

 CERF 6.0 Notable New Features

## 1) Technical

- Upgraded core components:
  - Java 25
  - Tomcat 11
  - MySQL 9
  - AMQ 6
- Numerous significant improvements to performance, stability architectural efficiency.
- Critical security updates.
- Upgrade to SMB versions 2/3 for linking to external file servers.
- Upgrade Lucene library and search functionality.
- Update to latest version of many key CERF component libraries.
- Optional TOTP MFA authentication for CERF Desktop client and Automaton using authentication apps like Google, Microsoft, and BitWarden.
- All new build process and efficient creation of application installers  
Windows installer is now available as a .MSI package.
- Integration of Claude skills and agents in the build process focused on product QA, security and resolution of legacy bugs and issues.
- Full support for CERF client applications on Debian based Linux workstations, like Ubuntu 25.10  
Gnome desktop.
- New or extended support for various additional file formats (i.e. variously, support for one or more of: Viewing in CERF, print to PDF, and / or indexing for search). Additions include RTF, .PSD (photoshop), CDXML, JP2, OME-TIFF, Apple iWork formats (.PAGES, .NUMBERS, .KEY), certain text-based files, (especially biological sequence and technical text files) and various legacy image formats.
- Improved Check-in workflow to confirm valid hash of new resource uploaded to the CERF server, which improves security by limiting “man-in-the-middle” attack vectors.
- Technical improvements to server email system.
- Improved technologies for export to PDF and export to MS Word.
- Pre-emptive creation of thumbnails and document previews upon edition, allowing for dramatically faster on-demand file viewing in CERF.
- Improvements to LDAP support.
- Upload of Users in Web Client now uses latest XLSX file format.

## 2) Search

- New Resource status column in search results that includes the status icons.
- Better control over displayed columns in search results.
- Expand search indexing to include larger number of text-based file formats, especially biological sequence files and technical / computer code files.
- New top-level checkbox filter: “Current Versions Only”. This limits results to *include only those items that are in a collection* (i.e. the default search now *excludes* older versions, and items that have been discarded by removal from all collections, such that the search results are less “noisy”).
- Improved categorical metadata extraction of chemical attributes (formula, molecular weight, full name etc.) from .cml chemical structure files and corresponding search parameters. The list of attributes can be extended upon request to allow ingestion and search index of custom file properties (i.e., internal metadata) present within any .cml chemistry structure file.
- New search feature designed to allow users to easily look for resources related to a specified CERF resource using a special command in the format of “CERF<IDNumber>” in the Full Text search parameter. (For example, search for “CERF1202”, will find resource 1202 AND other resources previously indicated to be *related to* CERF resource with the ID of 1202).
- The search results “file size” column now displays the file size in KB, MB, or GB, and is fully sortable and scale aware.
- CERF table (.sps files) are now indexed for better searching of table content and embedded resources

## 3) Look and Feel

- Theme-able icon sets. Numerous light / dark / custom GUI colors. Ability to adjust size / type of icons and fine tune icon color filters.
- Modernized color scheme and fonts throughout.
- New icon for Export to CSV, and expanded use of this option throughout CERF.
- Improve CERF Table toolbar icons.
- Improved icons throughout, added support for custom icon sets.
- Adjust Notifications window for easier viewing of list of notifications.
- New keyboard command options (ctrl-shift-1, 2 and 3) to allow users to make efficient use of screen space by displaying only specific CERF panels as needed.
- New View menu to allow users to make efficient use of screen space by displaying only specific CERF panels as needed. Also supports for tiled or stacked CERF windows.
- Image viewer background shade slider for images in center panel allows for optimization of contrast during image viewing.
- Configurable thumbnail sizes for previews shown in info windows, especially useful when using folder > Contents > View Thumbnails to view, for example, CERF folders containing multiple micrographs or other images.
- Improved image annotation tools with support for controlled vocabulary labels and links within images.

## 4) Other Improvements

- CERF tables now have improved ability to receive multiple resources (including files and SDIMS cards dragged to the checked out table from elsewhere in CERF). User can choose to insert resources as a ROW top to bottom or a Column, left to right.
- CERF now includes the ability to compare two versions of a resource and show all differences (i.e., CERF now includes “diff” capability).
- “Quickview” – key commands; Select any resource in the navigator and hit <space> to view with default view method, <return> to toggle navigator folders open and closed.
- Allow users to change designation of CERF resource type at any time, which in turn enables on-demand access to relevant, specialized metadata categories drawn from various scientific sub-disciplines.
- Improve distinction between user created vocabularies created as tags (formerly called “Controlled Vocabularies” now called “Vocabularies”) vs system provided, read-only “Domain Vocabularies” which are categories of terms associated with specific CERF resource types.
- New option in edit metadata > Add More Metadata dropdown: “CERF Resource Link” to allow authorized users to formally link a CERF resource to some other related CERF resource as part of your official record. Relations were previously only available as informal, un-versioned annotations.
- New option in edit metadata > Add More Metadata dropdown: “Co-contributor”. A “Co-contributor” is any other user belonging to any of the same workgroups as the contributor who has contributed to that resource. “Co-contributor” is also a new search > metadata parameter.
- Collections include a new section that lists all contributors. This can be especially useful when determining who has contributed to a notebook page since notebook pages generally need to have all entries signed by the respective contributors before final approval.
- Better handling of special characters in CERFHT Entries, Entry Captions, and elsewhere.
- Popup to inform user that a resource is no longer in collection when using Search > Navigate on prior versions in a version history.
- Remove legacy unused Business Policies.
- Various new security / compliance CERF Business Policies including: Allow / disallow / configure MFA. Allow / disallow drag-export files to local computer (via local files pane). Allow / disallow users from administering their own personal workgroups. Default session time now set to 60 minutes.
- Users with Guest Role can now only view resources within CERF. External viewing via external application now requires minimum role of digital cosigner. This security feature prevents Guests from downloading files to a local machine (even though files viewed externally are set to read only). “Guests” can therefore only see file types that can be displayed within CERF.
- Improve feedback to users who try to access CERF with expired license.
- Updated Edit > Add relation > “Crossreference” feature with new examples and better support for customized linking to specific web pages in the customer’s preferred, browser-accessible databases and knowledge bases.
- Users can now view sent and archived notifications alongside their inbox in the CERF Notifications panel.
- Right-clicking on a Network File Link annotation (i.e. a link to a file stored externally in an SMB volume) now allows convenient “View in external app” and “Download”.

- Improvements to “Sample” SDIMS card, additional improvements to entire SDIMS system anticipated in the CERF 6.X series of releases.
- CERF Table: Tables now have the ability to display re-sizable thumbnails, allowing for display of annotated rows or columns of thumbnail images or a grid populated with similar sized thumbnail images of CERF resources.
- CERF Table: New internal search tool added, available in both view or edit mode.
- Optional inclusion of Public File Cabinet containing CML format chemistry structures as a reference source for chemical metadata. Access this file cabinet using Collections > Show Collections. This reference resource helps to showcase:
  - Access to special metadata associated with specific resource types (“Chemical Material” in this case)
  - Extraction of file properties (melting point, chemical formula, molecular weight, CAS and Pub Chem numbers).
  - Granular search for these chemical properties