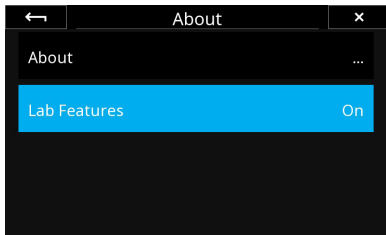# Phase One Lab

The features mentioned in this Phase One Lab chapter are still in the development stage and not yet verified to be production ready, so please use them at your own risk. The features can, however, still serve a photographic purpose despite their beta designation and we encourage you to try them out and share any feedback you might have to help us refine the development.

Enabling the Phase One Lab Features

The features mentioned in this chapter are considered in beta, so you will need to enable **Lab Features** first as a precaution to get access to them. This is done by entering the **IQ4 Menu** and selecting **About**, then setting **Lab Features** to **On** (it is **Off** by default).
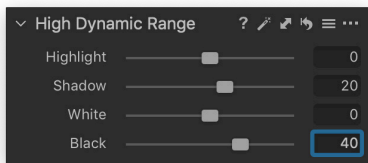
Dual Exposure+

The Dual Exposure+ feature extends the useable dynamic range in high contrast scenes by providing much lower noise level in the shadow areas. This allows you to recover plenty of details in the darkest shadows during post processing without sacrificing image quality.

The principal concept of the feature is to expose for the highlights during capture and to develop for the shadows after the fact in Capture One.

The Dual Exposure+ feature works by taking two captures that are about three stops of exposure apart. The task of the brighter capture is to provide much better shadow detail once the two captures are combined during post processing.
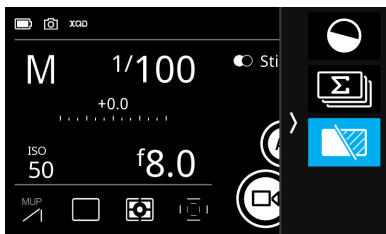
The two exposures are captured almost simultaneously via a continuous readout from the sensor. This unique procedure overcomes the traditional limitation of shooting bracketing for HDR where each image has to be taken one after another. Since the two captures are done almost concurrently, slight local movements in the subject can be merged more naturally into a single image than otherwise possible.

The two captures are kept separate and bundled into the same RAW file to achieve the best possible image quality once they are combined in Capture One. In the software, the wider dynamic range will be realized and become visible once you start to recover the shadows areas with the **Shadow** and **Black** sliders in the **High Dynamic Range** tool.

Working with Dual Exposure+

Once you have enabled access to the Lab Features, go to the **Camera Controls** and swipe in from the right. Then tap on the **Dual Exposure+** icon to enter the feature.

Once you have entered Dual Exposure+, the Aperture, ISO value and Shutter Speed can be set. Note how the secondary exposure is automatically set be three stops longer – the calculated exposure time is displayed under the Shutter Speed in grey.
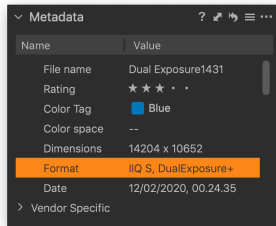
If you want to maximize the usable dynamic range that the feature provides, you should set the base exposure with attention to the highlights. Remember that the secondary capture will be three stops brighter in order to provide noise-free shadow areas during the post-processing step. You should thus consider setting the exposure as far to the right in the histogram as the subject at hand allows.

If you want to ensure that the highlights do not clip, it is recommended to enter **Live View** and check the **RAW Histogram** or **RAW Clipping Warnings** while justing the exposure.

You can also take a test capture and check whether any details are blown out on the RAW file in the **Viewer** by enabling **Show Clipping** under **Exposure Masks**.

Once you are ready, tap on the capture button or press the shutter button on the camera to capture the Dual Exposure+ image.

You can recognize a Dual Exposure+ file in Capture One by going to the **Metadata** tool and looking under **Format** while the file will be tagged as **DualExposure+**.

Please use Capture One version 20.0.3 or later in order to be able to view and process the Dual Exposure+ RAW files with the intended image quality. Earlier versions of 20 only provides preliminary support.

Workflow and Feature Notes

The Dual Exposure+ feature relies on using the Electronic Shutter (ES) and will thus have the same advantages and limitations as using ES under normal shooting. This means that you should use a tripod since it might take up to one second before the whole image has been read out from the sensor. It is also not recommended to shoot fast-moving subjects (like a car) as they might appear distorted due to the rolling shutter effect.

The feature is only available on BSI sensors found on the IQ4 150MP and IQ4 150MP Achromatic, but not on the IQ4 100MP Trichromatic.

Automatic White Balance does currently not work on Dual Exposure+ captures, so consider setting the white balance manually to for example Daylight. Otherwise the capture will show up with a heavy green tint.

The Shutter Speed can be set from 0,8 second to 1/4000th of a second. Note how the secondary longer exposure will in effect be 6 seconds long when you set the base exposure to 0,8 second.

The ISO value can currently be set to up to 400.