

Proposed changes to the new portal and reports (version 3)

This document summarizes the proposal of the members of the WLCG Accounting Task Force :

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1). Provide a dedicated entry point for WLCG-related views

2). Term “Infrastructure”

Agreed to use “Global” vs “Local” instead of “Grid” or “Infrastructure” vs “local”. Though “global” should stand for any kind of processing :local submission, clouds, GRID, HPC, for the time being when we can not transparently aggregate GRID and Cloud data related to the same site, it was decided to **use “Global” as a synonym of ‘non-local’ processing**, and to use this term everywhere where it is relevant, see later discussion of the T1 reports.

3). WLCG view, metric names and definitions

Two main comments first:

1). At this point ***we can not solve the problem of mixing raw and scaled wallclock time***, since they are reported in the same attribute in the usage record. The recommendation of the task force group would be to separate these two indicators in two different attributes in the usage record , process them separately through the complete chain and show them in two different metrics on the UI. John mentioned that it requires a lot of work, so we can not realistically expect to have it done by tomorrow. However, a majority of the members of the task force think that it has to be done. For the time being, considering ‘wallclock time’ metric on the user interface, we understand that sometime it is raw wall clock, sometime scaled wall clock. Fortunately, as our validation exercise shows, apart of very few sites (RAL, Prague) in most cases the difference between what is measured by the experiments (raw wall clock) and what is reported by the batch system (could be either raw or scaled) is minor, so in most cases we can assume that we have raw wall clock, or that raw and scaled wallclock are very close. Even when raw and scaled wallclock are substantially different once wallclock is normalized by HS06 then both types give identical results which is generally in agreement with the experiments best estimates of normalization.

2). We would like to **drop “Normalized” in metric names** since it is confusing can be mixed with “scaled” wall clock or causes questions “normalized to what”. We

want to have metric names consistent with physics concepts like “Time”, “Power” and “Work”. *So all metrics measured in time units like hours (days) should have name “Time” in the metric name, all those which are measured in HS06 hours (days) should have “work” in the metric name.*

List of metrics to be dropped from the WLCG view

Metric name	Reason why it is dropped
Sum elapsed	Since this metric does not take into account number of processors (cores) it is confusing
Normalized elapsed time	Since this metric does not take into account number of processors (cores) it is confusing

List of metrics to be preserved

Current name	New name	Definition	Units	Action
Number of jobs	Number of Jobs	Number of jobs processed in a selected time range	Jobs	No change
Sum CPU	Sum CPU Time	Sum of CPU time as reported to APEL by the batch system	Hours/ days	Add a warning to the UI, explaining that all plots and tables showing shares of different sites expressed in this metric can be misleading since it does not take into account power of a given CPU resource
Normalized SUM CPU	SUM CPU Work	Sum of CPU time as reported to APEL by the batch system and multiplied by benchmarked HEPSPEC06	HS06 hours/ days	Change metric name Add ToolTip for metric name starting with “Same as ‘Normalized SUM CPU’ and containing definition as provided in the “Definition”

		power of a given CPU resource		column
SUM elapsed * Number of processors	SUM Wallclock Time	Wallclock time as reported by the batch system. For some sites represent raw wallclock time defined as end time stamp of a particular job minus start time stamp and multiplied by number of processors. There are other sites which do not report raw wallclock time, but rather report raw wallclock time scaled by a batch system to a reference node. For such sites this metric currently shows scaled wallclock multiplied by number of processors	Hours/d ays	Change metric name. Add a warning to the UI, explaining that all plots and tables showing shares of different sites expressed in this metric can be misleading since it does not take into account power of a given CPU resource. Add ToolTip for metric name starting with "Same as 'SUM elapsed * Number of processors ' and containing definition as provided in the "Definition" column
Normalized sum elapsed * Number of Processors	SUM Wallclock Work	Wallclock time as reported by the batch system and multiplied by benchmarked HEPSPEC06 power of a given CPU resource and by number of processors. See more details	HS06 hours/d ays	Change metric name Add ToolTip for metric name starting with "Same as 'Normalized SUM elapsed * Number of processors ' and containing definition as provided in the "Definition" column

		above.		
CPU efficiency	CPU Efficiency	100* SUM CPU time / SUM (wallclock time* number of processors)	%	No change Add ToolTip : As provided in the Definition column

4). Review T1 reports

1). Since the main purpose of the WLCG accounting reports is to demonstrate how MoU obligations are fulfilled, decided to preserve in the reports only metric which is compared to pledges. According to the decision of the WLCG MB following Pepe's presentation at the February MB (https://indico.cern.ch/event/459359/contributions/1130908/attachments/1229392/1801384/20160216_Accounting_Tier1s.pdf) we agreed to use wallclock time usage when comparing to CPU pledges since the pledges are expressed in HS06 power without applying efficiency factors which have been applied before 2015 to convert wallclock to CPU.

This should be applied to T1, T2 and country reports in the 'Reports -> WLCG' view.

As a result we decided to drop "CPU work" metric from all reports and preserve only "Wallclock work" metric in all tables. Remove all plots for "CPU work" distributions

2). In the upper part menu which is common for all kinds of reports under the WLCG reports replace 'CPU' and 'Wall time * Ncores' by 'Wallclock work'. See picture below

Accounting Portal High-Throughput Compute - Cloud Compute - Disciplines - Research Infrastructures - Reports - Restricted Views - Help -

WLCG Tier1 Report

From: October 2015
 Number of months: 12
 Federation: TWASGC, UK-T1-RAL, US-FNAL-CMS, US-T1-BNL
 Experiments: ATLAS, CMS, LHCb, Sum of all

Output tables: CPU, Disk Space, Tape Space
 Output plots: Wall time * #Cores, Efficiency, Disk Space, Tape Space

Include accounting summary
 Include experiment summary

Update

The EGI Accounting Portal is an EGI service provided by CESGA, co-funded by EGI-Engage <http://go.egi.eu/wmg>

**Replace CPU by wall clock work
 Replace Wall time * Ncores by Wall clock work
 This is applied to all pages of this view**

3). In the “Accounting summary” page the current header of the column “Elapsed HS06 hours * number of cores” replace by “Wallclock Work in HS06 hours (or days depending on a selected unit)”. See picture below. This is also true for the “Country” report. Add ToolTip : “Same as ‘Normalized sum elapsed * Number of Processors’. Defined as wallclock time as reported by the batch system, normalized by benchmarked HEPSPC06 power of a given CPU resource and multiplied by number of processors.”

4). In all WLCG views where relevant add ToolTips when move mouse over column headers or metric names in the menu

Accounting Summary

Site Summary	October	September	% pledge	TBytes-months installed	% installed	% pledge	TBytes occupied	occupied	occupied	installed	TBytes-months installed	% installed	% pledge	TBytes occupied	occupied	occupied	installed
All Tier-Is	12,657,446,570	123 %	973,078	74%	79%	82,038	75%	69%	93 %	1,596,252	65%	69%	152,722	69%	56%	102 %	
CA-TIRUMF	604,090,348	140 %	47,334	61%	92 %	4,247	65%	90%	138 %	71,978	61%	66%	6,697	57%	56%	102 %	
CH-CERN	4,939,698,309	74%	577,006	92 %	90%	54,965	98 %	95 %	97 %	1,130,381	86%	84%	117,333	92 %	92 %	99 %	
DE-KIT	1,828,116,217	140 %	115,447	82%	64%	10,443	87%	62%	71%	244,856	95 %	75%	19,519	81%	60%	73%	
ES-PC	461,851,184	103 %	47,792	96 %	89%	0	n/a	0 %	0 %	86,701	72%	68%	0	n/a	0 %	0 %	

Replace all headers where we have Elapsed HS06 hours * number of cores by “Wall clock work in HS06 hours” Same is applied to the “Experiment summary view”

5). In “All Tier1”, “All Tier1 + CERN” and per site pages under “Reports->WLCG Reports -> Tier1” pages remove plot “CPU time delivered”, change the header of the plot “Wallclock time delivered” to “Wallclock work”. Add ToolTip : “Same as

'Normalized sum elapsed * Number of Processors'. Defined as wallclock time as reported by the batch system, multiplied by benchmarked HEPSPEC06 power of a given CPU resource and by number of processors." Remove from the units on the plot '* # processors'.

6). In per site summary

- remove lines with CPU work metric.

- Where relevant add ToolTips when move mouse over the headers

- change the header above the table 'CPU used – HEPSPEC06 hours' to "Wallclock Work (HS06 hours)". ToolTip : "Same as 'Normalized sum elapsed * Number of Processors'. Defined as wallclock time as reported by the batch system, multiplied by benchmarked HEPSPEC06 power of a given CPU resource and by number of processors."

- Change the names in the left most column.

Example :

Change "Grid CMS wall * #cores" to "Global CMS Wallclock Work"

Change "Local CMS wall * #cores" to "Local CMS Wallclock Work"

7). In the pdf file with all options on

on page 4 "WLCG Accounting" for CPU and all other similar pages (per site)

remove existing notes.

Instead add the following:

* Local Wallclock work | sum of wallclock time used by jobs submitted locally as reported by the batch system during the referenced month multiplied by benchmarked HEPSPEC06 of the CPU resource and by number of processors.

** Global Wallclock work | sum of wallclock time used by jobs not submitted locally as reported by the batch system during the referenced month multiplied by benchmarked HEPSPEC06 of the CPU resource and by number of processors

***MoU pledge | MoU CPU pledge for a given month in HEPSPEC06 hours or days depending on the selected unit

**** %MoU | Total Wallclock work during referenced period as % of MoU CPU pledge for the same period

on page 7 with plots

Add note with definition of 'Wallclock work'

On page 5,6 with space accounting and all other pages containing page accounting info

Remove '(includes efficiency factors for space accounting)' in the note for "MoU pledge"

5). Review T2 reports

-Remove all lines with "CPU work" (normalized CPU) metric

- Add ToolTips when move mouse over the headers or metric names.

-Change the header of the column "2015 CPU Pledge (HEPSPEC06) AVG" to "Pledged Power (HEPSPEC06)". In the ToolTip "MoU CPU power pledge for a given federation expressed in HEPSPEC06 and averaged over a reference period"

-Change the header of the column "pledge inc. efficiency (HEPSPEC06-Hrs)" to "Pledged Wallclock Work (HEPSPEC06 Hours)". In the ToolTip "Average MoU CPU power pledge for a given federation multiplied by reference period duration expressed in the selected time units (hours or days)."

- Add one more column called "Delivered power (HEPSPEC06)" which contains value in column "Total" divided by number of hours/days in the referenced period. In the ToolTip "Total Wallclock Work divided by reference period duration expressed in the selected time units (hours or days)". Locate this column next to "Total"

- In the very bottom of the table , replace "Grand WallClock * #Cores Total" by "Total Wallclock Work"

- In the pdf version replace the header of the table

WLCG - Tier-2 Accounting Report (Normalised WallClock * #Cores)

By

WLCG - Tier-2 Accounting Report (Wallclock work in HEPSPEC06 Hours/Days)

- In the bottom of the pdf version of the report add notes for all ToolTips included in the report (that is for term 'Wallclock work' and all column names)

6). Review Country reports

- Change the header of the table "Country Accounting Report (HEPSPEC06 scale)" to

“Country Accounting Report (HS06 hours)” could be HS06 days.

- Remove columns with “CPU work” metric

- Change the header of the column “Norm. Elapsed * #cores” by “Wallclock Work (HEPSPEC06 hours/days) “. Add ToolTip with definition.
