**3GPP TSG-SA5 Meeting #162 S5-253740**

**Goteborg, Sweden, 25 - 29 August 2025 revision of S5-253205/S5-253268/ S5-253269/S5-253681**

**Source: SA5 Chair (Huawei), Ericsson Hungary, Nokia**

**Title: SA5 Working Methods**

**Document for: Approval**

**Agenda Item: 5.1 - Administrative issues at SA5 level**

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# 1 Scope

This document describes the working methods in SA5. This is a complement to the 3GPP working procedures, and in any case of an inconsistency, the 3GPP working procedures always take precedence.

Throughout this document the following abbreviations are sometimes used: “CH” which stands for “Charging” and “OAM” which stands for “OAM&P (Operations, Administration, Maintenance and Provisioning)”.

# 2 3GU

3GPP MCC (Mobile Competence Centre) maintains an advanced administrative tool named “3GPP Ultimate Portal” (3GU) which is used to manage all meeting contributions (allocation of Tdoc numbers, uploading, revisions, CR numbers etc.), specifications, meetings and work plan.

The following link takes you to a full description of 3GU’s capabilities and how to use it: <https://www.3gpp.org/3gu>.

# 3 Deadlines for contributions to a meeting

The normal deadline for Tdoc number reservation for all contributions is Friday 23:59 UTC, 10 days before the meeting. After this deadline, MCC shall generate the meeting document list and allocate Tdoc numbers manually.

The normal document submission deadline for CH and OAM contributions is Friday 23:59 UTC, 10 days before the meeting.

The normal document submission deadline for SA5 plenary contributions is Monday 23:59 UTC, the week before the meeting.

Late contributions or contributions modified after the submission deadline may not be dealt with during this meeting. See clause 6.

Exceptions to the normal deadlines may be announced by the chair, and the chair normally sends out an email to the SA5 email list announcing the deadlines before every meeting.

# 4 Revisions of contributions before the meeting

As an alternative to creating a new contribution, on the pop-up window, you can choose to revise an existing contribution. How to do that in 3GU, see [https://www.3gpp.org/3gu](https://protect2.fireeye.com/url?k=197550fa-45a15853-19751061-865b3b1e120b-61d2ae6d273e3bac&q=1&u=https%3A%2F%2Fwww.3gpp.org%2F3gu).

Note that the original contribution need not be a contribution to the same meeting but could be from any previous meeting of the group - or indeed, from any other 3GPP group, as long as 3GU can identify it.

Note that if you choose to revise a contribution from a previous meeting, you have to take care that the decision on the original contribution was not final. For example, if the original contribution was a CR, then its status would ideally have been "postponed", allowing decision in a later meeting.

In any case, it is not permitted to revise at working group level a contribution which has already been definitively concluded at TSG level: that is, already bears a TSG status of "approved" or "rejected". In such a case, a new contribution (with new CR number, if applicable) must be created, not a revision of the original.

Revisions created after the deadline may be considered as late contributions. See clause 6.

In case of addition of co-signing companies after the submission deadline, it is recommended not to revise the document already uploaded on the 3GPP server otherwise it will become a late contribution (see clause 6). The update of the source company in 3GU can only be done before document upload, or otherwise it can be done manually by MCC during the SA5 meeting.

# 5 Revisions of contributions during the meeting

Document revisions may be created during the meeting by using a new Tdoc number. To obtain a new Tdoc number during the meeting delegates must contact the MCC secretary. Changes should be clearly indicated on the revised document and a version with revision marks should be provided.

Cases where document revisions may be needed are when there has been offline discussion that can help reaching agreement, when an error is identified in the contribution or following discussion in a formal session.

When the revised contribution is to be re-discussed during the “second round” of discussion of documents, delegates should upload the revision in the Drafts folder contained in the Inbox of the meeting server using the following file naming convention: S5-12xyzwdN Tdoc title.doc (no zip file) where S5-12xyzw is the Tdoc number and N is the number of version of the draft. For the first version of the draft, N shall be equal to 1.

If the draft document is agreed or noted with no changes, the delegate shall change the name of the document to S5-12xyzw Tdoc title.doc, zip it to S5-12xyzw.zip, and shall upload the zip file up to the Inbox folder. The MCC secretary will then move the document to the Docs folder.

If the document requires more modifications, the delegate shall produce an update, increment the version of the draft and place the update in the Drafts folder (this step may be repeated as needed). At the end of the round of discussions (whether the document is agreed or not), the delegate shall change the name of the latest version of the draft document to S5-12xyzw Tdoc title.doc, zip it to S5-12xyzw.zip, and shall upload the zip file up to the Inbox folder. The MCC secretary will then move the document to the Docs folder.

For documents which are updated during the meeting but do not need a second round of discussion, it shall be possible to directly produce the final Tdoc S5-12xyzw Tdoc title.doc, zip it to S5-12xyzw.zip, and upload the zip file up to the Inbox folder. The MCC secretary will then move the document to the Docs folder.

Delegates should send an availability notification to the respective email list as soon as the revised contribution has been uploaded to the meeting server. It is not needed to attach the contribution to the notification e-mail. The notification email should indicate the title of the contribution (not only the Tdoc number) and the nature of the change.

Note: For e-meetings, handling of revisions is described in the e-meeting process (see clause 22).

# 6 Late contributions

The contributions modified or submitted after the deadline are treated as late contributions. The following basic principles apply:

* + - * Late contributions will only be addressed exceptionally.
      * Default = not addressed.
      * Delegates can raise (before or during the meeting) if they believe a late contribution has exceptional reasons for being addressed. The chair can then propose, and the group needs to agree, whether to address the contribution or not.
      * Late stage 3 tdocs which have corresponding stage2 submission are exceptionally allowed to be treated in the meeting. They should be uploaded latest by Wednesday Q5 and announced at the beginning of the session (and they can be revised later if the related stage 2 tdoc is revised). Stage 3 tdoc numbers shall be reserved before the Friday submission deadline.
      * Editor’s Note: the late stage 3 tdocs description to be revisited.
      * If a late contribution is to be treated, it should be put at the end of the sequence list for the work item.

Of special importance is the following note from the 3GPP legal declaration: Timely submission of WID/SID proposals in advance of WG meetings is important to allow for full and fair consideration of such matters.

Note: For e-meetings, the late contribution policy is described in the e-meeting process (see clause 22).

# 7 Templates for contributions

Templates for contributions are available under the respective meeting directorye.g. for 3GPPSA5#127: <ftp://ftp.3gpp.org/TSG_SA/WG5_TM/TSGS5_127/Templates/>

In addition, all 3GPP templates can be downloaded from a common folder on the 3GPP FTP server:

[https://www.3gpp.org/ftp/Information/All\_Templates/](https://protect2.fireeye.com/url?k=a809a74f-f4ddabbe-a809e7d4-864685b2085c-d906dd4ab7bbfa59&q=1&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FInformation%2FAll_Templates%2F).Please make sure you use the latest templates for your contributions (CR, pseudo CR, Tdoc, WID, LS, TS, TR, etc.).

Please also make sure you use the latest TS/TR versions for your contributions, notably for CRs.

Contributions which do not satisfy minimal quality requirements may be discarded or handled with lower priority in order not to penalize good quality contributions.

# 8 SA5 email lists

SA5 has currently 3 active email lists (a.k.a. “exploders”):

[3GPP\_TSG\_SA\_WG5@LIST.ETSI.ORG](mailto:3GPP_TSG_SA_WG5@LIST.ETSI.ORG) SA5 general issues

[3GPP\_TSG\_SA\_WG5\_Charging@LIST.ETSI.ORG](mailto:3GPP_TSG_SA_WG5_Charging@LIST.ETSI.ORG) Charging issues

[3GPP\_TSG\_SA\_WG5\_OAM@LIST.ETSI.ORG](mailto:3GPP_TSG_SA_WG5_OAM@LIST.ETSI.ORG) OAM issues

Those delegates who already have an EOL username and password should use the list management application to register <http://webapp.etsi.org/TBMembershipList/home.asp>.

It is possible to apply for an EOL account at: <http://webapp.etsi.org/createaccount/>.

If you have any problems subscribing to the lists, please send an email to the MCC secretary or to the SA5 chair.

The following lists are not used anymore but archives are still available at <http://list.etsi.org/archives/>:

[3GPP\_TSG\_SA\_WG5\_SWGA](http://list.3gpp.org/3gpp_tsg_sa_wg5_swga.html)

[3GPP\_TSG\_SA\_WG5\_SWGB](http://list.3gpp.org/3gpp_tsg_sa_wg5_swgb.html)

[3GPP\_TSG\_SA\_WG5\_SWGC](http://list.3gpp.org/3gpp_tsg_sa_wg5_swgc.html)

[3GPP\_TSG\_SA\_WG5\_SWGD](http://list.3gpp.org/3gpp_tsg_sa_wg5_swgd.html)

# 9 SA5 email threads for post-meeting email discussion/approval

In order to identify post-meeting email threads (i.e. not e-meeting threads), a thread identifier should be used for email approvals or email discussions on SA5 exploders. All emails within a thread should start with the same thread identifier to allow traceability.

For documents identified by a Tdoc number, the Tdoc number should be used as thread identifier. In case a group of documents is discussed or approved by email as a package, the Tdoc number of the “primary” document can be used, the primary document being the root document e.g. a CR on Requirements in a set of CRs.

In case no Tdoc number is available, a specific tag should be defined for the thread identifier.

The email subject should include the thread identifier, preferably preceded by the SA5 meeting number.

Here are some examples of recommended email subjects:

- [SA5#101] S5-153285 Email approval of pCR 28.682 Addition of xxx

- [SA5#102] S5-154286 Email approval of CR 32.102 Modification of yyy

- [SA5#103] S5-155287 Email discussion on WID Study of zzz

- [SA5#104] S5-156288 Email approval of draft TR 32.849 V1.4.0

# 10 Post-meeting email approvals

Any post-SA5 meeting SA5/OAM/Charging email approvals have to be confirmed by the SA5 closing plenary.

All documents from SA5-level agenda items (i.e. normally 5.x) for email approval shall be submitted to the general SA5 exploder. All documents from OAM- and Charging agenda items for email approval shall be submitted to the respective OAM/CH exploder, even if they are for SA5 level approval (like CRs and WID/SIDs). The moderator of all SA5-, OAM- and Charging-level email approvals is appointed by the SA5 chair.

The default time window for all email approvals agreed by the SA5 plenary to be held is the following

- Time to start: before Monday 22:00 UTC the week after SA5 meeting.

- Last comments: before Wednesday 14:00 UTC the week after SA5 meeting.

- Declaration of conclusion (draft TR/TS by rapporteurs and other tdocs by Vice Chair): before Wednesday 22:00 UTC the week after SA5 meeting.

- Final tdocs: All the final tdocs shall be sent to MCC no later than Thursday 14:00 UTC the week after SA5 meeting. Final tdocs which are not sent to MCC on time will be withdrawn.

Extensions of the normal deadline may also be decided by the chair or the moderator of the email approval, e.g. when comments or updates have been made close to the deadline or when it is judged that more discussion can help to reach an agreement.

**All email approvals (except draft TS/TRs/DraftCRs)** **will be listed in the “Post-meetingEmail approval status” document sent out to the SA5 exploder after every meeting.**

Rapporteurs and DraftCR authors are responsible to conduct email approval by producing the latest draft TS/TRs/DraftCRs and send to the respective exploder (SA5/OAM/CH) for comments. Rapporteurs and DraftCR authors are also responsible to declare the conclusion of TS/TRs/DraftCR email approvals. The draft TS/TRs/DraftCRs’ tdoc information is included in the email approval status document but their status and conclusions will not be captured in the document.

The chair or the appointed moderator (Vice Chair) is responsible for monitoring, declaring the conclusion of email approval for other documents than draft TS/TRs/DraftCRs, and their status/conclusion will be declared by email and captured in the email approval status document.

Note: The above means that e.g. for LSs under email approval, their conclusion will be declared in the email approval status document sent to the SA5 exploder even if the LS belongs to an OAM or CH agenda item and is discussed in an OAM/CH exploder email thread.Only exceptions to the normal deadlines will be announced by the chair or the moderator of the email approval, and the author sending out the document under email approval shall not state anything about the deadline to avoid the risk for inconsistent information.

**Documents sent for email approval shall use the following file naming convention (except for draft TS/TRs, see clause 14): S5-18xyzwdN <title>.doc** where S5-18xyzw is the Tdoc number and N is the version number of the draft. A zip file S5-18xyzwdN.zip shall be produced and sent to the exploder by the author of the document under email approval as soon as possible after the email approval window has opened. Note that the thread identifier is independent of the version N and should always be S5-18xyzw. For the first version of the draft, N shall be equal to 1. If the document requires modifications during the email approval, the author shall increment the version of the draft (this step may be repeated as needed).

After the conclusion is ready, the author shall change the name of the latest version of the draft document to “S5-18xyzw Tdoc title.doc” (except for draft TS/TRs, see clause 14), zip it to “S5-18xyzw.zip”, and submit it as the final version to MCC by the above deadline. The MCC secretary will then upload it to 3GU.

The final status of all updated latest draft TS/TRs and DraftCR will be announced by MCC in the “html-doclist” and official SA5 report. Note: The status may exceptionally be “noted” or “withdrawn”, e.g. a) if it could not be agreed in the email approval, or b) if some formal errors were found in the final version, or c) if the final version was sent too late to MCC (in which case the rapporteur/author needs to submit it to the next meeting as a new contribution asap).

# 11 LS handling in SA5

As soon as received, new input LSs for the upcoming SA5 meeting are registered by MCC in 3GU and published on the following page: <https://www.3gpp.org/Liaisons/Incoming_LSs/S5-meeting.htm>. When there is an ad hoc meeting before the next SA5 plenary meeting, new input LSs may be registered for this ad hoc meeting if there is a corresponding agenda item.

All resubmitted LSs from previous meeting will be registered by MCC for the upcoming meeting in the same way as new LSs i.e. with a new Tdoc number. The title in 3GU will clearly show that this is a resubmitted LS. The allocation of all LSs (new and resubmitted) to the correct agenda item is prepared by the SA5 leadership and reviewed during the SA5 opening plenary session.

The output LSs sent inside 3GPP may be approved at OAM/CH level while all other LSs are to be approved by SA5 plenary. Output LS are distributed by the MCC secretary as soon as possible after the meeting via the 3GPP Liaison officer. A summary list of all output LSs from the meeting is sent to the SA5 exploder by the MCC secretary as soon as possible after the meeting.

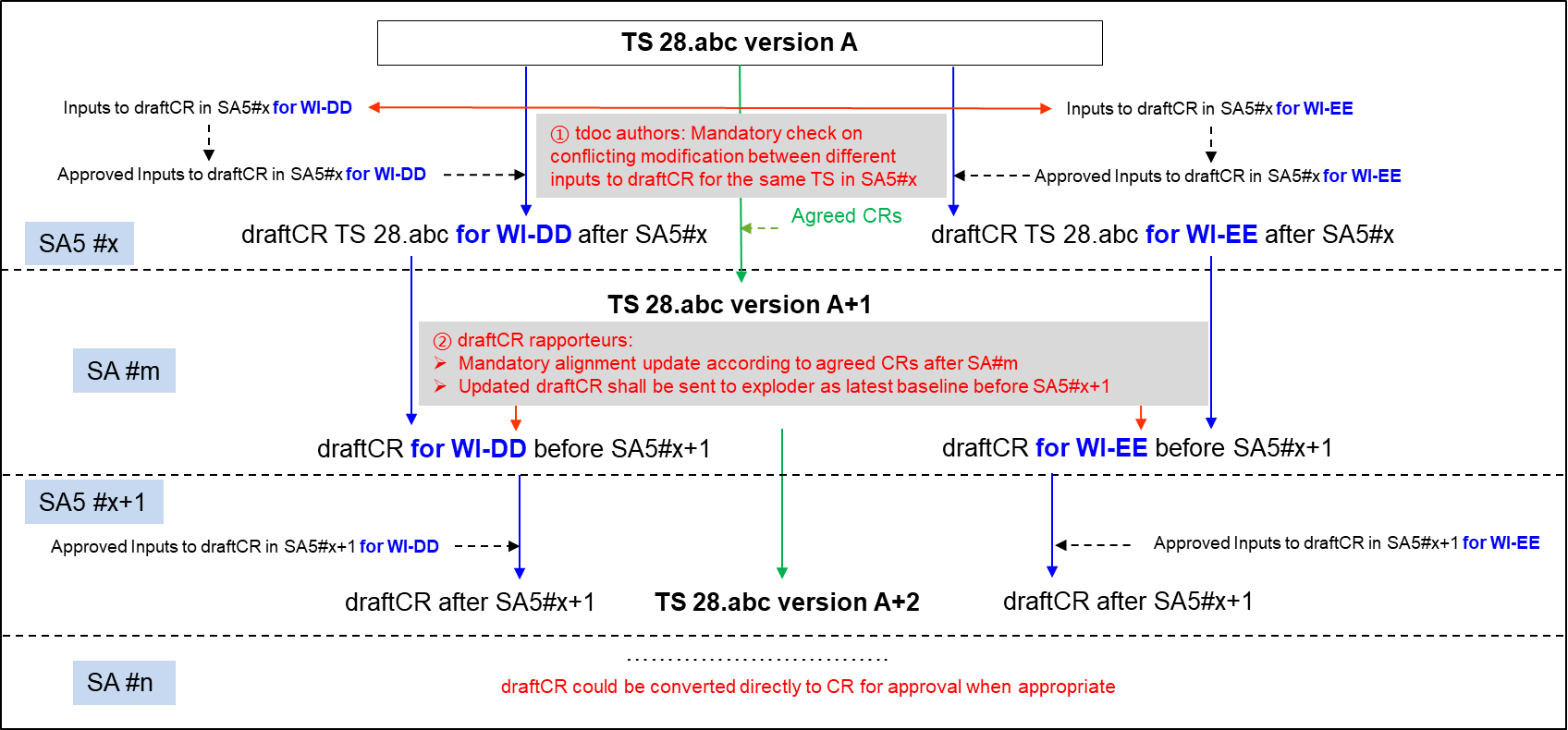
# 12 DraftCRs

DraftCRs may be used when there are changes potentially impacting several parts of an existing TS and when the time needed to do those changes is expected to be more than one or two meetings. This has advantages even if it introduces a bit more work:

For features that result in many updates in one or more TSs that need several meetings to be completed, we can work with draftCRs until all related content is carefully checked. It is recommended to use DraftCRs mainly for new (added) clauses/subclauses because it makes it easier to maintain the baseline. It is up to each company to decide whether they want to propose an (input to) DraftCR or a real CR to modify or add new features in a TS, and it is (as always) a group decision if the contribution is agreed or needs to be converted to another type.

Once the DraftCR reaches maturity and can be agreed as a whole, it will be converted to formal CR, marked as "Agreed" and submitted to next TSG SA plenary for approval.

The following text describes the concept and process for DraftCRs.



**a. Input to DraftCR:**

Input to draftCR is like a pCR but with document type ‘other’ and using a CR template, and we call them “Input to DraftCR” not to confuse them with pCRs for draft TS/TRs. The guidance for using Input to draftCR is the following:

1. doc. type in 3GU = ‘other’,

2. no CR number,

3. title = "input to draftCR TS <ab.cde> for <feature name> + normal CR title"

The input to DraftCR shall use revision marks to show the new changes compared with the DraftCR baseline. The update should be clearly identified in the input contributions. For this purpose, new revision marks in input contributions should use a different author signature than the revision marks already present in the DraftCR. The input contributions and the DraftCR shall only include the changed clauses of the TS.

**“Input to DraftCR”** cover sheet EXAMPLE:

**3GPP TSG-SA5 Meeting #133-e *S5-205abc***

**Online, , 12th Oct 2020 - 21st Oct 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.541** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Input to draftCR TS 28.541 for EMA5SLA GST Configuration | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ABC | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EMA5SLA | | | | |  | ***Date:*** | | | 2020-10-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Section L.2 says: Some of the information in 5GC SliceProfile and NG-RAN SliceProfile is translated to configurable parameters of network function for the control plane SLA support purpose. This need to be further extended with respect to identifying GST attributes that will be translated into configurable parameter | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Existing ANNEX is extended to include crucial aspect of GST management. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | In-complete GST management solution. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | L | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **×** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **×** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **×** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**b. Creation of a DraftCR:**

DraftCRs are like draft specs (TS/TRs) with document type “draftCR”. A DraftCR shall only contain the changed clauses of the related TS/TR, and reflect the latest status of the related changed clauses of the TS/TR.

The initial version of the DraftCR is created at the SA5 meeting to which the first “Input to DraftCR” has been approved for a particular work item and TS. Further updates shall be based on the latest agreed version of the DraftCR (baseline) with incorporating the agreed “Input to DraftCR” contributions. If more than one work item/feature trigger updates to the same TS, there should be one DraftCR for each work item. Thus, every DraftCR should be related to one WI and one TS. It is thus recommended to name every DraftCR like “Draft CR eMDAS\_Ph2 – TS28.104”. Each author should make sure that there is no conflicting modification between different inputs to draftCR for the same TS.

The guidance for using draftCR is the following:

1. Note: doc. type in 3GU = ‘draftCR’,

2. no CR number,

3. title = "DraftCR TS <ab.cde> for <feature name>"

**DraftCR** cover sheet EXAMPLE:

**3GPP TSG-SA5 Meeting #134e *S5-206def***

**16-25 November 2020, E-meeting**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.552** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network | **x** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | DraftCR TS 28.552 for ePM\_KPI\_5G | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ABC | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ePM\_KPI\_5G | | | | |  | ***Date:*** | | | 2020-11-26 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)*  *Rel-17 (Release 17)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This DraftCR incorporates the following agreed contributions under WI ePM\_KPI\_5G:  **1. From DraftCR *S5-205abc:***  - S5-205xx1;  - S5-205xx2;  - S5-205xx3;  - S5-205xx4;  - S5-205xx5.  **2. From DraftCR *S5-206def*:**  - S5-206xx1  - S5-206xx2  The detailed reasons for change can be found in these contributions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add Intra/Inter-frequency Handover related measurements;  Add the measurements related to NIDD configuration on NEF.  Add the measurements related to NIDD service on NEF.  Add the measurements related to AF traffic influence on NEF.  Add the measurements related to external parameter provisioning on NEF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The measurement of handover-related indicators is incomplete.  The performance of NIDD configuration cannot be monitored.  The performance of NIDD service cannot be monitored.  The performance of AF traffic influence cannot be monitored.  The performance of external parameter provisioning cannot be monitored. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3.3, 5.1.1.6.a (new), 5.9.a (new), 5.9.b (new), 5.9.c (new), 5.9.d (new), A.17, A.a (new), A.b (new), A.c (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**c. Update of DraftCR after each SA5 meeting:**

The approved “Input to DraftCR” contributions (\*) are merged in DraftCR by the work item rapporteur and then the DraftCR is sent for email approval. The post-meeting update shall keep track of all the changes compared with the TS baseline but does not necessarily need to distinguish the various authors of the changes. A list of the Tdoc numbers of the successive versions of the DraftCR and the agreed input contributions shall be added in the cover page of the DraftCR (in *Reason for Change*), and shall be removed when converting the DraftCR to a formal CR.

**d. Update of DraftCR after each SA meeting:**

**The clauses which exist in the latest DraftCR need to be updated to be aligned with the latest TS baseline if the latter has changed before the next upcoming SA5 meeting due to some SA-approved CR(s).** Any changes made for the purpose of alignment of the latest approved draftCR with the latest TS version should not be marked with revision marks.

**A new dedicated email review of the updated DraftCR shall be started right after the alignment update with latest TS and finished before 3GU is opened for the next SA5 meeting.** This updated DraftCR shall be announced on the relevant OAM/CH email exploder as latest draftCR baseline.

**e. Submission the latest DraftCR as tdoc at the beginning of each SA5 meeting:**

The work item rapporteur of DraftCR must resubmit the last approved version as a tdoc, so that new inputs to the DraftCR can be produced based on the correct baseline. The name of tdoc for updated DraftCR is recommended as “DraftCR for <WI Acronym> - TS xy.abc”, for example “DraftCR for EMA5SLA - TS 28.540”.

**f. Approval of DraftCR:**

An approved DraftCR means that the group has agreed with the current content of the draft. It is still possible to change its content with a new written contribution, but just like for a draft TS/TR it needs to be well justified.

**g. Convert DraftCR to formal CR:**

Once the final DraftCR is considered stable and is approved, the rapporteur or author can ask for conversion to a real CR and shall then be assigned a new tdoc number of type CR and a formal CR number. If the final DraftCR is sent for email approval after the meeting, the real CR can also be sent for email approval in parallel with the final DraftCR email approval, with the same deadline and in the same email thread. The only difference between them is in the cover page and document type. The content of the CR is identical to the DraftCR, changes on changes are not allowed, but the cover page shall look like a normal CR summarising all changes, and not refer to any earlier input tdocs to the DraftCR (however the “Other comments” should mention that the CR is produced from the approved DraftCR S5-xyzabc). The conversion from DraftCR to CR shall be done without rediscussing the technical contents of the CR, as this is already agreed on SA5 level.  It is recommended that this is done latest at the last-but-one SA5 meeting before the target date of the work item, to have some margins to correct any errors found. Then, the usual CR approval process will apply: agreement during SA5 closing plenary (or by email approval if needed), and submission to SA for approval.

**h. List of latest approved DraftCR:**

Work item rapporteurs are requested to provide the latest tdocs information of DraftCR to SA leaders, a list of latest approved DraftCR will be maintained by the SA5 leadership for every SA5 meeting and the information is published in https://forge.3gpp.org/rep/sa5/MnS/-/wikis/SA5/SA5-Draft-CRs.

**i. 3GPP Forge process requirement for DraftCRs** – see clause 23.9.

# 13 CR handling

The guidelines for the creation of Change Requests - CRs - can be found in the 3GPP Technical Specification Group Working Methods (TR 21.900) clause 4.6.

The guidelines for the "Freezing" of specifications and “FASMO” can be found in in the 3GPP Technical Specification Group Working Methods (TR 21.900) clause 4.7.

The guidelines for the "Closing" of specifications can be found in in the 3GPP Technical Specification Group Working Methods (TR 21.900) clause 4.8.

The guidelines for the "Withdrawing" of specifications can be found in in the 3GPP Technical Specification Group Working Methods (TR 21.900) clause 4.9.

The guidelines for the "Withdrawing" of functionality can be found in in the 3GPP Technical Specification Group Working Methods (TR 21.900) clause 4.9A.

How to create CR contributions in 3GU including CR cover page and CR number allocation: See [https://www.3gpp.org/3gu](https://protect2.fireeye.com/url?k=197550fa-45a15853-19751061-865b3b1e120b-61d2ae6d273e3bac&q=1&u=https%3A%2F%2Fwww.3gpp.org%2F3gu).

During the meeting the delegate must ask for the CR number directly to the MCC secretary.

Note 1: For a CR which has mirror(s), the mirror(s) must have the same WI code and be allocated to the same SA5 meeting agenda item as the original CR.

Note 2: For a CR with stage 3 changes, when the normative stage 3 is in Forge, for the section of ***Clauses affected*** in the CR cover page***,*** the CR author is recommended to add a note to indicate that the normative stage 3 is in Forge, for example “Normative stage 3 code is in Forge”.

# 14 Process for management of draft TSs/TRs

## 14.1 Objective

The objective of this document is to formalize the process for management of draft TSs and TRs in SA5.

The 3GPP TR 21.900 "Technical Specification Group working methods" describes in detail the management of specifications once the TS or the TR has been approved by the TSG (version X.Y.Z where X >= 3), for example management of Change Requests.

As long as a TS or a TR is in a draft state (version X.Y.Z where X <3), the modalities for introducing changes in the TS or the TR are not described in detail in TR 21.900 (i.e. Change Requests cannot be used in this context) and are in fact left to the WG’s discretion. A detailed process is therefore defined herein to address this early and essential part of the SA5 specification development activity.

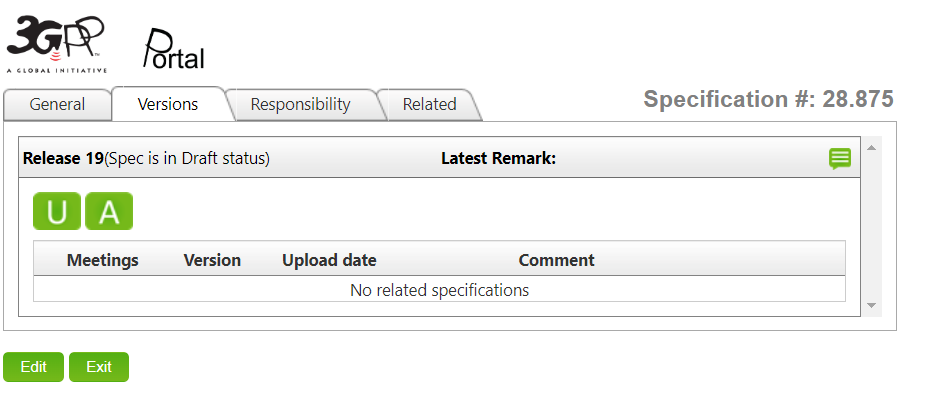
## 14.2 Process

**BEFORE the first meeting to treat the draft TS/TR**

The TS/TR rapporteur shall:

(1) As soon as possible after the new TS/TR number has been allocated (this may even be before the tdoc reservation in 3GU is open), produce the initial “skeleton” draft TS/TR version 0.0.0 by using the template from https://www.3gpp.org/ftp/Information/All\_Templates/3GPP\_TS-TR\_Template.zip. This initial draft shall only contain Foreword, Introduction, clauses 1-3 and the annex for Change History from the standard 3GPP TS/TR template, and the front page updated with the new TS/TR title and current date. File name of the initial draft shall be like “28.818-000”, both for the Word file and the zip file name.

(2) Upload the initial TS/TR “skeleton” draft in the corresponding draft TS/TR portal ([3GPP specifications per WG: S5</title>](https://www.3gpp.org/dynareport?code=TSG-WG--S5.htm&Itemid=469)) as soon as possible once the TS/TR number is available, using the “U” button which is only shown for the TS/TR rapporteur when logged in to the portal. Below is an example of the 3GU “spec page” showing the “U” button:



(3) Announce the availability of version 0.0.0 to the group on the relevant OAM/CH email exploder.

(4) When 3GU for the next SA5 meeting is open, allocate a new tdoc# for a contribution of type “other” with the initial draft version 0.0.0 and submit it to the SA5 meeting for approval.

When version 0.0.0 is available, it shall be used as baseline for any pCRs on the draft TS/TR, e.g. to propose a first clause structure.

**DURING the meeting (first or subsequent meeting to treat the draft TS/TR)**

pCR contributions related to the draft TS/TR shall be reviewed during the corresponding WI session.

On-line or off-line updates generating a new version of a pCR may be made during the meeting, depending on the available time during the WI session or between two sessions.   
In that case, all agreed modifications of the pCR shall be recorded in a new Tdoc for the pCR. Exceptionally, decisions to update a pCR may be taken during the closing plenary. Such decisions must be unambiguously recorded in the report with precise editing instructions of what shall be updated and how (and for example not in the form of "consider the comments given").

For any approved updates of adraft TS/TR, the version is only stepped once at the meeting; i.e. only one row is added in the Change History box.

For a draft TS, the specification structure should follow the corresponding SA5 template, if applicable (e.g. for a Requirements TS using TS 32.160).

**AFTER the meeting**

If one or more pCRs were approved: According to the modifications described in the approved pCR(s), the Rapporteur shall produce an updated "latest draft" and send it out for email approval.

Exception handling: If two or more approved pCRs are found to have some conflicting modifications, then the rapporteur shall not include any of the modifications in the (sub)clause where the conflict occurs, in the updated latest draft, and announce this exception at the start of the email approval. The rapporteur shall also check if there are any other parts of the involved pCRs that become irrelevant or inconsistent due to the not included modifications, in which case none of the modifications in the involved pCRs shall be included in the updated latest draft. The involved authors should then agree on a common contribution to the next meeting that resolves the conflicts.

Rules for preparation of the updated latest draft:

* The latest draft shall be prepared as a **zip package with a "draft" Tdoc number according to the SA5 Working Methods (e.g. S5-131373d1)** containing two files: One clean and one revision-marked version of the draft. The Tdoc number shall be allocated by MCC, and this is for visibility and tracking of this email approval among all other email approvals after the SA5 meeting.
* The TS/TR version number shall be incremented as described in 3GPP TR 21.900 clause 4.0A (see also Annex C).
* The changes made since the previous version, including reference to the pCR contributions that have affected this update (not necessary for agreed initial skeleton without separate pCR), shall be recorded in the TS/TR Change History Box. There should only be one row in the Change History, i.e. one version update, per SA5 meeting.
* The following fields in the Change History Box shall be updated by the rapporteur: Date, Meeting, Tdoc, Subject/Comment and New version. See also Note 3 below, and an example of a Change history in Annex D.
* The file names of the Word documents shall be as follows:
* Assume that **draft** **TS** **32.511-012** is **input to SA5#60.**
* **The TS header and date** on the front page (following normal 3GPP rules; for a technical change the second digit is incremented and the third digit reset to 0) shall be updated to **TS 32.511 v0.2.0 (2008-09).**
* The zip file name shall be the draft Tdoc number, e.g. "**S5-131373d1**" and the two Word files inside the zip file are named as **32511-020d1\_revmarks and 32511-020d1\_clean**.
* If some comments during the email approval period lead to one or more **corrections** of the document, the "dx" of the draft Tdoc number is incremented by 1 (e.g. to **S5-131373d2)** and the **TS/TR** file names are updated in the same way to **32511-020d2\_revmarks/clean, 32511-020d3\_revmarks/clean** etc.; however the document header shall not be updated again, and the Change history shall only be updated if it was not describing all agreed changes.
* Whatever the number of revisions during the email approval, the **file name of the final email approved version shall be renamed to**"**S5-131373 (zip file) /** **32511-020 (Word file)"** by the rapporteur, attached to the announcement of the email approval. Only the "clean" version should be included in this attachment.
* **Note 3**: The "New version" field in the Change history shall contain the final output version; i.e. in the above example it would be 0.2.0, and the Subject/Comment field shall accumulate all changes for the 0.2.0 version in the same field.
* **EXAMPLE SUMMARY**:
  + Input TS 32.511-012
  + **Output email approval version:**
    - TS header and date on the front page: TS 32.511 v0.2.0 (2008-09)
    - Zip file name: S5-131373d1
    - Word document file names: 32511-020d1\_revmarks and 32511-020d1\_clean
  + **In case of updates during email approval:**
    - TS header and date on the front page: TS 32.511 v0.2.0 (2008-09) (unchanged)
    - Zip file name: S5-131373d2
    - Word document file names: 32511-020d2\_revmarks and 32511-020d2\_clean
    - Ditto with d3, d4 etc. for more updates.
  + **Final email approved version:** 
    - TS header and date on the front page: TS 32.511 v0.2.0 (2008-09)
    - Zip file name: S5-131373
    - Word document file name: 32511-020.

**Email Approval**

As soon as possible after the SA5 meeting (deadline announced by the Chair), the updated "latest draft" shall be sent for **email approval** (moderated by the Rapporteur), uploading the latest draft on the <https://www.3gpp.org/ftp/Email_Discussions/SA5/Email_approvals> folder and including the link to the document in the email. For rules regarding how to conduct email approvals, please refer to clause 10.

Delegates are invited to check if the updates are in line with the meeting agreements.

* Email approval is required for declaration of all "latest drafts" updated with agreed pCRs.
* OAM/CH executive reports shall contain a list of all expected new "latest drafts" for email approval.
* If some comments during the email approval period lead to any corrections of the latest draft, the file name is updated according to the naming rule above and an email with the updated draft is sent out on the same thread.
* After the deadline has passed, the rapporteur declares the conclusion of the email approval (approved or not). If the draft was approved, the approved version (clean version only) shall be "renamed" by the rapporteur according to the file naming rules above and attached to the announcement of the email approval.

**AFTER Email Approval**

If the draft was email approved, the final clean version (zip file) of the draft shall be sent by email to MCC. If this file cannot be attached to an email, an email with a link to the “email discussions” folder shall be sent to MCC. It will then be uploaded as the official latest draft TS/TR in 3GU by MCC, and it shall serve as basis for new contributions to next meeting.

Exception handling for the latest draft upload in 3GU:

* If MCC is not available to do the upload at the end of the email approval process, the rapporteur shall do it;
* **NOTE:** **If the latest draft version has been uploaded to 3GU with wrong contents, it cannot be removed from 3GU, so make sure that the correct document is uploaded.** If it still happened that the wrong document was uploaded, a new version with the correct contents and the “next” version number (second digit incremented) shall be uploaded in 3GU as soon as possible.

No editorial check and/or cleanup by MCC will be made after email approval (except possibly when being sent for Information or Approval to SA). Any editorial/formatting issues should be handled during the email approval period or as contributions to next meeting. Note: The Rapporteur is allowed (encouraged) to correct typos and spelling errors in the draft TS/TR submitted for email approval as long as those corrections do not impact the technical contents.

**INPUT to Next Meeting**

"Pseudo CR" (pCR) contributions based on the latest draft are required in order to add new text or modify existing text (using revision marks to indicate all proposed changes). This principle also applies to the Rapporteur. Proposed additions or changes should be as precise as possible (by means of a pCR format) to make sure the Rapporteur can accurately update the draft after the meeting. Email approved latest drafts shall not be submitted as separate contributions to the next SA5 meeting.

The file name of a pCR shall follow the same naming rule as for CRs (see SA5 working methods clause 17), i.e. **“Rel-N pCR ab.cde title”** where ab.cde is the TS/TR number.

The pCR may contain the complete draft TS/TR (below the pCR Tdoc header) from the first change and onwards, thus the front page shall not be included unless a change of the front page is proposed.

The "Keywords" on page 2 of every TS/TR should be proposed by the Rapporteur, and should be a short list of terms that best describe the content of the document. In case the Rapporteur does not do this, MCC will add the keywords that they find most suitable from their internal stock. It is recommended that the Rapporteur performs this task in order to have the keywords that best describe the TS/TR.

**Submission to TSG for Information/Approval**

When the latest draft TS/TR is considered as stable enough to be submitted to TSG for Information, the Rapporteur shall submit the latest draft with a "form for ‘Presentation of Specification to TSG‘" for SA5 plenary decision.

Subsequently, after email approval of the latest draft, MCC shall convert the TS/TR version to 1.0.0 and submit to the next TSG for Information.

The latest draft is progressed in the same way from version 1.0.0 until ready for submission to TSG for Approval and placement under TSG change control (CR regime). The Rapporteur shall then submit the latest draft with "form for ‘Presentation of Specification to TSG‘" for SA5 plenary decision. Subsequently, after email approval of the latest draft, MCC shall convert the TS/TR version to 2.0.0 and submit to the next TSG for Approval. In case the TS/TR version 2.0.0 is not approved by TSG, the process described here will apply until approval by the TSG or withdrawal by the WG occurs.

If the zip file for the TS to be sent for approval contains content that is stored authoritatively in Forge, the Work Item rapporteur shall inform the applicable code moderators about it. Subsequently, each applicable code moderator shall forward the machine-readable content to MCC for inclusion in the zip file for the published TS.

NOTE: The Release to which the TS/TR belongs depends on the Date of TSG Approval (ongoing Release).

## 14.3 Process flow diagram

The diagram below shows a high-level view of the Draft TS/TR Management Process flow.

The clean version becomes the

**latest draft TS/TR.**  
All contributions for the next meeting shall be pCRs based on this latest draft.

**Initial TS/TR skeleton**

pCR contribution(s) based on **latest draft TS/TR**

Detailed review with possible

on-line editing

The **latest draft TS/TR**

is sent to TSG for **Information** or **Approval.**

Pseudo CR (pCR) contributions based on the **TS/TR skeleton**

# 15 CR and pCR naming rules

**CR naming rule: “Rel-N CR <TS/TR#>** **<title>”.**

This rule applies to the CR title in 3GU, to the CR file name, and (regarding the title only) to the CR title in the CR cover page, which shall all be aligned.

**Example:**

3GU title: “Rel-12 CR 32.425 Addition of energy saving measurements”

File name: “S5-13abcd Rel-12 CR 32.425 Addition of energy saving measurements” (zip file = S5-13abcd)

CR title on the CR cover page: “Addition of energy saving measurements”

In case of modification, the consistency between the title in 3GU/document list, the CR file name and the CR title on the CR cover page shall be maintained.

**pCR naming rule: “pCR <TS/TR#>** <**title>”**

Example: “pCR 28.813 Add measurement assumption for energy consumption”

# 16 WID management

To start a new work/study item, a new WID/SID needs to be agreed by SA5 and then approved by the TSG SA plenary. Make sure to use the latest WID template in the Templates folder available for each meeting.

Only major changes of the WID/SID, such as modified Scope/Objective or Deliverables, shall cause a revised WID to be agreed by SA5 and sent to SA for approval. Change of expected completion date shall not be recorded in an updated WID/SID; this is done directly in the meeting reports and 3GPP Work Plan.

After completion of the work/study item, the 3GPP Work Plan manager will request the rapporteur(s) to provide a WI summary (a template for that is also found in the Templates folder).

# 17 Management of IS-SS version link (applies to pre-5G IRP TSs)

The process for updating the link from Solution Set (SS) to Information Service (IS), located in the Scope clause of all SA5 IRP (Integration Reference Point) specifications, is described as follows according to the various possible scenarios.

|  |  |
| --- | --- |
| Scenario | Process |
| CR technical change on IS CR technical change on SS | Update IS version Update SS version Update link from SS to IS |
| CR technical change on IS No technical change on SS | Update IS version Update link from SS to IS |
| CR technical change on SS No technical change on IS | Update SS version If two SS versions point to same IS version, the latest SS version applies |
| CR editorial change on IS No change on SS | Update IS version No update on link from SS to IS |

This process is applicable within one Release (a Rel-X SS cannot point to a Rel-Y IS).

At the end of each Release, CRs have to be produced to update the link from Solution Set to Information Service in case the Solution Set specification has not been updated during that Release.

# 18 Allocation of specification numbers

New TS/TR specification numbers for SA-approved WID/SIDs shall not appear in any SA5 documents (WIDs etc.) until they have been formally allocated by MCC (i.e. created in the TS database).

A new specification number can only be requested officially when the corresponding WID has been approved at TSG level. However, it is possible for the SA5 chair to send an unofficial request offline to MCC in advance of the TSG (SA) approval to start preparing for the TS allocation.

The SA5 chair shall request the allocation of new specification number(s) from MCC following the recommendation from the leadership, based on the SA5-agreed allocation of specification number ranges in clause 20 (below) of these SA5 working methods.

# 19 Interactions with EditHelp

All draft specifications (TS, TR) should be submitted by the specification rapporteur to ETSI’s EditHelp office to check for compliance with the 3GPP Drafting Rules, via email (edithelp@etsi.org) with the MCC technical officer in copy before submission to TSG SA for approval. Editorial corrections due to feedback from EditHelp are taken care of by MCC producing a version x.y.n of the draft specification.

The feedback from EditHelp shall also, in case on non-editorial errors found, trigger the creation of pCRs by the specification rapporteur to correct such errors. In order to be able to produce and approve such pCRs before TS/TR approval, each draft specification should be sent to EditHelp at the latest after the last but one SA5 meeting before the target TSG SA meeting.

In case this cannot be done and the draft specification is sent to SA without time to prepare the pCRs (e.g. sent for information and approval to the same SA plenary and there is no other SA5 meeting before the next SA plenary), it is the responsibility of the rapporteur to implement EditHelp's recommended changes in CRs to be prepared for the next SA5 meeting (or as soon as possible after the specification was published). Preferably, all TS/TRs sent for approval to SA should also be sent to EditHelp for a final quality check, even if EditHelp had checked it before.

It is the responsibility of the SA5 chair to check the work item progress on a regular basis with the specification Rapporteurs and determine the most appropriate time to send the draft specification to EditHelp.

If it is considered needed, a specification may also be sent to EditHelp before sending it to TSG SA for information. In that case, the same process will apply, allowing the production in due time of pCRs based on the feedback from EditHelp.

# 20 Guidelines for SA5 TS numbering structure and TS/TR front page title

The SA5 TSs and TRs should use the following structure for the front page titles, following the general 3GPP “top level titles” common to all 3GPP SA TS/TRs (“3rd Generation Partnership Project; Technical Specification Group Services and System Aspects;”):

* + - TRs: No 2nd level title like “Telecommunication management” – just “Study on…”
    - TSs:
      * OAM use “Management and orchestration; …”
      * CH use “Charging management; …”

The following list comprises a recommended high-level numbering structure for the SA5 TSs:

* 28.0xx: Used for High-level/Concepts/Methodology specifications (*note: 28.020 and 28.062 taken by other WG*)
* 28.1xx: Used for 5G and future specifications
* 28.2xx: Used for Charging specifications
* 28.3xx: Used for pre-5G Interface IRP specifications
* 28.4xx: Used for Measurement & Trace Data definitions
* 28.5xx: Used for 5G specifications
* 28.6xx: Used for pre-5G NRM IRPs
* 28.7xx: Used for pre-5G NRM IRPs
* 28.8xx: Used for 3GPP-internal TRs
* 28.9xx: Used for 3GPP-external TRs
* 32.2xx Used for Charging specifications

# 21 Work plan structure and Work Item codes used in CRs

SA5 has two categories of Work Items:

* Work Items (usually Building Blocks) related to a 3GPP Feature from another group (RAN, SA2, etc.). In that case the SA5 Building Block is created under the appropriate Feature in the 3GPP Work Plan. This is only possible if the SA5 Building Block and the Feature from the other group pertain to the same 3GPP Release.
* Work Items (usually Features) which are not related to another 3GPP Feature or are related to another 3GPP Feature but not in the same Release. Those Features are created in the 3GPP Work Plan as stand-alone Features.

This implies the following for the Work Item (WI) codes used in CRs:

* From Rel-15 onwards, the WI codes CHx and OAMx (where x represents the ongoing Release) will not be created in the 3GPP Work Plan and shall not be used any more for CRs.
* The WI code TEIx shall be used for CRs when there is no applicable past or existing WI code (or when the past WI code was CHx or OAMx).
* The original WI code shall be used for CRs when the correction is done from the original Release onwards.
* The WI code TEIx combined with the original WI code shall be used for CRs when there is a past WI code but the CR addresses only the current Release. See [3GPP Wiki](http://www.3gpp.org/wiki/index.php?title=2.%20A%20note%20on%20Work%20Item%20codes%20used%20on%20CRs&lang=en).
* For CRs related to an agreed SA5 but not yet SA approved WID,
  + Use “DUMMY” as the Work Item code when you reserve the CR.
  + Put “DUMMY” in the Work Item code field on the CR cover page.
  + MCC will correct the Work Item codes once the SA plenary approves the new WIDs.

Additionally, it is strongly recommended that any addition or enhancement of a feature (Category B CRs) should be done with a WID. This implies that TEIx should only be used for Category D or F CRs.

# 22 E-meetings

An e-meeting may replace an ordinary f2f meeting e.g. if some circumstances prevent many delegates from travelling to the meeting. The SA5 process for how an e-meeting shall be conducted is described in a separate document named e.g. “SA5-xxxe E-Meeting Process”.

# 23 3GPP Forge process for SA5

## 23.1 Introduction

3GPP MCC together with ETSI has developed a Gitlab-based set of online tools to create, share, collect, validate and publish machine readable content in a collaborative way, named 3GPP Forge, with the goal to accelerate the development processes and enhance the quality of delivered content.

The SA5 Forge repository start page is <https://forge.3gpp.org/rep/sa5>

The SA5 Forge repository is entitled “SA5 – Management & Orchestration and Charging” i.e. it covers both OAM and CH branches.

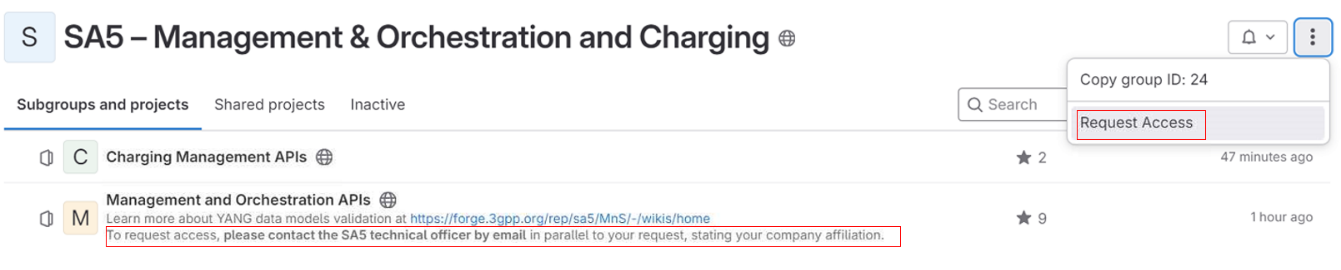
Editor’s note: Charging group comply with the working methods of the Forge Process from SA5-Adhoc in Jan 2023

For the choice of availability and distribution of stage 3 specification files, 3GPP SA5 adopts option “Normative availability and distribution of stage 3 specification files” as described in section 5C of 3GPP TR 21.900.

23.1.0 Request Access to forge:

Delegates are required to send request to get access to 3GPP forge, there are two steps to request access

1. Login to forge website and click the button ”Request Access”



1. Contact the SA5 MCC technical officer by email in parallel to your request, stating your company affiliation.

23.1.1a High level steps for CR author:

1. Create the CR branch from integration branch / release branch, whichever includes the latest stage 3
2. Create **draft** MR towards integration branch
3. Add stage 3 changes to CR branch, check if there is a validation issue
4. Resolve the validation issue(s) if there is any
5. Download the "Word CR text: artifact" and
   1. Copy MR link and commit code to CR cover page
   2. Copy-paste change-marked stage 3 clause into the Word CR
6. If CR updates (e.g., new revisions) are needed, repeat steps 3-5
7. Set MR to final (**Mark as Ready**) when CR is agreed in SA5 meeting

23.1.1b Using tools for OpenAPI YAML data type definition check

Change of a data type definition may have potential impacts, for example, the definition may be imported by a different TS/OpenAPI. For contributions which intend to update the definition of the OpenAPI, the delegate is requested to generate the list of YAML files using the definition using the data type finder tool. The tool can be accessed via “Data Type Finder” link under “Tools” section in the following hyperlink <https://forge.3gpp.org/rep/all/5G_APIs/-/blob/REL-19/README.md>. This is to check the impact before making any update.

Delegates are required to follow the procedure below:

1) Check the related definitions with the data type finder tool (Accessed via “Data Type Finder” link under “Tools” section in the following hyperlink <https://forge.3gpp.org/rep/all/5G_APIs/-/blob/REL-19/README.md>).

2) Add the list generated from the tool on the CR cover page (in other comments field) or to the rationale of the pCR.

23.1.1 Important action-timeline table for Forge activities

|  |  |  |  |
| --- | --- | --- | --- |
| Action | Action Owner | Timeline | Notes |
| Creating the working/CR branch | CR author | Any time before the meeting. | **No** CR number is required in branch name. |
| Creating the draft Merge request | CR author | After tDoc reservation for CR related to an approved Spec (with CR number available), or  Any time before the meeting for pCR. | CR number is required in MR title name (except for a pCR). |
| The stage 3 code must be in Forge and validated by Forge | CR author | * Initial change:   + Contribution submission deadline * Final change:   + Stage 3 change shall be implemented in Forge and validated before agreeing in SA5 meeting | **Consequence**: the whole contribution shall  **be noted** in the meeting if:  1) the stage3 change is missing (either from word CR contribution, or from Forge), or  2) the validation is not done successfully (Exception: when Release branch validation is not green)  Copy commit SHA (example: "7f73c7e7", at least first 8 characters of the full SHA) as proofs into cover page. |
| Mark MR as Ready for merge | CR author | Time Window of updating merge request:   * Start: When CR is agreed in SA5 meeting * End: 3 working days after window start | **Consequence**: If the CR author missed the merge request status updating or as for late Merge request with exceptional approval, if it is later than 8 (calendar) days before SA plenary starts, the CR shall be **removed** from the SA submission. |
| When the merge request shall be addressed | Code moderator | * Ideally after the SA plenary, * Or before the SA plenary, like, after SA5 level agreement   + 6 working days after approval at SA5 level,   + and 5 working days ahead of SA plenary meeting | If it is done before the SA plenary, the following applies: merged CR might be removed due to change in the SA plenary. |

Note 1: “CR” in the above table includes CR and pCR. Exception: When the pCR is for a draft TS not being sent for approval to SA, only the steps before SA apply.

Note 2: Delegation of marking as Final for merge request is ok: the merge request can be delegated to anybody with access to SA5 OAM Repository (preferably delegation is from the same company, if not, an email delegation record is needed with CC to SA5 Chair/VC (OAM), and related code moderators). In case, there is no ambiguity in the MR (e.g. Code change is the same as that in the agreed Word CR), the code moderator can address the Merge request directly.

Note 3: In special case (e.g. unplanned long leave or force majeure), before the SA plenary meeting submission deadline (8 calendar days before SA plenary starts), with exception approval from SA5 leadership, the merge request could be accepted later than the 3 working days deadline.

## 23.2 Stage 3 Solution sets

The following solution sets are captured and verified in 3GPP Forge (<https://forge.3gpp.org/rep/sa5>) for the management services:

* YAML
* YANG
* XML (For PM/Trace File schema) (Note: XML is not maintained in Forge at present)
* ASN.1 (For CDR File schema) (Note: ASN.1 is not maintained in Forge at present)

## 23.3 Roles in the 3GPP Forge process

There are three different roles related to this activity, and they coordinate with each other to achieve the goal.

* Contribution author
* Code Moderator
* Code Master

The following persons are assigned as Code Moderator for relevant stage 3 specifications:

* Balazs Lengyel as YANG Code moderator for TS 28.541, TS 28.111, TS 28.310, TS 28.560 and TS 28.623;
* Sean Sun and Ruiyue Xu as YAML Code moderator for TS 28.541, TS 28.623, TS 28.532, TS 28.550, TS 28.536, TS 28.312, TS 28.538, TS 28.531, TS 28.104, TS 28.105, TS 28.111, TS 28.317, TS 28.318 and TS 28.319.
* Chen Shan as Charging YAML Code moderator for TS 32.291
* Robert Törnkvist as Charging ASN.1 Code moderator for TS 32.298

## 23.4 3GPP Forge process for CR

Note 1: The process is applied to contribution which would impact stage 3 code (YAML and YANG are maintained in Forge at present).

Note 2: Forge process for draftCR is FFS

Step 0 - Preparing for an SA5 meeting

* Contribution author prepares contribution, the stage 3 code changes should be specified and implemented in Forge (see below), the change-marked MS Word generated by Forge can be used directly for tDoc, alternatively stage 3 code with detailed line-by-line MS Word change marks may be created manually (not recommended) in tDoc.

Note 1: Contribution author doesn't need to change the OpenAPI header information in YAML file. Code moderator will change it accordingly in integration branch.

openapi: 3.0.1

info:

title: Slice NRM

version: 16.8.0

description: >-

OAS 3.0.1 specification of the Slice NRM

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externalDocs:

description: 3GPP TS 28.541 V16.8.0; 5G NRM, Slice NRM

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.541/

paths: {}

components:

schemas:

* Contribution author creates CR branch from latest commit of corresponding integration branch in 3GPP Forge, and implement the stage3 change on the CR branch

**Note 1**: the branch name of Rel-16 is Rel-16, the branch name of Rel-17 is Rel-17, the branch name of Rel-18 is Rel-18, the branch name of Rel-19 is Rel-19.

**Note 2**: suppose the latest commit of the release branch reflects the codes agreed in last SA meeting. therefore alternatively, author can also create CR branch based on the Tag for last SA meeting.

**Note 3**: the naming rule of the branch is: TS number\_Release number\_(CR number or other tag)\_tDoc title, and the spaces in tDoc title replaced with “\_”, the CR number or other tag are optional for branch name, e.g. 28.541\_Rel16\_CR0444\_fix\_containment\_relationship\_for\_EP\_Transport\_IOC

28.541\_Rel18\_meeting151\_Correction\_of\_NEFFunction\_and\_Sliceprofile, (with Other Tag, e.g, meeting number),

28.541\_Rel18\_Correction\_of\_NEFFunction\_and\_Sliceprofile (with no CR number or tag), 28.623\_28.541\_Rel17\_YANG\_Corrections (with no CR number or tag, two spec numbers indicate one branch includes depended/related stage 3 change for multiple spec)

**Note 4**: If the change of CR includes both YANG and YAML, two CR branches are needed, one for YANG and one for YAML. In this case, \_YAML or \_YANG is to be added to the end of corresponding branch name, e.g. 28.541\_Rel16\_CR0444\_fix\_containment\_relationship\_for\_EP\_Transport\_IOC\_YAML

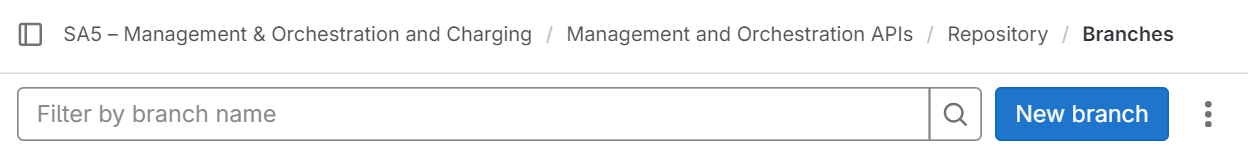
**Note 5**: In case the release branch readiness is delayed due to some reason (e.g. SA plenary is very close to next SA5 meeting), the integration branch of previous meeting can be used for early design work and CR development branch base.

**Note 6**: The reserved branch names (e.g., Rel-16/Rel-17/Rel-18/Rel-19) cannot be used as the beginning of new branch name. Instead, you could use Rel16/Rel17/Rel18/Rel19 without “-”.

Steps to create a CR branch (assumed CR Author has Forge **account** and **logged in**)

1> Open branch link:  [Branches · SA5 – Management & Orchestration and Charging APIs](https://forge.3gpp.org/rep/sa5/MnS/-/branches)

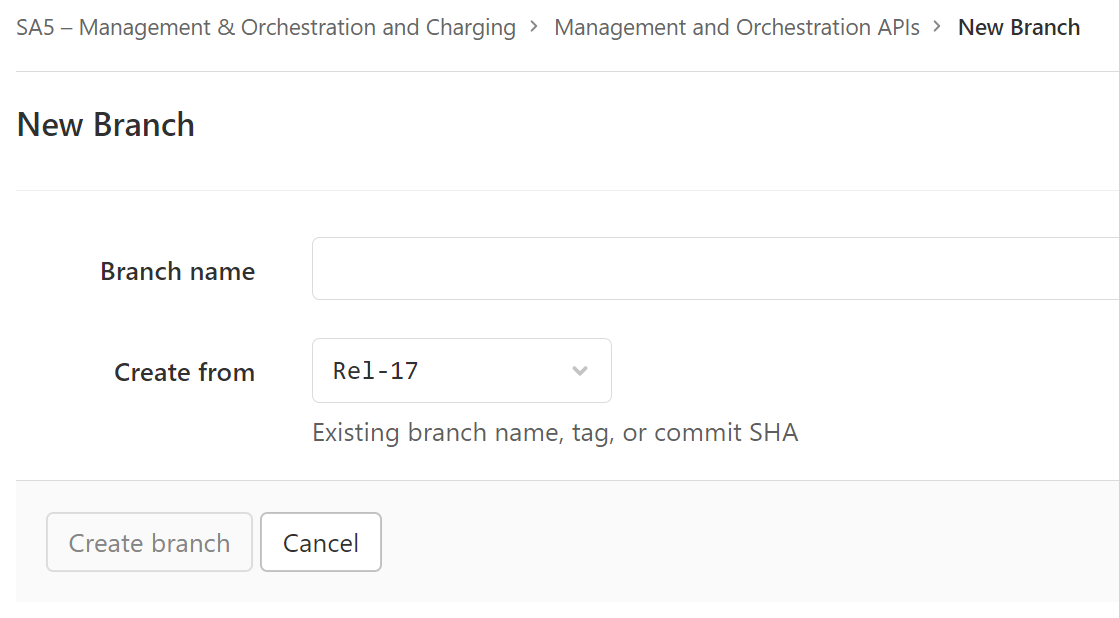
2> Click the button “New branch”



3>  a) Branch Name is needed (check above note 2 for naming rule of a branch)

      b) Create From is to select a base branch (e.g., integration branch or Rel-16 / Rel-17 for Release 16 and Release 17 contributions)

      c) Then click “Create branch” button



* Contribution author commits the code in Forge and check the report of the commit to make sure the code is compiled successfully

Note 1: Forge validates the code automatically as part of the commit

Note 2: Addition checks for YANG:

- The author MUST correct any errors in his YANG code reported by YANG validation (equivalent to [pyang –strict checks).

- The author SHOULD correct all errors and warnings reported by YANG LINT (equivalent to pyang –3gpp checks) in any YANG files he updates

Note 3: If commit report shows failure, contribution author should fix the compiling error and validate again until get successfully commit report.

* Author creates a merge request (MR) towards the integration branch, this depends on Step 1.a. A Forge link towards this MR shall be added to the contribution's cover page "Other comments" section. The hash of the last included commit shall also be indicated. The CR author should use “Download Artifacts – Word CR text:archive" menu in the Forge MR overview to download a change-marked MS Word text about the proposed code changes. This should be copied into the CR tDoc document adding headers (MR link and commit code) as necessary The MR link can be used for verification and later for code merging. If a CR includes both YANG and YAML changes, two separate MRs are needed. At this stage the MR(s) shall be marked as a draft MR; the status of the merge request shall be changed to Draft by clicking the "Mark as draft" button. The MR may also be used to download the automatically generated change-marked word CR text.



Note 1: MR title **shall** include:

* + - TS number,
    - Release number,
    - CR number,
    - CR summary (CR key words, CR title, etc.)
  + By default, Forge use the last commit comments as default MR title.

MR title Example: (to be noted, space is allowed in MR title, no CR number for pCR)

28.541\_Rel18\_CR1051\_Correction\_of\_NEFFunction\_and\_Sliceprofile into Integration, 28.623\_28.541\_[Rel18\_CR0271\_CR1043 YANG Corrections into Integration](https://protect2.fireeye.com/v1/url?k=31323334-501d5122-313273af-454445555731-fbf14bda07377b16&q=1&e=a60be708-f641-431e-badd-586758722422&u=https%3A%2F%2Fforge.3gpp.org%2Frep%2Fsa5%2FMnS%2F-%2Fmerge_requests%2F777)

Note 2: (OAM pilot only) To support the tracking of stage 3 implementation gap for the same stage 2, it is **recommended** to add the related stage 2 information in **Description** section.

Stage 2 CR number may be indicated with tag Stage 2 CR or S2CR, e.g., No Separate Stage 2 CR, Stage 2 CR0011, S2CR0123, Stage-2-CR0012, etc.)



* Contribution author submits contribution to a meeting.
* If one contribution author has multiple contributions impacting stage 3 code, the contribution author should solve potential conflicts before submitting the stage 3 code.
* There may be many related contributions. It’s recommended that the contribution authors take the offline initiative before the meeting in case there is a potential conflict in multiple contributions from different contributors.

Step 1 – Consideration of the contribution at the SA5 meeting

* All technical CRs, with change mark in tDoc content and Forge MR branch link and last commit code in cover page, are reviewed in SA5 meeting independently.

Note: For a CR with stage 3 changes, when the normative stage 3 is in Forge, for the section of ***Clauses*** ***affected*** in the CR cover page, the CR author is recommended to add a note to indicate that the normative stage 3 is in Forge, for example “Normative stage 3 code is in Forge”.

* It’s recommended that the contribution authors (from same or different companies) merge the related contributions which may be potentially in conflict as much as possible during the meeting. (i.e. author needs to ensure there is no conflict)
* Code moderator creates integration branch before or during SA5 meeting

The naming rule of the integration branch is: Integration\_Release\_No\_SA5\_Meeting\_No\_SolutionSetName, e.g. “Integration\_Rel16\_SA5\_136\_YANG” or “Integration\_Rel16\_SA5\_136\_YAML”. If there is more than one SA5 meeting between two SA meetings, create one integration branch for all meetings, and add meeting numbers in the name of the branch, e.g. “Integration\_Rel16\_SA5\_135\_136\_YANG”, or for each SA5 meeting create one integration branch just like in a normal SA5 meeting.

* The stage 2 and 3 CRs can be finally agreed in SA5 with two mandatory conditions:
* The CR cover page ("Other comments" section) contains the Forge MR link for CR branch and last commit code.
* The latest commit on the CR branch passes code validation.

Note 2: the stage 2 definition for a feature would be removed from the specification before freezing of the release if there’s no corresponding stage 3 to satisfy the release criteria.

Step 1a: Integration branch announcement

* Code Master or SA5 leader announces the readiness of the latest integration branch to SA5. Also remind all CR authors to create merge requests from the CR branch to the integration branch. The content of the integration branch announcement could have the format like below:

Alternatively, code moderators could send the announcement. Firstly, code moderators send draft email to SA5 leader. If there is no major concern from SA5 leader, code moderator then could send the announcement to SA5 exploder.

“The code moderators have now created the following four Forge integration branches for this meeting:

Integration\_Rel16\_SA5\_138\_YANG: For Rel16 YANG codes

Integration\_Rel17\_SA5\_138\_YANG: For Rel17 YANG codes

Integration\_Rel16\_SA5\_138\_YAML: For Rel16 YAML/OpenAPI codes

Integration\_Rel17\_SA5\_138\_YAML: For Rel17 YAML/OpenAPI codes”

Step 2: Code cross check after SA5 meeting and before SA meeting

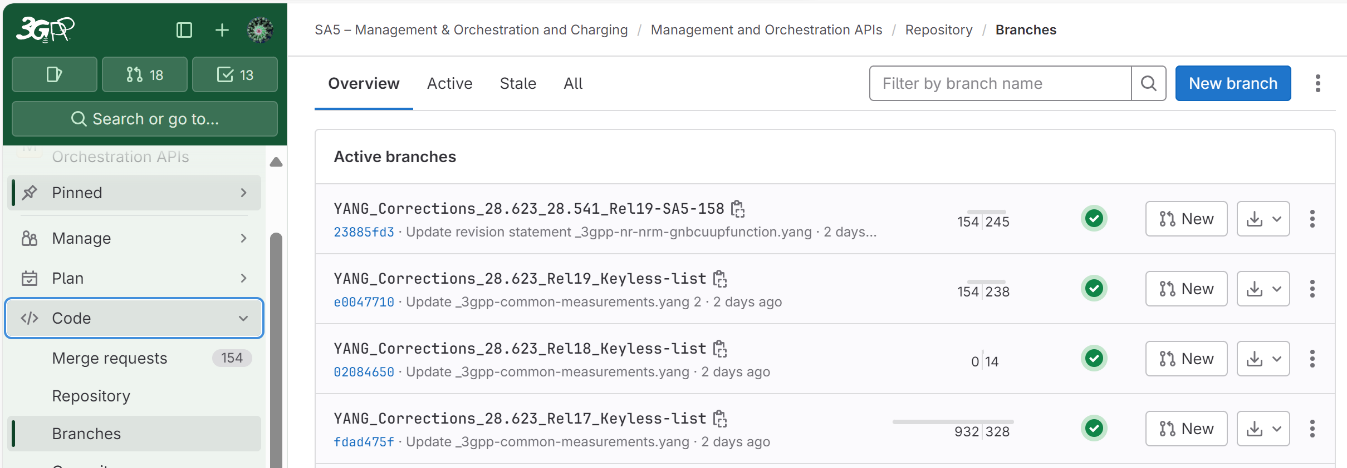
* All agreed technical CRs are submitted to SA independently
* Code author submit merge request (MR) after the CR being agreed (no review issue, no validation error)

Note 1: The source of the MR is CR branch, and the target of the MR is the corresponding integration branch announced in each SA5 meeting.

Note 2: Void.

Note 3: The status of a Draft merge request shall be changed to ready for merge by clicking the "Mark as ready" button when the related CR is agreed/approved.

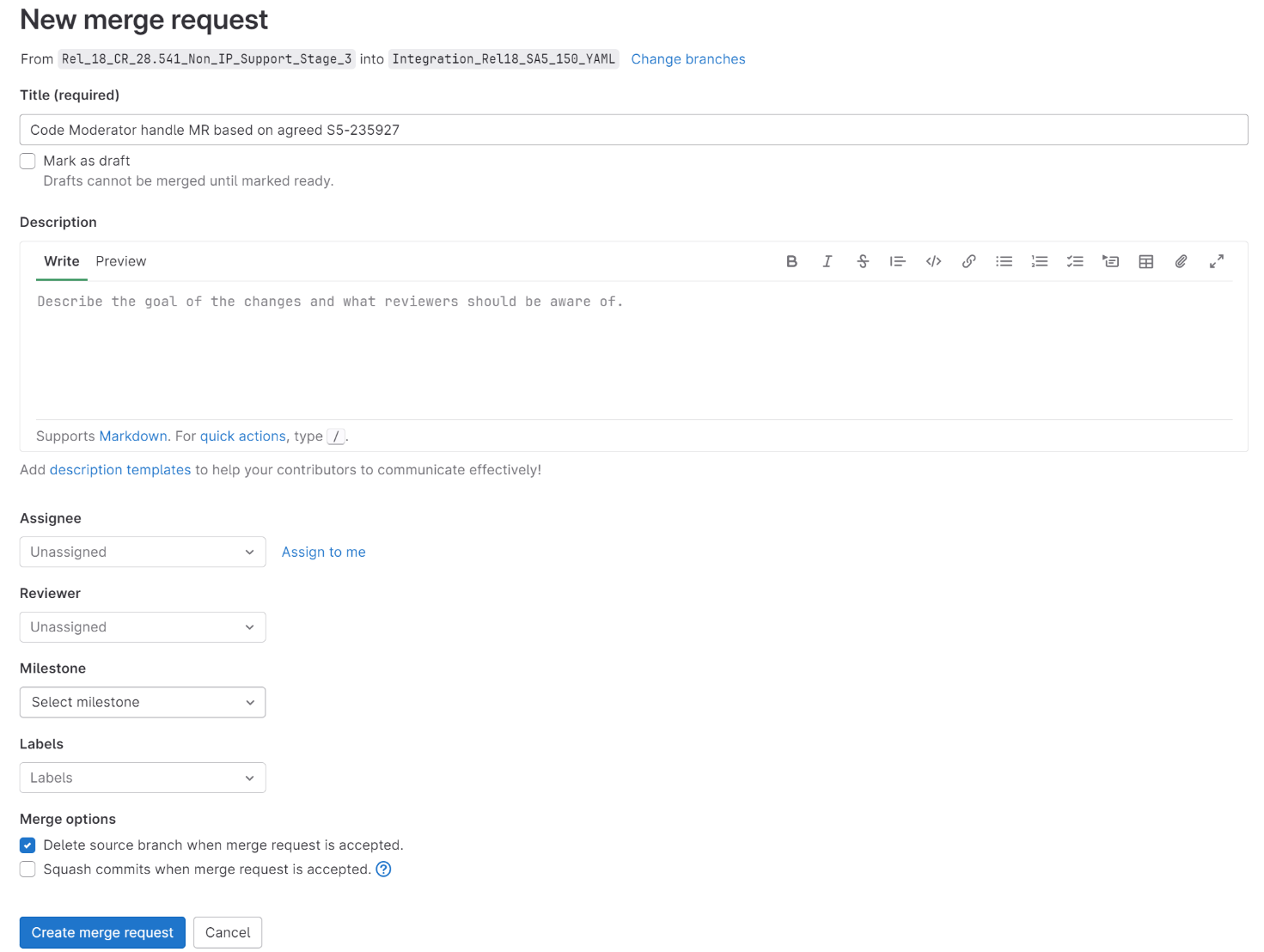
* MRs corresponding to CRs that are not agreed in SA5 or not approved in SA shall be closed by the author within 10 days of the end of the meeting. The code moderator may also close such MRs.



Step3: Click “New” to create Merge Request

Step2:use filer to find your branch

Step 1:click Branches



Step4: Click “Change branches" if the target branch is not correct. It shall be the integration branch like: [Integration\_Rel18\_SA5\_151\_YAML](https://forge.3gpp.org/rep/sa5/MnS/-/tree/Integration_Rel17_SA5_141_YAML)

Step5: "Optionally" add some description about the merge request to Title or Description. It's always good to add CR number.

Step6: keep this option. We may delete source branch after merge.

Step7: click "create merge request", then done

Step6a: It's recommended to "mark" "Squash commits" when there are multiple commits in one MR.

* The Code Moderator, with appropriate assistance from the relevant Contribution authors, is responsible for taking care of overall code checking, (e.g. merged all CRs in a integration branch and make sure there’s no compilation error on the merged code), especially conflict checking, before the SA plenary. In case of errors being found during the checking process, the code moderator or corresponding contribution author (depends on the error type, complexity, and severity) shall provide contributions to SA plenary for the error correction as company contribution(s). . This check needs to be done after each SA5 meeting.

Note 1: conflicts in code must be resolved before the CR approval at the SA plenary... otherwise all conflicting CRs must be withdrawn/not pursued.

Note 2: Code moderator solves conflict on integration branch, for example:

git fetch origin

git checkout -b "CR12345-branch" "origin/CR12345-branch "

git fetch origin

git checkout "origin/Integration-rel16-SA5-136"

git merge --no-ff " CR12345-branch"

<fix conflicts locally as part of the interactive merge>

git push origin " Integration-rel16-SA5-136"

* For Open API, Code moderator update Open API header to reflect correct version of the TS
* All contribution authors are informed to check codes in integration branch to make sure their changes are covered
* Note: All merge requests for agreed CRs should be submitted by following the time table in clause 23.1.1.
* Code moderator shall send one reminder email about the merge request submission after addressing the submitted merge request.
* As for Open API, code moderator copies the Open API files to draft branch of 5G\_API repo for pre-validation. If there is any validation issue, the issue shall be fixed in SA5 Open API integration branch, when needed a corresponding company CR shall be submitted to SA plenary meeting.

Note: SA5 is using SA5 repository as working repository to store and validate Forge code, and synchronize the validated OpenAPI code to "5G\_APIs" repository to support unified 3GPP OpenAPI publication.

Step 3: Agreement of the contributions, after the SA meeting

* If all CRs are approved in SA meeting, in case normative code **is not** in Forge, Code Master copies changed codes from Forge integration branch to the corresponding annexes of TSs. The code master will always copy a full code file avoiding a line-by-line changing of the code.

Note: code master attaches full set of stage 3 code files (Yaml and Yang, Yang is only from Rel18 and onwards) together with word spec.

* If there're some CRs rejected in SA meeting, Code Moderator supports Code Master to replace the original integration branch with new integration branch (e.g. backup and delete the original one and create new one with same name), and merge codes of all agreed CRs to the new created integration branch. After that, Code Master copies codes from the Forge integration branch to the corresponding annexes of TSs. The code master will always copy a full code file avoiding a line-by-line changing of the code.

Note: alternatively, with support of Forge expert, code moderator may remove the codes of reject CRs from the original integration branch.

* Code Moderator submits MR to merges code from integration branch to corresponding release branch

Note: Rebase locally may be needed to solve potential conflict. Some examples are listed below.

Example 1: rebase release branch to integration branch

git fetch origin

git checkout "origin/Rel-16"

git checkout -b "Integration-rel16-SA5-136" "origin/Integration-rel16-SA5-136"

git rebase -i "origin/Rel-16" "Integration-rel16-SA5-136"

<fix conflicts locally as part of the interactive rebase>

git push -f origin "Integration-rel16-SA5-136"

Example 2: solve conflict on release branch, for example:

git fetch origin

git checkout "Integration-rel16-SA5-136"

git checkout -b "origin/Rel-16" "origin/Rel-16"

git merge --no-ff "Integration-rel16-SA5-136"

<fix conflicts locally as part of the interactive merge>

git push origin "Rel-16"

Example 3: solve conflict in new branch mainly to mitigate impact between YAML/YANG

1) Create a completely new branch based on the latest release branch.

2) Pull it to a local tracking branch and switch to it

3) Delete ALL impacted and useless YAML/YANG files from new branch

4) Copy ALL impacted YAML/YANG files from integration branch to the new branch

5) Commit, push

6) Create MR to merge the new branch to release branch

* Code Master takes care of the merge requests, ensures that commits are squashed, and the original branch could be deleted after merge is done.
* Code moderator checks and confirms the consistency of the codes in TS and release branches. If there're different, with support of code moderator, code master fixes the issue in either TS (if it's caused by copy-paste Forge code to TS) or Forge release branch (if it's caused by code merge to release branch)
* Code Master or code moderator creates a git Tag on the latest commit of release branches to reflect codes agreed in SA meeting

Note 1: the naming rule of the tag for the release branch is: Tag\_Release No\_SA\_Meeting No, e.g. Tag\_Rel16\_SA91, Tag\_Rel17\_SA91

Note 2: when normative code moved to Forge, this git tag is also used as part of URI representing the location of specific version of the normative code. E.g., <https://forge.3gpp.org/rep/sa5/MnS/-/tree/Tag_Rel18_SA103/>

Note 3: CR author may create git tag for other purpose, but the tag name shall not use the naming rule in note 1. This type of git tag is expected to be deleted within 12 months. It is not recommended for CR author to create git tag.

* Code Master or SA5 leader announces the readiness of latest release branch and Tag for the SA meeting.
* Code Master or Code Moderators remove all CR branches of the previous SA5 meetings.

Note 1: Integration branches could be clean up periodically or after each SA meeting.

Note 2: Suggest branch owner deleting test branches if they are not used anymore. Code master or Code Moderators may clean up the Forge branches periodically. The branch owner should inform code master or make notes in top level readme file if they want to persist some branches.

Note 3: Without permission from Code Master or Code Moderators, the CR Author shall not make changes to the Integration branch(es) and shall not delete the Integration branch(es).

## 23.5 YANG corrections by Code Moderator

The YANG Code Moderator should check and correct errors for YANG code extracted from the TS document after SA meeting, and ask the MCC to incorporate these error corrections in the TS with a new TS iteration (z) of the version Vx.y.z. The following errors should be incorporate in the TS document without a new CR document:

1. Add missing curly braces
2. Add missing semicolons
3. Add missing quotes
4. Remove quotes inside quoted YANG arguments, e.g. “This is a description of “term” xxx”, as they break a single quoted argument into two quoted and one unquoted argument.
5. Remove unused import statements
6. Add missing import statements
7. Correct misspelled YANG module names in import statements
8. Correct misspelled prefixes within import statements
9. Remove extra space from quoted arguments
10. Rearrange revision statements according to the date
11. Add contact statement according to TS 32.160
12. Remove space at the end of line according to TS 32.160
13. Break lines longer than 80 chars into multiple lines

## 23.6 Notification when ready

When the merge requests are merged into the release branch, upon agreement of the code master and the code moderators, the code master shall notify the leaders about the readiness of the release branches. The leaders should announce the Forge branch or tag that should be used as a baseline for further work. OpenApi and YANG baselines may be announce separately or at the same time.

* Code Master or SA5 leader announces the readiness of latest release branch to the team (to SA5 exploder). When all the approved contents in the previous SA plenary meeting are merged to the release branch, the release branch is ready as baseline branch for new content to the next SA5 meeting.

Note: This announcement is similar to the Tdoc reservation announcement like “Tdoc reservation for SA5#140e is now open”.

Alternatively, code moderators could send the announcement. Firstly, code moderators send draft email to SA5 leader. If there is no major concern from SA5 leader, code moderator then could send the announcement to SA5 exploder.

The content of the release branch announcement could have the format like below:

“The Forge Release branches are ready. You can now create CR branches and commit your stage 3 code for the next SA5 meeting in Forge.

Release branch for Release 16 is: Rel-16

Release branch for Release 17 is: Rel-17

Release branch for Release 18 is: Rel-18

Release branch for Release 19 is: Rel-19

”

## 23.7 Branching strategy (void)

## 23.8 Clean-up policy

After every half year branches related to previous meetings and any private branches not changed in six months will be deleted unless the owner indicates in the top level readme file of the branch that it is still needed. Branches should not be preserved for more than 18 months.

## 23.9 DraftCR Forge process

* In case a development branch is to be created for a DraftCR, the branch name could follow this naming rule: DraftCR\_tDocNum\_TS number\_Release number\_tDoc title, and the spaces in tDoc title replaced with "underscore", e.g. "DraftCR\_S5-224072\_Rel-18\_28.622\_enhance\_NRM\_to\_support\_access\_control"
* DraftCR author optionally may create a Draft Merge request (MR) to download the automatically generated change-marked word CR text. The MR must be marked as a draft MR. The draft MR shall not be used for code merging and it shall be closed by the author when it's not needed.
* Other Forge process for DraftCR is FFS

# 24 Stage 2 / Stage 3 alignment principles

1. Supported stage 3 SS types:

* The supported stage 3 SS types are YAML and YANG for Management service component A and component B.
* The supported stage 3 SS types are one of the 3 types (ASN.1 or GPB or XML) for Management service component C.

1. Mapping information of stage 2 and stage 3 management capabilities for each 3GPP release:

* For every stage 2 management capability, it must be accompanied by one or more corresponding stage 3 definition(s) for at least one of the 3 existing SS types (YAML , YANG and XML).
* A living document (one tdoc for all TSs) shall be created and maintained to document the level of supported stage 3 SS types for each stage 2 / stage 3 CR/pCR. Documenting this is the responsibility of the stage 2/3 contributing author. The combined table (living document) for all TSs is recommended to be updated by the leaders after each SA5 meeting, taking the input from the authors of every agreed stage 2 and stage 3 CR and pCR in the table format shown below.
* Table format:
  + TS 28.541

|  |  |  |
| --- | --- | --- |
| *Tdoc for proposal creating a gap in SS* | *Missing SS* | *(Optional) Location of the change, e.g. clause number, IOC, etc.* |
| *S5-22xyzq* | *YANG* | *Added IOC EP\_XnC* |
|  |  |  |

* + TS 28.622 / 28.623

|  |  |  |
| --- | --- | --- |
| *Tdoc for proposal creating a gap in SS* | *Missing SS* | *(Optional) Location of the change, e.g. clause number, IOC, etc.* |
| *S5-22xyzq* | *YAML* |  |
|  |  |  |

* Note:
  + What to do with the cases when one tdoc (e.g. a CR) is for a case of stage 2 and stage 3 in two different TSs, for example a CR on 28.622 without any corresponding CR on 28.623? In this case, as seen above, we create one table for both TSs, to see the connection.
  + If there is a gap in a TS created by e.g. a stage 2 CR S5-221999 at one meeting, and the gap is then “filled” by a stage 3 CR to next meeting, then simply the entry for S5-221999 is removed from the table (or moved to an “archive” section to see the history when the gap was removed).
  + The third table column is optional, and could be filled with information in any form to help the readers get a better overview of where the gaps may be, e.g. in a particular Annex, for some IOC(s) or NRM fragments.

# 25 F2F meeting process for OAM

This document is a description of the **F2F meeting process for OAM** that we started to use from SA5#146 – it’s a mix of earlier experiences from past f2f meetings combined with experiences from the e-meetings and the special circumstances for f2f meetings with remote participation etc.

**Firstly, we have a “chair notes”** document like in the e-meetings (but one complete document, not two separate), based on the “Agenda\_with\_Tdocs\_sequence\_proposal\_OAM”, where we group all tdocs according to topic/relation within each agenda item and take notes of the discussions during the week.

**The MCC secretary will capture the meeting conclusions in the “html doclist” during the meeting, and in the SA5 closing plenary on Friday, MCC will record the final conclusion of all tdocs in the “html doclist”** tool that also produces the official SA5 report. The chair notes may contain some preliminary conclusions before the closing plenary (e.g. of the “block approval”, see below), however **the chair notes are not updated after the closing plenary started** and in case of any mismatch between the chair notes and the MCC report, the latter takes precedence.

**Q: Which tdocs shall we “treat” i.e. give time to be discussed in the WI/SI agenda session or offline, as there will likely not be time to discuss all tdocs “online”? Our Answer including “tdoc management policy”:**

* + **We will select and indicate (before the meeting starts) all potentially less controversial tdocs** that we judge don’t need (and have time for) discussion during the meeting (e.g. editorial/ small update/ mirror CRs). For such tdocs, we indicate it clearly in the agenda as **for** “**Block approval**” or “**Block noting**”.
  + **We will have a quick block approval check/confirmation on Wednesday, which is the “deadline for block approval”, for each agenda item. We allocate a dedicated time for this, some time on Wednesday (approx.. 30 min.; exact time will be indicated in the OAM time plan)**, to ask if anybody has any concerns about any tdoc in the block approval, and if yes, it is lifted out of block approval and the rest in the “block” is “block approved” (which means Agreed, Approved or Endorsed depending on the doc type) or “block noted”. No discussion about any comments. The tdocs taken out of block approval then go to offline discussions of all comments and revisions until the closing plenary, for “Y/N decision” (agreed or not).
  + **For more complex tdocs outside block approval, we take comments in the tdoc agenda session as usual,** as much as time permits (we will only have a few minutes per tdoc) and **if there are no comments (or comments but no objections) we can approve them immediately** in the session (recorded by MCC). Last minute objections in the closing plenary could still happen for such tdocs but they should be rare, like in the past. This reduces the workload as you don’t need to re-check every document every day for possible new comments. **If there are comments in the agenda session (which is the most common case) we take as many comments as time permits (according to the OAM time plan)**. Then **all remaining discussions, also of the revised versions, are made offline until the closing plenary on Friday** where we take a Y/N decision to approve each “open” tdoc or not. (A Revision session on Thursday afternoon like we had in the past, to check all or some revisions, may also be arranged depending on the meeting progress)
  + **For stage 3 tdocs** we should keep them together with the corresponding stage 2 tdoc in the chair notes, in case the latter is not agreed. If the stage 2 tdoc is agreed, the stage 3 tdoc normally doesn’t need discussion unless someone brings it up for some reason. However, the stage 3 tdocs should not be marked for “block approval” unless the stage 2 tdoc is also for block approval, as the stage 3 approval is dependent on the related stage 2 tdoc approval (which can take until the closing plenary to know). In addition, all stage 3 code changes need to be validated in Forge to be approved; see the Forge process in the SA5 Working Methods.
  + **The ~30m block approval session could be combined with a ~1h slot for a discussion on open or general topics** of big importance for everyone (e.g. LS replies, Forge or architectural issues), like we had in the e-meetings.
  + We may put **potentially controversial topics early in the week’s schedule**
  + We encourage rapporteurs to organise **breakout sessions in early morning or late sessions** (as much as the conference host allows), and the leaders may add some late sessions, e.g. a late revision session on Thursday.
  + **Closing SA5 plenary:** To be sure to finish before the announced closing time, we need to be **strict on just stating Yes/No for the conclusion of each tdoc - i.e., no time for discussion or revisions, even for a tiny change.** If the necessary changes to be acceptable to all delegates were not made before start of the closing plenary, it’s too late and it goes to next meeting.

**For tdoc revision handling,** toaddress comments in the agenda session with a revised tdoc, delegates need to request new tdocs numbers from MCC during the main track session to keep the Chair notes synchronized, i.e. no new tdoc numbers are allocated outside the main session. We should not ask for a new number directly unless the author believes that there is a realistic chance of an agreement. If the author is not sure, the tdoc could be kept open for offline discussions and if later in the meeting the discussions have progressed well so that an agreement seems within reach. The new tdoc number allocated for the revision will be seen in the html doclist which is updated daily by MCC and will also be captured in latest Chair notes.

The author then uses **d1/d2 etc. for revision drafts** and must **upload final tdoc version (without dx) no matter if they are approved or not, before the closing SA5 plenary start on Friday morning**. **On Friday we will use MCC’s html doclist for all conclusions**. The MCC html doclist has the big advantage to directly see the final conclusions and quickly see which tdocs remain to be concluded (especially if we need to make a “second pass” to check any last-minute updates).

**Further:**

* **Normally no presentation of contributions** will be allowed if we have around 500 submitted tdocs or more (the available time doesn’t allow it)
* **LS handling:**
  + At the opening OAM session (6.1) we normally only open submitted proposals for reply LSs, and we ask if somebody wants to propose any more reply LSs.
  + If there are no such new reply LS proposals in the opening session, we may ask one last time at the closing plenary if someone wishes to create an urgent reply LS for email approval, but we don’t create any new reply LSs before the closing plenary in this case.
  + If there are new reply LS proposals at the opening session, we give them a new tdoc# and the author(s) should prepared a first draft latest by Wednesday Q5 and announce it at the start of the Q5 session. All comments and updates of those reply LSs are made offline until the closing plenary.

**Chair recommendation on f2f tdoc handling process improvement**

**Goal: Provide opportunity to progress the work efficiently**

**Action 1: Prioritize tdocs sequence** (rapporteurs are requested to provide suggestions on tdocs sequence and tdocs grouping before the meeting)

**Action 2: Use of Breakout sessions**

* Tuesday/Wednesday/Thursday (Q0 8:00~9:00) are reserved as regular potential breakout session time for every meeting. It may be changed according to the local host constraints.
* Other potential breakout session time may be organized in parallel with main track – to be decided according to the availability of meeting rooms and the necessity of progress.
* Chair will coordinate with Rapporteurs to provide selected tdocs to be discussed in Breakout sessions, the list of tdocs will be informed to the group.
* Breakout moderators provide a summary report of the breakout session. Online drafting can also be done during breakout session. All the breakout summary reports are to be kept in one single document per each meeting.
* Breakout session report and related tdocs treated in breakout session will be presented in the main track for final decision.

**Action 3: Offline best effort during the meeting:** for the tdocs which get no time in the ordinary session, chair will check with the group which tdocs could be put as “offline best effort” at the end of the session. For tdocs which the group agreed to put as “offline best efforts”, the names of the interested companies willing to join the “offline best effort” will be captured in the chair notes.

**Action 4: Cooperation Spirit:** Cooperation from all the delegates to improve the meeting efficiency is critical, everybody is encouraged to provide precise technical comments/constructive rewording suggestions/try best to find compromise as much as possible during the meeting.

# 26 Cooperation with other working groups

## 26.1 Registering of 3GPP defined JWT claims at IANA

IETF specifies JWT in RFC 7519, currently there is no naming clashes of 3GPP defined JWT (JSON Web Tokens) claims but it would be beneficial to register 3GPP defined JWT claims at IANA for easier tracking. The procedure to perform IANA registrations are as follows:

* + Any IANA assignment request must be indicated to the IETF liaison and Specification Manager
  + Template for IANA assignment request as an Appendix included in the 3GPP specifications requiring the assignment
  + The requests are tracked by MCC on the 3GPP web page under Delegates Corner:  
     [IANA registration requests tracking (3gpp.org)](https://www.3gpp.org/delegates-corner/delegates-corner-home/iana-v2)

## 26.2 Avoiding Cross-TSG TEI in outgoing LS

In case of SA5 needs RAN (WGs) to undertake work in an LS, a SA5 Work Item with a Work Item Description (that is not only TEIxx) is required to be used in the outgoing LS.

The receiving RAN groups should then use

either

• the same SA/CT WI code that was in the incoming LS

or

• the SA/CT WI code and a RAN WI code related to that.

# 27 Class diagrams in Specification

In most specifications that include Stage 2 definitions, such as TS 28.622 and TS 28.541, class diagrams (e.g., class association and inheritance diagrams) are often present. To enhance the readability and maintainability of these diagrams, the following recommendations are proposed:

* **CR author** should include the editable source file or source code for the diagram in an annex to the specification
  + The use of PlantUML for diagram generation is recommended.
  + For example, if PlantUML is used to create the diagram, the CR author should add corresponding source code as an Annex.
* **Diagram Quality improvements**:
  + Low quality diagram should be avoided. The **specification rapporteur** (or the Group) should enforce an acceptable quality level.
  + The **CR author** is recommended to use high quality image format, such as Scalable Vector Graphics (SVG) format, to store the diagram file.
    - The SVG format enable sharp figure with smaller file (figure) size, and SVG files can be scaled up or down without losing quality

# Annex A: Useful Links

|  |  |
| --- | --- |
| 3GPP Portal | <https://portal.3gpp.org/> |
| 3GPP Specifications home page | <http://www.3gpp.org/Specifications> |
| 3GPP Specifications | <http://www.3gpp.org/ftp/Specs/> |
| 3GPP Specification latest updates | <http://www.3gpp.org/ftp/Specs/latest/> |
| 3GPP Specification status | <http://www.3gpp.org/ftp/Information/Databases/Spec_Status/> |
| 3GPP Specification latest drafts | <http://www.3gpp.org/ftp/Specs/Latest-drafts/> |
| 3GPP Change request database  3GPP TSG Working Methods | <http://www.3gpp.org/ftp/Information/Databases/Change_Request/>  <http://www.3gpp.org/ftp/Specs/html-info/21900.htm> |
| 3GPP Work plan | <http://www.3gpp.org/ftp/Information/WORK_PLAN/> |
| 3GPP Meeting calendar | <http://webapp.etsi.org/meetingcalendar/QueryForm.asp> |
| Delegate contact information (\*) | <http://webapp.etsi.org/teldir/TelDirectory.asp> |
| Update contact information (\*) | <http://webapp.etsi.org/teldir/PersonalInfo.asp> |
| Email list management (\*) | <http://webapp.etsi.org/TBMembershipList/home.asp> |
| Info for meetings in ETSI | <http://www.etsi.org/about/getting-to-etsi> |
| SA5 Home page | <http://www.3gpp.org/SA5> |
| SA5 Specification list | <http://www.3gpp.org/ftp/Specs/html-info/TSG-WG--S5.htm> |
| SA5 Documents | <http://www.3gpp.org/ftp/TSG_SA/WG5_TM/> |
| SA5 Guidelines | <http://www.3gpp.org/ftp/tsg_sa/WG5_TM/Guidelines/> |
| Archives of SA5 email list | <http://list.etsi.org/3gpp_tsg_sa_wg5.html> |
| Archives of CH SWG email list | <http://list.etsi.org/3gpp_tsg_sa_wg5_charging.html> |
| Archives of OAM SWG email list | <http://list.etsi.org/3gpp_tsg_sa_wg5_oam.html> |
| 3GPP SA5 Sync folder (\*\*) | <https://www.3gpp.org/ftp/Meetings_3GPP_SYNC/SA5> |
| 3GPP SA5 forge link | <https://forge.3gpp.org/rep/sa5> |
| 3GPP NWM website | <https://nwm-trial.etsi.org/#/documents> |

(\*): EOL account required

(\*\*) 3GPP SA5 Sync folder provides the convenience for colleagues to remotely access the local server in a face to face meeting. Remote uploading to sync folder is not supported.

# Annex B: IT resources usage guideline

***Delegates are reminded that they share the meeting IT resources with their fellow delegates. You should not abuse the service by using bandwidth-hogging applications such as movie downloads, streaming video, web-based gaming, etc during the meeting. Use the internet service in your hotel rooms for this!***

***Delegates must respect the law of the hosting country****, and should not visit prohibited internet sites.*

***In cases of persistent abuse of the internet bandwidth, MCC may restrict individual’s use of the service.***

*In particular, the PCG* [*has laid down*](https://protect2.fireeye.com/v1/url?k=31323334-501d5122-313273af-454445555731-15a3b8bc31b8973a&q=1&e=990ad3a3-4327-4131-8302-a429bcaa238b&u=http%3A%2F%2Fwww.3gpp.org%2Fftp%2FPCG%2FPCG_27%2FDOCS%2FPCG27_13r1.zip) *the following network usage conditions:*

*1. Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.*

*2. Users shall not engage in non-work related activities that are consume excessive bandwidth or cause significant degradation of the performance of the network.*

*Since the network is a shared resource, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting Chair should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.*

1. ***DON’T place your WiFi device in ad-hoc mode***
2. ***DON’T set up a personal hotspot in the meeting room***
3. ***DO try 802.11a if your WiFi device supports it***
4. ***DON’T manually allocate an IP address***
5. ***DON’T be a bandwidth hog by streaming video, playing online games, or downloading huge files***
6. ***DON’T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)***

Based on the report of the PCG ad hoc group on IT improvements:  
[http://www.3gpp.org/ftp/PCG/PCG\_27/DOCS/PCG27\_13r1.zip](https://protect2.fireeye.com/v1/url?k=31323334-501d5122-313273af-454445555731-15a3b8bc31b8973a&q=1&e=990ad3a3-4327-4131-8302-a429bcaa238b&u=http%3A%2F%2Fwww.3gpp.org%2Fftp%2FPCG%2FPCG_27%2FDOCS%2FPCG27_13r1.zip)  
see also [http://www.3gpp.org/specifications-groups/delegates-corner](https://protect2.fireeye.com/v1/url?k=31323334-501d5122-313273af-454445555731-bba948e37354b4bf&q=1&e=990ad3a3-4327-4131-8302-a429bcaa238b&u=http%3A%2F%2Fwww.3gpp.org%2Fspecifications-groups%2Fdelegates-corner)]

Annex C (informative): 3GPP Version nomenclature

The following subclause is a direct quote of 3GPP TR 21.900-e00 subclause 4.0A describing how the TS version numbers shall be incremented:

"

4.0A Version nomenclature

Each specification is associated with a "version number" in the form x.y.z which uniquely identifies the document. The significance of the three fields is defined in table 3.

**Table 3: Version number fields**

| **Field** | **Use** | **Remarks** |
| --- | --- | --- |
| x | major  also referred to as "release" | 0: draft  1: presented to TSG for information (specification estimated by prime responsible Group to be at least 60% stable)  2: presented to TSG for approval (specification estimated by prime responsible Group to be at least 80% stable)  3 or greater: approved by TSG and under change control; the value indicates the Release according to table 4. |
| y | technical | Incremented every time a technical change is introduced into the specification.Once under change control, such changes shall only occur when the TSG approves one or more Change Requests. Reset to zero every time the "major" field is incremented. |
| z | editorial | Incremented every time a purely editorial change is introduced into the specification. Reset to zero every time the "technical" field is incremented or reset to zero. |

Table 3 shows the estimated degree of stability to be used as a guideline for determining when to raise a specification to version 1.y.z and to 2.y.z. Such figures are obviously subjective, and the decision is ultimately at the discretion of the responsible Group.

A TS or TR having reached at least 60% stability and presented to the TSG for the first time shall be presented with its major version number set to 1, i.e. as version 1.y.z..

"

Annex D (informative): Example of a draft TS/TR Change history table

The following is a good example of how the Change history table for an updated latest draft TS/TR should be filled in:

Annex A (informative):  
Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2017-03 | SA5 #112 | S5-171859  S5-171888  S5-171889 |  |  |  | Added the Scope in pCR S5-171859.  Added High level charging requirements according to pCR S5-171888.  Introduced the Session management and service continuity topic for 5G charging according to pCR S5-171889 | 0.1.0 |

Annex E (informative): YANG Checklist

When creating or updating a 3GPP YANG module developers often commit some trivial errors. To avoid these all 3GPP YANG developers shall check the updated module based on the following list:

1. Ensure a new revision statement with the CR number was added
2. Ensure that the new revision-date follows the mod%6 rule (TS 32.160 clause 6.2.1.13)
3. Update the copyright to the current year
4. For new YANG modules consult the YANG Code moderator about the module name
5. The YANG Code moderator should be notified about updated YANG modules with an email. Subject shall be: "SA5 YANG module updated <module-name> <release>". The Email shall contain a link to the Forge merge request.
6. Check all the additional YANG checks from Forge. Remove all error and warning messages when reasonable; not necessarily all, but as many as possible.

Note this is just a fast check list; the complete set of rules can be found in RFC 7950 and TS 32.160 clause 6.2.