û% Æ%<sup>TM</sup>%<sup>aa</sup>Âä°ÁöÑÈìÆÔ°â%Ω†ÈùÄÈ¶ÁÁí®ÁÆÉÁÆâÈàè%<sup>aa</sup>Âä°ÁÆö% ã  
:= %Ωø%<sup>aa</sup>Âä°ÁöÑÈìÆÁíâÈÈ®ÁâÛ%<sup>a</sup>£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 éËÆæÁΩÆÈääÊúâÊèèËø∞Ô°âÂ¶ÇÊúú%0aaÂä°Êúâ%0æùÊµñÂÖ Á °Ô°â%0Ω†%0ΩøÁî@
value Êù•Â°iÁî@ÂÄ°,ÄÇ
```

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

```
ÂΩì%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 ÁöÑÊÈø%0 ÄÊ°âÂ i%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@ÂÄâËÆæÊàè%0°ÂÆö%0 â%0 ÛÂè¶Á§ñ%0 §%0 ™ÁöÑÊá™ÂÆö%0 â%0aaÂä°startServerÁiâstopS
```

```
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 $%00 íÁ°èÊèèÁ$ Á°%00 ÊøèÊ°âsampleIntTaskÂ∞ÛÂæóÂà∞Â¶Ç%00 ãÁ°àîÊûúÔ°ö
```

```
> sampleIntTask
```

```
stopping...
```

```
starting...
```

```
sum: 3
```

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

```
Ëã•Ê¶ÂÊû•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^aaÂä°ÄöÑvalueÊñ Ê îÂ∞Û%00 çÊc´%00 •Ê†°Äè
```

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

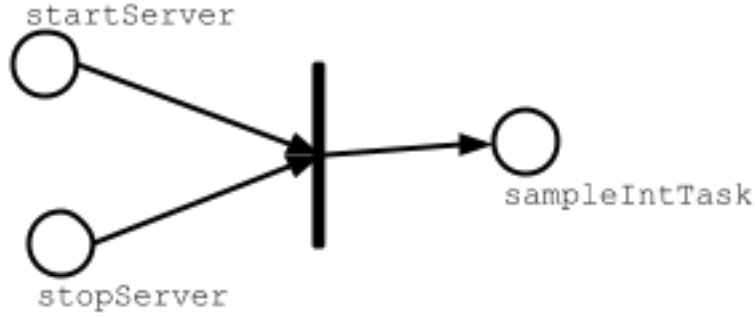


Figure 2: task-dependency

```
%aaÄ°%æùËµñÈ° ÄéªÈáç
% ÆØÄèéËøóËúÄÄêé% ÄÄÇ ÖªâÊàë%ª·ÄèØ%ª•%ªé sbt % §% íÄ°èÊèèÁ§ Á·¶ËøèÈ°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%ΩÛÄí±% é%aaÄª°ÄõÑ%æùËµñÈ° Ëç´Ê†äËÄ
```

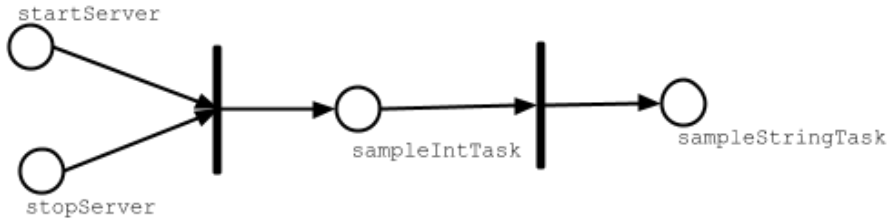


Figure 3: task-dependency

```
Ä¶ÇÊúúÊàë%ª·% çÄÄöÈäçÄ§ç%aaÄª°Äõ ÄÖ È° ÄõÑÄéªÈäçÖªâÄªôÄΩîÊàë%ª·ÊâßÈ°âtestÊó ÊúÄÄªà%
in Test%Ωú% test in TestÄõÑ%æùËµñÈ° Äá Äé∞% ÛÄæàÄ§öÈ°,,ÄÇ
Ê ÖÄéÜ%aaÄª°
Ä îËØ•Ä¶Ç%ΩîÄÆúÄé∞stopServer%aaÄª°ÖªüÊ ÖÄéÜ%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

```

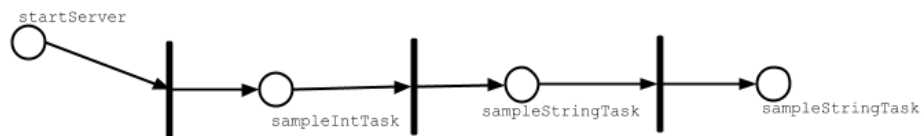


Figure 4: task-dependency

Áõ¥Êé • %00ΩøÁî@Scala

```

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

Ãð†% ÊðÆÈÃöÁöÑÊñ Ê îÈ∞ÉÁí@ÈÁµÁæ™È° Â èÈØ % ãÔ°ãÊãÄÊúã% ãÊÉÖÊããÈ° Â èÀèéÁü.,ÄÇÈððí

Â∞ÜÂÆÉ%ª¨ÈΩ¨% Êèí%ª

Â¶ÇÊûú%Ω†ÂèéÁé∞Ëá™Â ±ÊúãÂæàÂ§öËá™ÂÆö% ã%ª£Á†ÂÔ°ãÂèØ%ª • ÈÄÉÈðèÂ∞ÜÂÖ ÁßªÄã@Â
ÄãðÂª % Æ% ™Èèí%ª ÂæàÂÆ ÊðìÔ°ãÁú@%ΩøÁí@Èèí%ª ÁíãÈèí%ª % ÊúãÈØ¶ÁªÜÈÆ@ÈÆ „ÄÇ
Êú¨Â∞èÈäÇÈðØ% ™Âø´ÈÄüÁöÑÂèèÂØ°Ô°ðÈð¥Â§öÂÖ % éËá™ÂÆö% ã%ªªÂä°ÂèØ%ª • Áú@%ªªÂä
ª

ÁªÑÁªáÊûÑÂª

Êú¨È°µÈùcÂ∞ÜÈÆ@ÈÆ ÊûÑÂª ÁªìÊûÑÁöÑÁªÑªáª.,ÄÇ
Êú¨Â∞èÈäÇÁªÄáÆæ%Ω†Â ÁªèÈðÖÈØª% Ü% ãÄäçÁöÑÁ´†ÈäÇÔ°ãÂ∞§ÂÖ ÈðØ
build.sbtÔ°ãÂ î%æùÈµñÁíãÂ§öÂ • Á@ãÊûÑÂª „ÄÇ

sbtÊðØÈÈÄíÂΩíÁöÑ

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

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

ÈÄíÂΩíÂèØ%ª • Áªßªª % ãÁéª.,ÄÇÂ¶ÇÊûú%Ω†ÂñúÊ¨c, %Ω†ÂèØ%ª • ÈÄöÈøáÄãðÂª
project/project/ ÁõÆÂΩíÁ@çÁ@çÈ∞ÉÊí¥È° ÁõÆÁöÑÊûÑÂª ÂÆö% ãª.,ÄÇ
% ãÈùcÈðØ% Æ% ™%æãÂ èÔ°ö

hello/ # È° ÁõÆÁöÑÄü ÁõÆÂΩí

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

```

```

build.sbt      # build.sbt ÊðØproject/ % ÅÖÊÊûÑÃª Ê† È° ÁðÆÁöÑÊ º%ª£Á†Å,,ÄÇÊðØÊûÑÃª ÅÆö% ºÊº
project/      # ÅÖÊÊûÑÃª Ê† È° ÁðÆÁöÑÃü ÅðÆÃΩî
Build.scala   # ÅÖÊÊûÑÃª Ê† È° ÁðÆÁöÑ% Å% Ê ºÊñª%ª ØºªÊðØ%Ω†ÁöÑÊûÑÃª ÅÆö% ºÁöÑÊûÑÃª ÅÆö% ºÊº
build.sbt     # ÅÖÊÅÖÊÊûÑÃª ÁöÑÊ† È° ÁðÆ,Äî,Äîproject/projectÁöÑÊ º%ª£Á†ÅØºðÊûÑÃª ÅÆö% ºÁöÑÊûÑÃª ÅÆö% ºÊº
project/      # ÅÖÊÅÖÊÊûÑÃª ÁöÑÊ† È° ÁðÆÁöÑÃü ÅðÆÃΩîØºðÊûÑÃª ÅÆö% ºÁöÑÊûÑÃª ÅÆö% ºÊº ºÁöÑÊûÑÃª ÅÆö% ºÊº
Build.scala # project/project/ ÅÖÊÅÖÊÊûÑÃª ÁöÑÊ† È° ÁðÆ% ÁöÑÊ ºÊñª%ª
% çÁðÊðÊðÖÁðÊÖºÁ Á$ðÊÊðÅaÛÊó ÁÄð% çÊúÄÊ¶Á project/project/
ÁðÆÃΩî,,ÄÇ%ΩÛÊðØÁèÛÊß£ÁÆÊÊðØÊúâÁ ÆÄä©ÁöÑ,,ÄÇ
Äè¶Á$ñÔºª%aa%Ωî%ª • .scala ÊànÊÄÖ .sbt ÁªiÄ∞æÁöÑÊñª%ª ÈÉΩ%ººðÊç´%ΩðÁîðÔºªÄèΩÄèç%
build.sbt Äîâ Build.scalaÄè™ÊðØÊÊØ%æä,,ÄÇÄ$ð%™Êñª%ª % üÊðØÄÖÄÊÆ ÁöÑ,,ÄÇ

Äú©Äêª% Ä%™Äú∞Êñ Ê üÊ™%æüÊµñÊº

Äî©project% ºÁöÑ.scalaÊñª%ª ÁªÑÊàèÊûÑÃª ÅÆö% ºÁöÑ% Ä%™ÄÊüÊðÖÄî©%æäÊðØÄòÄª 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)
}

DependenciesÄØ Ê±ºÄ∞ÛÄú©build.sbt% ÄèØÄî©,,ÄÇÄ¶ÇÊúúÊ¶ÁÊÆ©%ΩðÁîðvalÁöÑ%ª£Á†ÄÊðY
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 Óa%Ω†ÂèØ%a • ÁÜö%aaÊÑèÁöÑ Scala %aŁ†ÁÔoâÄÖÊã˘È° Á±ÇÁöÑÁ±aÁíÁÇ
Êé@ÊçêÁöÑÊñ È ìÊòØÂÆö%âÂ§ßÈÉ@ÂàÛÊÆæÁΩÆÁú@Â§öÄ • Á@ãÁöÑ
build.sbt Êñá%a %Ω ÓaÄ %Ω ì%ΩØÁí@project/* .scala Êñá%a Èù • ÁÄö%aaÄä°ÂÆûÁé∞ÊànÁú@Â§

ÂÆö%âÄTMÂä@Êèí%a

ÂØ %éÊö¥È˘òÁ ÁÁöÑÁí@Êà ÓaâÂè¶%ÄÄßçÊñ ÂoèÁaÑÁa%Ω†ÁöÑÊùÑÄa ÈòØÁú@project/* .scala%

ÊÄaÄaì

Êøö%ÄÊäÇÁ∞ÛÂÖ • Èó@ÊääÂçóÊÄaÄaì%Ä Ä%ä„ÄÇ
%Ω %Ü%ΩØÁí@ sbtÔaÊúá%Ä Ä%ö òÊ¶ÇÁøµ%Ω†ÂøÖÈoâÁéÛÊß£„ÄÇÊøöÊúá%Ä %ö òÄ ¶%Ω †Êö Á øÔaâ
Êø§%Ü Êøö%ö òÊ¶ÇÁøµÂØ %é sbt Ä %çÂ§ö„ÄÇsbt Áí@%ÄÄ∞èÊÉ@ÂàÛÊ† ÂøÊÊ¶ÇÁøµÈù • %ΩØÄä
Â¶ÇÊùú%Ω†Ä ÄaèÈöÖÈØaÊøáÊäÂÊúâÁöÑÂÖ • Èó@ÊääÂçóÔaâÁé∞Áú@%Ω†Äü • ÊÄì%Ü %Ω†ÈúÄÊ¶Ä

sbt: Ê† ÂøÊÊ¶ÇÁøµ

• Scala Äü Ä˘Ä„ÄÇ%çÄèØÄè¶ÊÆ§ÔaâÄÜüÊÇâ Scala ÊØ È ìÈùûÄ ÊúâÄ ÆÄä@„ÄÇProgramming
in ScalaÔaâScala ÁöÑ%ΩúÊÄÖÄÜòÁöÑÈùûÄ Ä • ΩÁöÑ%aâÄaç„ÄÇ
• .sbt ÊùÑÄa ÂÆö%â
• %Ω†ÁöÑÊùÑÄa ÂÆö%âÈòØ%Ä Ä%ö TMÂ§ßÁöÑ Setting ÂØ Ê±°ÄàóÈ°@Ôaâsbt
%ΩØØÁí@ Setting ÈΩ˘Êçç%âÄééÁöÑÈìÆÄÄ°ÂØ ÊâßÈ°â task„ÄÇ
• %Ω %Ü ÜÄòÄa SettingÔaâÁú@%Ä Ä%ö TMkey %äÊ∞ÉÁí@ÄÖ %Ω ÁöÑ%Ä Ä%ö TMÊñ È ìÔoö:=Ôaâ+=
ÊànÊÄÖ ++=„ÄÇ
• È°ÊúâÂèØÄèòÁöÑÄä ÊÄÄÔaâÊá %éÈΩ˘ÊççÔoö%æâÂ¶ÇÔaâ%Ä Ä%ö TM
Setting Á∞Û sbt ÁöÑÈìÆÄÄ°ÂØ ÊöÜÄèàÈΩ˘ÊççÊàè%Ä Ä%ö TMÊñ∞ÁöÑÈöÜÄèà„ÄÇ%ç%ööÄ∞±Ä
• ÊØè%Ä Ä%ö TMÊÆæÁΩÆÈÉΩÊúá%Ä Ä%ö TMÄâ ÂÆöÄ±aÄüâÁöÑÄÄ°ÔaâÁí±
key ÄÜ ÂÆö„ÄÇ
• tasks ÈòØÄâ ÊÆäÁöÑÈÆæÁΩÆÔaâÈÄöÊøá key %Ω Áíüü value
ÁöÑÈÆ°ÁÆóÄú@ÊØèÈ˘°Äá Àèè task ÁöÑÈó ÄÄöÈÉΩ%ööÈäçÊñ∞ÊâßÈ°â„ÄÇNon-
task ÊÆ°ÁÆóÄèTM%ööÄü@ÊùÑÄa ÂÆö%âÁöÑÄ˘%Ä ÊÈ˘Äâ†ÈΩΩÉó ÊâßÈ°â„ÄÇ
• Scopes
• ÊØè%Ä Ä%ö TMkey ÈÉΩÄèØÈÉΩÊúâÂ§ö%ö TMvalueÔaâÊääÁÖß scope
ÄäíÄàÜ„ÄÇ

```

- scope %<sub>00</sub>öÁî@%<sub>00</sub> â%<sub>00</sub>™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>™ configuration ÊðØ%<sub>00</sub> ÄÄßçÁ±ª ÄûâÄöÑÊûÑÄª Ô°â%<sub>00</sub>æâÄ¶Ç Compile ÊânÊÄÖ Test,,ÃÇ
- project ÊΩ¥%<sub>00</sub> üÊìØÊâÄ “ÊûÑÄª 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 ÊûÑÄª ÄÆö%<sub>00</sub> âÊñâ%<sub>00</sub>ª ÄÆö%<sub>00</sub> âÄ±ª ÄíâÊö¥Ä§ßÄöÑ task ÄÆûÄé∞,,ÃÇ
- ÊûÑÄª ÄÆö%<sub>00</sub> âÊðØ%<sub>00</sub> Ä%<sub>00</sub>™ sbt Ê° ÄöÆÔ°âÊû• Êá™%<sub>00</sub> éÊ° ÄöÆÄöÆÄΩî,,ÃÇ
- Êèí%<sub>00</sub>ª ÊðØÄØ ÊûÑÄª ÄÆö%<sub>00</sub> âÄöÑÊâ@Ä±î
- ÊÄöÊøáÄú@ addSbtPlugin Êñ Ê îÄú@ project/plugins.sbt %<sub>00</sub> Êª Ää†Êèí%<sub>00</sub>ª „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> öÄªÜÊûùÊú´ÊäÇ%<sub>00</sub> ÄöÑ%<sub>00</sub>ªª%<sub>00</sub>Ωî%<sub>00</sub> Ä%<sub>00</sub>™Ô°âÊØ ÄØªÊ±ÇÄÆÄä@Ô°âÊø sbt ÄöÑ%<sub>00</sub> §%<sub>00</sub> íÄ°èÄë%<sub>00</sub>ª§Ê°â%<sub>00</sub> ÄÄöÄÆûÊ™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>™Ä°ÄÊ êÊ° ÄöÆÔ°âÄà´ÄøðÊÆ∞Ä æÄá Ê° ÄöÆÊ ê%<sub>00</sub>ª£Ä†ÄÔ°Ä

ÊöÑÄΩîÔ°öBare .sbt ÊûÑÄª ÄÆö%<sub>00</sub> â

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

%<sub>00</sub>ªÄ%<sub>00</sub> âÊðØbare .sbt ÊûÑÄª ÄÆö%<sub>00</sub> â

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

bare .sbt ÊûÑÄª ÄÆö%<sub>00</sub> âÄî±%<sub>00</sub> Ä%<sub>00</sub>™ Setting[\_] Ê°@ÊææÄ°èÄöÑÄàðÊ°@ÄªÑÊàèÔ°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% çÊøâ

name := "hello"

version := "1.0"

scalaVersion := "2.10.3"

sbt ÈúÄÊ¶ÁÊúâÂâÜÊöîÁ°¶Êù • Êæ®Âà´% Ä% ™Ê°®ÊææÂ°è%ªéÂì™ÊääÂ°ÄÂßäÖ°âÂà∞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° ÁöÆ.sbt ÁñüÊàêÂÆö%ª âÖ°âÊøð% üÊðØÊé®ÊçêÄöÑÊ† Â°è,,ÄÇ

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

ÄÖ ÊÂî build.sbt Âíâ Build.scala

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

% ¯âÊùc% §% ™Êñâ%ª ÊèèÊø∞% ÛÊøð% ™ÊøáÁ®ã,,ÄÇÁ°°% ÄÖ°âÂ¶ÇÊúú%Ω†ÁöÑÈ° ÁöÆÁú®  
hello Êñâ%ª Â§ ÂÛÖÖ°âÂäöÂª 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"

  ÊâìÂ°Ä sbt ÁªâÁ´ØÂëΩ%ª§Á™óÂë£,,ÄÇÊî 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 ÂêéÊî 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 ÊúâÁö Âêâ%ΩúÁì®ÊâÉÂö¥,,ÄÇÈÇ£ÊðØ
  .sbt Êñá%ª % ÁöÑ sampleKeyC in ThisBuild Á âÂêâ% éÊîæÁΩÆÁú®
  .scala Êñá%ª Build.settings ÂàóÊ°®% 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% çÊðØÊî¥%™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∞ùÊØîÊî 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†% üÊÆ %°öÊ ®ÊÑèÂà∞Âè¶% ÄÊ¶ÁÄÇ Ô°ösampleKeyC Áíâ sampleKeyD
  ÊðØÂèØ%ª • Áú® build.sbt ÂÛÖÊÉ®Êé ÂæóÁöÑ,,ÄÇÊððÊðØÂö†% sbt
  Á°íÂÖ • Build % ÁöÑÂÛÖÂÆ Âà∞ .sbt Êñá%ª % „ÄÇÁú®ÊøðÁßçÊÊÖÂÛµ% ãÔ°âimport
  HelloBuild._ ÊðØÊç´ÊèèÂê´Á°íÂÖ • Áú® build.sbt Êñá%ª % „ÄÇ
  ÊÂªÁªìÔ°ö

```

- `Âú@ .scala Êñá%a %o Ô°ãÂèØ%a • Âú@ Build.settings %o ÂcúÂä†ËÆæÁΩÆÔ°ãËøø%o òËÆæÁΩ`
- `Âú@ .scala Êñá%a %o Ô°ãÂèØ%a • Âú@ Project.settings %o ÂcúÂä†ËÆæÁΩÆÔ°ãËøø%o òËÆæÁΩÆËä™Âä@Ëàè%o Â • Â@ã%oΩúÁí@Âüü,,ÄÇ`
- `%oaa%oΩíÂú@ .scala %o ÁöÑ Build ÂØ Ê±°Â∞Û%oöËääÂÆÉÁöÑÂÛÖÂÆ ÂØ°ÂÖ • Âà∞ .sbt Êñá%a %o ,,ÄÇ`
- `Âú@ .sbt Êñá%a %o ÁöÑËÆæÁΩÆËc´ ÊøΩÄü† Âà∞ .scala %o ÁöÑËÆæÁΩÆ,,ÄÇ`
- `Âú@ .sbt Êñá%a %o ÁöÑËÆæÁΩÆËòØÂú@Ë° ÁõÆ%oΩúÁí@ÂüüËääÔ°ãËøøËèü%oΩ†ËääÂÆöÂÆÉÁ`

`%o §%o íÊ@°Â°è%o ÁöÑËÛÑÂ° ÂÆö%o âË° ÁõÆ`

`%oΩ†Äé∞Âú@ÂèØ%a • ÂääËÇcÂà∞ sbt Âè%oã§Ë°ãÁöÑ%o §%o íÊ@°Â°èÔ°ãËÆ©Âú@ project/ ÁõÆÂΩí%o äÁöÑËÛÑÂ° ÂÆö%o âË° ÁõÆ%oΩú%o ÂΩíÂâçË° ÁõÆ,,ÄÇÂèØ%a • ÊæíÂÖ • reload plugins Êü • ÊææÂà∞ÁõÆÁöÑ,,ÄÇ`

```
> reload plugins
[info] Set current project to default-a0e8e4 (in build file:/home/hp/checkout/hello/project/)
> show sources
[info] ArrayBuffer(/home/hp/checkout/hello/project/Build.scala)
> reload return
[info] Loading project definition from /home/hp/checkout/hello/project
[info] Set current project to hello (in build file:/home/hp/checkout/hello/)
> show sources
[info] ArrayBuffer(/home/hp/checkout/hello/hw.scala)
>
```

`Â¶Ç%o äËäÄÄ§ Ô°ã%oΩ†ÂèØ%a • Áí@ reload return Â¶°Â°ËÛÑÂ° ÂÆö%o âË° ÁõÆÔ°ãÁöüÂà∞%oΩ†Â`

`ËèèËÛíÔ°öÂÆÉËÄ°ÊòØ%o çÂèØÂèòÁöÑ`

`ËÆ§%o Âú@ build.sbt ÁöÑËÆæÁΩÆÂ∞ÛËc´Ë°Âä†Âà∞ Build Áíâ Project ÂØ Ê±°%o ÁöÑ settings Â óËÆµËèØËèøËØÁöÑ,,ÄÇÂèñËÄ°%aç%o äÁöÑËèØÔ°ãBuild Áíâ Project %o ÁöÑ settings ÂàóË°@Ô°ã%a • Âää build.sbt %o ÁöÑËÆæÁΩÆÔ°ãËc´ %o ËøüÂà∞Âè¶%o Ä%o™%o çÂèØÂèòÁöÑÂàóË°@%o Ô°ãÁÑ ÂèèËc´ sbt %oΩøÁí@,,ÄÇËØ • Build Áíâ Project ÂØ Ê±°ËòØ,Äú%o çÂèØÂèòËØçÁΩÆ,ÄùÂΩcËàèÂÆäËËËËÛÑÂ° ÂÆ %o äÂÆü%o äÔ°ã%o üËüâËÆæÁΩÆÁöÑÂÖ %oañËË • Ê è,,ÄÇ%oañ%oËc´ËøΩÂä†Ë° Â èÂ¶Ç%o äÔ°ö`

- `Êü • Êä™%oΩ†ÁöÑ .scala ËÆæÁΩÆËñá%a %o ÁöÑ Build.settings Áíâ Project.settings,,ÄÇ`
- `%oΩ†ÁöÑÁí@Ëà Ê¥¶Âè ÂÖ@Â±ÄËÆæÁΩÆÔ°ö%oæäÂ¶ÇÂú@ ~/.sbt/0.13/global.sbt %o %oΩ†ÂèØ%a • ÂÆö%o âÂΩ±Âìç%oΩ† ÊäÄËüâ Ë° ÁõÆÁöÑËÆæÁΩÆ,,ÄÇ`
- `Ëèí%a Ê @ÂÖ • ÁöÑËÆæÁΩÆÔ°ãÂèÇËßÂËé • %o äËË • ÁöÑ%oΩøÁí@Ëèí%a ,,ÄÇ`
- `Ë° ÁõÆ%o ä .sbt Êñá%a %o ÁöÑËÆæÁΩÆ,,ÄÇ`
- `ËÛÑÂ° ÂÆö%o âË° ÁõÆÔ°ãÂç project %o ÁöÑË° ÁõÆÔ°ãËüâËË • Êä™ÂÖ@Â±ÄËèí%a Ô°ã~/.sbt`

`ÄèèËËcÁöÑËÆæÁΩÆ%oöË¶ÜÁöñÂâçËËcÁöÑ,,ÄÇÂÖ@ËËcÁöÑËÆæÁΩÆÂàóË°@ËÛÑËèè%o ÜÂÆäËËËËË`