Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy

R-1 Program Element (Number/Name)

Appropriation/Budget Activity
1319: Research, Development, Test & Evaluation, Navy I BA 6: RDT&E

PE 0604256N / Threat Simulator Development

Date: February 2015

Management Support

COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	0.000	42.177	40.793	30.769	-	30.769	25.642	23.530	21.875	22.431	Continuing	Continuing
0602: Eletronics W/F Env Simulation (ECHO)	0.000	29.267	26.057	21.386	-	21.386	10.973	9.285	7.097	7.348	Continuing	Continuing
0672: Effect Nav E/W (ENEWS)	0.000	12.910	14.736	9.383	_	9.383	14.669	14.245	14.778	15.083	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is a continuing program that consolidates the design, fabrication and integration of Naval Electronic Warfare (EW) threat simulators for increased managerial emphasis and coordination. These simulator development efforts provide realistic Developmental and Operational Test and Evaluation environments to test EW systems and defensive tactics. These projects develop threat Anti-Air and Anti-Ship weapon system simulators in accordance with the Services' requirements.

The 0602 Project, Electronic Warfare Environment Simulation, directly supports the Test and Evaluation resource requirements for all Naval Air EW development programs to include multi-spectral situational awareness and countermeasures. Programs in development and future programs include: ALR-67(v) 3, Integrated Defensive Electronic Countermeasures Suite ALQ-214, the AAR-47 (v) 3, AVR-2, Advanced 6" Expendable, Advanced Strategic Tactical Expendable, ALQ-144A, Joint Strike Fighter, EA-18G, LR700, Low Band Transmitter, P-8A, and the Next Generation Jammer.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	43.261	45.272	41.861	-	41.861
Current President's Budget	42.177	40.793	30.769	-	30.769
Total Adjustments	-1.084	-4.479	-11.092	-	-11.092
 Congressional General Reductions 	-	-			
 Congressional Directed Reductions 	-	-4.479			
 Congressional Rescissions 	-	-			
 Congressional Adds 	-	-			
 Congressional Directed Transfers 	-	-			
Reprogrammings	-	-			
SBIR/STTR Transfer	-1.084	-			
 Program Adjustments 	-	-	-0.040	-	-0.040
Rate/Misc Adjustments	-	-	-11.052	-	-11.052

PE 0604256N: Threat Simulator Development

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development	
Change Summary Explanation The FY 2016 funding request was reduced by -\$5.9 million to account	nt for the availability of prior year execution balances.	
Technical: Not applicable.		
Schedule: Not applicable.		

PE 0604256N: Threat Simulator Development Navy

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015			
Appropriation/Budget Activity 1319 / 6				PE 0604256N / Threat Simulator 06				Project (Number/Name) 0602 I Eletronics W/F Env Simulation (ECHO)					
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost	
0602: Eletronics W/F Env Simulation (ECHO)	-	29.267	26.057	21.386	-	21.386	10.973	9.285	7.097	7.348	Continuing	Continuing	
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-			

A. Mission Description and Budget Item Justification

The objective of this project is development of necessary simulation facilities and approaches to allow determination of the effectiveness of Electronic Warfare (EW) in real world engagement situations and to support the introduction of modern, effective systems into Naval Aviation. The heavy use of test resources by all Services demonstrates the importance of these assets. The Navy has been very successful in executing all of its major programs, and to date has had no major technical problems.

The Electronic Warfare Environment Simulation project is unique because it is the only program within the Department of Defense which develops and provides Naval anti-air warfare threat assets for Test and Evaluation (T&E).

This project directly supports the T&E resource requirements for all Naval Air EW development programs, to include multi-spectral situational awareness and countermeasures. Programs in development and future programs include: ALR-67(v) 3, Integrated Defensive Electronic Countermeasures Suite ALQ-214, the AAR-47 (v) 3, AVR-2, Advanced 6" Expendable, Advanced Strategic Tactical Expendable, ALQ-144A, Joint Strike Fighter, EA-18G, LR700, Low Band Transmitter, P-8A, and the Next Generation Jammer.

This project provides for the development of an Integrated Air Defense T&E capability to be fielded at each of the three sites comprising the Navy's Tri-Center complex: Naval Air Warfare Center Weapons Division, China Lake and Point Mugu in CA, and Naval Air Warfare Center Aircraft Division, Patuxent River, MD.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2016	FY 2016
	FY 2014	FY 2015	Base	oco	Total
Title: REQUIREMENTS AND VALIDATION	1.115	0.981	0.878	-	0.878
Articles:	-	-	-	-	-
Description: Validate and track intel updates of the threat systems necessary for the operation and continuous improvement of Navy laboratories and ranges which provide engineering support, testing and analysis to the developers, integrators, testers and users of systems and technologies that counter or penetrate air defenses.					
FY 2014 Accomplishments: - Continue to provide program management, systems engineering, and requirements identification for the development of simulators and foreign material acquisition.					

PE 0604256N: Threat Simulator Development

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: Febr	uary 2015	
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number PE 0604256N / Threat Simulator Development	/Name)	Project (N 0602 / Elet (ECHO)		⁄ Simulation	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quant	ities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Continue to validate simulators and stimulators at the Navy tri-lab cente	ers.					
FY 2015 Plans: - Continue to provide program management, systems engineering, and redevelopment of simulators and foreign material acquisition. - Continue to validate simulators and stimulators at the Navy tri-lab center.	·					
FY 2016 Base Plans: - Continue to provide program management, systems engineering, and redevelopment of simulators and foreign material acquisition. - Continue to validate simulators and stimulators at the Navy tri-lab center.	·					
FY 2016 OCO Plans: N/A						
Title: ACQUISITION AND MEASUREMENT CAPABILITIES	Articles:	5.711	9.030	5.109 -		5.109 -
Description: Provide the test community with the modern threat acquisit measurement systems necessary for Test and Evaluation of airborne ale systems and airborne response systems.						
Funding increase from FY 2014 to FY 2015 required for material purchas measurement capability. Funding decrease from FY 2015 to FY 2016 be purchases for radio frequency beam measurement capability are comple	ecause the majority of material					
FY 2014 Accomplishments: - Continue the update to existing laboratory simulators of foreign radars. - Continue the upgrade of open-loop threat simulators at Electronic Coml - Continue the development of an open air radio frequency beam measured initiate the upgrade of open air radio frequency signal density enhancer. - Complete the development of an advanced Early Warning and Acquisition.	rement capability. ment systems.					
FY 2015 Plans: - Complete the update to existing laboratory simulators of foreign radars Continue the upgrade of open-loop threat simulators at ECR.						

PE 0604256N: *Threat Simulator Development* Navy

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		<u> </u>		Date: Febr	uary 2015	
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number PE 0604256N / Threat Simulator Development	(Name)	Project (Number/Name) 0602 I Eletronics W/F Env Sin (ECHO)			ition
B. Accomplishments/Planned Programs (\$ in Millions, Article Quanti	ties in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
 Continue the development of an open air radio frequency beam measur Continue the upgrade of open air radio frequency signal density enhance 						
FY 2016 Base Plans: - Continue the development of an open air radio frequency beam measur - Complete the upgrade of open-loop threat simulators at Electronic Com - Complete the upgrade of open air radio frequency signal density enhance	bat Range (ECR).					
FY 2016 OCO Plans: N/A						
Title: ENGAGEMENT CAPABILITIES	Articles:	22.441	16.046 -	15.399 -		15.399 -
Description: Provide the test community with the modern threat engager Evaluation of airborne alert, Situation Awareness, targeting systems and						
Funding decrease from FY 2014 to FY 2015 in order to properly align the contract for the conversion of a threat system. Development, integration a FY 2017 and FY 2018 as a result.						
FY 2014 Accomplishments: - Continue the upgrade and integration of missile simulation models. - Continue the development of a closed-loop threat surface to air missile - Continue the conversion of a threat system. - Continue the development of the Long Range Threat System (LRTS) since Complete the development of a Digital Radio Frequency Memory Jammer Complete the upgrade to the J-32B Advanced Threat System at ECR. - Initiate the minor upgrades to open air and laboratory threat systems.	mulator at ECR.					
FY 2015 Plans: - Continue the upgrade and integration of missile simulation models. - Continue the development of a closed-loop threat surface to air missile. - Continue the conversion of a threat system. - Continue the minor upgrades to open air and laboratory threat systems.						

PE 0604256N: *Threat Simulator Development* Navy

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy	Date: February 2015		
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development	- 3 (umber/Name) tronics W/F Env Simulation

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Complete the development of the LRTS simulator at ECR.					
 FY 2016 Base Plans: Continue the upgrade and integration of missile simulation models. Continue the development of a closed-loop threat surface to air missile system simulator. Continue the conversion of a threat system. Continue the minor upgrades to open air and laboratory threat systems. 					
FY 2016 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	29.267	26.057	21.386	-	21.386

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Successfully achieve Initial Operational Capability of Navy Threat Simulation projects within 60 days of approved schedule and have test capabilities scheduled in support of Navy test programs within 180 days.

PE 0604256N: Threat Simulator Development

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Exhibit R-2A, RDT&E Project Ju	Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy									Date: Febr	uary 2015	
Appropriation/Budget Activity 1319 / 6				R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development				Project (Number/Name) 0672 / Effect Nav E/W (ENEWS)				
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0672: Effect Nav E/W (ENEWS)	-	12.910	14.736	9.383	-	9.383	14.669	14.245	14.778	15.083	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The objective of the Effectiveness of Navy Electronic Warfare (EW) Systems (ENEWS) Project is the development and application of necessary simulation assets to determine the effectiveness of EW for Navy ships in simulated real-world engagement situations. The project primarily supports the introduction of modern, effective shipboard and off-board EW systems, and tactics for the Surface Navy. The heavy use of ENEWS resources by Naval Sea Systems Command, Operational Test and Evaluation (OT&E) Force, Special Operations, and other EW Research, Development, Test and Evaluation (T&E) agencies speaks to the overall importance of this project. The project provides support for EW system design, Engineering Test (ET), Development Test (DT), Operational Test (OT), and the development of utilization tactics. In the past ENEWS guick reaction capabilities have had great impact on crisis situations such as the Libyan crises, Iran threat, Persian Gulf crisis, and Operation Desert Shield/Storm. Simulation Display (SIMDIS) is an ENEWS modeling tool that was developed to support T&E. SIMDIS has been adopted by most Department of Defense (DoD) T&E and training ranges to provide visualization of T&E and training scenarios. One of the primary threats to surface ships is Anti-Ship Capable Missile systems. The ENEWS Project is unique in that it is the only project within DoD dedicated to developing and providing realistic Anti-Ship Capable Missile assets to test and evaluate the effectiveness of shipboard EW systems and tactics against these type threats. The ENEWS Project is a critical part of the Office of the Secretary of Defense Test Resource Master Plan. This plan employs many of the ENEWS assets for planning, analysis, testing, and verification of shipboard and off-board EW systems techniques and tactics. As part of its normal activities, ENEWS provides Development Test and Evaluation (DT&E), OT&E, and Follow-on Operational Test and Evaluation (FOT&E) support to the surface Navy for all ship classes. DT, OT and FOT&E support includes AN/SLQ-32 Surface Electronic Warfare Improvement Program (SEWIP), Nulka, Rapid Anti-ship Integrated Defense System, all MK245 Giant tests, advanced InfraRed (IR) decoys, decoy placement, ship IR signature and radar cross section measurement of DDG-51, LPD-17, DD-21 and PC class ships, High Power Microwave program, and other ship self-defense initiatives, including T&E of Future Naval Capability process. In addition, ENEWS assets are regularly employed to test the effectiveness of North Atlantic Treaty Organization (NATO) ships' EW systems in joint allied exercises. ENEWS assets also support Joint EW exercises that are conducted with Rim of the Pacific (RIMPAC) nations.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2016	FY 2016
	FY 2014	FY 2015	Base	OCO	Total
Title: CLASSIFIED PROGRAM	8.494	7.500	3.161	-	3.161
Articles:	-	-	-	-	-
Description: Details about this program are classified.					
Details about this program and any changes are classified.					
FY 2014 Accomplishments:					

PE 0604256N: Threat Simulator Development

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		<u> </u>		Date: Febr	uary 2015	
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/ PE 0604256N / Threat Simulator Development	Name)	Project (N 0672 / Effe			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities)	es in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Details are of a higher classification.						1000
FY 2015 Plans: - Details are of a higher classification.						
FY 2016 Base Plans: - Details are of a higher classification.						
Funds are being moved to support Electronic Attack (EA) Test and Evaluat Warfare Improvement Program (SEWIP) Block 3 POR.	ion (T&E) for Surface Electronic					
FY 2016 OCO Plans: N/A						
Title: HARDWARE SIMULATION SYSTEMS	Articles:	1.773	1.786	3.336	-	3.33
Description: Maintain and perform Hardware and Software Upgrades to the shore based Anti-Ship Capable Missile (ASCM) Electro-Optic/Infrared (EO/(RF) Simulators. Perform characterization of IR and RF simulators as part simulation performance and collect performance data for comparison with princludes development and maintenance of all simulator control panels.	e inventory of ENEWS flyable and IR), Visible and Radio Frequency of the periodic evaluation of					
The increase between FY 2015 and FY 2016 is due to the Effectiveness of Change. This funding increase supports critical simulator capability upgraddemonstrate the effectiveness of Surface Electronic Warfare.						
FY 2014 Accomplishments: - Continued annual maintenance of ENEWS simulators to support flight/sho - Completed software intelligence upgrades to the MEIR 3 and MIKE 3 simulated hardware upgrades to the SUMMIT Simulator Initiated software upgrades to the VICTOR Standard Instrumentation Pod	ulators.					
FY 2015 Plans: - Continue all efforts of FY 2014 less those noted completed above.						

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015				
R-1 Program Element (Number/Name) PE 0604256N I Threat Simulator Development		Project (Number/Name) 0672 / Effect Nav E/W (ENEWS)					
Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total		
Articles:	0.832	0.649	0.521	-	0.52		
al models and compares the cal management functions in or the overall efforts of ASCM velopment of detailed test							
nent and analysis, financial							
	PE 0604256N / Threat Simulator Development Each) Doop (ASPIL) D) and VICTOR 1 SIP	Development Each) FY 2014 Doop (ASPIL) D) and VICTOR 1 SIP O.832 Articles: Is. Develops reports that all models and compares the call management functions in or the overall efforts of ASCM evelopment of detailed test of Naval Research, Naval Post MEGA 2 and ZETA simulator or validation effort. No	R-1 Program Element (Number/Name) Pe 0604256N / Threat Simulator Development Each) Project (Number/Name) 0672 / Effe FY 2014 FY 2015 Project (Number/Name) 0672 / Effe FY 2014 FY 2015 Oop (ASPIL) O) and VICTOR 1 SIP Articles:	R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development Each) FY 2014 FY 2015 FY 2016 Base Doop (ASPIL) D) and VICTOR 1 SIP Articles: Is. Develops reports that all models and compares the call management functions in or the overall efforts of ASCM evelopment of detailed test of Naval Research, Naval Post MEGA 2 and ZETA simulator or validation effort. No	R-1 Program Element (Number/Name) DE 0604256N / Threat Simulator Development Each) FY 2014 FY 2015 FY 2016 FY 2016 Base OCO OCO OCO OCO Articles: Is. Develops reports that all models and compares the call management functions in or the overall efforts of ASCM evelopment of detailed test of Naval Research, Naval Post MEGA 2 and ZETA simulator OCO OCO OCO OCO OCO OCO OCO O		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015			
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development			umber/Nan ect Nav E/W			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in	<u>n Each)</u>	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	
 Continue all efforts of FY 2014 less those noted completed above. Complete SIGMA, OMEGA 2 and ZETA simulator hardware validation reports Initiate and complete update of the FY 2015 Program Management Plan. Initiate and complete FY 2015 monthly reports, performance based managem execution reporting and assessment. Initiate LAMBDA simulator hardware validation report. 							
 FY 2016 Base Plans: Continue all efforts of FY 2015 less those noted completed above. Initiate and complete update of the FY 2016 ENEWS Program Management F Initiate and complete FY 2016 monthly reports, performance based managem execution reporting and assessment. Initiate and complete all FY 2015 Planning, Programming and Budgeting Syst Initiate BETA simulator hardware validation report. Initiate and complete the LAMBDA simulator characterization assessment. 	ent and analysis, financial						
FY 2016 OCO Plans: N/A							
Title: SUPPORT AND COMPUTERS SIMULATION SYSTEMS	Articles:	1.811 -	4.801	2.365 -		2.365	
Description: Perform maintenance and intelligence upgrades to EO/IR, Digital testing facilities and flight support equipment based on existing and emerging c Development of T&E scenarios and environmental modeling to support electror attack (EA) testing; modify ASCM Digital Models based on the latest intelligence databases.	omplex threat systems. nic support (ES) and electronic						
The increase between FY 2014 and FY 2015 is due to the Effectiveness of Nav Change. This funding increase supports critical simulator capability upgrades a necessary to test, evaluate and demonstrate effectiveness of Surface Electronic	nd digital model development						
The decrease between FY 2015 and FY 2016 is due to completion of a simulate	or capability upgrade in FY 2015.						
FY 2014 Accomplishments:							

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015			
1319 / 6	R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development		Project (No. 0672 / Effe		•	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in E	•	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
 Continued maintenance and upgrades to shore-based test facilities and mobile to testing in support of SEWIP, Nulka and multi-function EW programs. Continued to transition environmental, threat and platform simulations from Subv Version Control System. Continued upgrades to configuration control software library as new releases been continued to develop new digital models of Anti-ship Cruise Missile (ASCM) threen continued upgrades and maintenance of flight support systems as necessary to simulators. Continued upgrades and user friendly enhancements to the Simulation Display (and Completed simulator user friendly enhancements for the NOVEMBER IV digital recompleted improvements and intelligence upgrades to the mmW digital models. Initiated development of LIMA III and LIMA IV digital models 	version to Mercurial Distributed came available. eats as they became available. support the IR/RF ENEWS SIMDIS) toolset model.					
FY 2015 Plans: - Continue all efforts of 2014, less those noted as completed above Initiate digital model upgrades to support Surface Electronic Warfare Improveme test and evaluation.	nt Program (SEWIP) Block 3					
FY 2016 Base Plans: - Continue all efforts of 2015, less those noted as completed above Maintain and update target models to support SEWIP Block 3 and Advanced Off (AOEW) effectiveness assessments - Initiate update to the Scenario and Environment Model used to support open and						
FY 2016 OCO Plans: N/A						
Accomplishments/	/Planned Programs Subtotals	12.910	14.736	9.383	-	9.383

C. Other Program Funding Summary (\$ in Millions)

N/A

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Remarks

D. Acquisition Strategy

Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy	Date: February 2015		
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604256N / Threat Simulator Development	Project (Number/Name) 0672 / Effect Nav E/W (ENEWS)	
E. Performance Metrics Performance metrics are discussed within each project (R2a).			

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