

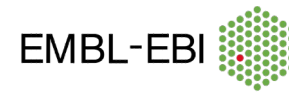


OME-NGFF: cloud-optimized format

CRG Barcelona 2023

OME Team

HORIZON 2020



What is OME-NGFF ?

Brief Communication | [Open Access](#) | [Published: 29 November 2021](#)

OME-NGFF: a next-generation file format for expanding bioimaging data-access strategies

[Josh Moore](#), [Chris Allan](#), [Sébastien Besson](#), [Jean-Marie Burel](#), [Erin Diel](#), [David Gault](#), [Kevin Kozlowski](#), [Dominik Lindner](#), [Melissa Linkert](#), [Trevor Manz](#), [Will Moore](#), [Constantin Pape](#), [Christian Tischer](#) & [Jason R. Swedlow](#) 

[Nature Methods](#) **18**, 1496–1498 (2021) | [Cite this article](#)

6045 Accesses | **4** Citations | **80** Altmetric | [Metrics](#)

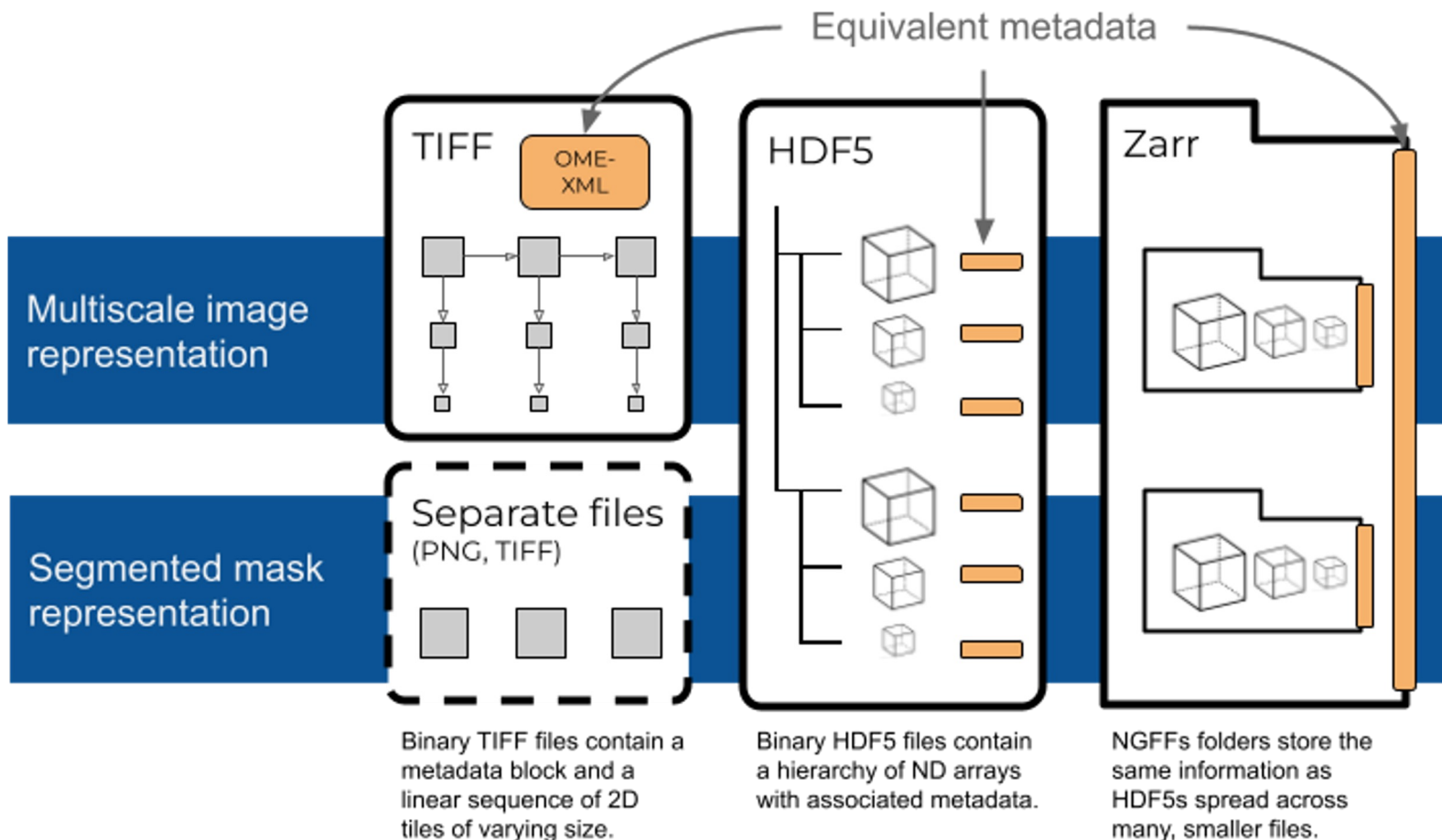
<https://ngff.openmicroscopy.org>

<https://ngff.openmicroscopy.org/data>

The Image Data Resource (IDR)

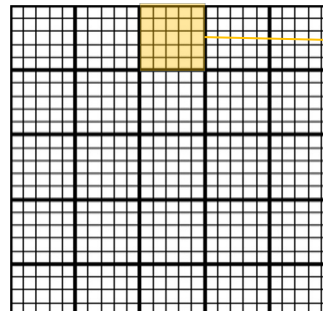
- **Public access**
- **Reference datasets** - complete datasets containing molecular and functional annotations, associated with an existing or upcoming publication.
- **Study integration** - integrating studies or datasets with other datasets via **genes**, **compounds** or **phenotypes**.
- **Curated metadata**
- **Cloud re-analysis**

OME-NGFF uses Zarr



Zarr

chunk = file =
object



▼	folder	s0	--
▼	folder	0	--
▼	folder	0	--
▼	folder	0	--
▼	folder	0	--
	file	0	175 KB
	file	1	173 KB
	file	2	173 KB
	file	3	177 KB
	file	4	174 KB
	file	5	173 KB
	file	6	173 KB
	file	7	174 KB
▶	folder	1	--
▶	folder	2	--
▶	folder	3	--
▶	folder	4	--
▶	folder	1	--
▶	folder	2	--
▶	folder	3	--

Remote cloud storage



S3 Bucket

Access possibilities of images

image from idr0044, McDole et al.	Download	IDR API Access	OME-Zarr Access via S3
Load image subregion, e.g., single chunk or tile	No , only per file	Yes	Yes
Lazy loading	No	No	Yes . Use Dask collections: da.from_zarr(endpoi nt_url)
Easily analyze in parallel	No , depends on file format which may require a translation library.	Difficult due to the transfer protocol used (zeroc-ice)	Yes . Use Dask schedulers: dask.delayed(analyz e)(t, c, z)

Adapted from Table 3, Josh Moore et. al.: OME-Zarr: a cloud-optimized bioimaging file format with international community support, bioRxiv 2023.02.17.528834

Thank you

