

## Motion Explorer Quick Start Guide

New to RDI Motion Explorer v2.4? Use this guide to learn the basics.

### Asset Hierarchy

Create a hierarchy of folders and assets that helps you organize the recordings that you collect and videos that you create.

### Launch in Context

Launch Motion Amplification in the context of a recording. Acquire a new recording in the context of a particular asset.

### Change Storage Location

Move a recording or collection of recordings from one storage location to another, possibly an external drive.

### Recording and MP4 Preview

See the content of a recording without having to open it in Motion Amplification. MP4 videos can also be viewed.

### File Organization

Recordings, MP4's and other files are organized under Collections. Assets can have multiple Collections.

The screenshot shows the Motion Explorer application window. The interface is divided into several sections:

- Toolbar:** Contains icons for Cut, Copy, Paste, Remove, Rename, New Recording, Motion Amplification, Move Files, Copy Filters, and Apply Filters.
- Asset Hierarchy (Left Panel):** A tree view showing folders like 'Cumberland Bluffs', 'Cumberland Bluffs Crush', 'Cumberland Bluffs Refinery', 'Cumberland Bluffs Utilities', and 'Utilities Area'. Under 'Utilities Area', there is a 'Boiler' folder containing sub-folders like 'Boiler Ash Handling', 'Boiler Chemical Treatment', 'Boiler', 'Steam Relief Valves', 'Boiler Pumping', and 'Boiler Feed Pump 1'. The 'Boiler Feed Pump 1' folder is expanded to show a collection of recordings for 'October 12, 2017', 'November 15, 2017', and 'December 14, 2017'. The 'December 14, 2017' collection is selected.
- Table (Middle Panel):** A table with columns 'Name' and 'Description'. It lists recordings:
 

Name	Description
December 14, 2017_01.rdi	
December 14, 2017_02.rdi	
December 14, 2017_03.rdi	
December 14, 2017_01....	Amplification Factor: 33 - Spee...
- Recording and MP4 Preview (Right Panel):** Shows a preview of the selected recording 'December 14, 2017\_01.rdi' as a grayscale image of industrial machinery. Below the image is a metadata section:
 

Description:

Location: C:\Users\Mark\Documents\RD\Recordings

Date Collected: 12/15/2017

Number of Frames: 100

Focal Length:

Distance(ft):

Acquisition Mode: Motion Amplification

Lighting Type: AC Indoor

Image Size: 1920 x 1060

Framerate(fps): 120.0

Gain(dB): 0

Brightness(%): 74

Camera Model: Grasshopper3 GS3-U3-23S6M

## Acquisition Quick Start Guide

New to RDI Acquisition v2.4? Use this guide to learn the basics.

### Camera Connectivity

Ensure camera is connected to acquisition computer's USB3.0 port and to camera via screw lock connector.

### Recording Name

Specify a meaningful recording name (possibly including the name of the asset being recorded).

### Focus Camera

Use zoom buttons to zoom in and then use focus ring on camera.

### Field of View

Draw an ROI with left mouse button in camera window to change field of view.

### Recording Properties

Specify the distance from the camera to the subject. Specify the focal length of the lens being used.

### Recording Association

Select the proper asset and collection that the current recording should be associated with.

**Recording Properties**

Name: 6\_9\_2017\_01

Distance: 3 ft

Focal Length (mm): 50

Exposure Type: Time (Seconds)

Exposure (sec): 5

Add Notes...

**Recording Association**

Collection: New Job

Asset: (Unassigned Collection)

Change...

**Properties**

Frame Rate (fps): 120

Brightness (%): 7

Gain (dB): 0.0

Image Rotation: None

**Image Properties**

Width: 2048

Height: 1000

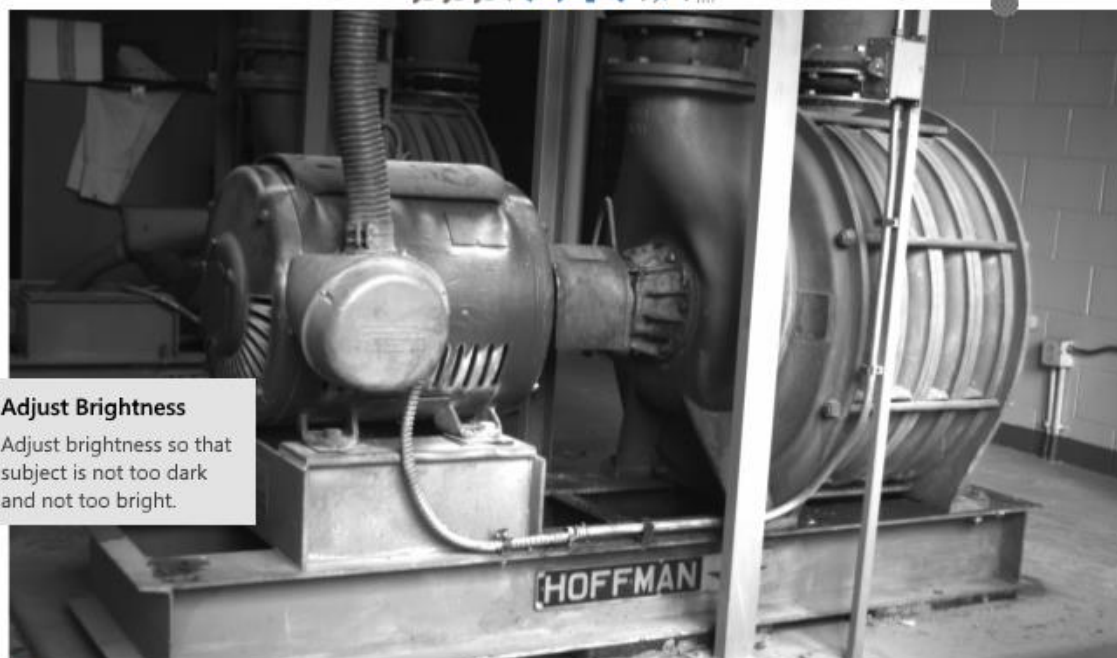
Left: 0

Top: 0

Reset

**Calculated Values**

Fmax(Hz): 60.0



### Adjust Brightness

Adjust brightness so that subject is not too dark and not too bright.

### Initiate Recording

When you are ready to collect the recording, press the Record button.

Acquisition State: Ready

Images Collected: -

Images Stored: -

Memory Available (%): 86.7

## Motion Amplification Quick Start Guide

New to RDI Motion Amplification v2.4? Use this guide to learn the basics.

### Add Annotations

Add annotations that will be included in the MP4 export to help convey findings to stakeholders.

### Frequency and Displacement Plots

Display spectrum, waveform, and orbit plots with displacement data from the recording.

### Frequency-based Filtering

Access filtering functionality to only amplify certain frequencies of interest.

### Amplification Factor

Adjust amplification factor to magnify small motions normally not visible.

Motion Amplification

Source File: 3\_28\_2017\_09.rdi

File...

Export Description:



### Play Amplified Recording

Press the play button to replay the recording with the current settings.

### Export to MP4

When amplification factor and speed are adjusted and annotations are added, you are ready to export to MP4.

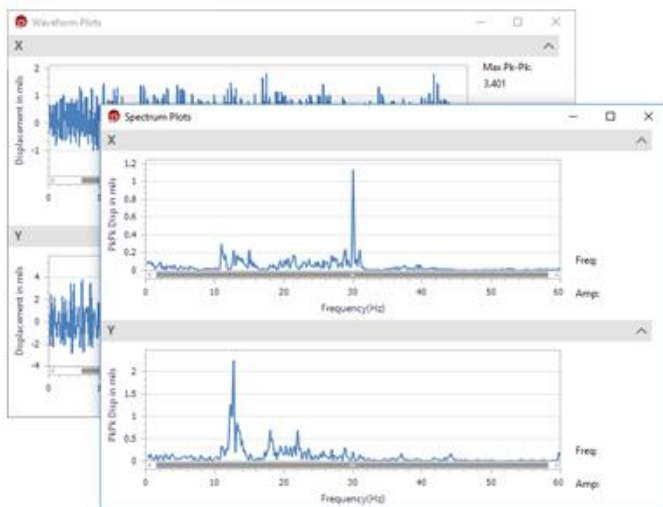
### Playback Speed

Adjust playback speed to show amplified motions most clearly.



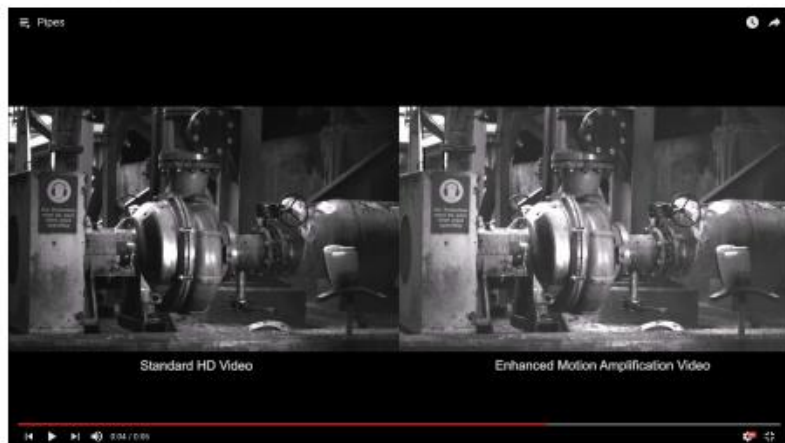
## Frequency and Displacement

Generate spectrum and waveform plots from displacement data calculated from the recording. Draw a Region of Interest in the playback window to perform calculations.



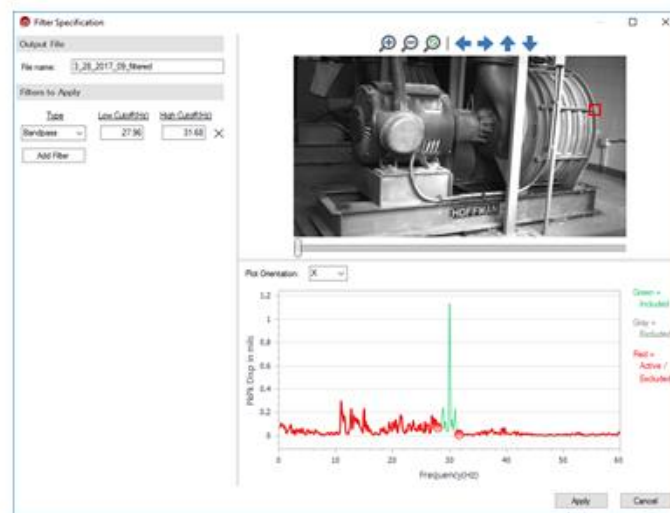
## MP4 Export

Generate MP4 videos of unamplified content compared to amplified content to convey findings to stakeholders.



## Frequency-based Filtering

Graphically identify frequencies of interest from the displacement data present in the recording so that only the desired frequency content is amplified.



## Image Stabilization

Image stabilization removes camera shake that can be introduced during acquisition. Removing camera shake makes the amplified motion much more clear.



## Motion Studio Quick Start Guide

New to RDI Motion Studio v2.4? Use this guide to learn the basics.

### Available Content

Thumbnail images are shown for all of the videos and images associated with the current collection.

### Add Additional Content

Add movies, photos, images, title slides, and composite slides to your movie project.

### Movie Project Workspace

Shows all of the content that you have added to your movie project. Items may be reordered via drag and drop.

The screenshot displays the RDI Motion Studio v2.4 interface. At the top, a menu bar includes 'File' and 'Home'. Below it is a toolbar with icons for Cut, Copy, Paste, Add Videos and Photos, Add Title, Add Composite, Decrease, Increase, Reset, Remove, and Edit Properties. The main workspace is divided into several sections:

- Available Content:** A sidebar on the left showing a collection of assets. Under 'Videos', there are two thumbnails for 'Metal Ex Fan\_02\_stabilization\_...' with checkmarks. Under 'Images', there are two thumbnails.
- Movie Project Workspace:** A central area showing a timeline of video clips. The top row contains 'Metal Ex Fan 02 Unfiltered Data' and 'Filtered at 29 Hz'. The bottom row contains 'Waveform Data' and another clip. Blue arrows indicate that content from the 'Available Content' sidebar is being added to the workspace.
- Movie Preview:** A bottom section showing a video player with a play button and a progress bar. The time displayed is 00:10:00 / 00:55:08.

Callout boxes with lines pointing to these sections provide the following information:

- Available Content:** Thumbnail images are shown for all of the videos and images associated with the current collection.
- Add Additional Content:** Add movies, photos, images, title slides, and composite slides to your movie project.
- Movie Project Workspace:** Shows all of the content that you have added to your movie project. Items may be reordered via drag and drop.
- Movie Preview:** You can preview your movie while adding and editing content before you actually save the movie and create an MP4.