



March 21-25, 2022  
San Francisco, CA

## GAME NARRATIVE SUMMIT

# NARRATIVE TOOLS AS POWERFUL AS MARVEL'S GUARDIANS OF THE GALAXY

**Rayna Anderson**  
Senior Narrative Coordinator  
Eidos Montréal

#GDC22





A vibrant, action-packed scene from the video game Guardians of the Galaxy. Star-Lord is in the center, pointing forward with a confident expression. He is surrounded by his team: Rocket Raccoon is on the left, aiming a large green weapon; Groot is behind him, holding a branch-like staff; Drax is at the top, leaping forward; and Gamora is on the right, holding a large curved blade. The background is a chaotic space battle with red energy blasts and debris.

eidos  
montreal™

A SQUARE ENIX COMPANY

MARVEL

# GUARDIANS OF THE GALAXY

## NARRATIVE TOOLS AS POWERFUL AS MARVEL'S GUARDIANS OF THE GALAXY



# INTRODUCTION



# Rayna Anderson: Senior Narrative Coordinator

- 15+ years Eidos-Montréal
- Previously game designer in the industry
- 9 years at and narrative designer
- GDC17: Storytelling is a Team Sport
- Loves spreadsheets
- Is a gardener, but not of the galaxy





# High-level creative brief – Player Fantasy

- You are the so-called leader of an unpredictable group of autonomous individuals.
- We want you to experience what it is to “hang out with the Guardians.”





# High-level creative brief – Social Pillar

- It's a story/world building tool that deepens how you experience the worlds you visit:
  - Get hints about enemies, objectives, secrets, etc.
  - Learn more about the world
  - Gauge people's reactions to your actions, etc.





# Banter - IRL vs In-game

- Banter in real life is light-hearted conversation, with some joking around.
- Banter in our game are conversations that happen outside of cinematics, most likely while the player has control of character movement or camera, where their character may or may not participate in the discussion.



# Obvious conclusions

- Lots of character moments
- Lots of important info to convey
- Lots of characters on-screen at once
- Lots of talking, all of the time





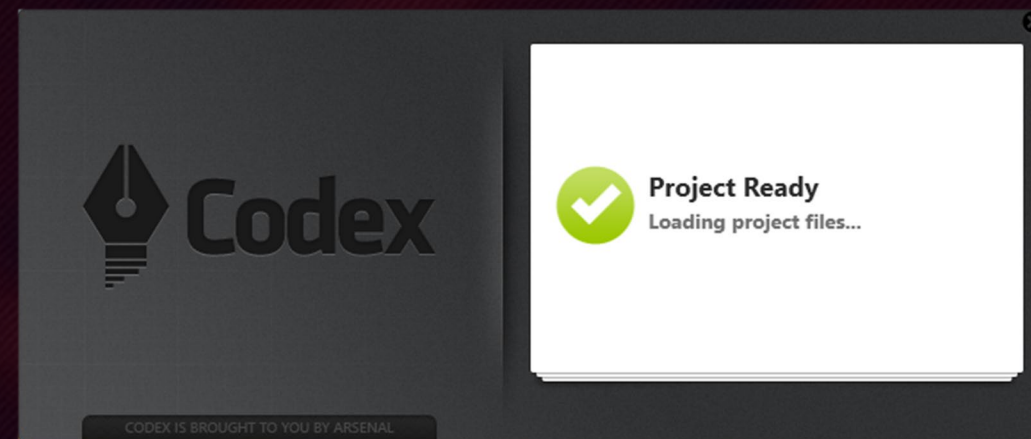
# Narrative pipeline goals

- Asset IDs are human-readable
- Scripts are playable fast
- Iterating is pain-free
- Scripts are clear for actors and engineers
- Record actors as an ensemble
- Import audio sessions quickly in bulk
- Error-check localized content
- Provide context to localization



# What is Codex?

- Started as a writing tool
- This included localization
- Expanded to better support audio pipelines
- Future updates will improve support for recording process





# Who uses Codex?

- Writers & narrative designers
- Sound designers
- Storyboard, level art & UI artists
- Programmers
- Game & level designers
- Translators
- Coordinators & producers



# Key takeaways per phase

- Planning
- Writing
- Recording
- Translating



# Ship blockage scene



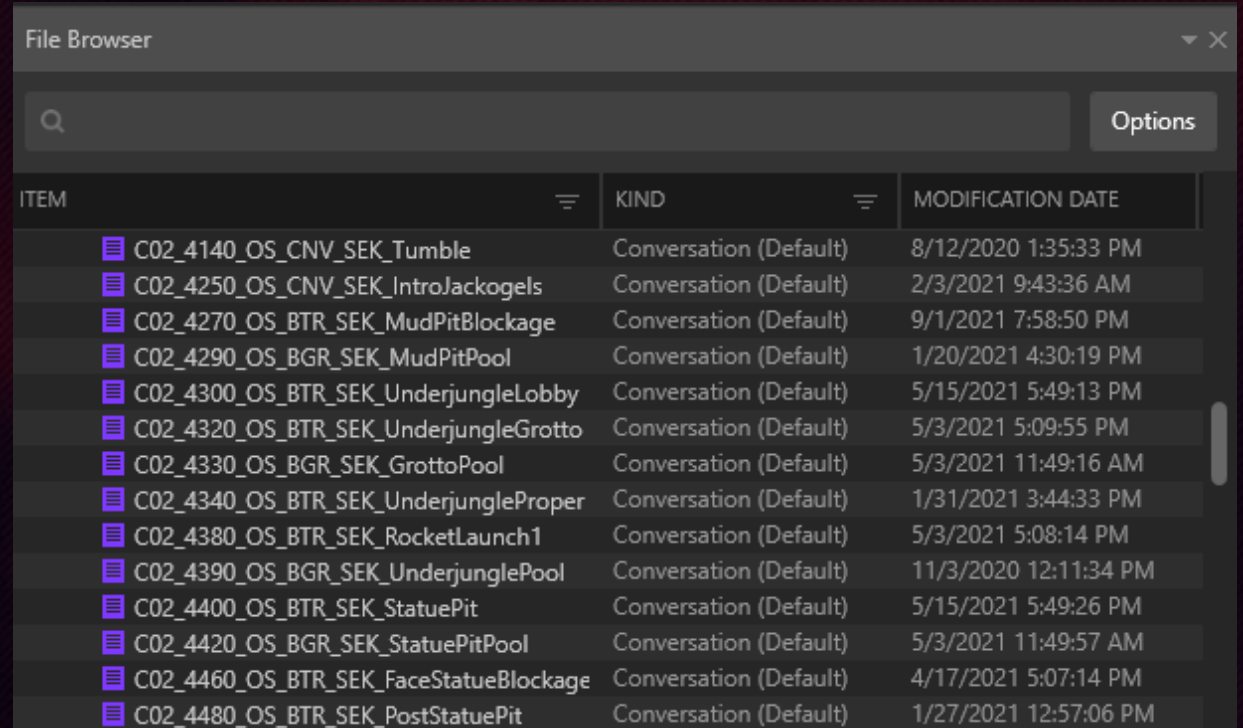


# CODEx: PLANNING

















# Planning

- Work with technical designers
  - Restrictions on file name/directory path character length
  - Naming conventions to be used by all departments



The screenshot shows a 'File Browser' window with a search bar and an 'Options' button. Below is a table with three columns: ITEM, KIND, and MODIFICATION DATE. The table lists 15 items, each with a file icon, a unique ID, a name, a kind (all are 'Conversation (Default)'), and a timestamp.

ITEM	KIND	MODIFICATION DATE
 C02_4140_OS_CNV_SEK_Tumble	Conversation (Default)	8/12/2020 1:35:33 PM
 C02_4250_OS_CNV_SEK_IntroJackogels	Conversation (Default)	2/3/2021 9:43:36 AM
 C02_4270_OS_BTR_SEK_MudPitBlockage	Conversation (Default)	9/1/2021 7:58:50 PM
 C02_4290_OS_BGR_SEK_MudPitPool	Conversation (Default)	1/20/2021 4:30:19 PM
 C02_4300_OS_BTR_SEK_UnderjungleLobby	Conversation (Default)	5/15/2021 5:49:13 PM
 C02_4320_OS_BTR_SEK_UnderjungleGrotto	Conversation (Default)	5/3/2021 5:09:55 PM
 C02_4330_OS_BGR_SEK_GrottoPool	Conversation (Default)	5/3/2021 11:49:16 AM
 C02_4340_OS_BTR_SEK_UnderjungleProper	Conversation (Default)	1/31/2021 3:44:33 PM
 C02_4380_OS_BTR_SEK_RocketLaunch1	Conversation (Default)	5/3/2021 5:08:14 PM
 C02_4390_OS_BGR_SEK_UnderjunglePool	Conversation (Default)	11/3/2020 12:11:34 PM
 C02_4400_OS_BTR_SEK_StatuePit	Conversation (Default)	5/15/2021 5:49:26 PM
 C02_4420_OS_BGR_SEK_StatuePitPool	Conversation (Default)	5/3/2021 11:49:57 AM
 C02_4460_OS_BTR_SEK_FaceStatueBlockage	Conversation (Default)	4/17/2021 5:07:14 PM
 C02_4480_OS_BTR_SEK_PostStatuePit	Conversation (Default)	1/27/2021 12:57:06 PM



# Planning

- Entered known data that would help automate parts of the writing process
  - Character info
  - TTS voices
  - Conversation types
  - Text-only assets

ASSET PROPERTIES

\* Name: Peter

Subkind: Default

\* Filepath: Root Directory: d:\dxm\Assembly\Localization\Codex\Data  
50\73 Select folder

\* Short Name: unq\_peter

Sound Character Type: unq\_peter

Actor: Actor: Hudson Leblanc

\* Faction: Game Characters Guardians

Display Name: Peter

Entity Id:

\* TTS Voice: Joey

TTS Voice Speed: 110

TTS Voice Pitch: 20

\* Mandatory metadata.

SAVE CHANGES CANCEL



# Planning

- Consider info needed by others further down pipeline
  - Implementation cues for level designers
  - Context for localization
  - QA awareness of status of asset

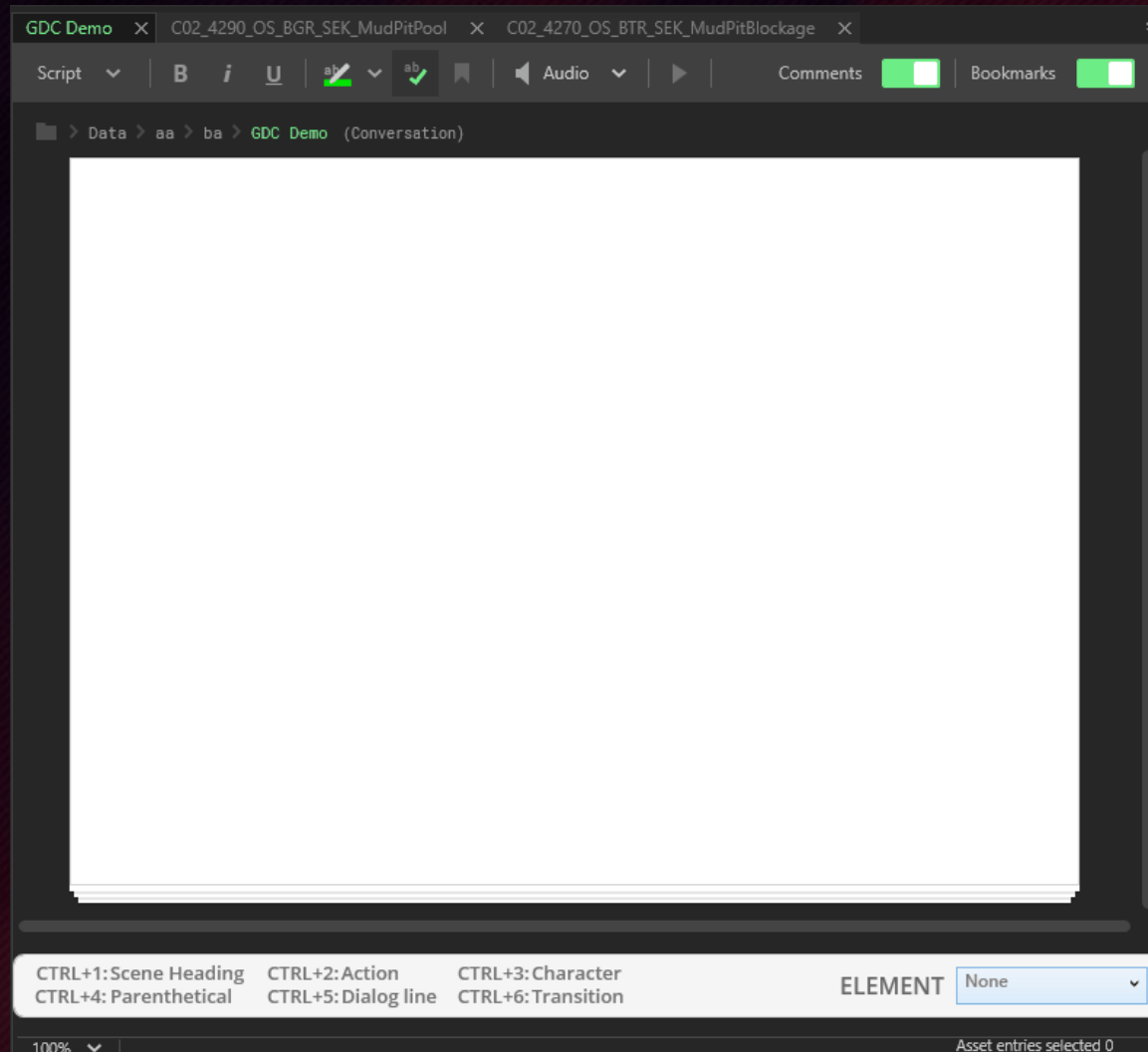




# CODEx: WRITING



# Writing





# Writing

- Make it easy to get content into the game quickly
  - Include audio pipeline to generate TTS





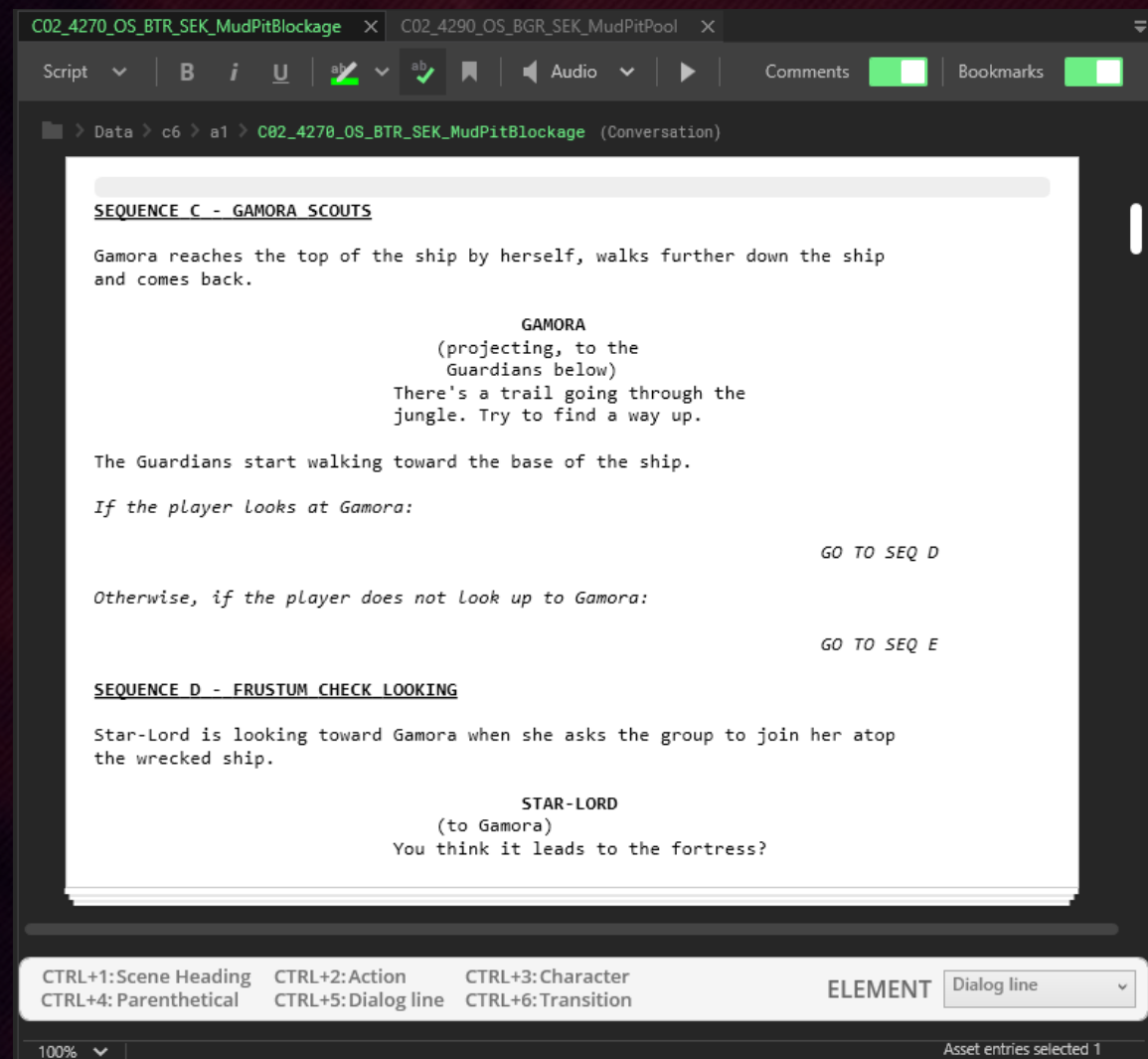
# Writing





# Writing

- Writers should focus on being creative.
- Which means being able to make changes without breaking the build.
  - Writers can reorganize scripts (including copy/pasting) and rename content while Codex retains unique integration IDs that don't change.

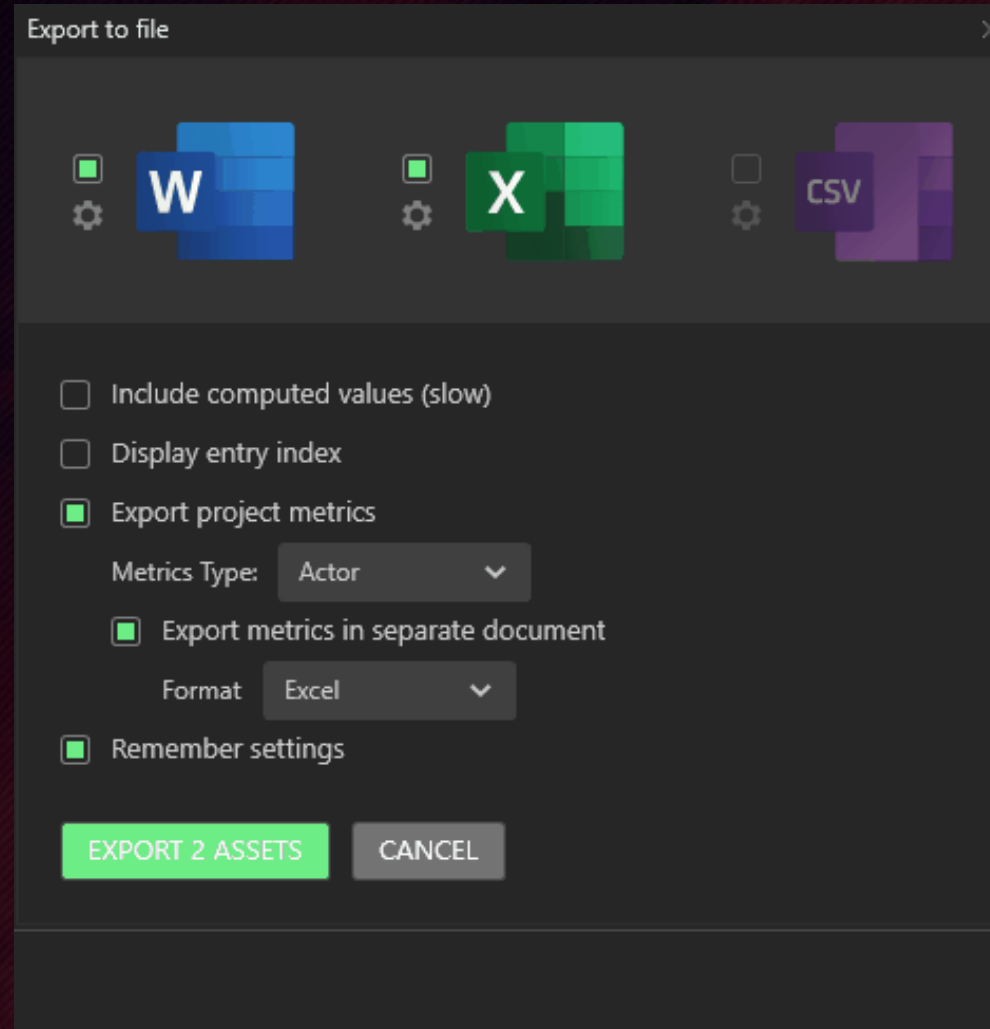




# CODEx: RECORDING



# Recording













# Recording

Sequence ID; "Timecode In"; "Timecode Out"; "Description"; "Dialogue"; "Filename"; "TTSVoice"; "TTSVoiceSpeed"; "Link"		
C02_4270_OS_hpb_SEQUENCE_A_COMBAT_OUTRO;00:00:00:00;00:00:05:00;"c02_4270_os_hpb_a00_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_A_COMBAT_OUTRO;00:00:05:00;00:00:13:00;"c02_4270_os_hpb_a00_	but food.\";\"D:\\sound\\wwise\\originals\\voices\\placeholder	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\placeholder\\g
C02_4270_OS_hpb_SEQUENCE_A_COMBAT_OUTRO;00:00:13:00;00:00:16:00;"c02_4270_os_hpb_a00_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_A_COMBAT_OUTRO;00:00:16:00;00:00:22:50;"c02_4270_os_hpb_a00_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_A_COMBAT_OUTRO;00:00:22:50;00:00:25:50;"c02_4270_os_hpb_a00_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_B_SHIP_PARTS;00:00:25:50;00:00:29:50;"c02_4270_os_hpb_b001_gdr	that Resistance ship was torn to shreds.\";\"D:\\sound\\ww	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\placeholder\\g
C02_4270_OS_hpb_SEQUENCE_C_GAMORA_SCOUTS;00:00:29:50;00:00:36:50;"c02_4270_os_hpb_c00_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_D_FRUSTUM_CHECK_LOOKING;00:00:36:50;00:00:40:00;"c02_4270_o_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_D_FRUSTUM_CHECK_LOOKING;00:00:40:00;00:00:43:00;"c02_4270_o_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_D_FRUSTUM_CHECK_LOOKING;00:00:43:00;00:00:49:50;"c02_4270_o_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_D_FRUSTUM_CHECK_LOOKING;00:00:49:50;00:00:54:50;"c02_4270_o_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_E_FRUSTUM_CHECK_OTHERWISE;00:00:54:50;00:00:58:00;"c02_4270_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_E_FRUSTUM_CHECK_OTHERWISE;00:00:58:00;00:01:03:50;"c02_4270_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_E_FRUSTUM_CHECK_OTHERWISE;00:01:03:50;00:01:12:50;"c02_4270_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_E_FRUSTUM_CHECK_OTHERWISE;00:01:12:50;00:01:15:50;"c02_4270_	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_E_FRUSTUM_CHECK_OTHERWISE;00:01:15:50;00:01:26:50;"c02_4270_	when the turmoil of war raged stronger than the storms c	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\placeholder\\g
C02_4270_OS_hpb_SEQUENCE_E_FRUSTUM_CHECK_OTHERWISE;00:01:26:50;00:01:31:00;"c02_4270_	get moving! Drax is having an existential meltdown.\";\"D:	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\placeholder\\g
C02_4270_OS_hpb_SEQUENCE_F_BRITTLE_HINT;00:01:31:00;00:01:35:50;"c02_4270_os_hpb_f001-50	see anything we can climb on?\";\"D:\\sound\\wwise\\origi	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\placeholder\\g
C02_4270_OS_hpb_SEQUENCE_F_BRITTLE_HINT;00:01:35:50;00:01:41:50;"c02_4270_os_hpb_f002_gd	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\place	\"\"Play\"\"")
C02_4270_OS_hpb_SEQUENCE_F_BRITTLE_HINT;00:01:41:50;00:01:44:50;"c02_4270_os_hpb_f003_gd	then?\";\"D:\\sound\\wwise\\originals\\voices\\placeholder\\	"=HYPERLINK(\"D:\\sound\\wwise\\originals\\voices\\placeholder\\g

- CSV exports for audio team include timecode and filename
- In a format that audio software can import for the session
- Filename includes essential scene context



# Recording

 C02_4270_OS_hpb_D003_gdn_drax	This is Seknarf Nine. All p...	2f16f5d8-2b4a-4d...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_D004_gdn_starlord	Alright... we need to find ...	738f3de2-de9f-4d...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_E002_gdn_drax	This husk should be easier...	a2a25738-fdff-4bb...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_E003_gdn_rocket	I ain't comfortable callin' i...	98c7081b-21c3-44...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_E004_gdn_gamora	Clearly not a husk.	9147ecd0-8e33-41...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_E005_gdn_drax	It is the hollowed husk of ...	f1acdc57-33f7-486...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_E006_gdn_gamora	Peter, get moving! Drax is...	a769f822-9cda-42...	c6a133fd-68a5-4db5-...
 C02_4270_OS_hpb_F001-5000_gdn_ro...	Hey Star-Pants, see anythi...	e641e311-0159-47...	c6a133fd-68a5-4db5-...

```

<BWFXML>
  <BEXT>
    <BWF_CODING_HISTORY>A=PCM,F=48000,W=16,M=mono,T=Nuendo
  </BWF_CODING_HISTORY>
  <BWF_DESCRIPTION>2020-06-08 AM</BWF_DESCRIPTION>
  <BWF_LOUDNESS_RANGE>0.00</BWF_LOUDNESS_RANGE>
  <BWF_LOUDNESS_VALUE>-23.00</BWF_LOUDNESS_VALUE>
  <BWF_MAX_MOMENTARY_LOUDNESS>-20.25</BWF_MAX_MOMENTARY_LOUDNESS>
  <BWF_MAX_SHORT_TERM_LOUDNESS>-80.00</BWF_MAX_SHORT_TERM_LOUDNESS>
  <BWF_MAX_TRUE_PEAK_LEVEL>-7.98</BWF_MAX_TRUE_PEAK_LEVEL>
  <BWF_ORIGINATION_DATE>2020-06-09</BWF_ORIGINATION_DATE>
  <BWF_ORIGINATION_TIME>16:37:34</BWF_ORIGINATION_TIME>
  <BWF_ORIGINATOR>Mike</BWF_ORIGINATOR>
  <BWF_ORIGINATOR_REFERENCE>CCCCNNNNNNNNNNNN163734RRRRRRRRRR</BWF_ORIGINATOR_REFERENCE>
  <BWF_TIME_REFERENCE_HIGH>0</BWF_TIME_REFERENCE_HIGH>
  <BWF_TIME_REFERENCE_LOW>78377595</BWF_TIME_REFERENCE_LOW>
  <BWF_UMID>E6418CA9B3AE44BEA2D29F71FA01AC6C</BWF_UMID>
</BEXT>
  <FILE_SET>
    <FAMILY_UID>5B48E9220F854A3BB8DB156E3EC82309</FAMILY_UID>
  </FILE_SET>
  <PROJECT>2020-06-08-AM</PROJECT>
  <SPEED>
    <MASTER_SPEED>30/1</MASTER_SPEED>
  </SPEED>
  <STEINBERG>
    <ATTR_LIST>
      <ATTR>
        <NAME>AudioSyncpoint</NAME>
        <TYPE>int</TYPE>
        <VALUE>6405</VALUE>
      </ATTR>
      <ATTR>
        <NAME>GACAssetLength</NAME>
        <TYPE>float</TYPE>
        <VALUE>2.553369</VALUE>
      </ATTR>
    </ATTR_LIST>
  </STEINBERG>
</BWFXML>

```

- Audio file itself includes essential info which can be seen in Codex
  - Unique IDs, dialog, facial capture timecodes, recording session, last modified date



# Recording

- Document export in traditional script format
- Can highlight dialogue by actor, character, new/changed lines

30.

**STAR-LORD**  
(C02\_4270\_OS\_hpb\_D004\_gdn\_starlord.wav)  
Alright... we need to find a way up that ship.

Gamora waits for the team atop the ship until they climb up the wing.

GO TO SEQ E

SEQUENCE E - FRUSTUM CHECK OTHERWISE

The banter continues.

**ROCKET**  
(C02\_4270\_OS\_hpb\_E001\_gdn\_rocket.wav)  
OK. So how do we do that?

**DRAX**  
(C02\_4270\_OS\_hpb\_E002\_gdn\_drax.wav)  
This husk should be easier to climb than the muddy terrain.

**ROCKET**  
(C02\_4270\_OS\_hpb\_E003\_gdn\_rocket.wav)  
I ain't comfortable calling it a husk. Seeing as we're about to climb it and all.

**GAMORA**  
(C02\_4270\_OS\_hpb\_E004\_gdn\_gamora.wav)  
(projecting)  
Clearly not a husk.

**DRAX**  
(C02\_4270\_OS\_hpb\_E005\_gdn\_drax.wav)  
It is the hollowed husk of a bygone time, when the turmoil of war raged stronger than the storms of this world.

**GAMORA**  
(C02\_4270\_OS\_hpb\_E006\_gdn\_gamora.wav)  
(projecting)  
Peter, get moving! Drax is having an existential meltdown.

END



		Sept							
		14		15		16		17	
9		C05_2200 - Birthday C05_2300 - Nikki Items Nikki Barks	Jon McClaren Jason Cavalier Kimberly-Sue Murray Romane Denis	CH09 - B - Dogflight CCB - CH09 - Dogflight	Jon McClaren Kimberly-Sue Murray Alex Weiner Dany Blanco-Hall	CH09 - D - Milano CH09 - E - QZN CH10 - A - Milano	Jon McClaren Jason Cavalier Kimberly-Sue Murray Alex Weiner	CH10 - B - Lamentis	Jon McClaren Kimberly-Sue Murray Alex Weiner Emmanuelle Lussier-Martinez
10									
11		Crafting Bench	Jon McClaren Jason Cavalier Kimberly-Sue Murray Alex Weiner	CH09 - A - Milano	Jon McClaren Jason Cavalier Kimberly-Sue Murray Alex Weiner				
Noon		LUNCH							
1		CH08 - Templeship/ CCB - CH08	Jon McClaren Jason Cavalier Kimberly-Sue Murray Alex Weiner	CTB_SL_Ravager	Jon McClaren Jason Cavalier Kimberly-Sue Murray Alex Weiner	CH10 - B - Lamentis/ CCB - CH10	Jon McClaren Kimberly-Sue Murray Alex Weiner Emmanuelle Lussier-Martinez	CH10 - B - Lamentis/ CCB - CH10	Jon McClaren Kimberly-Sue Murray Alex Weiner Emmanuelle Lussier-Martinez
2									
3				CH08 - Templeship/ CCB - CH08					
4									

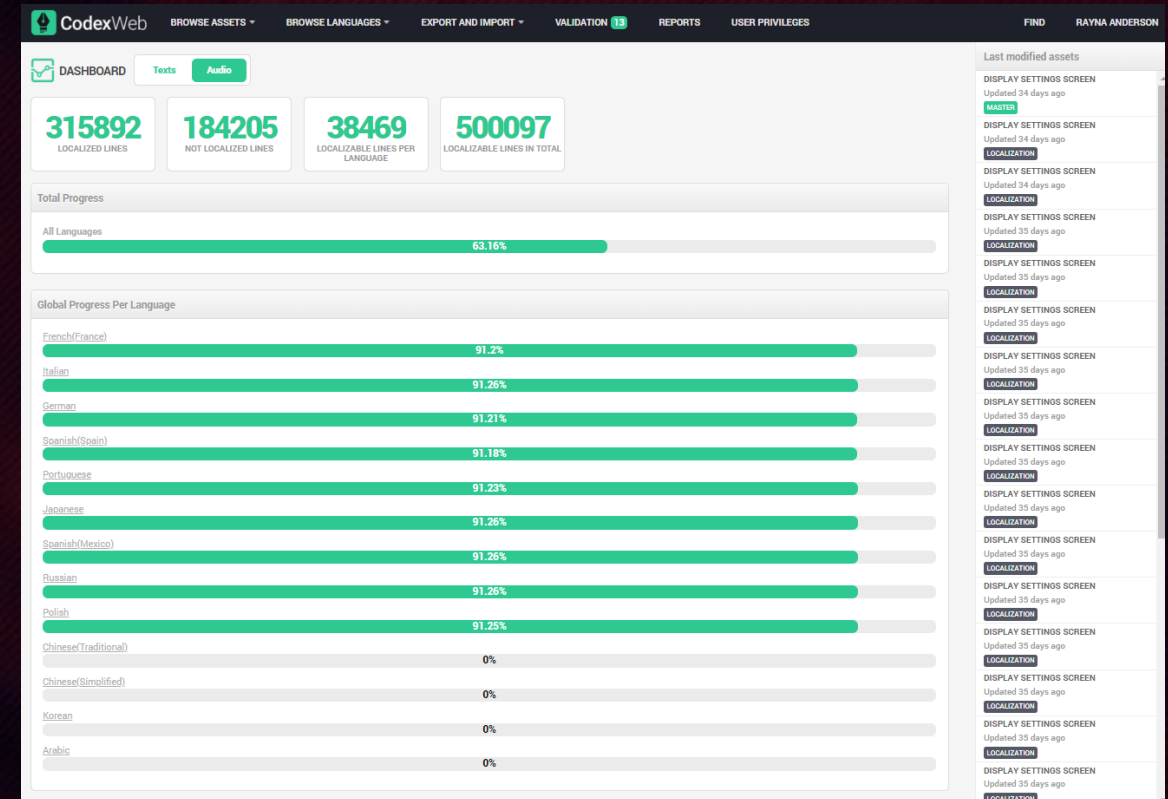


# CODEx: TRANSLATING



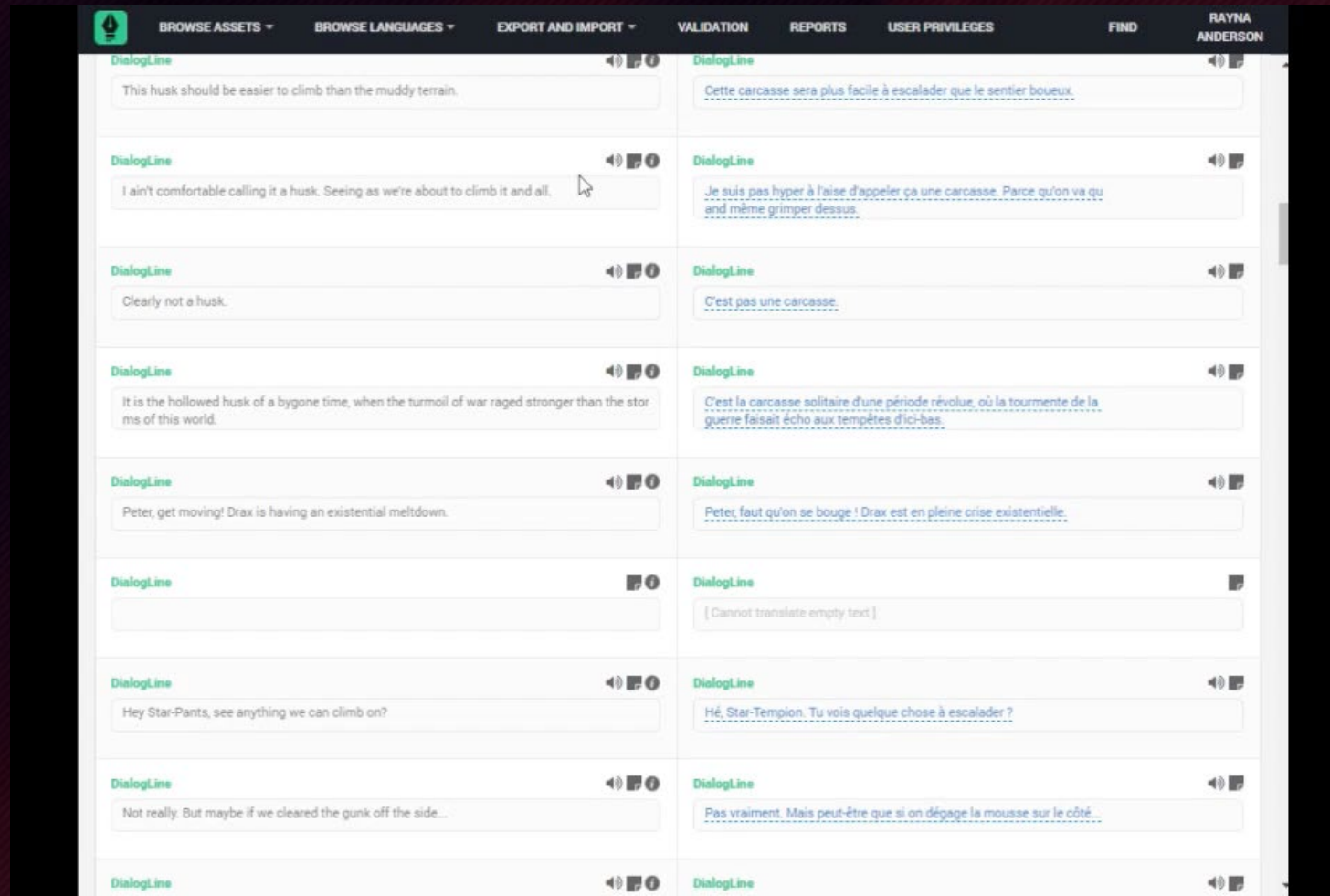
# Translating

- Localization is handled through a web interface.
- Easy access for global external partners.
- Up-to-date info immediately available.
- Secure access to essential files only.





# Translating





# Translating

Data and metadata available:

- Filepath used by the engine
- If the text and/or audio is to be translated
- Last date the audio file was modified
- Bitrate and length of audio file

TYPE	ENTRY
Action	Two CIVILIANS have an OVERHEARD, while waiting for a third C
ChoiceId	
DialogLine	[Gotta remember, what happens on Knowhere, stays on Knowh
InlineParenthetical	
LocalizationType	TextOnly



# Translating

```
Import report:

Audio package: D:\XXX\imports\audio\MX_2021-07-27.zip

Rejected audio files:
  D:\XXX\imports\audio\2021-07-27\MX\C12_2320_OS_cnv_A001_gdn_drax.wav
  D:\XXX\imports\audio\2021-07-27\MX\C03_2130_OS_hpb_E002_gdn_starlord.wav

An importable package was created with the rejected files. It can be downloaded here:
D:\XXX\imports\audio\rejected\MX_2021-07-27_RejectedFiles_2021-07-27_07-53-36.zip

Warnings:
  invalid track length of 00:00:03.7920000, it should fall between 00:00:04.1650000 and 00:00:05.1650000 based on the original track length from audio
  file D:\XXX\workspace\Assembly\Sound\Wwise\Originals\Voices\English(US)\Game\OfficialScript\Chapter12\2000_epl\C12_2320_OS_cnv
  \C12_2320_OS_cnv_A001_gdn_drax.wav of length 00:00:04.6650000 and value +/- 500 ms(index 1) of metadata with definition id 28000
  AudioValidationError
  invalid track length of 00:00:03.0590000, it should fall between 00:00:03.5420000 and 00:00:04.3300000 based on the original track length from audio
  file D:\XXX\workspace\Assembly\Sound\Wwise\Originals\Voices\English(US)\Game\OfficialScript\Chapter03\2000_nvb\C03_2130_OS_hpb
  \C03_2130_OS_hpb_E002_gdn_starlord.wav of length 00:00:03.9360000 and value +/- 10%(index 2) of metadata with definition id 28000
  AudioValidationError

IsSuccessful: True

The imported audio package D:\XXX\imports\audio\MX_2021-07-27.zip is archived as D:\XXX\imports\audio\imported\MX_2021-07-27.zip
```

- Imported audio metadata is checked against source audio.
- Generates a report of the files that were rejected because they didn't match constraints.



# SUMMARY



# Planning summary

- User experience
  - Asset IDs are human-readable
- Codex feature
  - Set asset types and metadata before creating content



# Writing summary

- User experience
  - Scripts are playable fast
  - Iterating is pain-free
- Codex features
  - Integrate audio in the pipeline
  - User and engine data are separate



# Recording summary

- User experience
  - Scripts are clear for actors and engineers
  - Import audio sessions quickly in bulk
  - Record actors as an ensemble
- Codex features
  - Export scripts in document and spreadsheet formats
  - Export/import metadata with recording software
  - Use available data to extrapolate recording sessions





# Translating summary

- User experience
  - Provide context to localization
  - Error-check localized content
- Codex features
  - Import system verifies metadata and compares it to existing files



# Final words

- Important to have production and technical allies on your team
- QoL features can be a hard-sell because ROI isn't immediate



# Thank you!



And\_Rayna



Rayna Anderson  
Senior Narrative Coordinator on  
Marvel's Guardians of the Galaxy

