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TANKI, a Feature Film from Russia, Has Worldwide Release on March 15

Brief Tutorial by Dimitri Kali for Post-Production in SCRATCH for *TANKI*

Dimitri Kali's post-production studio in St. Petersburg, Russia, is pumping out feature films at a steady pace. To meet all the tight deadlines, they've developed a robust post-production workflow that can be easily adapted to fit the needs of the artists, the clients, and any project.

Most recently Kali worked on the comedy/action feature, "TANKI", a 28 Panfilovtsev Cinema Production, which will be released worldwide on March 15, 2019. The film had its national cinema release on April 26, 2018 by 20th Century Fox Russia.

Set in 1940 USSR, "TANKI" tells the story of a prototype for a new cutting-edge tank that is in being taken on a secret mission to Comrade Stalin in Moscow, and soon the cross-country run turns into a ruthless race. "TANKI" was shot in multiple locations so audiences will get a sense of the mood and feel of the vast Russian country. In a recent interview, Kali discussed how they managed the post production.

Before

After
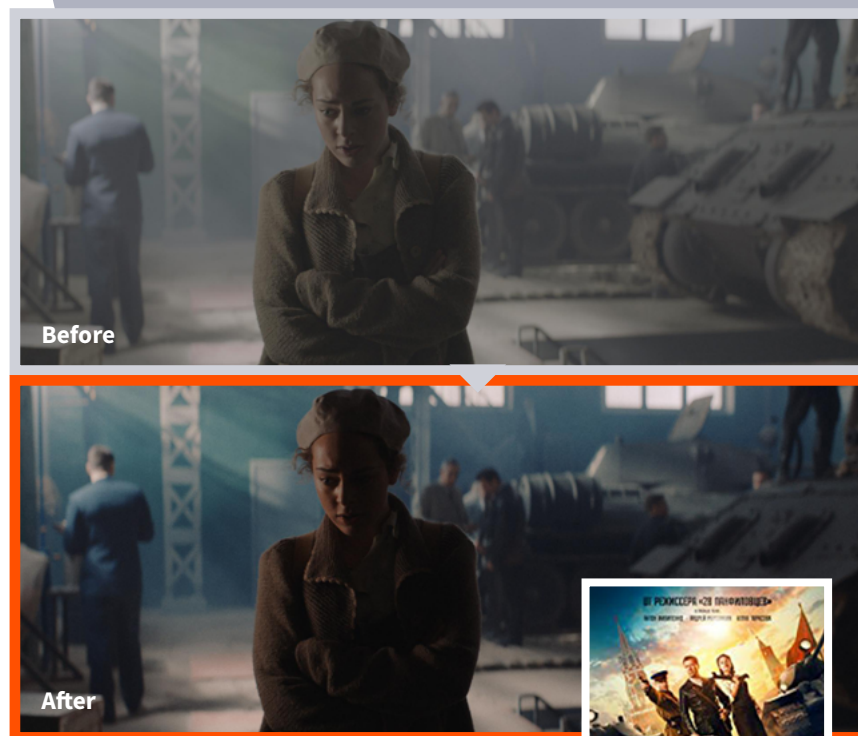
Q: Who were the director and DP for "TANKI"?
D: Kim Druzhinin and Dimitri Trifonov, respectively.

Q: What cameras were used for the shoot?
D: Arri Alexa Mini, DJI Inspire

Q: What formats were you working with?
D: Our primary camera was the Arri Alexa Mini with ARRI / ZEISS Master Prime Lenses, which provided ProRes4444 Log-C 3K and 4K takes; mostly anamorphic footage was captured through this set-up. DJI Inspire DNGs were used for birds-eyes and aerial shots. There were also B/W scanned .MOV materials from the World War II film footage. The overall footage size was about 4Tb in total.

Before

After

Q: How is your post workflow set up at your studio?

D: Assimilate's SCRATCH is our primary software for pre-and-post production, including dailies, conforming, color grading, special effects, compositing, and finishing. We also have OFXs on board.

I try to avoid multiple platforms through the filmmaking process so I bring SCRATCH into play every time it's possible. To put it simply, SCRATCH allows you to organize a complex project structure based on your need. We prefer this organic way of keeping content clean and clear through the pipeline – something we are continually tuning.

Conforming

We have different groups working on the various functions of each project. All the conformed material is put into a construct (timeline) in the SCRATCH media browser. After finishing this assembly, I always hit the lock timeline to prevent any hand-crafted accidents. SCRATCH natively supports all the popular data formats, which enables us to communicate efficiently between different departments (editorial, VFX, color grading, sound design) and quickly react to ongoing and unexpected demands from the project.

The following outlines our project structure (or groupings) for "TANKI".

- TAKES: Conforming of the shoots for any department. This grouping always appears at first.
- REELS: The main edit for the working color-grading reels - the "body" of a project. We also have a mirrored reel created for multiple language localizations for distribution needs.
- TITLES: Opening-and-ending title sequences (this works better when separated from REELS).
- RENDERS: Different rendering master versions with minor editing changes primarily at the beginning and the end of the movie; quick daily builds; and final rendering to meet the distribution technical requirements.

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- REELS for SOUND: For the sound design department, using their own standards within editing and sound mastering for DCP (re-generating timecodes, clap syncs, fps versions, build watermarks, etc.).
- CGI: For the VFX department doing multiple log-to-lin and back conversions, specific renders, tests, etc.
- TRAILER: For the main edit, color grading, and mastering of the movie trailer, which uses selected shots from the REELS group.

Editing

The editing process was inside Avid/Premier, but since there is a lot of hustling that happens around deadlines, it's often quicker to make final edits inside SCRATCH, which we actually did on "TANKI."

Color Grading, Compositing, VFX

First, we did some scripting since we were to deal with incoming VFX. In this case, a SCRATCH global watch folder comes into play and this feature saves a lot of time. Once the VFX shot is done, the python script checks for the latest version (by date) over all stored dailies on the data server; then the script creates an XML file for every


shot and puts the XML into the global watch folder. Often times all the newest versions of VFX shots were uploaded into my project.

After hitting the refresh button, the new versions appear at the exact, intended construct slot. We have created a slot ID-to-daily shot pairing tab, which the python script reads after new dailies emerge on the server; thus, every XML shot has its own slot ID and SCRATCH simply knows where to put the shots after the XML script finishes its uploading process. You can decide whether the uploaded shot will replace the previous one, inheriting its grade layers, or create a new version of the shot. This feature is handy not only through review sessions, but also for an up-to-date status.

So, now that I set my project structure, some basic XML work was done via the SCRATCH user's guide, and it's time to start the grading process. With every project, I am working with different people in various capacities. For "TANKI", I worked with the DP for his creative support. Throughout the grading process, we worked together to achieve the desired look and feel of the film.

First, I corrected exposure errors, did shot framing and added extra keyframe animation through camera movement in the shots. Then I isolated the mattes for faces, skies, and other key elements using the powerful keying, tracking, and masking tools of SCRATCH. For CGI shots, I used handy EXR masks via different overlay modes. This step is also for "heavy lifting" preparation like shot re-lighting. Then, with SCRATCH slot-color notes, I worked on the color balance shots and created visual color key frames to refer forward and backward on the timeline. It's like building a visual vocabulary for everybody who will be speaking.

Sometimes the color keys were wrongly chosen and the sequence tended to show another look as the story progressed; I then regrouped, noted the right color key-frame and sustained it through the entire sequence. Typically, the sequences are ten to twenty minutes long, depending on the script act, and I work on each sequence individually. I then animated some grades with SCRATCH keyframes and animating curves to bring together a satisfying, unified look. The final "glue" for all the material is done with a touch of FilmConvert - a beautiful and useful plug-in.
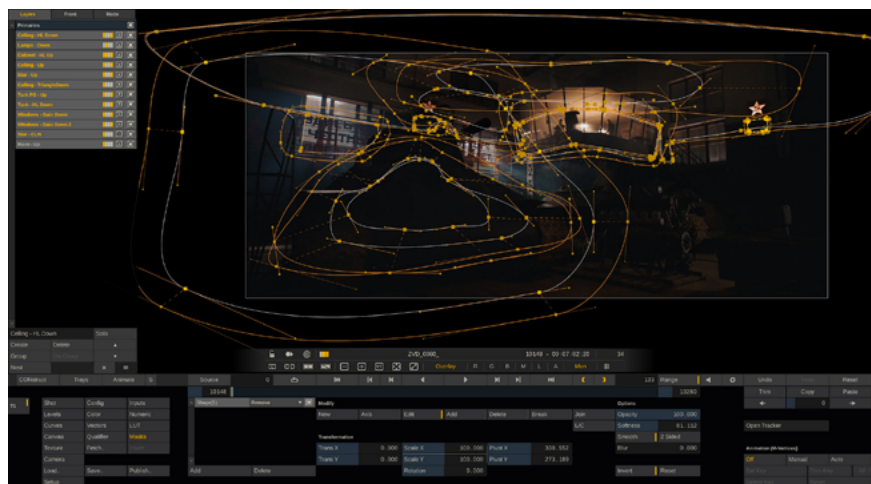
I'll often use the FilmConvert grain only, or color bars only, with a mixed percentage over the created look. This step brings more of the feel than the look to the entire image, and definitely holds an upper hand when comparing before and after. Film Convert supports multiple-camera color profiles for a vast array of cameras.

Above all, I want to emphasize the advantages of the keying modes and curve modes inside the SCRATCH color workflow. In my experience, they work at a higher level mathematically for my grading approach than other industry software. Also, the numeric tab is where SCRATCH nails its power. The numbers are always as perfect for polishing pixels as for a principal base for my grades.

Finishing

Shot to shot, sequence to sequence, through the entire movie, the grading process is not a straightforward one; it reverses and twists. The final check for inconsistencies, the look and feel, additional color grading – it's all thoroughly done at this time. It's vital to have powerful tools and a consistent workflow like SCRATCH so that you can be nimble and quick in fixing any issues.

Cool features of SCRATCH are the render queue and output tree. "TANKI" holds my personal record for the highest number of quality standards required for rendering — for the movie distribution company and the Government Movie Storage fund (Gosfilmofond). I created ProRes 4444 outputs for each of five reel constructs in the REELS conform group, which provided reel masters. Then the masters went into the RENDERS conform group, where the main deliverables happened - DPX, JPEG2000, ProRes 4444, MP4, and H.264 outputs and conversion into lin, log, XYZ color spaces. For the finishing renders, I added custom file-name specification output templates.

Q: Did you create any of the VFX?

D: All the VFX for "TANKI" were created in our studio by the VFX department with some modeling, animation, simulation, and green-screen compositing. I received ready-to-grade linear EXRs with necessary alpha channels from the VFX department; then on to lin-to-log. At this stage, I did a regular QA-check with the VFX supervisor; we created comments for anything wrong and I red-flagged the shots on the timeline.

Through the review sessions and basically everywhere, I used shot-color notes on my locked timeline, such as SRC - source (green), CGI done (blue), CGI wip (purple), CGI review (red) and many more. It's like using hashtags to navigate through the project via search, and then catching client inputs and needs.

Q: How did you do the compositing for the VFX?

D: For "TANKI", we had a room for quick compositing, such as background-object clean-ups, some sky work, shot re-lighting, all of which I can handle quicker in SCRATCH rather than render a source shot, send it to the VFX guys, and receive it back. I was also able to fix some crude CGI compositing that had unexpected rendered artifacts and mix-source material from received CGI to make things looks rooted. I also received rendered motion graphics and titles with alpha channels to composite over the source footage. Additionally, I asked the VFX department to prepare an additional roto (in EXR alphas) for characters' faces or key background elements, which I could then use as a new correction layer for a specific color grading task.

Q: How did you develop the look and feel for "TANKI"?

D: The DP, Dimitri Trifonov, and I collaborated to achieve the desired look and feel for the film. We deconstructed light schemes and made notes for later shot alterations or fixes in consistencies. Since "TANKI" is a road-trip story, it covers various locations, states, and color scenarios. We determined the look early on and worked to ensure it carried through the entire storyline.

In between the VFX reviews, we did several review sessions in a cinema outside our suite. The cinema experience strengthened my confidence in the decisions we were making and what changes needed to be applied. Fortunately, in SCRATCH I could be very productive in making any changes to meet the hard deadlines. In the end, we got a very satisfying result.

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Before

After
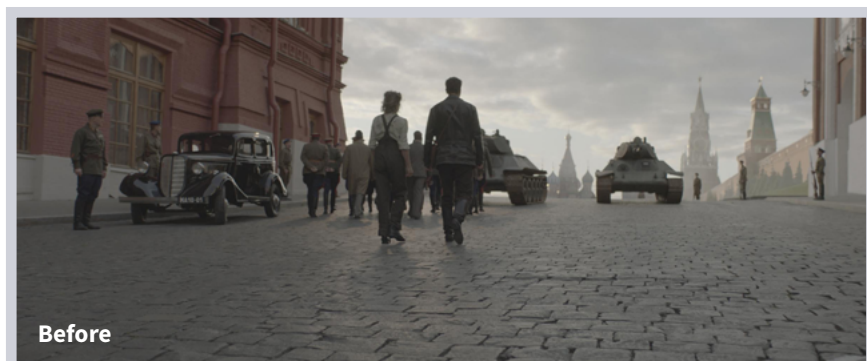
Q: What challenges did you face in the conform, color grading, VFX, finishing, or mastering?

D: Throughout the conform stage on "TANKI" there were some custom transitions and re-times that did not match the reference movie, which is a normal thing due to different algorithmic logic between external editing software and SCRATCH. So, I did some re-times and created different transition shots in SCRATCH edit, in which the vast setting options always help.

Also, at finishing, I had a confusing task of searching for a specific take that took place over different shooting days and with different cameras. I needed to replace that take for another shot inside the final edit. I simply came back to the conform

take-constructs, carefully looked through our takes, grabbed the required one, and inserted it inside the color/edit construct reel; then I copied the grade onto the new shot and immediately start rendering the reference movie for the sound design department. The client expected to lose at least half a day for this requirement, but it only took about 30 minutes to make it right.

Q: What were your deliverables?

D: On "TANKI" I had a number of tasks:

- XMLs of the final edit exported from SCRATCH -- all the original footage from all the cameras and the final versions of VFX shots in EXR sequences
- Master ProRes 4444 2K DCI 2.39 Scope with 5.1 Sound (Dolby Level = -20dBfs)
- Master ProRes 4444 2K DCI 2.39 Scope with 2.0 Sound (Stereo mix, PPM -18dBfs)
- DPX 10-bit 2K DCI 2.39 Scope Linear color space movie sequence with a continuous frame numbering without reel separation. The same requirements for DPX sequence in DCI (XYZ) color space.
- DPX 10-bit 2K DCI 2.39 Scope Linear color space reel sequences with Reel separation; each Reel must not exceed 31000 frames; each reel folder must be named as reel##; each reel folder must have its separate frame numbering. The same requirements for DPX sequences in Log color space.
- ProRes 422 LT 720x576 at 25fps with 2.0 Sound (Stereo mix, PPM -18dBfs)
- Separated DPX 10-bit 2K DCI 2.39 Scope Linear color space sequences cleared from the titles- and-motion graphics effects backgrounds for language localizations

Q: What is your overall impression of working in SCRATCH?

D: I have several comments in this respect:

- Interaction of the SCRATCH system logic - Editing, conforming, and color grading capabilities on a very high-quality performance level for a post-production workflow.
- Assembling and Edit - Clear version hierarchy, color-comment ability, ability for remote reviews, and super easy data management via the media browser, construct groups and sub-menus, with necessary information always at hand.

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- Grading - Intuitive and strong color workflow with powerful features like full-native support for numerous camera formats, layers system, precise keying and tracking tools, powerful numbers and curve modes.
- Delivery - Useful render presets with file-name custom specifications, and powerful render tree management.

Q: What are the key points about SCRATCH that are important for the creative post community to know?

D: The BIG two:

- Stability. It is crucial. Especially if you are handling a very big project like a feature with CGI, complex edit, maintaining numerous review sessions, rendering multiple output formats and being the final frontier towards the cinema delivery, so... you want to be sure a 101% that your "shields" won't fall at any circumstances. I have never had a single crash through the working process even under the heaviest loads, which sounds unbelievable, but it's the fact! I could confidently start bashing inside my session while assembling the new project, or while going through chaotic concept exploration of a shot look, then easily optimize the number of constructs, grading levels and so on, without the worry of losing any of my progress. Same for the rendering, much of the background rendering helps a lot, also the remote re-rendering process queue towards the DCP for the cinema review - not a problem at all; hit process and the result appears as the program claims. And there are many more elements that keep the workflow crisp and efficient.

- UI/UX. It is splendid. Since my very first entry into the SCRATCH, I was amazed at how this program balances the user-interface and intuitive interaction with the user, such as the proportions of workspace, basic workflow arrangement, and pleasant interface design. The logic behind the SCRATCH tools and workflow allows me to increase my working pace and I forget about the UI/UX – that's called a good UI/UX job!

Contact information:
Dimitri Kali
Post Production Supervisor
dmitryklsn@gmail.com
+7-999-669-0011

DI) SCRATCH

www.assimilateinc.com