# VHBuilder

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#### Overview

VHBuilder is a tool that allows you to quickly author and review verbal and nonverbal behaviors for one or more characters. It is aimed at quickly getting basic characters up and running; power users can then move on to using the NPCEditor or NVBG directly for more fine-grained control.

It abstracts the end user from individual components of the Toolkit pipeline and offers a go-to place for easy authoring of characters.

Quick facts:

- Location: /tools/VHBuilder
- Language: C#
- Distribution: source
- Platform(s): Windows

#### Users

#### Creating a new scenario

The VHBuilder application requires the user to either create or load a scenario before authoring the virtual human characters. A scenario is basically a sandbox which includes all the files and data associated with it. Click on the File menu option on the top left and select the 'Create Scenario' option as shown below

<ul> <li>VHBuilder</li> </ul>				x
File System About	7			
Create Scenario				
Load Scenario	ery Add	Apply	Please create or load a scenario	≮.
Save Scenario Save Scenario As				
	-	Answers		
Quit		Filter		
Type new question and hit	enter	Type new an	nswer and hit enter	
Link	Active Reorder	Record		

On selecting the 'Create Scenario' option, you will be presented with a dialog as shown below. Please type in the name of the new Scenario you want to create, select where you want to create it and select 'Save' as shown. On hitting 'Save' above, it will create a scenario and it will also launch all the components required to create the new scenario.

	er 🕨 Local Disk (D:) 🕨 VHToolkit_trunk			<b>- - - + + + + + + + + + +</b>	Search Scenarios	
rganize 🔻 New fold						
🍌 core 🔺	Name	Date modified	Туре	Size		
🌗 data	📙 .svn	3/5/2013 11:36 AM	File folder			
🍌 .svn	\mu ExampleScenario	3/1/2013 7:40 PM	File folder			
acquiresper	ToolkitDefaultScenario	3/5/2013 11:36 AM	File folder			
ocache						
cereproc						
nvbg-comr						
nvbg-toolk						
pocketsphi						
WHBuilder ≡						
.svn						
Archive_2						
Scenarios						
퉬 VHBuilde 🛫						
File <u>n</u> ame:						
Save as type: All Fil	es (*.*)					

On creating the scenario, the VHBuilder tool will launch all required components and while it is doing so, it will indicate that background processes are running, using the indicator on the top right (as shown below)

VHBuilder	
<u>F</u> ile <u>System A</u> bout	
Characters Query Add Verbal Nonverbal	Apply Please wait 🎇
Questions Filter	Answers Filter
How are you?	A m doing well.
Link Active Reorder	Record

Once it is done loading the scenario, it will indicate that it is ready, again using the indicator on the top right as shown below.

S VHBuilder	
<u>F</u> ile <u>S</u> ystem <u>A</u> bout	
Characters Query Add Verbal Nonverbal	Apply Please query or add characters
Questions Filter	Answers Filter
How are you?	I am doing well
Type new question and hit enter	Type new answer and hit enter
Link Active Reorder	Record

# Adding/Querying characters to the scenario

You cannot begin editing the scenario unless you add new characters to the scene. In order to do this, you can use either the 'Query' or 'Add' button as shown below.

VHBuilder	
<u>F</u> ile <u>S</u> ystem <u>A</u> bout	
Characters Query Add Verbal Nonverbal	Apply Please query or add characters 🗸
Questions Filter	Answers Filter
How are you?	I am doing well
Type new question and hit enter	Type new answer and hit enter
Link Active Reorder	Record

The 'Query' button works only if you have an instance of Unity running in the background with a scene consisting of Toolkit characters. The 'Query' button basically queries Unity for the characters that are currently loaded and it adds these characters to the VHBuilder's list of characters as shown below.

S VHBuilder			
<u>F</u> ile <u>S</u> ystem <u>A</u> bout			
Rachel Query Rachel Brad	Add	Apply	Ready 🗸
<u>Questions</u> Filter		Answers Filter	
How are you?		Type new answer and hit enter	
Link	Active Reorder	Record	

If you don't have a Unity instance running, another way to add the characters is hitting the 'Add' button next to the 'Query' button. This will pop up a window as shown below

Add new chraracter	×
Please type in the new character name.	OK Cancel

You can type in the name of the character you want to add and it will get added to the VHBuilder's list of characters just like the 'Query' button does.

### Applying changes

You need to hit the 'Apply' button in order to apply the changes that you make (characters, questions, answers, behaviors etc.). On hitting the 'Apply' button, the tool will create a language model, classify the NPCEditor and initialize NVBG with the current scenario. Every time you make a change to the scenario, the Apply button will turn red as a reminder that you need to press it to see your changes.

VHBuilder	
<u>File System About</u>	
Characters Brad   Query Add Verbal Nonverbal	Apply Ready 🗸
Questions	Answers
Filter	Filter
How are you?	
Type new question and hit enter	Type new answer and hit enter
Link Active Reorder	Record

### Adding a question and answer

In order to add a question/answer, first select the character that you want to add questions/answers for, from the character drop-down menu on the top left. Then type the question/answer in the respective text-box and hit enter. This will add the question/answer.

**NOTE**: The newly added answer is spoken by the character that is currently selected in the CharacterCombo box on the top left. e.g. in the image below, 'Rachel' is the currently selected character, so any answer that is entered will be spoken by her.

VHBuilder		
<u>F</u> ile <u>S</u> ystem <u>A</u> bout		
Characters		
Rachel   Query Add	Apply	Ready 🗸
Verbal Nonverbal		
Questions	Answers	
Filter	Filter	
How are you? What is your name	My name is Rachel	
What is your name		
Where are you from?	I am from ICT	
Link C Active Reorder		
	Record	

### Linking a question to an answer

Once you have added the question and answer, you can link them together by selecting them and clicking the 'Link' button as shown below. You can select multiple questions and answers at the same time and link them as shown.

Eile       System       About         Characters       Rachel       Query       Add       Apply       Ready       Image: Constrained of the system of the
Rachel     Query     Add     Apply     Ready       Verbal     Nonverbal       Questions     Answers       Filter     Filter       How are you?     My name is Rachel
Verbal     Answers       Questions     Answers       Filter     Filter       How are you?     My name is Rachel
Questions     Answers       Filter     Filter       How are you?     My name is Rachel
Filter Filter My name is Rachel
How are you? My name is Rachel
How are you? My name is Rachel
What is your name Where are you from?
Type new guestion and hit enter Type new answer and hit enter
Link Active Reorder Record

# Recording the audio for an answer

In order to record audio for a newly added answer, first select the answer by clicking on it. This will highlight the answer. Now hold down the 'Record' button and speak into the microphone and release the button when you are done speaking.

VHBuilder	
<u>File System About</u>	
Characters	
Rachel  Query Add	Apply Ready 🗸
Verbal Nonverbal	
Questions	Answers
Filter	Filter
How are you? What is your name	My name is Rachel I am from ICT
What is your name Where are you from?	l am doing great
Type new question and hit enter	Type new answer and hit enter
Link Active Reorder	Record

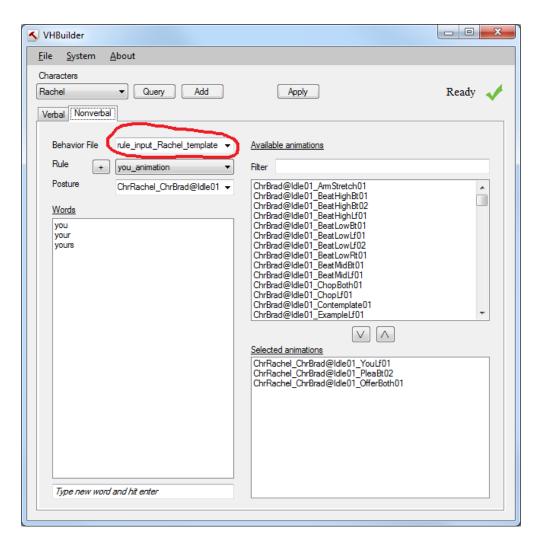
On releasing the 'Record' button, you will see a window popup as shown below. This generates the bml with the lipsync for the audio you just recorded. Please wait until the tool indicates otherwise. Once the tool indicates it is done, the audio has been recorded and the lipsync generated. You should now be able to ask the corresponding question and hear the character respond in the recorded voice.

In case you don't have FaceFx installed on your machine, the window you see will look different as VHBuilder will default to using the VisemeSchedulerSOX tool instead which is our in-house tool for generating basic lipsync.

C:\Windows\system32\cmd.exe	
WAU (Microsoft) (.way)	
UAU (NICEOSUTI) (	<b>^</b>
WAU (NIST Sphere) (.wav) WAVEX (Microsoft) (.wav)	
WHE (Psion Series 3) (.www)	
XI (FastTracker 2) (.xi)	
FaceFX Studio initialized properly.	
newator:	
PluginManager: initializing	
PluginManager: loaded plugin BatchSummarizer	
PluginManager: loaded plugin CollapsedXMLExporter	
PluginManager: loaded plugin FBXImporter	
PluginManager: loaded plugin SkeletalAnimationEventManager	
PluginManager: loaded plugin UndockCurrentTab	
PluginManager: initialized	
PluğinManager: 6 plugins:	
PluginManager: 0: name: BatchSummarizer	
PluginManager: version: 1.0	
PluginManager: author: 0C3 Entertainment	
PluginManager: description: Prints a summary of batch analysis oper	ations.
PluginManager: loaded True	
PluginManager: 1: name: CollapsedXMLExporter	
PluginManager: version: 1.0	
PluginManager: author: 0C3 Entertainment	
PluginManager: description: Exports a collapsed XML actor file.	
PluginManager: loaded: True PluginManager: 2: name: FBXImporter	
PluginManager: version: 1.1	
PluginManager: author: OC3 Entertainment	
PluginManager: description: Create render assets and basic Face Gra	nh from F
PluginManager: loaded: Irue	
PluginManager: 3: name: RemoveBones	
PluginManager: version: 1.0	
PluginManager: author: OC3 Entertainment	
PluginManager: description: Remove bones from bone poses or rest bo	nes.
PluginManager: loaded: False	
PluginManager: 4: name: SkeletalAnimationEventManager	
PluginManager: version: 1.0	
PluginManager: author: OC3 Entertainment	
PluginManager: description: Manages skeletal animations triggered v	ia event
PluginManager: loaded: True	
PluginManager: 5: name: UndockCurrentTab	
PluginManager: version: 1.0	
PluginManager: author: OC3 Entertainment	4
PluginManager: description: Undocks the currently selected FaceFX S PluginManager: loaded: True	cuurto can
exec -f "facefxinit.py";	
autoexec.fxl file executed	
exec -file "D:\VHToolkit_trunk\tools\facefx\autoexec.fxl";	
	· ·
<	<b>b</b> - 2

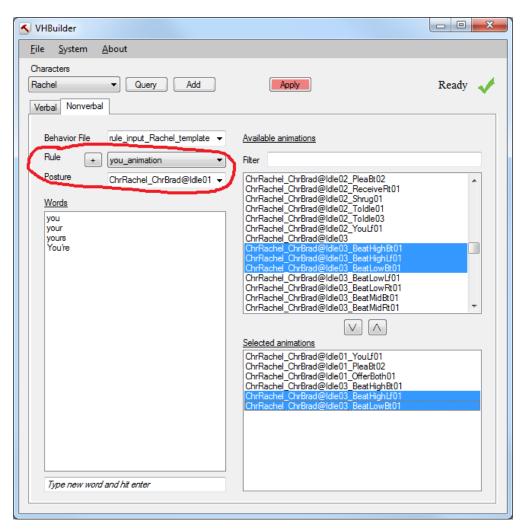
### Selecting nonverbal behavior files

A 'behavior file', contains the mapping from the spoken words to animations. For each character, you can select the 'behavior file' that you want to use for that character from the list of available files in the drop-down list. e.g. in the example below, we have selected 'rule\_input\_Rachel\_template.xml' for the selected character 'Rachel'. Once you select the behavior file for a character, the tool will remember it.



#### Modifying nonverbal behavior rules

In order to modify a behavior rule, you select the 'Rule' that you want to modify and the 'Posture' that you want the rule to apply to, using the drop-down lists as shown below. The drop-down list will contain the available rules and postures for the character.



Now you can add words that will trigger this rule under the 'Words' section by typing the word in the text-box and hitting the enter key. You are also able to select the animations that will be triggered when the character speaks that particular word, by clicking on the animation name and selecting it. The list of selected animations for a particular rule is displayed in the bottom right as shown.

VHBuilder	
<u>File System About</u>	
Characters	
Rachel	Ready 🗸
Verbal Nonverbal	
Behavior File rule input Rachel template - Available animations	
Rule + you_animation  Filter	
Posture ChrRachel_ChrBrad@ldle01	*
Words ChrRachel ChrBrad@ldle02_Shrug01 ChrRachel ChrBrad@ldle02_Shrug01	
vou ChrRachel ChrBrad@ldle02 Toldle03	
your ChrRachel ChrBrad@lde02_Y yours ChrRachel chrBrad@lde03	
You're Christophel	
ChrRachel_ChrBrad@idle03_BeatLowBt01	
ShrBachel ChrBrad@idle03_BeatLowLf01 ChrRachel ChrBrad@idle03_BeatLowLf01	
ChrRachel_ChrBrad@ldle03_BeatMidBt01	-
ChrRachel_ChrBrad@ldle03_BeatMidRt01	
Selected animations ChrRachel ChrBrad@ldle01 YouLf01	
ChrRachel ChrBrad@idle01_PlesBt92	
ChrRachel_ChrBrad@lde01_OfferBoth01 ChrRachel_ChrBrad@lde03_BeatHighBt01	
ChrRachel_ChrBrad@lde03_BeatHighLf01 ChrRachel_ChrBrad@lde03_BeatLowBt01	<u> </u>
Type new word and hit enter	

#### Notes:

a) The character only performs the animation when the words in the 'Words' list are spoken and he is in the specified posture.

b) You can select multiple animations from the 'Available animations' list by holding down the 'ctrl' key and clicking on them.

c) If you have Unity running with the characters loaded, you can double click on the animations (or select a posture) and see how they play on the character.

d) You can select and hit enter to add animations and hit delete in the 'Selected Animations' list to remove animations.

#### Adding a new nonverbal behavior rule

You can add a new rule by hitting the '+' button next to the Rule drop-down list. This will pop up a dialog box as shown below.

VHBuilder		
<u>F</u> ile <u>S</u> ystem <u>A</u> bout		
Characters       Rachel     Query     Add       Verbal     Nonverbal	Apply	Ready 🗸
Behavior File rule_input_Rachel_template  Rule  Posture  ChrRachel_ChrBrad@ldle01  Vords  You your your You're	Available animations Filter ChrRachel_ChrBrad@ldle02_PleaBt02 ChrRachel_ChrBrad@ldle02_ReceiveRt01 ChrRachel_ChrBrad@ldle02_Shug01 ChrRachel_ChrBrad@ldle02_Toldle03 ChrRachel_ChrBrad@ldle03_PoatHight01 ChrRachel_ChrBrad@ldle03_BeatHight01 ChrRachel_ChrBrad@ldle03_BeatLowBt01 ChrRachel_ChrBrad@ldle03_BeatLo	
Type new word and hit enter		

Add new rule	x
Please type in the new rule name.	OK Cancel
new-rule-name	

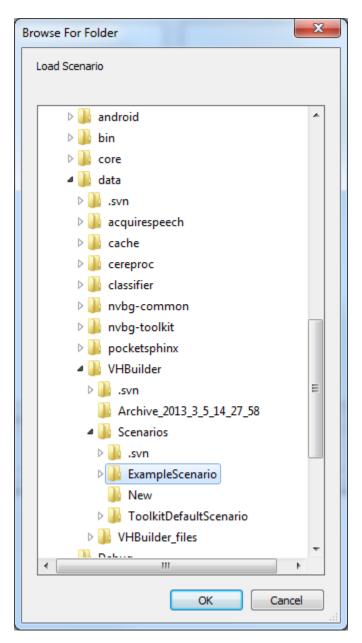
Enter the name of the new rule. Hitting OK will create a new rule and you can go ahead and add words to this rule and select animations for it. Rule names are mostly for organizational purposes allowing you to have different rule names for different set of words.

### Loading an existing scenario

Click on the File menu option on the top left and select 'Load Scenario' as shown

K VH	Builder			x
<u>F</u> ile	<u>S</u> ystem <u>A</u> bout			
	Create Scenario			
	Load Scenario	Add	Apply Please create or load a scenario	1
	Save Scenario			
	Save Scenario As		Answers	
	Quit		Filter	
	-			
	Type new question and hit enter		Type new answer and hit enter	
	Link	Active Reorder	Record	

A dialog box will pop up as shown below prompting you to select an existing scenario. Select a previously saved scenario folder to load up an existing scenario. e.g. In the toolkit trunk, under data/VHBuilder/Scenarios, there is an existing scenario called ExampleScenario. Select the scenario you want to load



On selecting the example scenario and clicking 'OK', you should see a few windows show up and minimize. This should include the NVBG, NPCEditor, VHTSpeechRecorder, AcquireSpeech, ElvinParser, PocketSphinx-sonic-server and TTSRelay.

During this interval, the tool should indicate that it is busy loading. It does this using a 'wait' image on the top right as shown below

VHBuilder	
<u>F</u> ile <u>System A</u> bout	
Characters Rachel  Query Add Verbal Nonverbal	Apply Please wait
<u>Questions</u> Filter	Answers Filter
What is your name?         What is your name, sir?         How are you?         How are you doing today?         What's up?         How are you doing?         What's happening?         Good bye.         Bye.         Goodbye.         can you repeat that         say that again         do you like to travel	i like traveling i like to travel My name is Rachel I am having a great time Have a nice day
Type new question and hit enter	Type new answer and hit enter
Link Active Reorder	Record

Once the scene is loaded and all the components are initialized, the tool will indicate that it is ready as shown below.

VHBuilder	
<u>Eile System A</u> bout	
Characters       Rachel     Query     Add       Verbal     Nonverbal	Apply Ready
Questions	Answers
Filter	Filter
What is your name?         What is your name, sir?         How are you doing today?         How are you doing?         What's up?         How are you doing?         What's happening?         Good bye.         Bye.         Goodbye.         can you repeat that         say that again         do you like to travel	i like travelling i like to travel My name is Rachel I am having a great time Have a nice day
Type new question and hit enter	Type new answer and hit enter
Link Active Reorder	Record

At this point, the scene has been loaded and you can begin interaction with the characters. Note that currently the tool does not load up the characters in Unity automatically (yet to be implemented). So you will have to open up an empty scene in the Unity editor (e.g. CampusEmpty) and drag the listed characters in the scene and hit play in Unity. The characters that are in the scene can be seen in the combo-box as shown below. Once Unity loads up with the characters, then you can begin interacting with the characters just as you always do. The characters will respond to the questions with the answers as they are linked.

### Saving the scenario

1) In order to save the scenario and all the changes made to it, select the File menu option and hit the 'Save Scenario' as shown below

VHBuilder		
<u>File</u> System <u>A</u> bout		
Create Scenario		
Load Scenario ary Add	Apply	Ready 🗸
Save Scenario		· · · · ·
Save Scenario As	Acquirem	
Quit	Answers Filter	
What's your name?         What is your name, sir?         How are you doing today?         What's up?         How are you doing?         What's happening?         Good bye.         Bye.         Goodbye.         can you repeat that         say that again         do you like to travel	My full name is Brad Matthew Smith My name's Brad Smith. Hi, I am Brad, a virtual human. Quite well, thank you. I am good. Good bye. Have a good day. _please_repeat_that_repeat_	
Type new question and hit enter	Type new answer and hit enter	
Link Active Reorder	Record	

# Pinging background components

In case of unexpected functionality, a good way to check if all background components are functioning is to ping them and make sure they are running. This can be done using the 'Ping' menu option. If all components are running fine, then the VHBuilder tool will indicate so. If any component is missing, then you will be notified of this.

S VHBuilder			- 0 <b>X</b>
Eile System About			
Chara Ping Rach Relaunch ery Verb Kill all	Add	Apply All components	running
Questions		Answers	
Filter		Filter	
What is your name?         What is your name, sir?         How are you?         How are you doing today?         What's up?         How are you doing?         What's happening?         Good bye.         Bye.         Goodbye.         can you repeat that say that again do you like to travel		i like travelling i like to travel My name is Rachel I am having a great time Have a nice day	
Type new question and hit enter	Active Reorder	Type new answer and hit enter Record	

# Relaunching background components

If for any reason, one of the components fails to function or exits you can relaunch the components using the 'Relaunch' menu option as shown below. This can be used to restart the system with all components functioning in the background.

S VHBuilder				x
File System About				
Chara Ping Ruch Relaunch er Verbl, Kill all	Add	Apply	All components running	
Questions		Answers		
Filter		Filter		
What is your name?         What is your name?         What is your name, sir?         How are you?         How are you?         How are you doing today?         What's yap?         How are you doing?         What's happening?         Good bye.         Bye.         Goodbye.         can you repeat that say that again do you like to travel		i like travelling i like to travel My name is Rachel I am having a great time Have a nice day	i onfor	
Type new question and hit enter		Type new answer and h	it enter	
Link	Active Reorder	Record		

### Message API

#### Query Unity for characters :

#### vht\_get\_characters

VHBuilder character\_names Rachel Brad

#### Link question and answer :

NPCEditor <script target="user">document.getModel().setLinkValue(document.getModel().getQuestions().findIndexOfWithID("Anybody-9"),document.getModel().getAnswers().findIndexOfWithID("utterance\_20130206114053\_AMYNAMEISITHAVEA"),6);</script>

Flow of messages sent in order to record speech and generate audio file and bml:

vhtspeechrecorder start 120528396 acquireSpeech startSession 120528396 acquireSpeech set mic\_utteranceFile.enabled true 120528396 nvbg\_set\_option disable\_nvbg true 120528396 render text overlav disable 120528494 vhtspeechrecorder wizard\_text I am having a great time 120528495 acquireSpeech startUtterance mic 120528503 vrSpeech start user0001 user 120528503 acquireSpeech startedListening mic 20130906115616.033 user0001 1378494328500 120528522 vrSpeech partial user0001 1 1.0 normal 120528665 vrSpeech partial user0001 2 1.0 normal WHAT 120528799 TO ASR <start id="temp"> 120528799 TO\_ASR <stop id="temp"> 120528800 TO\_ASR <start id="temp"> 120528800 TO\_ASR <stop id="temp"> 120528808 TO\_ASR <start id="temp"> 120528859 vrSpeech partial user0001 3 1.0 normal WHAT 120529103 vrSpeech partial user0001 4 1.0 normal DON'T 120529301 vrSpeech partial user0001 5 1.0 normal DON'T WHAT 120529496 vrSpeech partial user0001 6 1.0 normal DON'T WHAT IS 120529691 vrSpeech partial user0001 7 1.0 normal DON'T WHAT IS THE 120529706 acquireSpeech stopUtterance mic 120529707 acquireSpeech stopSession 120529707 acquireSpeech set mic\_utteranceFile.enabled false 120529710 vrSpeech finished-speaking user0001 120529710 acquireSpeech stoppedListening mic 20130906115616.033 user0001 1378494329709 120529711 acquireSpeech stoppedSession null 20130906115616,033 1378494329711 120529885 vrSpeech partial user0001 8 1.0 normal DON'T WHAT IS THE 120529983 vrSpeech partial user0001 9 1.0 normal DON'T WHAT IS THE 120529995 vrSpeech interp user0001 1 1.0 normal DON'T WHAT IS THE 120529995 vrSpeech asr-complete user0001 120530048 TO\_ASR <stop id="temp"> 120535424 VHBuilder audiofile created utterance 20130906120529 DON'TWHATISTHE 120535427 vhtspeechrecorder stop 120535427 render\_text\_overlay enable 120535427 NPCEditor <script target="user">document.getModel().getAnswers().getUtterances().get(document.getModel().getAnswers().findIndexOfWithID ("utterance\_20130206114108\_IAMHAVINGAGREATTO")).setID("utterance\_20130906120529\_DON'TWHATISTHE");</script> 120535428 NPCEditor <script target="user">URL url = new File("C://HToolkit/data//HBuilder/Scenarios/ExampleScenario/ExampleScenario\_dialog.plist"). toURI().toURL();document.saveToURLOfTypeForSaveOperation(url, document.getApplication().fileTypeForURL(url), com.leuski.af.Document. SaveOperation.kSaveAs);</script> 120535428 NPCEditor <script target="user">URL url = new File("C://HToolkit/data//HBuilder/Scenarios/ExampleScenario/QNA.xml").toURI();toURL(); document.writeToURL(url, new edu.usc.ict.npc.editor.io.ClassifierJAXBFileType());</script> 120535575 nvbg set option disable nvbg false 120535575 acquireSpeech startSession 120535585 acquireSpeech startedSession null 20130906120535,575 1378494335585 120535675 acquireSpeech startUtterance mic 120535679 vrSpeech start user0002 user 120535679 acquireSpeech startedListening mic 20130906120535,575 user0002 1378494335678

120535717 vrSpeech partial user0002 1 1.0 normal

Messages sent out on clicking Apply button

121025076 NPCEditor <script target="user">document.startTrainingAll();</script>

121025076 nvbg\_create\_character Rachel

121025077 nvbg\_set\_option Rachel rule\_input\_file rule\_input\_ChrRachel\_template.xml

- 121025077 nvbg\_set\_option Rachel nvbg\_POS\_rules false
- 121025077 nvbg\_set\_option Rachel posture ChrBrad@Idle01
- 121025077 nvbg\_set\_option refresh\_transform
- 121025077 sbm bml char Rachel posture ChrBrad@ldle01
- 121025077 nvbg\_create\_character Brad

121025078 nvbg\_set\_option Brad rule\_input\_file rule\_input\_ChrBrad\_template.xml

- 121025078 nvbg\_set\_option Brad nvbg\_POS\_rules false
- 121025078 nvbg\_set\_option Brad posture ChrBrad@Idle01
- 121025078 nvbg\_set\_option refresh\_transform

121025078 sbm bml char Brad posture ChrBrad@ldle01

121025078 acquireSpeech stopSession

121025078 vrKillComponent asr-server

121025080 vrProcEnd asr-server

121025081 NPCEditor <script target="user">URL url = new File("C:/VHToolkit/data/VHBuilder/Scenarios/ExampleScenario/ExampleScenario\_dialog.plist"). toURI().toURL();document.saveToURLOfTypeForSaveOperation(url, document.getApplication().fileTypeForURL(url), com.leuski.af.Document. SaveOperation.kSaveAs);</script>

121025081 NPCEditor <script target="user">URL url = new File("C://HToolkit/data/VHBuilder/Scenarios/ExampleScenario/QNA.xml").toURI().toURL(); document.writeToURL(url, new edu.usc.ict.npc.editor.io.ClassifierJAXBFileType());</script>

#### Message sent out on posture change

sbm bml char Rachel posture ChrHarmony@IdleCrossedArms01

#### Message sent out on animation double click

sbm bml char Rachel anim ChrBrad@Idle01\_BeatHighBt01

#### Message sent out on adding question

NPCEditor <script target="user">edu.usc.ict.npc.editor.model.Person domain = document.getModel().getDefaultSpeaker(); edu.usc.ict.npc.editor.model. EditorUtterance eu = new edu.usc.ict.npc.editor.model.EditorUtterance("oooga booga", "1987503103635144181104057941", domain, new Date()); document.getManagedObjectContext().insertObject(eu); document.getModel().getQuestions().getUtterances().add(eu);</script> 135510407 NPCEditor <script target="user">URL url = new

#### Message sent out on adding answer

NPCEditor <script target="user">edu.usc.ict.npc.editor.model.Person domain1 = document.getModel().getSpeakers().get(0); edu.usc.ict.npc.editor.model. EditorUtterance eu = new edu.usc.ict.npc.editor.model.EditorUtterance("ooga booga", "48309906635144181677535283", domain1, new Date());eu. addAnnotation(document.getModel().getCategoryWithID("speaker").tokenWithID("Rachel")); document.getManagedObjectContext().insertObject(eu); document.getModel().getAnswers().getUtterances().add(eu);</script>

### **Known Issues**

• All answers within a given scenario need to be unique, regardless of whether different characters speak them.

### FAQ

See the Main FAQ. Please use the Google Groups emailing list for unlisted questions.