SEVENTH FRAMEWORK PROGRAMME

Research Infrastructures

# Deliverable 3.2.1

## Periodic report on the use of wiki and surveys


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# Section 1: Summary of Deliverable

## Background

User community outreach is an important determinant of the success of the Virtual Research Community (VRC) of WeNMR. It is important that users incorporate WeNMR into their working practice, can find relevant information and get actively involved by suggesting improvements and participating in mailing lists. Users can come from different disciplines and they can have different background and different levels of expertise.

Therefore, the WeNMR Wiki should target such differ levels of user expertise. The Wiki pages serve to spread good practice from the consortium partners and from active users to others within the community. A core set of documents is being created to by the consortium partners, but also external VRC members are invited to actively contribute and to provide feedback to the developers. This organized approach to the Wiki should encourage active user participation and lead to a lively Virtual Research Community.

To monitor the usage of the VRC, a user survey was created. This survey allows us to explore the needs and problems of the user by giving them the opportunity to write feedback about the tools and overall organization in WeNMR. Similar modes of interaction with the WeNMR community will also be used to get feedback on other project aspects, like for example the industry participation and interest in WeNMR.

## Goal

The goal of this Deliverable is to monitor the current usage of the Wiki pages and to evaluate the results obtained in the user survey.

## Section 2: Wiki, Getting Started and Tutorial usage

### Summary

Originally, the WeNMR Wiki was meant as a mechanism by which users of the VRC would be able to contribute themselves to the documentation available on the WeNMR VRC, in addition to the official documentation. However, user contributions have been only limited so far and this dual setup caused documentation to be spread out of the various parts of the WeNMR VRC. Therefore, it was discussed at a consortium meeting in Cambridge, that the official documentation (the "Getting started" documents and the "Tutorials") could be merged with the Wiki. In that way, information will be less scattered throughout the website and documentation as well as support will be easier for users to find. In addition, because some content already is available, the threshold for contribution by users to this Wiki might be lowered. Note that at this time users have not yet been actively encouraged to contribute to the wiki.

Currently, the "Getting started" documentation is merged into the Wiki, but the "Tutorials" documentation is still separate. To monitor the usage of the different pages of the WeNMR VRC, we analyzed the total number of views for each of these pages. Although that number is not a direct indicator for the number of users reading those pages, it does provide a clear picture of which pages are been read the most.

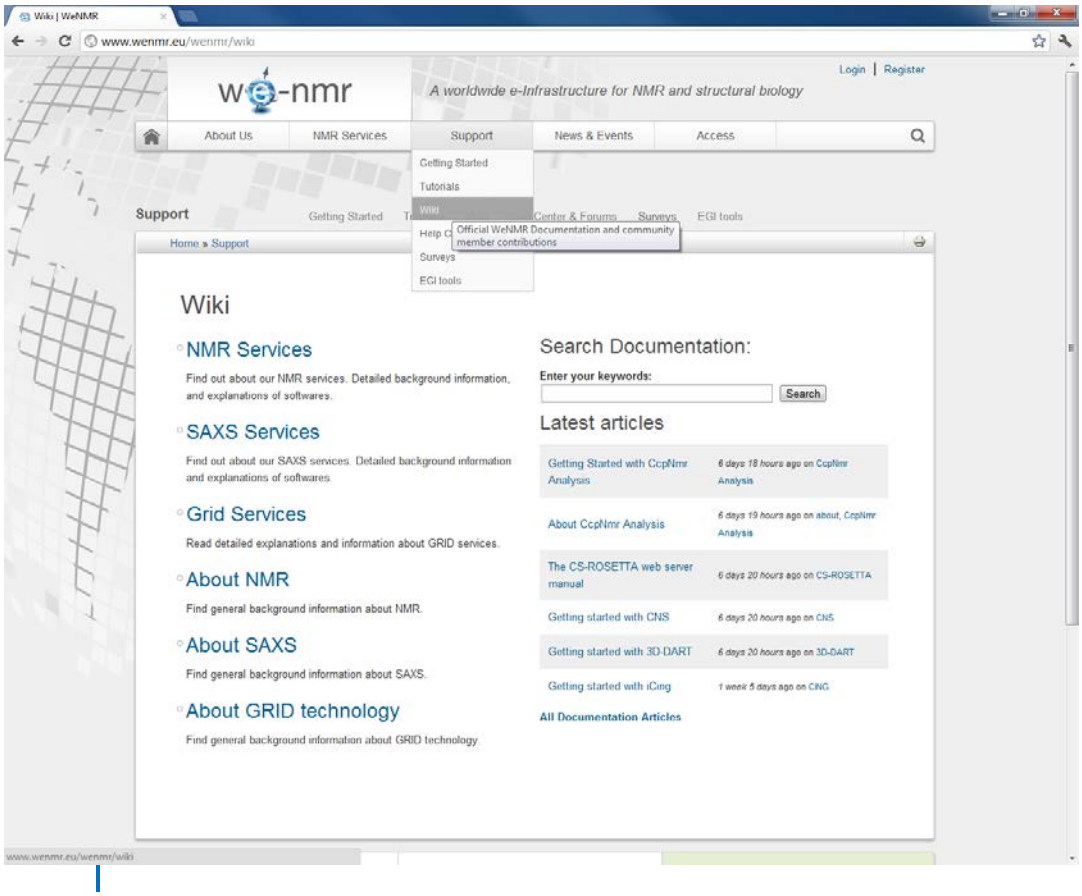


*Figure: Entry point of the now combined Wiki and documentation resources of the WeNMR VRC.*

## Analysis of usage of Wiki / Getting Started pages

The combined Wiki and Getting Started section contains a total of 63 pages, which have seen a total of almost 16.000 views. The top 10 of the currently most viewed pages:

| Page title | Views |
|---|---|
| 3D-DART User Manual | 891 |
| VO registration troubleshooting | 752 |
| The WeNMR web Portals for Structural Biology | 625 |
| Getting started with AMBER | 576 |
| perusal option: save your job output before reaching walltime | 565 |
| 3D-DART Example Gallery | 454 |
| Introduction to Biomolecular NMR spectroscopy and WeNMR | 431 |
| Getting started with MDD NMR | 420 |
| About 3D-DART | 409 |
| Getting started with CYANA | 396 |

A table with the views of all pages in this section of the VRC can be found in the supplementary information 1 at the end of this deliverable.

This set of most viewed pages contains the most important introductory pages for people who are starting to use the WeNMR VRC, like the general introduction to WeNMR, the overview of web portals and the Grid registration troubleshooting page. In addition, the list contains documentation and Getting Started pages for some of the web portals, of which especially the "*Getting started with AMBER*" page is remarkable, as this is a web portal that was only added to the WeNMR VRC last year and thus clearly seems to serve an important need of the WeNMR user community, something that is also shown by its usage statistics.


*Figure: The AMBER (AMPS-NMR) web portal.*

## Analysis of usage of Tutorial pages

The Tutorial section contains a total of 51 pages, which have seen a total of over 14.000 views. The top 10 of the currently most viewed pages:

| Page title | Views |
|---|---|
| MaxOCC usecase | 1537 |
| HADDOCK web server tutorial | 984 |
| Xplor-NIH use case with a User Interface | 641 |
| Generating the Necessary Restraint Files for running HADDOCK Manually | 617 |
| Quick gLite Middleware Deployment HOW-TO for WeNMR | 616 |
| Structure refinement using Restrained Molecular Dynamics (RMD) with the AMBER package | 589 |
| Xplor-NIH calculation with paramagnetic restraints using the web portal | 490 |
| Using and contributing to the WeNMR VRC | 486 |
| How to Prepare PDB Files for Running HADDOCK Manually | 475 |
| CYANA 3.0 Use Case Examples | 463 |

A table with the views of all pages in this section of the VRC can be found in the supplementary information 2 at the end of this deliverable.

The top viewed tutorials are those corresponding to the MaxOCC, HADDOCK and XPLOR-NIH and AMBER (AMPS-NMR) portals, which is not surprising as these portals are all among the top portals that have the most number of active users or generate the most number of grid jobs (as was presented in Deliverable 1.5, the 1$^{st}$ period report) and thus seem to be very popular among the WeNMR community. A very popular portal that is not in the list above is the CS-ROSETTA portal, but the first Tutorial for CS-ROSETTA was only added to the WeNMR VRC about one week ago (see supplementary information 2), explaining why it has not yet seen as many views as the other tutorials.

A very promising observation is the high ranking of the tutorial on “Using and contributing to the WeNMR VRC”, which seems to indicate that quite some of the VRC users are at showing an interest in actively contributing to the community, something that was also reflected in the analysis of the user survey (see below).

# Section 4: User survey

## Summary

To be able to monitor the needs and issues of users and other stakeholders when using the WeNMR VRC and services, several continuously running surveys are in place on the WeNMR website, which also have been advertised among relevant communities. Currently, three different surveys are in place, one dedicated for concerns regarding the security of the Grid usage, one directed at Industry, and one general user survey, on which we already reported in a previous report outside the standard set of deliverables.

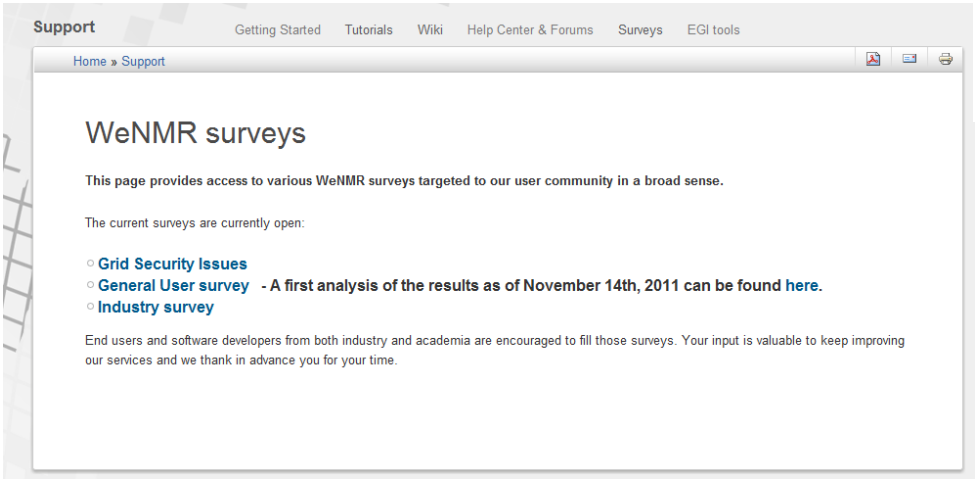


*Figure: The surveys on the WeNMR website.*

## Key user survey results

The results from the user survey (full result available here: http://www.wenmr.eu/wenmr/wenmr-user-survey-2011) indicated that approximately 60% of the people using the VRC are based in Europe, with the remaining 40% being located mainly in the Americas and Australasia. Interestingly, over 60% of the respondents also indicated that they have used grid computing either via web-portals or a user interface, showing that there seems to be no real burden for users to engage in grid computing. Nevertheless, several people did indicate they used the WeNMR site tutorials and use-cases to successfully use the WeNMR tools, showing the clear need for the availability of proper documentation on using the grid. Promisingly, quite a few users also indicated that they had an interested in actively contributing to the WeNMR VRC.

## Other surveys

The results from the other two surveys have not been analyzed in detail yet, but both have been advertised broadly in the relevant communities, which has led to a reasonable number of responses, especially in the survey targeted towards industry, with which we aim to get a better view of the potential industrial structural biology user community and to understand their concerns and security requirements about using the WeNMR grid platform.

## Supplementary information 1: Wiki / Getting Started page usage

This is the full list of usage of all Getting Started and Wiki pages, as of March 13, 2013. The current status is available at: http://www.wenmr.eu/wenmr/all-documentation-articles

| Page Title | Categories | Created | Last editing activity | Views |
|---|---|---|---|---|
| 3D-DART User Manual | 3D-DART | 3/14/2011 20:19 | *6 days 20 hours* ago | 891 |
| VO registration troubleshooting | enmr.eu VO, grid, personnal certificate,Registration, web browser | 3/16/2011 14:20 | *51 weeks 5 days* ago | 752 |
| The WeNMR web Portals for Structural Biology | NMR Services, Grid Services | 7/20/2011 12:03 | *33 weeks 5 days ago* | 625 |
| Getting started with AMBER | Amber | 7/20/2011 11:17 | *1 week 6 days* ago | 576 |
| perusal option: save your job output before reaching walltime | gLite, gLite, jdl, perusal, walltime | 7/20/2011 13:08 | *18 weeks 6 days ago* | 565 |
| 3D-DART Example Gallery | 3D-DART | 3/14/2011 21:42 | *52 weeks 12 hours* ago | 454 |
| Introduction to Biomolecular NMR spectroscopy and WeNMR | About NMR | 7/20/2011 11:36 | *33 weeks 5 days ago* | 431 |
| Getting started with MDD NMR | MDD | 7/20/2011 9:54 | *33 weeks 5 days ago* | 420 |
| About 3D-DART | 3D-DART | 2/25/2011 15:19 | *2 weeks 1 hour* ago | 409 |
| Getting started with CYANA | CYANA | 7/20/2011 9:32 | *29 weeks 3 days ago* | 396 |
| Getting started with HADDOCK | HADDOCK | 7/20/2011 9:15 | *33 weeks 5 days ago* | 380 |
| Getting started with CS-ROSETTA | CS-ROSETTA | 7/20/2011 9:36 | *33 weeks 5 days ago* | 375 |
| Testing accessibility of all SE from all CE (for grid admin) | gLite, grid admin SE CE | 5/4/2011 18:17 | *44 weeks 5 days ago* | 374 |
| Getting started with UNIO | UNIO | 7/20/2011 11:20 | *33 weeks 5 days ago* | 370 |
| Getting started with CcpNmr format converter | FormatConverter | 7/20/2011 11:14 | *33 weeks 5 days ago* | 348 |
| Getting started with MARS | MARS | 7/20/2011 9:48 | *33 weeks 5 days ago* | 332 |
| Usefull link for GRID related work (mainly for site admin) | Grid Services, accounting, admin, grid,monitoring | 10/6/2011 17:33 | *21 weeks 5 days ago* | 327 |
| Counting the WeNMR members per country. | gLite, grid vo WeNMR user member country user list | 5/4/2011 20:36 | *44 weeks 5 days ago* | 300 |
| Getting started with TALOS+ | Talos | 7/20/2011 9:51 | *33 weeks 5 days ago* | 297 |
| About HADDOCK | complex, DNA, docking, HADDOCK,ligand, Nucleic acid, protein, RNA | 2/21/2011 15:34 | *52 weeks 2 hours* ago | 291 |
| eToken with Xen (grid admin) | gLite, Xen etoken | 5/13/2011 16:57 | *5 weeks 3 days ago* | 291 |
| About CING | CING | 3/7/2011 15:42 | *1 week 5 days* ago | 279 |

| Page Title | Categories | Created | Last editing activity | Views |
|---|---|---|---|---|
| About FormatConverter | conversion, format, FormatConverter ,NMR | 7/13/2011 8:21 | *34 weeks 6 days ago* | 267 |
| jobs - user friendly utility to manage the users jobs | gLite | 8/23/2011 18:19 | *28 weeks 5 days ago* | 260 |
| Grid deployment scripts (for site admin) | deployment, gLite, gLite, site-admin,software | 8/2/2011 11:12 | *31 weeks 6 days ago* | 258 |
| CheckGRID - Utility to test and publish GRID resources (for site admin) | gLite | 8/23/2011 17:51 | *28 weeks 5 days ago* | 253 |
| JobControl - utility to manage multi jobs submission (for site admin) | gLite | 8/23/2011 18:09 | *28 weeks 5 days ago* | 253 |
| Ab initio shape determination by simulated annealing using a single phase dummy atom model | ab initio, DAMMIN, Dammin | 7/22/2011 12:50 | *33 weeks 3 days ago* | 246 |
| The EGI services API wiki page | Grid Services, documentation, EGI,gLite | 8/23/2011 10:39 | *28 weeks 6 days ago* | 243 |
| About CS-Rosetta | chemical shifts, CS-ROSETTA, NMR,structure calculations | 7/13/2011 8:16 | *34 weeks 6 days ago* | 242 |
| About Antechamber | AMBER, Antechamber, Organic molecules | 7/13/2011 8:36 | *34 weeks 4 days ago* | 236 |
| About MaxOCC | Maximum Occurrence of a conformer,MaxOCC, NMR, SAXS | 7/13/2011 8:38 | *34 weeks 4 days ago* | 236 |
| Things to do to "add" a new grid site admin | Grid Services, site admin | 10/7/2011 12:06 | *22 weeks 3 days ago* | 232 |
| Grid User Interfaces | Grid Services | 7/7/2011 7:52 | *35 weeks 5 days ago* | 222 |
| Ensemble Optimization Method | EOM, Eom, GAJOE, RANCH | 7/22/2011 12:32 | *33 weeks 3 days ago* | 220 |
| About AutoAssign | assignment, AutoAssign, automated, chemical shifts, NMR, resonance | 7/13/2011 8:07 | *34 weeks 6 days ago* | 216 |
| Getting started with XPLOR-NIH | Xplor-NIH | 7/20/2011 9:17 | *33 weeks 6 days ago* | 215 |
| Modelling of multisubunit complexes | rigid body modelling, SASREF, Sasref | 7/22/2011 12:59 | *33 weeks 3 days ago* | 215 |
| About AMBER | Amber, Force Fields, Molecular Dynamics, Refinement | 7/12/2011 16:06 | *15 weeks 18 hoursago* | 213 |
| About Talos | dihedral angle prediction, protein,secondary chemical shifts, Talos, Talos | 7/12/2011 16:13 | *34 weeks 6 days ago* | 213 |
| Small angle X-ray scattering | About SAXS, complexes, nucleic acids, proteins, SAXS, solution scattering | 7/22/2011 12:10 | *33 weeks 3 days ago* | 205 |
| About Xplor-NIH | Molecular Dynamics, Monte Carlo,NMR restraints, structure calculation,Xplor-NIH | 7/15/2011 7:51 | *33 weeks 3 days ago* | 202 |
| About CNS | CNS, NMR, structure calculation, X-ray | 7/13/2011 8:11 | *34 weeks 6 days ago* | 200 |
| Ab initio shape determination by simulated annealing using a multiphase dummy atom model | ab initio, MONSA, Monsa | 7/22/2011 12:55 | *33 weeks 3 days ago* | 200 |
| Automated grid submission and polling daemons | About GRID technology, gLite | 11/2/2011 10:14 | *18 weeks 5 days ago* | 198 |
| Getting started with GROMACS | GROMACS | 12/7/2011 15:47 | *13 weeks 5 days ago* | 193 |
| About UNIO | automated assignment, NMR,resonance, structu | 7/13/2011 8:28 | *34 weeks 6 days ago* | 192 |

| Page Title | Categories | Created | Last editing activity | Views |
|---|---|---|---|---|
| | re calculation, UNIO | | | |
| About MARS | automated assignment, chemical shifts, MARS, NMR, resonance | 7/13/2011 8:24 | *34 weeks 6 days ago* | 168 |
| Evaluation of the solution scattering from macromolecules with known atomic structure and fitting to experimental data | CRYSOL, Crysol | 7/22/2011 12:41 | *33 weeks 3 days ago* | 167 |
| Automatic test of enmr.eu jobs on all supporting CEs. | enmr.eu, gLite, grid, jobs, site admin,test | 2/2/2012 12:39 | *5 weeks 4 days ago* | 81 |
| Getting started with iCing | CING | 2/29/2012 18:03 | *1 week 5 days ago* | 48 |
| RCI documentation | flexibility, protein, RCI, RCI | 2/24/2012 0:04 | *2 weeks 4 days ago* | 44 |
| About CS23D | chemical shift, CS23D, CS23D, protein,structure | 2/23/2012 22:16 | *2 weeks 4 days ago* | 40 |
| About RCI (Random Coil Index) | flexibility, protein, Random Coil Index, RCI, RCI | 2/23/2012 23:54 | *2 weeks 4 days ago* | 36 |
| ResProx documentation | equivalent resolution, resprox, ResProx | 2/27/2012 21:45 | *2 weeks 12 hours* ago | 36 |
| The CS-ROSETTA web server manual | CS-ROSETTA | 3/6/2012 13:32 | *5 days 3 min* ago | 36 |
| About GeNMR | chemical shifts, GeNMR, GeNMR, NOEs,protein, structure | 2/23/2012 23:13 | *2 weeks 4 days ago* | 35 |
| About CcpNmr Analysis | about, CcpNmr Analysis | 3/6/2012 15:02 | *6 days 18 hours* ago | 32 |
| CS23D documentation | chemical shift, CS23D, CS23D, protein,structure | 2/23/2012 22:43 | *2 weeks 56 min* ago | 30 |
| About ResProx | equivalent resolution, protein, ResProx,structure | 2/24/2012 22:00 | *2 weeks 3 days ago* | 30 |
| Getting Started with CcpNmr Analysis | CcpNmr Analysis | 3/6/2012 15:24 | *6 days 18 hours* ago | 29 |
| GeNMR documentation | generation, GeNMR, GeNMR, structure | 2/23/2012 23:33 | *2 weeks 4 days ago* | 25 |
| Getting started with 3D-DART | 3D-DART | 3/6/2012 13:22 | *6 days 20 hours* ago | 24 |
| Getting started with CNS | CNS | 3/6/2012 13:28 | *6 days 20 hours* ago | 22 |

## Supplementary information 2: Tutorial page usage

This is the full list of usage of all Getting Started and Wiki pages, as of March 13, 2013. The current status is available at: http://www.wenmr.eu/wenmr/tutorials-and-use-cases/all-wenmr-tutorials

| Page Title | Categories | Created | Last editing activity | Views |
|---|---|---|---|---|
| MaxOCC usecase | MaxOCC | 3/18/2011 15:02 | *41 weeks 4 days* ago | 1537 |
| HADDOCK web server tutorial | HADDOCK | 3/8/2011 8:57 | *1 year 5 days* ago | 984 |
| Xplor-NIH use case with a User Interface | paramagnetic restraints, paramagnetism, structure calculation,UI, Xplor-NIH | 3/18/2011 17:00 | *29 weeks 3 days ago* | 641 |
| Generating the Necessary Restraint Files for running HADDOCK Manually | HADDOCK | 3/18/2011 14:01 | *51 weeks 4 days ago* | 617 |
| Quick gLite Middleware Deployment HOW-TO for WeNMR | BDII, CE, certificate, configuration, DGAS, gLite, GRID Tutorials, HLR, jdl, job submission, release, sensor, service,voms, X.509, yaim | 3/14/2011 20:26 | *5 days 23 hours* ago | 616 |
| Structure refinement using Restrained Molecular Dynamics (RMD) with the AMBER package | Amber, AMBER, Molecular Dynamics, Refinement, RMD,structure calculations | 3/11/2011 11:43 | *36 weeks 1 day* ago | 589 |
| Xplor-NIH calculation with paramagnetic restraints using the web portal | paramagnetic restraints, paramagnetism, structure calculation,web browser, Xplor-NIH, Xplor-NIH | 3/18/2011 16:46 | *39 weeks 1 day* ago | 490 |
| Using and contributing to the WeNMR VRC | General Tutorials | 10/26/2011 8:13 | *9 weeks 5 hours* ago | 486 |
| How to Prepare PDB Files for Running HADDOCK Manually | HADDOCK, manual Haddock, protein docking | 3/11/2011 11:25 | *51 weeks 4 days ago* | 475 |
| CYANA 3.0 Use Case Examples | CYANA | 3/10/2011 15:39 | *52 weeks 23 hours* ago | 463 |
| GROMACS use case example for calculations on the GRID | example, grid submission, GROMACS, gromacs,Molecular Dynamics, use case | 3/10/2011 15:16 | *1 year 3 days ago* | 451 |
| Restrained Molecular Dynamics (RMD) refinement of structures including RDC's | Amber, Molecular Dynamics, RDC, Refinement,RMD, structure calculations | 6/28/2011 14:16 | *34 weeks 4 days* ago | 447 |
| A Case Study: Preparing Input Files for a Manual HADDOCK Run | HADDOCK | 3/18/2011 14:04 | *51 weeks 4 days* ago | 434 |
| Quick gLite HOW-TO for WeNMR users | CA, certificate, enmr.eu VO, GRID Tutorials, jdl,job submission, proxy, UI | 3/14/2011 15:58 | *12 weeks 3 days* ago | 394 |
| Gromacs on the GRID | grid submission, GROMACS, gromacs, Molecular Dynamics, tutorial | 3/10/2011 18:09 | *48 weeks 1 day* ago | 383 |
| CNS use case example for running on the Grid | CNS, CNS, grid submission, Refinement,structure calculations | 3/9/2011 9:15 | *1 year 5 days ago* | 368 |

| | | | | |
|---|---|---|---|---|
| MDDNMR Use Case Examples | MDD | 3/14/2011 16:37 | *52 weeks 22 hours* ago | 341 |
| MDDNMR webportal server tutorial | MDD | 3/10/2011 16:37 | *1 year 18 min* ago | 331 |
| CYANA wiki tutorials | CYANA | 3/8/2011 11:34 | *1 year 6 days ago* | 301 |
| MARS Use Case Example | MARS | 3/14/2011 16:10 | *50 weeks 6 days* ago | 291 |
| CYANA demos | CYANA | 3/8/2011 12:30 | *1 year 6 days ago* | 285 |
| MDD-NMR Job Submission Demo | MDD | 3/8/2011 12:34 | *1 year 6 days ago* | 282 |
| PROSA 6.4 Use Case Example | PROSA | 3/14/2011 16:25 | *52 weeks 22 hours* ago | 278 |
| NUSSAMPLER Use Case Example | MDD | 3/14/2011 16:43 | *52 weeks 22 hours* ago | 262 |
| Restrained Molecular Dynamics (RMD) refinement of structures including Disulfide bond | Amber | 9/19/2011 15:39 | *25 weeks 22 hours* ago | 249 |
| Video tutorials - Contributing content | General Tutorials | 1/10/2012 9:36 | *9 weeks 5 hours* ago | 240 |
| Maximum Occurrence calculations with the MaxOcc web portal | Maximum Occurrence, MaxOCC,PCS, RDC, SAXS | 8/19/2011 17:12 | *29 weeks 3 days* ago | 235 |
| VO registration troubleshooting | certificate, GRID Tutorials, SSL error,TLS, voms, X.509 | 3/14/2011 18:03 | *51 weeks 5 days* ago | 208 |
| GARANT 2.0 Use Case Example | GARANT | 3/14/2011 15:41 | *52 weeks 23 hours* ago | 201 |
| MAPPER 2.0 Use Case Example | MAPPER | 3/14/2011 16:29 | *52 weeks 22 hours* ago | 193 |
| INFIT 2.0 Use Case Example | INFIT | 3/14/2011 15:31 | *52 weeks 23 hours* ago | 189 |
| Develop a charge distribution and automatically generate input force field parameters for most organic molecules. | Antechamber, Charge distribution,Force Fields, Organic molecules | 12/20/2011 11:41 | *12 weeks 3 hours* ago | 161 |
| How to use the NRG-CING website. | CING | 11/7/2011 12:05 | *18 weeks 1 day* ago | 143 |
| CcpNmr Analysis 2.1.5 course: Triple resonance based protein NMR assignment - video tutorials | CcpNmr Analysis | 2/27/2012 13:41 | *6 days 5 hours* ago | 97 |
| 3D-DART user manual | 3D-DART | 3/3/2012 5:29 | *1 week 1 hour* ago | 33 |
| CS-ROSETTA use case example: UVRC | CS-ROSETTA | 3/3/2012 6:56 | *1 week 3 days* ago | 33 |
| Modelling DNA from a base-pair step parameter file | 3D-DART | 3/3/2012 5:56 | *5 days 3 hours* ago | 32 |
| CcpNmr Analysis Structure Course from CCPN | CcpNmr Analysis, tutorial | 3/6/2012 14:44 | *1 week 27 min* ago | 28 |
| CNS online tutorials (version 1.3) | CNS | 3/3/2012 6:34 | *1 week 3 days* ago | 28 |
| Modelling a smooth 60 degrees bend in a 20 nucleotide BDNA, but of different directions | 3D-DART | 3/3/2012 5:53 | *5 days 3 hours* ago | 26 |
| Modelling DNA using local bend angle definitions | 3D-DART | 3/3/2012 5:55 | *5 days 3 hours* ago | 26 |
| HADDOCK portal - easy interface use case | HADDOCK | 3/3/2012 5:20 | *1 week 3 days ago* | 26 |

| | | | | |
|---|---|---|---|---|
| CcpNmr Analysis Beginners' Course from CCPN | CcpNmr Analysis,tutorial | 3/6/2012 14:57 | *1 week 21 min* ago | 25 |
| Modelling a smooth 60 degrees bend in a 20 nucleotide BDNA | 3D-DART | 3/3/2012 5:49 | *5 days 3 hours* ago | 25 |
| HADDOCK portal - guru interface use case | HADDOCK | 3/3/2012 5:24 | *1 week 3 days ago* | 23 |
| Protein NMR - A Practical Guide | CcpNmr Analysis,tutorial | 3/6/2012 14:40 | *1 week 38 min* ago | 23 |
| Running other CNS scripts on the Grid | CNS | 3/3/2012 6:24 | *1 week 3 days ago* | 22 |
| CcpNmr Analysis Solid State Course from CCPN | CcpNmr Analysis,tutorial | 3/6/2012 14:49 | *1 week 29 min* ago | 21 |
| Modelling a localized 30 degrees bend in in a 20 nucleotide BDNA sequence | 3D-DART | 3/3/2012 5:51 | *5 days 3 hours* ago | 21 |
| CNS online tutorials (version 1.2) | CNS | 3/3/2012 6:33 | *1 week 3 days ago* | 20 |