

# OPERATION DESERT STORM

## Insights from a Brigade Perspective

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It was 25 February 1991, 2230 hours. The 3d Brigade, 1st Armored Division, had just completed its first fight against the Iraqis as part of VII Corps. We had conducted a well-synchronized brigade attack that was based on a simple plan and a few deeply ingrained drills, rehearsed to the precision of football plays.

The brigade had pounded the objective with more than 800 DPICM (dual-purpose improved conventional munition) rounds as the maneuver force closed, conducted a mounted armored attack, cleared the area, refueled, and rearmed, then re-formed, and prepared to continue the attack. The fight and the subsequent actions had covered more than 40 kilometers in five hours. (Our plan had been good, but it had not been completely executed as planned.)

We were now 150 kilometers into Iraq and under orders to hold there for 24 to 36 hours. That evening, the battalion commanders huddled with the brigade commander for an after-action review on the attack just completed. Then a warning order came from division with a change of mission. Additional details came over the radios in the brigade commander's and S-3's Bradley fighting vehicles (BFVs).

At the tactical operations center (TOC), the battle staff rapidly went through the mission analysis process. A new order, especially graphics, needed to be published quickly; we were only eight hours from the point of execution. For a variety of reasons (navigating at night across areas still filled with wandering Iraqi soldiers, no illumination, inconsistent satellite access for navigation aids, torrents of rain), we did

not receive the written division order until an hour after the line of departure time. The verbal division warning order and commander's intent were therefore critical.

Our order was finished and distributed within hours to task force liaison officers; then the fire support officer conducted a brigade-wide fire coordination exercise to rehearse the next day's plan. Key leaders and staffers reviewed the lessons learned from the previous fight, then rehearsed the details for the next anticipated battle. Unknown to us then, the time and place for the next fight would change again. Our next engagement would be a night fight against at least two armored battalions from an Iraqi Republican Guards Division in a hasty defense.

Fortunately, flexibility had been ingrained in the units through the rehearsals and common drills and through our training four months earlier at the Combat Maneuver Training Center (CMTTC) at Hohenfels, Germany. The rigors and challenges there had prepared us well for combat. They had taught us the necessary discipline and procedures and had helped us develop a repertoire of techniques for planning, organizing, and executing combat operations.

Scores of lessons can be gleaned from Operation DESERT STORM—many of them applicable primarily to operations in the Southwest Asian environment. Other lessons, however, are also worth considering for use elsewhere in terms of doctrine, materiel, training, and force design. The following are some examples:

### Doctrine

*Modify the mission analysis briefing format.* Three critical factors should be added to the current briefing format—combat ratios, imperatives, and proposed intent. Experienced commanders and staff members now consider these factors subconsciously, or maybe even formally. Other leaders should consider adding these procedures (indicated by the asterisks) to the mission analysis briefing format in the Command and General Staff College's "Battle Book," Special Text (ST) 100-3 and "Command Estimate," ST 100-9:

1. *Mission of Higher Headquarters.*
2. *Intent of Higher Commanders (two levels up).*
3. *Specified Tasks.*
4. *Implied Tasks.*
5. *Constraints and Restraints.*
6. *Essential Tasks.*
- \*\* *Combat Ratios.*
- \*\* *Imperatives.*
7. *Proposed Restated Mission.*
- \*\* *Proposed Intent.*

To arrive at combat ratios, the staff first develops a schematic that shows the relative strength of the enemy against that of friendly forces for each of the battlefield operating systems. While this modified extract from the intelligence preparation of the battlefield (IPB) was already integrated into the IPB and the intelligence estimate process, we found that it added a critical dimension to the briefing format as well. The S-2 played a critical role in completing these assessments (Table 1).

While our own forces may hold a decided advantage in selected areas, the enemy may retain the advantage in others.

RELATIVE STRENGTHS			
		US	ENEMY
		Attack	Prepared Defense
Maneuver	IN	o	o
	AR	+	-
	AT	o	o
Cmd/Control		+	-
FS	FA	+	o
	AVN	+	o
ADA		o	o
IEW		+	-
M/CMS		o	o
CSS		o	+/o
<b>Weighting factors:</b>			
Most favorable		+	
10		o	
Least favorable		-	

Table 1

This comparison establishes a framework that enables the commander to focus his intent and guidance for the application of combat power against the enemy's weaknesses or vulnerabilities while capitalizing on our own strengths.

This combat ratio process may seem insignificant when a unit has extended periods in which to formulate courses of action, conduct war games, and complete a formal command estimate. But when everyone is tired, working under time restrictions, and also in combat, such comprehensive checklists and abbreviated aids can prove invaluable. They can help focus energy early in the orders process, and good plans can be completed more quickly.

Certain clearly specified "imperatives," as I'll call them, help the commander and the staff qualify (and in some cases quantify) the requirements and the terms for success. These imperatives provide the critical framework around which the commander can formulate and specify his intent and around which the staff can develop possible courses of action. These are critical parameters, developed by the entire staff, that describe the means for employing resources and the desired outcome for both enemy and friendly forces. The imperatives go beyond essential tasks, which are selected from the specified and implied tasks. If the imperatives can be expressed clearly, the commander can more clearly qualify and articulate his intent.

The imperatives might include such concepts as the following:

- Move in a flexible and self-sufficient formation, maintaining tight command and control.
- Neutralize enemy artillery first.

- Do not let the “destroy in zone” mission weaken the tempo and momentum of the brigade movement.
- Make the most of the weapons’ range standoff advantage, but confirm positive identification before engaging.
- Complete the fight in three hours or less, sustaining less than five percent casualties, but destroying all enemy vehicles and defensive positions of platoon size or larger.
- Re-form in a brigade wedge, refueled, rearmed, and prepared to continue the attack.

Finally, the staff should give the commander a “strawman” intent that is based on the intent of the commanders at the next two higher levels and on the imperatives for the success of the unit mission. With this beginning, the commander can more easily formulate his intent and initial planning guidance that allow the staff to develop courses of action.

I have never met a commander who did not modify his intent to align with his personal understanding of his own commander’s intent. Since most brigade S-3s, in practice, propose a draft intent for the commander, it may as well be included in the formal mission analysis procedure.

These three additions to the briefing format enable the staff to focus the development of a meaningful commander’s intent and clearly establish the guidelines the staff must consider while developing and wargaming a course of action. There is nothing radical in these proposed additions, and they significantly helped us during our experience with compressed mission planning in combat.

### Materiel

Field a “commander’s accessory set” for the armored vehicles of the brigade and battalion commanders, brigade S-3/air liaison officer (ALO), and fire support officer (FSO). The authorized radio configurations, internal seat arrangement, lighting, mapboard, and administrative capabilities for both the commander’s and the S-3’s fighting vehicles are woefully inadequate. We should not wait for a new command and control vehicle; commanders and S-3s need one now.

The basic combat vehicles are sound. We need only apply a standardized accessory package similar to an option package purchased for a family car. But let’s get it standardized and not unique to command and control.

Although our solution was one of many used during the war, it was probably similar in many ways to the modifications other commands developed.

The brigade commander and brigade S-3 fought from M-2 Bradleys—well forward in the brigade formation. Both command posts—the TOC and the TAC (tactical command post)—remained fully functional on the move. The commander stayed with the main effort and the S-3 with the supporting attack. When the fight developed into a tank duel, the brigade commander remained forward, moving to his M-1 Abrams tank.

In all command post vehicles, significant modifications were made to radio and antenna mounts, communication harnesses, seat configurations, and ammunition storage areas to accommodate the lessons learned through a month of trials

RESOURCE REQUIREMENTS			
COMMAND POST	VEHICLE	RADIO NETS	MANNING
Bde TAC (Cdr)	M2A2 BFV	Div Cmd Div Intel Bde Cmd Bde O&I CF2 DIVARTY CF1 GPS (Nav)	Bde Cdr (BC) A/S-3 Officer A/S-2 Officer DS FA Bn Cdr Master Gnr (Gunner) Driver
(S-3)	M2A2 BFV	Div Cmd Div Intel Bde Cmd Bde O&I Flank Unit Loran (Nav) GPS (Nav)	S-3 Opns NCO Intel Analyst A/Master Gnr (BC) A/Opns NCO (Gunner) Driver
(CP)	M1A1	Div Cmd Bde Cmd Bde O&I	A/Opns NCO Gunner Loader Driver
Bde TOC (Opn)	M577	Div Cmd Div Intel Bde Cmd Bde O&I CF2 Loran (Nav) GPS (Nav)	Bde XO A/S-3 Officer S-2 Officer FSO RTO A/Opns NCO Driver
(Plans)	M577	HF (Div net)** Div Cmd	A/S-3 (Plans) Plans NCO A/Plans NCO Driver
(FSE)	M577	CF2 Div C&I Digital FD	FSO NCO TACFIRE NCO FS Specialist Driver/RTO
(ALO)	HMMWV	HF VHF UHF FM (Bde Cmd) FM (Bde ALO)	ALO Tac Air Control Spec
(Eng)	M577	Engr TF FM Bde O&I Div Eng Loran (Nav)	TF Eng (Bde Eng NCO) A/Opns NCO TF Eng A/S-3 Officer Bde Chem Officer Driver
Bde Cbr	Trains CP	M577	Bde S-1 Bde S-4 Bde S-1 NCOIC Bde S-4 NCOIC Driver

\*\*Division HF net was never fully functional during the war.

Table 2

and rehearsals in the desert. The resource requirements for these systems are shown in Table 2.

Commanders, S-3s, FSOs, and ALOs need common armored vehicles to command and control the fight. Survivability and a common signature with forward combat vehicles are still essential. Assuming that we organize as

### VEHICLE ALLOCATIONS

CO POSITION	ARMOR/MECH BDE	ARMOR TF	BFV/INF TF	ARMOR/BFV
	VEH (PKG)	VEH (PKG)	VEH (PKG)	VEH (PKG)
Commander	Tank (1)	Tank (2)	Tank/BFV (2)	Tank/BFV (3)
Cdr/FSO	BFV (4)			
FSO/TAC		BFV (5)	BFV (5)	
S-3/ALO	BFV (6)	Tank (2)	BFV (2)	

**Package 1:** Three-net radio and a digital/FAX capability installed in the ammunition storage space (all main gun ammunition racks removed); integrated map holder and display unit in TC hatch; map scroll in turret housing; work space in turret (including desk, lamps, seats, access to radio frequency selection device and handsets); independent thermal viewer for TC (a screen, not a sight); barrel and breech removed to make room in the turret (leaving the coaxial machinegun); and a fake barrel installed to maintain a common external signature.

**Package 2:** Three-net radio capability; integrated map holder and display in the TC hatch; independent thermal viewer for the TC.

**Package 3:** Two-net radio capability; integrated map holder and display in TC hatch; independent thermal viewer for TC/BC.

**Package 4:** Six-net radio and FAX capability; map scroll; work space (desks, lamps, seats, access to radio frequency selection device and handsets).

**Package 5:** Six-net radio capability; laser range finder, hand-held laser designator, 12-26x optics for BC, including thermal capability; map scroll; work space (desks, lamps, seats, access to radio frequency selection device and handsets).

**Package 6:** Seven-net radio capability; independent thermal viewer for BC; map scroll; work space (desks, lamps, seats, access to radio frequency selection device and handsets).

**Table 3**

combined arms task forces, we should consider authorizing a tank for the battalion and the brigade commanders so they can maneuver with the main effort, usually an armored force. Although this is heresy to many infantrymen, these commanders, at least, should be proficient enough to serve as both Bradley and tank commanders, and a tank offers significantly more survivability. BFVs for the combined S-3/ALO, commander/FSO, and FSO/TAC, as well as other infantry elements should fill the gaps in trail behind the tank assault.

On the basis of this proposal, we should consider the armored vehicle allocations shown in Table 3.

### Training

*Rigidly enforce the planning and execution of detailed rehearsals at all levels.* Units should rehearse to the point that they can execute their procedures with the crisp precision of a drill. Although this is common sense, its significance never hit home with us until the brigade's night fight against two Iraqi battalions in a hasty prepared defense on the night of 26 February. The battle was fought under cloud cover and eight percent illumination. The enemy location was uncertain; enemy units were repositioning across our

front, forming a guard to protect the hasty withdrawal of the Iraqi forces positioned in central Kuwait. Although battle damage assessment reports correctly identified the Iraqi brigade's defensive orientation, the plot for the defense axis was off by several kilometers.

Our brigade attacked as part of a division wedge in the division zone. The increased intelligence picture clearly indicated the significance of this separate brigade fight, soon to be *our* fight, in the southern part of the division zone. We lost four tanks and captured more than 400 enemy prisoners of war (EPWs) in that night fight.

I offer the following insights on rehearsals:

All flank unit representatives should be included in unit rehearsals. The day before the LD, the commander of the flank brigade from another division, along with his S-3 and his liaison officer to our brigade, spent several hours reviewing the intricacies of contact points, recognition signals, control measures, concepts of operation, mission, and intent. Likewise, the adjacent battalion scout platoons rehearsed link-up procedures. The critical details exchanged here would have to last for the rest of the war; we would not formally meet again until the cease-fire on 28 February.

The scouts maintained a moving screen immediately adjacent to the brigade formation (more than 10 kilometers long) as the brigade conducted the attack through Iraq and Kuwait. The planned link-up at many contact points never occurred—the scout BFVs were like ships passing in the night. Radio contact was sporadic, but the frequent unit location exchanges between adjacent scout platoons, companies, and battalions were passed to brigade.

This fight was truly non-linear between divisions, for there were huge gaps between units. Our missions were force oriented. On this night, both attacked adjacent defending elements of the same Iraqi division. There was great potential for fratricide in this attack, but perseverance, a good bit of luck, and a common understanding of mission and intent averted disaster and ensured unity of effort.

**Use a limited number of simple maneuver drills or plays; rigidly track and rehearse the time and distance factors to implement each play, considering every battlefield operating system.** We developed a template for each of the brigade's three maneuver drills and two movement drills from the brigade's base wedge formation (Figure 1). Once the intelligence picture developed, the brigade commander selected the play—a brigade action right (Figure 2). Letter codes from the maneuver template—fire-from, turning point, assault line and attack orientation, reserve, and direct support artillery battalion—were used to transmit set points rapidly. All that remained was the commander's verbal intent for execution. With the template, such controls as restrictive fire lines, target reference points, combat train drop points, and command post set points were also standing operating procedure (SOP). Commanders merely adjusted location based on factors of METT-T (mission, enemy, terrain, troops available, and time), and broadcast the selected points and unit orientations.

**Rehearse procedures for selected critical functions.**

For us, these functions were casualty evacuation, EPW collection and hand-off, refuel and rearm operations, and hasty decontamination. We embedded full-up field training exercise (FTX) rehearsals of these drills for the task forces and specialty units in a brigade CPX of the anticipated fight scenario.

*Partition the battlefield engagement areas.* The dust created by DPICMs dramatically obscured the battlefield for several minutes after execution. It was essential that we partition the battlefield to make the most of the range and the effects of each weapon system:

- Zero to three kilometers—direct fire, tank, TOW, 25mm gun.
- Three to eight kilometers—direct support artillery and attack helicopter.
- Eight to 15 kilometers—close air support (CAS).
- More than 15 kilometers—battlefield air interdiction and MLRS (multiple launch rocket system).

This partitioning reduced target obscuration, embedded adequate safety standoff, and provided an acceptable procedure for the command and control of massed fire distribution.

*Eavesdrop on FM radio nets to collect information and plan actions to the anticipated decisions.* As the intelligence picture of the impending night fight grew, it became obvious that an established boundary between us and the brigade on our north would reduce fire support restrictions and facilitate our maneuver. (We were moving as part of a division wedge in a division zone of action.)

The assistant division commander for maneuver and the two affected brigade commanders discussed the issue on the division command net. Simultaneously monitoring and working with the adjacent brigade S-3 on the division operations net, and with our brigade XO and FSO on the brigade operations and intelligence (O&I) net, we identified the best alternative. As brigade S-3, I proposed it on the division command net to the ADC(M) (assistant division commander for maneuver) and the two brigade commanders. The division artillery (DIVARTY) commander reviewed it with his fire support element and endorsed it. The ADC(M) approved the change; the DIVARTY entered it in the TAC-FIRE system, and we plotted it on the brigade overlays.

Meanwhile, our brigade XO distributed the warning order concerning the boundary change on our brigade command net. It took 15 minutes to initiate, coordinate, and implement a critical division-level command and control measure for a complex brigade night fight. Eavesdropping and net calls had made it all easier.

*Upgrade the combat training centers to integrate, exercise, and assess all the operating systems to the level now executed for the command and control and maneuver systems.* The following are a few examples:

**Intelligence and Electronic Warfare.** The amount of intelligence data "pushed" to the brigade S-2 at the CMTC had been less than five percent of that received per day in-theater. Most of the data received in-theater was accurate, but much of it was either old or had been transcribed. It was

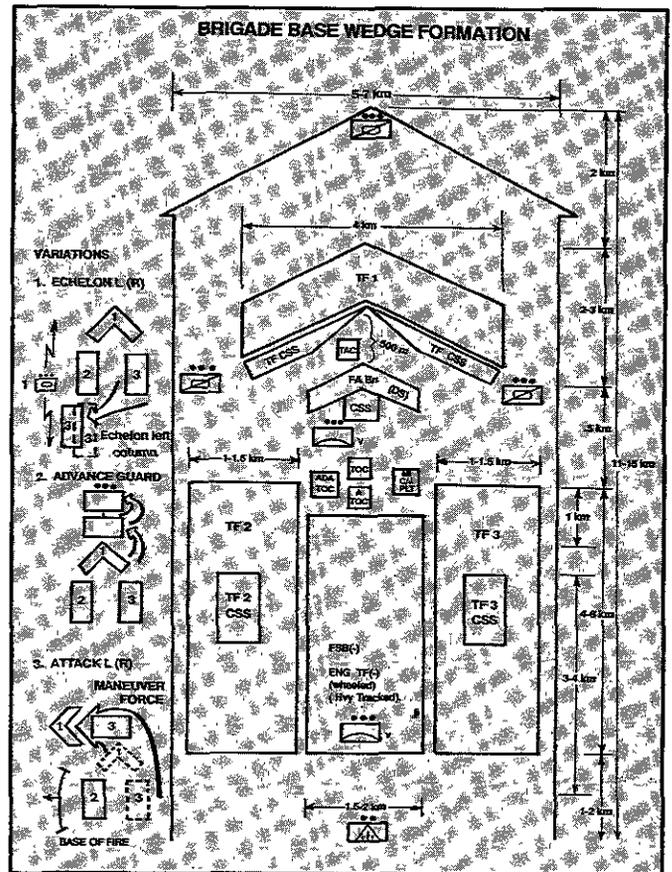


Figure 1

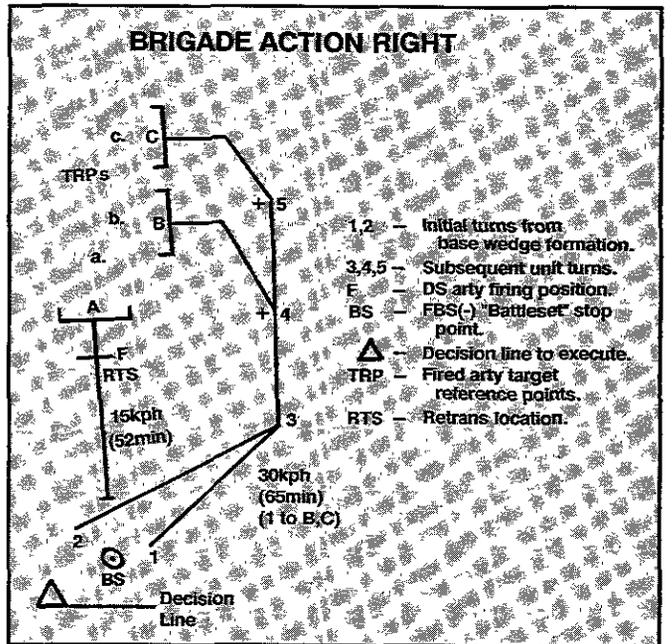


Figure 2

a monumental task to review, collate, timeline, post, and assess this data.

**Fire Support.** The target locations of Air Force-delivered cluster bomb units and artillery-delivered DPICMs had to be tracked and the information distributed as probable minefields by the brigade engineer. More than half of the damage to our wheeled vehicles and a third of our casualties came from the inadvertent detonation of unexploded bomblet munitions.

**Command and Control.** Extensive cross-talk between flank units (especially at battalion and brigade level) provided critical combat information that helped validate enemy templates, as well as to ensure the continuity of a coordinated fight.

**Combat Service Support.** Fuelers and ammunition haulers traveled hundreds of kilometers cross-country to and from isolated fuel and ammunition transfer points. The physical demands of loading and transporting ammunition and then finally loading it into combat vehicles fatigued everyone.

**Maneuver, Countermaneuver, and Survivability.** Combat engineer vehicles maneuvered well forward as part of maneuver teams, executing coordinated fires with tanks and BFVs to destroy bunkers and other prepared defenses—not as independent counter-obstacle teams.

*Rehearse down to the lowest level possible on a scaled terrain model—then ramp up to full rehearsals.* The brigade used three terrain models to prepare for the offensive:

**Formation Model.** This scaled model, about 10 by 40 meters, depicted every tracked and wheeled vehicle in its brigade attack position. During the weeks in the assembly area, every driver visited the “rock garden,” as it came to be known, to see his place in the brigade wedge. Wheeled vehicle drivers knew who and where their tracked recovery mates were. Routes for fueler, maintenance, and recovery crews were clarified. Maneuver routes and separation distances were emplaced. Each driver and track or Bradley commander understood his part in this formation.

**Enemy Attack Formation Model.** This model, which was to the same scale as our formation model and immediately in front of it as if to suggest a meeting engagement, depicted the complete vehicle array of our probable foe—the Tawalkana Division. Battalion and company commanders maneuvered their “rocks” as we rehearsed attack options, while our S-2 maneuvered the enemy against us.

**Operations Model.** We portrayed our zone of action in an area more than twice the size of a football field. It included all terrain features (surprisingly numerous), control measures, and enemy positions. The enemy situation—including gun tube orientation, occupied positions, type of vehicle, and likely counterattack routes—was updated daily on the model by the S-2 section. Leaders—down to specialty platoon and company command—participated in frequent brigade-level rehearsals.

*Rigidly train the implementation of the IPB—especially the development of decision support templates (DSTs) for the base plan and probable branches and sequels.* As we moved, I maintained and updated the template in the TAC. As the situation unfolded and we approached decision points, I worked with the brigade XO back in the TOC to ensure that the right systems reacted or that the brigade commander was notified for a decision. This included everything from changing the priority of fire and identifying the time and place for refueling to setting artillery radar or submitting requests for CAS or attack helicopter battalion support. Comprehensive wargaming with good IPB and detailed syn-

chronization matrix orders spawns good DSTs and ensures the most effective use of each combat multiplier.

### Force Design

*Organize, station, and design training around the “brigade battle group” (for want of a better term) as the basic combat formation.* We must truly train as we intend to fight. We need to organize the brigade battle group in garrison as a combined arms unit with all the required assets either attached or assigned. Three or four maneuver battalions, a reconnaissance platoon, an artillery battalion, an engineer task force (E-Force design), an air defense battery, a military intelligence detachment (with collection and jamming as well as ground surveillance radar capabilities), one or two military police platoons, and a forward support battalion tailored with all the capabilities expected of it during independent combat operations (including engineer, air defense artillery, and intelligence and electronic warfare maintenance specialties). Enough combat support and combat service support “plugs” (using the Army of Excellence concept) should be retained at division level and higher to weight a main effort.

We were extremely fortunate to have a month of in-country training as a newly task-organized brigade. Unquestionably, our flexibility and inherent ability to bring organization out of turbulence remain fundamental American traits. Many claim that this flexibility to change basic organizational structure is a fundamental component of our employment concepts. We must caution against this perception and build on the numerous studies that endorse the bonding and organizational strength developed through strong individual and unit ties.

As the down-sized Army wrestles with world-wide deployment challenges, we cannot afford on-the-fly task organizations. Combat organizations must truly live, train, and grow together. We may not always have the luxury to prepare, rehearse drills, restructure support battalions, and assimilate new unit SOPs and personalities with the efficiency we had before the ground campaign in the Gulf War.

Operation DESERT STORM gave the Army at large a tremendous opportunity to bond its units and harden its soldiers and leaders to the rigors of armored warfare. The in-country training period provided great training challenges for the entire chain of command. The commander’s intent was clear. We trained hard (harder than we had imagined we could). And we had to survive both the environmental and the psychological pressures associated with preparing and executing true combat operations. We need to approach with caution—but sincerely review and consider—the lessons that we learned from this highly successful operation.

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