

Workshop 1 (W1): 28 Spetember 2021

Session 1 (S1): 1400 UTC

Session 2 (S2): 2200 UTC

Wkshp	Time	ID	Src	Comment	Online Discussion	Disposition
W1S1	9:13:02	1	P1	I do not believe that all mobility users support communications; e.g. the old man on the bicycle will not have a smart phone (that is me)		Agreed; we need to indicate that some users may not support METR and some METR users (e.g., VRUs) might not support some communication mechanisms
W1S1	9:14:20	2	P1	METR probably will not enable fully automatic driving outside controlled zones as Long as People are involved, except that having communications will become a law (which I consider to be possible only in dictatorships)		We assume that regulations regarding where ADS are allowed to engage and what information OEMs will require to meet their ODDs will be defined external to METR. The METR disseminator merely needs to indicate what information is currently being provided.
W1S1	9:15:23	3	P1	I see a value of METR in supporting ordinary traffic		Yes, the METR ConOps should show use cases where METR is used by driver support systems (e.g., traditional vehicles) as well as automated driving systems.
W1S1	9:17:03	4	P1	No Need to indicate download Technology, as the required Technology might not be available		Agreed; the ConOps should focus on general capabilities rather than specific details. Further, the preferences for one technology over another should would only apply to conditions where the system can allow a delay in an update without causing any lapse in information.
W1S1	9:18:25	5	P2	Bulk or rules download may be necessary without user acting to assure that awareness for rules. assumes connectivity requirement to be connected. An assumption and potential privacy issue that has been long standing.		Agreed; the user system (not the user) should automatically retrieve updates as needed based on configured communications parameters (e.g., when communications are available, etc.) Likewise, the requests made should be kept private and confidential.

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W1S1	9:18:35	6	P1	we do not Need Information of the whole world stored in the Vehicle. Take the possible Vehicle Speed and the available road Network, then you know the amount of data that might be needed		Agreed that a user system will not need to know everything and that we will need a filter capability. The specific information required by any user system is best determined by the developers of the user system.
W1S1	9:19:28	7	P1	Further on, traffic regulations might change quickly		Agreed; METR will need to support dynamic rules
W1S1	9:20:29	8	P3	How does this tie-up with projects like the APDS/TRO-D etc? TRO - Traffic Regulation Orders - a legal document that defines restrictions/regulations for a vehicle. It is set by local govt in UK covering vehicle speed limits, routing, parking, stopping etc.		METR focuses on providing trustworthy data. TROs are the originating source of rules that translators will need to enter. When entering data, it is envisioned that the content of the rules will be formatted to conform to existing standards, such as APDS, to the extent possible.
W1S1	9:23:00	9	P2	Assumption whether the continued use of visual signage will be available or only a limited subset will be available and balance electronic and visual "data."		The ConOps should probably indicate that all METR systems should contain a rule that indicates the precedence given to electronic signage. For example, one METR system might indicate that it supplements other information while another might indicate that it is a primary source. METR should not attempt to set policies by jurisdictional entities; rather it should be flexible enough to support different policies.
W1S1	9:23:21	10	P2	AAA Triptik provides state rules with route information		While they provide information, they do not do so in a normative manner (i.e., it is not fully trustworthy)
W1S1	9:26:10	11	P2	Assumption that there will be a layered rules data environment related tot he levels of automation; and potential user capability.		This is outside of the scope of METR; METR is a technology that will enable solutions, but jurisdictions will have to define the rules on its legal implications.

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W1S1	9:27:24	12	P2	Assumption about natural language availability and locality based. Some dual language environment rules.		The ConOps should define a user need that all rules should be electronically defined in a language neutral format.
W1S1	9:28:28	13	P4	Perhaps METR might accommodate the submitter identifying what they are providing: (1) an exhaustive list of ever "whatever" e.g., stop signs, (2) a partial list of known locations, (3) details on what the sign means e.g., "complete stop" or "hold for 3 seconds", (4) what does a stop sign look like in their locale e.g., do some or all have reflective overlays for vehicle vision/LIDAR systems, (5) some combine of #1 > #4. Just a thought ...some combination		(1, 2) In practice, for information to be "trustworthy", the information to be provided must be "complete" within a defined context. For example, a system could state that it provides all speed limits for interstate highways within a geofence (with a definition of what an interstate highway is). However, providing partial information is potentially harmful (i.e., the receiver may not be aware of a sign that reduced the speed limit). (3) Agreed, the static "vehicle code" portion of the rules will need to define what types of rules specifically mean; another portion of the rule information will need to provide locations of the rules. (4) Agreed, the static vehicle code will also need to define what the signage looks like to support systems that might use this information.

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W1S1	9:30:59	14	P1	It might be impossible to prosecute Violation of traffic rules that were disclosed only by communications (wired or wireless). So to say, the METR mechanism might only be considered as an voluntary Information Service.	P13 to P1: Tomorrow maybe, but in the future enforcement will be based on electronic communication. [In the UK anyway.] P1 to P13: even in case a state will make usage of communication mandatory (in certain cases), communications Always might fail. This is why there is a Limitation in applicability	Physical signage might also fail. For static rules, information should be quite reliable. For dynamic rules, locations will likely need to use local beacons similar to what will be done with SPaT/MAP. In short, a high level of reliability can be achieved electronically. The METR ConOps probably provide enough flexibility to allow jurisdictions to implement electronic-only solutions, if they so desire. As far as prosecutorial liability for violations, the ConOps should include a need for accountability that can show which rules have been received.
W1S1	9:34:33	15	P2	Distinguish among regulations, codes, license, and civil and criminal laws beside the transport regulations.		METR's scope covers all rules (regulations, license requirements, codes, etc) but is limited to transport rules for the use of transport facilities. In other words, we do not indicate the rule for non-transport rules such as eating on a bus.
W1S1	9:35:53	16	P2	What are the intersection across the top-to-bottom structure?		In general, users will need to abide by all rules established by all jurisdictional layers. However, METR should probably accept a level of conflict among such rules as might occur in reality (e.g., a federal law setting a maximum speed limit for all roads while a state ignores the federal law and imposes a higher speed limit). METR presumably be silent on what happens in such cases and leave it to implementers to reflect societal preferences
W1S1	9:36:03	17	P1	Ensured availability of information to all users is not contained in the slide (at least I did not see it)	P10->P1: I think that's implied but we will have to make sure to say so in text	Availability is a part of "trustworthiness" and will have its own associated set of defined user needs

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W1S1	9:37:22	18	P1	even in case a traffic users' communication device would confirm reception of a METR message, that does not ensure that the responsible Entity of the user to take care of this message really got it.	P10->P1: you seem to be suggesting that the provider of rules needs to know which users received rules? P10->P1: somehow yes. Example: whilst driving on a street with heavy fog I cannot see this metal plate telling me About a traffic rule. In such a case, it does not apply to me, as I could not see it.	The METR ConOps should include accountability needs that demonstrate that the METR components are fulfilling their obligations. In particular, the user system is responsible for showing non-repudiation that it requested and received the information and the disseminator system is responsible for showing that it provided the correct updates for each request. Operations onboard a vehicle seem to be outside the scope of METR and TC 204.
W1S1	9:53:55	19	P2	METR is the "operating mortar" that are the interfaces among the bricks within a system of system brick structure.. A personal visualization, going back to the OSIRM and ODP view.		Thank you, that is an interesting perspective.
W1S1	9:54:42	20	P2	System of system LCP is described in ISO/IEC JTC 1 SC7 standard 15288.	P10->P2: true. The SoS content is in an informative annex, and even so its pretty thin on modes. We will be informed by it of course, as 15288 is a foundational reference.	Agreed, ISO/IEC/IEEE 15288 is a foundational reference. The ConOps should indicate that METR is envisioned to be a "collaborative system of systems", which per 15288 is a SoS where 1)component systems interact voluntarily to fulfil agreed upon purposes while retaining their independent ownership, management, ad resources and 2) stakeholders collectively decide how to interoperate, enforce, and maintain standards. While the METR standards series will be specified with the assumption that it is a "collaborative SoS", nothing should preclude greater levels of coordination (e.g., an acknowledged SoS or directed SoS) on a regional basis.

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W1S1	10:00:05	21	P2	Classification data system to support concept is essential and only as good as the integrity of the catalogue.		Agreed, the ConOps will eventually need to specify needs for filtering rules in the catalogue
W1S1	10:05:06	22	P2	Envision license to register for vehicle (not license plate concept more similar to professional engineer license) given its capabilities to operate and operator license to operate various type vehicles???	P10->P2: I'm not sure operation licensure is in scope here	Being able to filter based on vehicle classification, vehicle license, driver license, etc are all probably viable needs that we will need to consider.
W1S1	10:10:09	23	P2	History trivia. U.S.A. speed limit "rule" at 35mph during WWII to extend wear on tires (attempt to save rubber)???		Such a rule could easily be implemented in the envisioned METR system and potentially withdrawn when conditions no longer warrant the rule.
W1S1	10:11:45	24	P1	Good mix of pull (first, Basic) and push		Thank you
W1S1	10:14:46	25	P1	Push should only provide dynamic data that cannot be retrieved by pull. If a road users changes his area of Operation, he must be obliged to pull newly		Agreed
W1S1	10:18:15	26	P1	Pushing data that is available by the pull Service could overload communication channels and make end-devices busy.		The current proposal is that any data that is contractually guaranteed to have been distributed by a pull mechanism will not be distributed by push. However, 'new' pull rules that are active and might not have yet been distributed to all active users will still need to be pushed.
W1S1	10:18:17	27	P5	there are also Dynamic Lane Management with speed and lane regulations which may vary depending on traffic condition and are not in predefined timeslot only, this kind of information update should be notified by push		Agreed

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W1S1	10:19:11	28	P5	dynamic / updated information only by push to reduce bandwidth		Agreed, with the recognition that "push" might include push from a centralized source (e.g., cellular as well as short-range)
W1S1	10:20:53	29	P1	the Technology of push does not really matter, although it has Impacts on cost etc.. Essential for push is the Problem of proper delivery of Information. No idea how to solve this.		From the ConOps perspective, we only need to identify the need of the service; i.e., it should be considered critical for those in the immediate vicinity of the rule and need to conform and it is desirable for those in more remote areas so that they can plan (e.g., navigate).
W1S1	10:21:42	30	P1	There is a Need to withdraw a rule!!! Imaging a temporary closure of a lane and the re-opening		Agreed; and at present we have not identified any unique needs related to rescinded a rule other than affirmatively announcing that the rule is rescinded.
W1S1	10:22:42	31	P1	push via cellular could be a value added Service		Agreed
W1S1	10:23:37	32	P1	a push message must contain all rules applicable for the given area		Agreed, within the limits that the push would not contain the pulled rules and that if they are transmitted from a central source, they could be pushed to subscribers who only subscribe to certain rules based on any number of filters.
W1S1	10:23:55	33	P1	the user thus must check completeness of the push message received.		Agreed; a user needs to be able to pull dynamic rules from a disseminator and ensure that all such rules are properly updated. This is in addition to pulling static rules (where completeness checks are also needed) and receiving pushed rules from the roadside/short-range (where completeness checks are likely not feasible and availability is more likely achieved by repetitive distribution)

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W1S1	10:24:54	34	P1	reporting back is impossible if the needed Information will come in several Independent push Messages.		Based on WG input, we agree that acknowledgements are likely not feasible
W1S1	10:27:05	35	P1	Both is needed, allowing for announcement of unexpected restrictions caused by an observed Event.		Agreed, unplanned rules should ideally be provided through both roadside/short-range push and centrally provided dynamic rule pull operations
W1S1	10:27:42	36	P1	No broadcast of static rules.		Agreed; with the exception of coordinating the exact timeline of when rules go into effect, when necessary. For example, a work crew installing a new stop sign and then publicizing that it is now installed
W1S1	10:29:28	37	P1	Local broadcast beacons are helpful, but cellular notification after Registration has also to be possible.		Agreed
W1S1	10:30:59	38	P1	Installation of a sign is either a slow process (static Information), or it is a dynamic event		Our current interpretation is that the rule itself (i.e., a stop sign will become active on/by <date>) is a static rule. The actual activation (i.e., the stop sign is installed and now active at 15:45 on <date>) is a dynamic rule.
W1S1	10:32:10	39	P1	Pull process, as a Minimum, must indicate an intended area of operation		Agreed
W1S2	17:06:55	40	P6	Does surface transport include all modes?		All modes near the surface of the earth modes that are included within the scope of ISO/TC 204. The METR website includes a glossary page ( <a href="https://iso-tc204.github.io/iso24315p1/glossary.html">https://iso-tc204.github.io/iso24315p1/glossary.html</a> ) that includes our working definitions, some of which are already included within ISO/TS 14812.
W1S2	17:20:22	41	P8	These assumptions seem correct to me.		Thank you



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W1S2	17:34:56	42	P6	Where do road construction. maintenance, police, emergency services fit into this picture?		Our current proposal is to use the term "regulator" for the divisions of a jurisdictional entity that might establish rules. As such, a city would be a jurisdictional entity, but the city council, road authority, police department, etc. would all be regulators operating under the authority of the jurisdictional entity.
W1S2	17:36:39	43	P7	Does this include non-repudiation?		Yes, that is the intent. We believe this is covered as a part of accountability.
W1S2	17:41:32	44	P8	What about: Priority order when the vehicle receives conflicting rules from different sources	P10->P8: good point. Machine interpretable means we have to have a way to unambiguously determine which rule takes precedence P9->P8, Rule conflicts will be discussed as part of Workshop 4	It may also be that the applicability of conflicting rules are ambiguous. A significant example of this is provided by the legalization of some substances in US states while the federal government outlaws them. If such a conflict arose in transport rules, METR would likely be limited to reporting the rules as defined and leaving it to user systems to determine which to follow.
W1S2	17:45:54	45	P6	collector = approved custodian?, disseminator = approved distributor?, rules = national interest dataset?		The precise meanings of each of our terms will be defined in the glossary ( <a href="https://iso-tc204.github.io/iso24315p1/glossary.html">https://iso-tc204.github.io/iso24315p1/glossary.html</a> ); however, these seem to align with the local terms you are suggesting

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W1S2	17:46:43	46	P6	There also needs to be a System Manager		Our current proposal is to discuss METR as a collaborative system of systems (per ISO/IEC/IEEE 15288). In other words, component systems interact voluntarily to fulfil agreed upon purposes and their developers collectively decide how to interoperate and maintain standards. While we do not intend to impose any restrictions on establishing regional managers, it is likely impossible to require their existence.
W1S2	17:48:24	47	P6	some ideas as to the actors who possibly could preform the roles may be helpful for us to imagine who could preform the roles		The challenge is that there are many possible different designs and we want to avoid implying one approach is favoured. Perhaps the ConOps should provide an informative annex that present ~3 different possible scenarios.
W1S2	17:54:00	48	P8	Rules can be changed in real time. Where is this handled? For example, in case of an accident where the police is redirecting the traffic. How will a delivery robot or automated driving functionality understand what to do?	P10->P8: dynamic regulation changes are expected to be communicated using the METR construct, including things like dynamic speed limits. What you describe isn't a change in regulation though--that's following the officer's instruction, which is the de facto standard. Now that is a challenge--AVs need a way to recognize and interact with officers and respond appropriately, but that is not explicitly METR's problem.	Real-time changes will be handled as a part of the push process described later in the presentation.

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W1S2	18:02:57	49	P8	Why will METR handle dynamic speed limits when this can be handled by IVI messages?	P10->P8: IVI is a message type, and could certainly be a delivery mechanism.	METR focuses on providing all rules in a trustworthy way. To the extent appropriate, it will rely upon existing interface standards, but the ConOps being developed will provide an overarching structure and process to ensure that the rules are trustworthy once received. In other words, METR will provide a framework within which IVI, MAP, SPaT, etc. messages can be distributed.
W1S2	18:07:34	50	P8	Would this also include driving onto the sidewalk to give way for an emergency vehicle? Then how will the rule-change allowing driving on the sidewalk be turned on and off by an approaching emergency vehicle?		METR is intended to cover all rules, especially those that override other rules. Assuming that driving/stopping on the sidewalk is normally prohibited, it would be especially important to inform an ADS that in this location and scenario it is being allowed. It is likely that we will have to design a way for METR rules to be associated with other factors that are used for conditional activation. For example, when an emergency vehicle is detected this rule becomes active. The detection of the emergency vehicle could be based on the receipt of a BSM/CAM message.
W1S2	18:15:40	51	P6	the process looks similar to GPS road pricing		Yes, we believe the proposed process of imposing a rule (i.e., approve, enter, publicize, warn, and enforce) is consistent with virtually all existing implementations - with the recognition that the duration of some stages may be zero in some cases.

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W1S2	18:16:41	52	P8	Will there be some sort of acknowledgement from the vehicle that it has received the applicable rules for an area?	P10->P8: that's the non-repudiation we were talking about earlier	There is a need for accountability (an non-repudiation), but this can be achieved by placing the responsibility on the vehicle to be aware of active rules by downloading rules within certain time frames and then showing logs that the downloads were performed. Acknowledging locally pushed rules is very problematic and will likely be handled by simply ensuring that the RSUs were repeatedly transmitting the pushed messages. The storage of acknowledgements raise privacy and confidentiality concerns. Different regions might come to different conclusions as to whether these are needed, in which case, support for acknowledgements can be defined as an option.
W1S2	18:23:07	53	P6	yes, appropriate		Thank you, the group seems to agree with the proposed "push/pull" process
W1S2	18:23:10	54	P7	seem appropriate		
W1S2	18:25:56	55	P8	This sounds like a good process, but what if one vehicle missed the "push" message for turning the driving direction? Could something similar to the Collective Perception Message be used, where vehicles can notify each other of updates to the rules?	P10->P8: sure. though that's a little lower level-- an implementation detail--a 'how' if you will. As we're developing the concept, we're focusing more on what needs to be done, who needs what and who is responsible.	The goal of METR should be to provide a very high level of availability (at least for safety related rules). However, we have not identified any needs that would suggest that METR should prohibit user systems from gathering and using information from other (perhaps less trustworthy) sources to further supplement the METR rules.
W1S2	18:33:51	56	P8	So permission to drive on the sidewalk to give way to an emergency vehicle, could be conditioned on a message from the emergency vehicle.		This is what is currently envisioned

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W1S2	18:36:12	57	P1 1	In Australia there are default speed zones that do not need speed limit signs installed. Would these be included in a push or pull?		This situation occurs elsewhere as well, but we recognize that it might be more common issue in Australia. Our proposal is that the METR rules would parallel the official rules as closely as possible. In this instance, there is likely a rule (i.e., legislation) that establishes a default speed limit on a road section based on attributes of the road section. For example, the Texas Transportation Code sets speed limits of (1) 30 mph on streets in urban districts, (2) 70 mph on a numbered state or US highways outside of an urban district, ..." Within METR, each such speed limit and condition would be defined as a separate rule, which locally posted speed limits can override.
W1S2	18:37:00	58	P6	combination- yes		Most of the participants seemed to agree that the push process needs to rely on a combination of beacons that provide a local push of dynamic rules and a centralized mechanism. The centralized mechanism provides support for navigation etc while the local push provides a high level of guaranteed delivery.
W1S2	18:38:14	59	P1 1	Yes, thanks		
W1S2	18:47:38	60	P6	filters - restricted access conditions, mass, height		We will include these as additional examples of filter needs in the ConOps

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W1S2	18:48:13	61	P8	Comment to a few slides back: Prior to roadworks, the contractor sends a traffic-sign-plan to the road authorities for approval. Then they can place all the traffic signs along the road. The traffic-sign-plan could be deployed as new rules and distributed by WAN or broadcasted locally by a an RSU.		Correct, this is consistent with our proposal. Specifically, the approval is part of the approval stage, the rules (i.e., information also conveyed by signs etc.) are then encoded into METR. If the signs are intended to be in place for a lengthy period of time (i.e., "static"), they should be advertised via the pull method and available early enough so that users can retrieve them. If they are more dynamic (e.g., deployed and removed when workers arrive/leave), they would be treated as dynamic and advertised through either the centralized dynamic method or the local push method.
W1S2	18:49:07	62	P6	user type - dangerous goods		We will include this as an additional example of a filter need in the ConOps
W1S2	18:58:51	63	P1 2	Thank you very much!		You are very welcome
W1S2	19:00:51	64	P6	Thanks - great work		