

# File Formats

Documentation regarding proprietary file formats for Payday 2 and other modern Diesel games.

- .animation Format

# .animation Format

This page will be an approximate breakdown on the current known information on the `.animation` file format. Used in modern Diesel games such as Payday 2, Payday: The Heist, and RAID: World War II.

A key thing to note is this format is compressed using level 6 zlib compression and must be uncompressed before parsing, and compressed once again after any changes. The uncompressed file size is appended to the end of this data.

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## Headers

### Main File Header

- Unknown - (32 Bit) - Almost always `85 CC 83 08`.
- Unknown - (64 Bit) - Almost always just `00 00 00 00 00 00 00 00`.
- File Size - (32 Bit Unsigned Integer)
- Animation Length in Seconds - (32 Bit Float)

### Object Names Header

- Number of Object Names - (32 Bit Unsigned Integer)
- Offset for Object Names - (32 Bit Unsigned Integer)

### Unknowns Header

- Number of Unknowns - (32 Bit Unsigned Integer)
- Offset for Unknowns - (32 Bit Unsigned Integer)

### Event Triggers Header

- Number of Event Triggers - (32 Bit Unsigned Integer)
- Offset for Event Triggers - (32 Bit Unsigned Integer)

# Object Positions Header

- Number of Object Positions - (32 Bit Unsigned Integer)
- Offset for Object Positions - (32 Bit Unsigned Integer)

# Object Rotations Header

- Number of Object Rotations - (32 Bit Unsigned Integer)
  - Offset for Object Rotations - (32 Bit Unsigned Integer)
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# Object Names

“ Note: The order of these matches up to Object Positions and Object Rotations.

**STARTING AT** (*Offset for Object Names*) **FOR EACH** (*Number of Object Names*)

- Offset of Object Name - (32 Bit Unsigned Integer)
  - **GOTO** (*Offset of Object Name*)
  - Object Name - (String terminated with a null character.)
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# Unknowns

**STARTING AT** (*Offset for Unknowns*) **FOR EACH** (*Number of Unknowns*)

- This hasn't actually shown up in any files I've seen, so no idea about the format or even the size.
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# Event Triggers

**STARTING AT** (*Offset for Event Triggers*) **FOR EACH** (*Number of Event Triggers*)

- Percentage of Animation Length - (32 Bit Float)

- Offset of Event Trigger Name - (32 Bit Unsigned Integer)
  - **GOTO** (*Offset of Event Name*)
  - Event Trigger Name - (String terminated with a null character.)
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# Object Positions

“ Note: The order of these matches up to Object Names and Object Rotations. Positions are relative to the objects parent object.

## **STARTING AT** (*Offset for Object Positions*) **FOR EACH** (*Number of Object Positions*)

- Position Format - (32 Bit) - Almost always `E0 86 C6 1D` or `B2 CF 96 11`.
  - Offset of Object Position - (32 Bit Unsigned Integer)
  - **GOTO** (*Offset of Object Position*)
  - Unknown - (32 Bit) - Almost always just `00 00 00 00`.
  - Number of Positions - (32 Bit Unsigned Integer)
  - Offset of Positions - (32 Bit Unsigned Integer) - This almost always just points to the next 4 bytes.
  - **STARTING AT** (*Offset for Object Positions*) **FOR EACH** (*Number of Object Positions*)
    - **IF** (*Position Format*) **IS** `E0 86 C6 1D`
      - Time in Seconds - (32 Bit Float)
      - X Coordinate - (16 Bit Unsigned Short) (Quantized value -10m to 10m)
      - Y Coordinate - (16 Bit Unsigned Short) (Quantized value -10m to 10m)
      - Z Coordinate - (16 Bit Unsigned Short) (Quantized value -10m to 10m)
      - Unknown - (16 Bit) - Almost always just `00 00`.
    - **IF** (*Position Format*) **IS** `B2 CF 96 11`
      - Time in Seconds - (32 Bit Float)
      - X Coordinate - (32 Bit Float)
      - Y Coordinate - (32 Bit Float)
      - Z Coordinate - (32 Bit Float)
      - Unknown - (32 Bit) - Almost always just `00 00 00 00`.
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# Object Rotations

Note: The order of these matches up to Object Names and Object Positions.  
Rotations are relative to the objects parent object.

**STARTING AT** (*Offset for Object Rotations*) **FOR EACH** (*Number of Object Rotations*)

- Rotation Format - (32 Bit) - Almost always `B6 92 FB 9D` or `5C B8 EC 96`.
- Offset of Object Rotation - (32 Bit Unsigned Integer)
- **GOTO** (*Offset of Object Rotation*)
- Unknown - (32 Bit) - Almost always just `00 00 00 00`.
- Number of Rotations - (32 Bit Unsigned Integer)
- Offset of Rotations - (32 Bit Unsigned Integer) - This almost always just points to the next 4 bytes.

• **STARTING AT** (*Offset for Object Positions*) **FOR EACH** (*Number of Object Positions*)

- **IF** (*Rotation Format*) **IS** `B6 92 FB 9D`
    - Time in Seconds - (32 Bit Float)
    - X Coordinate - (32 Bit Float)
    - Y Coordinate - (32 Bit Float)
    - Z Coordinate - (32 Bit Float)
    - W Coordinate - (32 Bit Float).
  - **IF** (*Rotation Format*) **IS** `5C B8 EC 96`
    - Time in Seconds - (32 Bit Float)
    - X - (8 Bit) - (Fixed Point???)
    - Y - (8 Bit) - (Fixed Point???)
    - Z - (8 Bit) - (Fixed Point???)
    - W - (8 Bit) - (Fixed Point???)
  - **IF** (*Rotation Format*) **IS** `BA 69 1A E9`
    - Time in Seconds - (32 Bit Float)
    - X Coordinate - (32 Bit Float)
    - Y Coordinate - (32 Bit Float)
    - Z Coordinate - (32 Bit Float)
    - W Coordinate - (32 Bit Float)
    - Unknown - (32 Bit) - Almost always just `00 00 00 00`.
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