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## How to improve the performance of Rosetta thumbnail creation?

- **Product:** Rosetta
  - **Product Version:** 7.x - 8.2
  - **Relevant for Installation Type:** Local
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### Question

How to improve performance of Rosetta Thumbnail generation ?

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### Answer

1. Verify that "Transformation Profile" Output Parameters option is selected for all "Thumbnail Task Rules" (under Rosetta Administration module).
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#### Note

"Stream Handler" Output Parameter option is available in Rosetta UI, however it is deprecated feature and not suggested to be used with Rosetta 4.0 or newer versions.

For more information please refer to: <https://developers.exlibrisgroup.com/blog/creating-a-migration-tool-split-plugin-in/>

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2. Out-of-the-box "JPG Thumbnails" Transformation Profile can be used to generate a JPEG thumbnail from prevalent formats (image, video, PDF, etc), it is configured to use "**JPG-JPGMigrationTool**" bundled Plugin, which uses **ImageMagic** utility (a 3rd party component deployed with Rosetta).
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#### Note

To retrieve a list of file formats supported by ImageMagic, SSH to a Rosetta Application server as 'dps' Linux user and run: **convert -list format**

Additional file format notes and/or limitations are [listed in ImageMagic official site.](#)

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That said, "JPG-JPGMigrationTool" Plugin version 1.2 "run\_jpg\_deriv\_copy.sh" **script's efficiency can be optimized to allow faster processing of multi-paged/multi-resolution source file formats** like Pyramid TIFF, PDF, etc.

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#### Note

**Below scripts is provided 'as is', it is EXPERIMENTAL and it may not work for all Rosetta environments, versions, scenarios, etc.**

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To optimize "JPG-JPGMigrationTool" Plugin:

- A. SSH to any Application server as 'dps' Linux user and run:

```

cd $op_dir/plugins/bundled/bin/JPG-JPGMigrationTool-Vr-1.2/bin
cp
-p run_jpg_deriv_copy.sh run_jpg_deriv_copy.sh.orig.SP`grep -iPo 'app.version=\K.*' $dp
conf/global.properties`-`date +%Y%m%d`
echo
'H4sICDuedmcCA3J1b19qcGdfZGVyaXZfY29weS5zaAC9VdFu2zYUfddX3NBCbKGVZRT9SmJn2ZpmGVRUSFxxg+
sG5+sKXkc1NS3Dd5fQkxcCcfQDyoeZ3Ie1hUGk/
VGLdNBbgBKuHc0XpHc54iflFQmcWCS9bsMy9dAl2IDf+DwSeIf684EvsEzKbdbvdZtb2s8pwZy7InpESNSVNrCu
g4oos9xr4aXx65tCo4PYe474G6TF7z1ezoAV8sTUhl2Vlna6Fk37rlXgEmQKpcEGr1NHhbidIdmdBKFw6yg1G+3
pqgHXLNSoj5OIX2r/
HxVfYibEcQ5xZ6MDt0jpcBAB80AiYM88N+sOCY4K2mJVAhYI7puT9DUGMf+1TCXNP0h1kToOLQ6WBSyA9DfhS2D
lhy5CfjenI0PdrGqRrV4Y1m5D/
UdMPp2hEYNhTjPnLcrU7Dj62GO64N8agVfEDPa1+R9qPAadjpYA5JEUpeKJq5DZFTK3j/
YTL+MLl+fx6xK1Rxk3EsRonsbpyx/
8GoMU0d+Ob87enw8caEhB28JXyBHEatBOPcur+VOXEq0Cxrvef1XhVM2qBR+wG8E/0bJA8a/
qTurN502B4eRW02Jux08LnmJslKfF9d9xP8Y7IqtYlQKRUJL/x9V7hWerPr1Q+Rgne/
nP58PhmGx4FrK183FjbiHcgCmxb2vI6x1FYG9oa9yIvzb5gvPdabER+uK9ncZzn10pvsX7lsfx8ZbNJeQ4zXAhq
B1G9l5M+Lp/5csAI0w6HF2x23D0gj+ASer+rPJCAAA' | base64 -d -i - | gzip -d - >
run_jpg_deriv_copy.sh
dos2unix run_jpg_deriv_copy.sh
chmod +x run_jpg_deriv_copy.sh

```

which should deploy the optimized "\$op\_dir/plugins/bundled/bin/JPG-JPGMigrationTool-Vr-1.2/bin/run\_jpg\_deriv\_copy.sh" script with MD5 checksum: 3b89d06e84c604abc60764b116e72cd9

- B. Update the relevant Transformation Profile (e.g. "JPG Thumbnails"), add a numerical switch (i.e. the File's inner page number) at the start of the "Parameters" field's value.

**For example:**

Assuming the current Transformation Profile "Parameters" field is defined with: **-quiet -colorspace RGB -resize 100x100**

Assuming we want to create a thumbnail from the 1st page/image/frame of a File, we should change it to: **-1 -quiet -colorspace RGB -resize 100x100**

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#### Note

The above suggested optimized script should allow existing Transformation Profiles to work as they did before.

Adding additional numerical switch to the beginning of the "Parameters" field's value is only required to enable the above mentioned optimization.

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- C. **[Optional]** To test the above suggested optimized thumbnail creation script, we should clean the relevant thumbnail cache of the relevant IE/s for the Files we're testing (otherwise Rosetta would continue to retrieve it from cache, i.e. it will not recreate it using the optimized script).

To workaroud that, run either **"Clean Operational Thumbnails"** or **"Create Operational Thumbnails"** (with "Replace existing thumbnail" option set to "yes") out-of-the-box Task-Chains on the relevant IE/s, then Deliver the thumbnail for the relevant File/s.

3. Further optimizations may be reached by further tweaking the Transformation Profile "Parameters" field (i.e. command-line options) that the relevant 3rd party utilities is using.

For example, in case of out-of-the-box "JPG-JPGMigrationTool" Plugin, "ImageMagic"\* 3rd party utility is used.

\* Please refer to ImageMagic official website for more information on ImageMagic command-line options:

<https://imagemagick.org/script/command-line-options.php>

4. Out-of-the-box "JP2 Thumbnails" Transformation Profile can be used to generate a JPEG thumbnail from a JPEG2000 file format, it is configured to use "JP2-JPGMigrationTool" bundled Plugin, which uses both **OpenJPEG** and **ImageMagic** utilities (a 3rd party components deployed with Rosetta). "JP2-JPGMigrationTool" Plugin version 1.3 "run\_j2kdriver\_thmb.sh" **script's efficiency can be optimized** (by using "reduce factor" option of OpenJPEG) to allow faster creation of intermediate PNG file that the plugin creates before it converts the latter to the final JPEG thumbnail.

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#### Note

Below scripts is provided 'as is', it is **EXPERIMENTAL** and it may not work for all Rosetta environments, versions, scenarios, etc.

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To optimize "JP2-JPGMigrationTool" Plugin:

- A. SSH to any Application server as 'dps' Linux user and run:

```
cd $op_dir/plugins/bundled/bin/JP2-JPGMigrationTool-Vr-1.3/bin
cp -p run_j2kdriver_thmb.sh run_j2kdriver_thmb.sh.orig.SP`grep -iPo
'app.version=\K.*' $dps_system/conf/global.properties`-`date +%Y%m%d`\
echo 'H4sICEmgtGcCA3J1b19qMmtkcm12ZXJfdGhtYi5zaADNWPlu28gR/
59PMaGFE9mY+jBwB9Sy7LSXj/
p6cYxEB7ShWFFLqW9kFzecem1LZ6noQ9wT9NH6JJ3ZJUXJlh0HlwJn2PpY7szO/
GbmN7Pee9adiKw7YcXM2ftj/aA98Dd5A1pCKLNYTEvF4b0suNasXcBIsayIpUqZFjKDcyVjkXA4gf/
Pj7Xnv//+D4wkKF6IXznIUuel3oecFcUhBED2ealnZTrJmEiWRcgSvmQRy7W45kHlvGBpjsv4zXw4hqP5GL/
IpCRPjudHi82veDbvTDuovzq1/21vjn/
bFoWKM81hfbQ1CjyZJQtgBcRCFRrXFEu55spHdRq6+JJOzBvJrT+QgsfRqCwi6fsY/
fYbnEnND8Fdm9xDk3s9F0Rh7OIRTBQ8ZiVCeInMghZwSGTGYIaA5vIaw4pzwgA3Nu2atqN/
QUwxbO2rrR1Ho8awLvzV2c/
nL96A67iUrlyiFmopTIGlagAbdAFzMR0xgkmWRRigs10zZKS0x6MY1gmiLAXXM84FKESuabkzJU0KlmGjqBtKY8
tEnbpEYPc6eDUcmknolsaAUWPgqorS6mYlwbNqRC0whNDBkmG7FjkSpyMSCSYSGwBLCCGsiUa1B/
QkYbWmudFqWrIF6ACMt4uXo9PXxk+pexE/
ByJ5LiJyfvbElZnkzgwIDSF7js7REhIoU4cGKMEWAZqy5dYL2C418XyTyhjbU+dZ5S17bnzq7Efq4xHKb8azCGY
CauoiHppqNYzYVNUKjyc461yOOYh8a3VGRS+Z3P5/
Ufrrt+KKd5Dv0xj1fM6t7+MXlioFFy1VU41VLcX4pBdcQhDKRqsgZVu/
7N3+FO41hQ9GdcBw+QYNR0fvKQDtOXGahCbq1+jHPiRh1VApBDG7r9vTs/KfR+PXpj6/
Go7fnKxcOjrsRv+5mZZLs3HV69vrDnW18jzjaun37z1f/OB2tnJXj/OX9mw9D13VG4/
qTswdYbbZiRUbljHWbUuIzhPepFjFZLf2BZToIjPHkiZKoO4Ucyl6QNGR8rpFPZ06g1MUFWdjvDgm0a/
gv+BiceN6J8D29xMZux5hmmPGXnnfRC/589Sffu+zYj899/
wTXUQat8FtwdbXp3oDKBZvi8GAAPMH+Lob9AXqCHT0olgM1EypvKip9I7EpbpISmTtRLPzEkTY86znDENSchmVa
oD+jL8z74vhNJx9Q/
gTl0L9HbZ2JliaDSqgW4RW9gHrjNZnpgP4B9dx1qjc4eD2cSXBPV16fvvdatWpNDSrqJ9dCtLhLMXDfEa2rJdz+
ppnU9d37uT711kusliahGFRVpyJ9HFgKpwmkBvoUDy3YrnxrCmku+F00k+RwELJYdvE7QJFUop2NPxCZEhd7sHH
Tgs24fhrTHBQdfx1jGw545vUxzIFyoadoi+OH8wKJC1UB91FfFrTnubRsU23ZHYGkBa72t2902VjW9UkXX71TZb
D1gl+JrNIpqJMF54NoQdXFdXYVfWfGKNdPHIHGwxu+IfaBILNIqLLjCDESqYgCzq1EcV90o5iidyN8NSZMITvUE
W6p0d7q6hD1lNgSnLzBpsMtB2zrxIui7y0nYX1fYd3516HxcyFKF/
P7J8z6edhk9cFQtv3hQfvFZ+dO3Y5MexdB94mW3vuVWt1537YSmK5BGI6y/
rVtboBjSJTR2uciT60NXvttG29puZWUNDbb/xrnfPtD6Pt+te2/P5kJ99beCcMPqC+2+Ia06Rep/
EMT1hFOl7gU8g7Vfhl3zMASqjK5oi2vXd+h0b76Ft1eO3Xx4grjUuV0XRqb8KLXwZTXq4tmtT6Hlut0uN3MrtX
oDk47DHvrZ7Q8o+JMqgsTHP13j0aBB4Z4gI3wamCvwwKEpZWPwMgEimqwnLEMNC7zJ5Q1NpIaAsUu1KntJGImD/
iFDfYbkes4xXdZtoh2oNmi6VeBlJG4pxrcmL0bTrl6cELbOYQ9MHs18Bk1BnqOncySMg9lmiuaDrFruQ3+7nro
Ygdwl/DoNR+9Z3KhL4eX0mitd8TB2I8W1WscN0DNEAMc/
eRMgslow7EEYJ7507hf8kPGG4TFvcoUA4Ww9Ugu6vq0htYcVxOOPhdAhTLBED4GoaCcWW3K/
```

```
H5rPNLAAU7/pYLV3H8qQxvbLzDUxw9/Hgbnb4myU6wDsuq5sMONG9Bo1jvM/Pmv3exwWAAA=' |
base64 -d -i - | gzip -d - > run_j2kdriver_thmb.sh
dos2unix run_j2kdriver_thmb.sh
chmod +x run_j2kdriver_thmb.sh
```

which should deploy the optimized "\$op\_dir/plugins/bundled/bin/JP2-JPGMigrationTool-Vr-1.3/bin/run\_j2kdriver\_thmb.sh" script with MD5 checksum: f7ca60f22a0b86b4d1f7fe3f6162d399

**B. Update the relevant Transformation Profile (e.g. "JP2 Thumbnails"):**

Suggested "Parameters": **-thumb -quiet -colorspace RGB -resize 100x100**

- To resize output, pass: `-<resize|thumbnail|scale|adaptive-resize|sample|resample> <x_resolution>x<y_resolution>`  
e.g.: `-resize 150x150`
- To create thumbnail, pass (only as first parameter): `-t / -tmb / -thumb / -thumbnail`  
e.g.: `-thumb`  
Note: `"-resize 100x100"` is passed by default in case none of above mentioned 'resize' parameters aren't passed.  
Also, OpenJPEG "reduce factor" is used, its highest possible value is calculated by the script to produce intermediate image that should be larger (pixel wise) than the final ImageMagick resized image. This is done to considerably reduce overall time it takes to create a thumbnail.
- To control OpenJPEG "reduce factor" value, pass (only as first parameter): `-<number>`  
e.g.: `-2`  
Note: Default value is 0, i.e. nothing is discarded, which typically causes intermediate image output creation to take a long time.
- To control OpenJPEG intermediate output image format, pass (as first parameter): `-<tif|TIF>`  
e.g.: `-tif`  
Note: Default format is PNG, its size on storage is much smaller than TIF format output, but it's slower to create.  
Using TIF format can speed up creation of Derivative Copy Files, assuming enough available storage space (for Thumbnail creation - the affect on the output generation speed is minor, but the storage footprint is notable).

**C. [Optional]** To test the above suggested optimized thumbnail creation script, we should clean the relevant thumbnail cache of the relevant IE/s for the Files we're testing (otherwise Rosetta would continue to retrieve it from cache, i.e. it will not recreate it using the optimized script).

To workaroud that, run either **"Clean Operational Thumbnails"** or **"Create Operational Thumbnails"** (with "Replace existing thumbnail" option set to "yes") out-of-the-box Task-Chains on the relevant IE/s, then Deliver the thumbnail for the relevant File/s.

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