Escalation resources ***The supportops Escalation is no more following the below procedure. Please follow the new process: https://w.amazon.com/bin/view/AWSPremiumSupport/PSGlobalPrograms/SupportOperations/CaseEscalation ***

Before you escalate, make sure that you visit...

- Playbooks: Covering the most common issues in OpenSearch
- Tooling: Operations available for frontline engineers
- Invalid Escalations: How to avoid your Escalation as being invalid by SO/ST.

When escalating, please follow the guidelines below:

- When to escalate to the Operations Team vs when to escalate to the Service Team?
- Escalating to the OpenSearch Service Team
- Escalating to the Opensearch Ops Team: Required Information

Escalation Procedures Summary

This wiki explains the escalation path for issues related to Amazon Opensearch Service. The internal team working on your issues depends on the specific customer issue at that time or the plugin feature and its production impact.

When escalating issues, please make sure to include the minimum required information:

- Region
- DomainIdent in the following format: <account_number>:<domain_name>
  - If domain identity is not obtained, make sure to include the ARN for the cluster, although DomainIdent is always preferred
- Tumbler link

- **Detailed information on the issue at hand and any troubleshooting already done**
- **Timestamps**
- **Error logs or error codes**

Escalation Best Practices

Whenever escalating an issue, always make sure to perform initial troubleshooting and that all due diligence is done accordingly. That includes but is not limited to:

- Reviewing domain metrics to confirm any resource abnormality and present issues
- Searching for cases with similar issues on Kumo
- Seeking for help from:
  - Tenured AOS support engineers
  - AOS SMEs
  - AOS Service Leads
- Asking the customer for logs, timestamps and as much detail as possible to facilitate the escalation troubleshooting

Note that escalations should not be used for seeking assistance on knowledge that you do not have or specific use cases on how to implement a solution involving AOS.
All escalations are worked on a First-In First-Out (FIFO) fashion. If the issue at hand requires immediate assistance due to production impact, consider escalating the issue as a Sev 2 TT instead of pinging the current on-call requesting to work on your TT. See the escalation flow chart below to assess severity and respective team to escalate issues to.

When Escalating, follow the below procedure

Whenever escalating an issue, make sure you follow the below procedure -
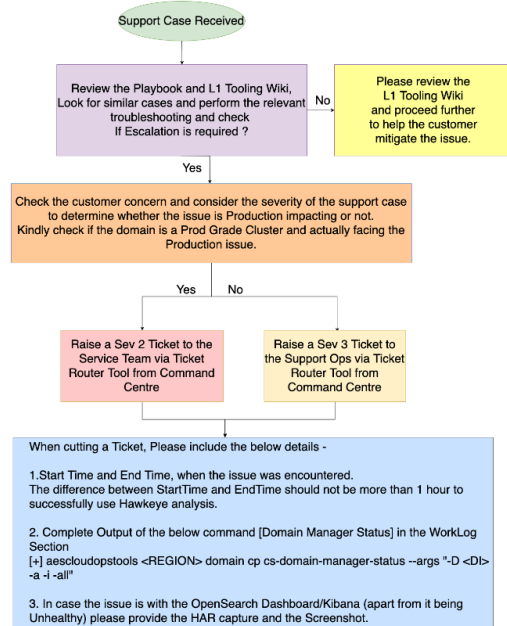
Important things to keep in mind while escalating

1. Please make sure to provide ALL the information (e.g region, account number, Tumbler links etc) required by the SIM template before you submit the SIM. This will avoid any possible delays because of incomplete information.

2. Please only Sev 2 the SIM when the issue is impacting customer's production environment.

RCA/RCI and Customer Wording Requests

See https://w.amazon.com/bin/view/AmazonWebServices/SalesSupport/DeveloperSupport/Internal/AmazonElasticsearch/RCA/

Escalation Routing CTI's

NOTE THE BELOW SECTIONS ARE DEPRECATED IN FAVOR OF COMMAND CENTER'S TICKET ROUTING WORKFLOW

The ticket router workflow will automatically route your ticket to the correct CTI based on the severity and issue combination that you choose. In case you need further reference for service team CTIs this page will still include these sections - note because of this they may be outdated.

ESCALATION ROUTING - SEV 3

	Team	**Support Escalation Button**	**Severity**	**Category**	**Type**	**Item**
1	Support Ops L3	CDI/DDI Issues - Sev 3-5 TT	2 - 5	AWS	Support Operations - Opensearch	CDI/DDI Issues
2	Support Ops L3	OSS/Red/Yellow Cluster Issues - Sev 3-5 TT	2 - 5	AWS	Support Operations - Opensearch	OOS/Red/Yellow Cluster Issues
3	Support Ops L3	Snapshot Issues - Sev 3-5 TT	2 - 5	AWS	Support Operations - Opensearch	Stuck/Failed Automated and Manual Snapshot Issues
4	Support Ops L3	Node Drop Issues - Sev 3-5 TT	2 - 5	AWS	Support Operations - Opensearch	Data loss on Single Node clusters or Node loss
5	Support Ops L3	Ingestion Issues - Sev 3-5 TT	2 - 5	AWS	Support Operations - Opensearch	Ingestion Errors
6	Support Ops L3	Access Policy Issues - Sev 3-5 TT	2 - 5	AWS	Support Operations - Opensearch	Access policy and IAM or FGAC issues
7	Service Team	Kibana Availability - Sev 3-5 TT	3 - 5	AWS Elasticsearch	Front End	Kibana
8	Service Team	OpenSearch Dashboards and Visualization - Sev 3-5 TT	3 - 5	AWS Elasticsearch	Front End	Kibana
9	Support Ops L3	Other DP Issues - Sev 3-5 TT	3 - 5	AWS	Support Operations - Opensearch	Data Plane Issues
10	Support Ops L3	Other CP Issues - Sev 3-5 TT	3 - 5	AWS	Support Operations - Opensearch	Control Plane Issues
11	Service Team	Feature Requests - Sev 3-5 TT	3 - 5	AWS Elasticsearch	Business and Product	Feature Requests
12	Service Team	Documentation - Sev 3-5 TT	3 - 5	AWS Elasticsearch	Business and Product	Documentation
13	Service Team	Billing Questions/Inquiries/Refunds	3 - 5	AWS Elasticsearch	Business and Product	Billing Questions
14	Service Team	Limit Increase - Sev 3-5 TT	3 - 5	AWS Elasticsearch	Business and Product	Limit increase
15	Support Ops L2	Root Cause Investigation - Sev 3-5 TT	3 - 5	AWS	Support Operations	Root Cause Investigation

ESCALATION ROUTING - SEV 2 (SUBJECT TO CHANGES - CHECK WITH ON-CALL)

	Reason Code	**Category**	**Type**	**Item**	**Comments**
1	403/413/429 errors	AWS Elasticsearch	Data Plane	Indexing	403/413/429 HTTP errors, 4xx errors
2	503/504 errors	AWS Elasticsearch	Data Plane	Indexing	503/504 errors, 5xx errors
3	Access policy and IAM	AWS Elasticsearch	Data Plane	Security	How to setup access to the cluster, IP based policies, Resource based policies
4	Alerting	AWS Elasticsearch	Data Plane	Alerting	Setting up Alerting, Kibana Alerting, OpenDistro Alerting
5	Anomaly detection	AWS Elasticsearch	Data Plane	Anomaly Detection	Issues Anomaly Detection Plugin, Creating Detectors
6	Architecture	AWS Elasticsearch			Recommendations on cluster setup - Instance types, nodes, storage volumes, Reserved Instances, Node type Unavailable errors
7	Avoid 429 errors	AWS Elasticsearch	Data Plane	Indexing or Search	How to avoid 429 errors
8	CDI/DDI failures	AWS Elasticsearch			Refer to granular reason codes
9	Cluster Block Exception	AWS Elasticsearch	Data Plane	Cluster Management	ClusterWriteBlockException, 429 errors
10	Cognito Configuration Errors	AWS Elasticsearch	Data Plane	Security	Issues related to configuring Cognito
11	Connect to VPC domain	AWS Elasticsearch	Data Plane	Platform	Issues while accessing to a VPC domain
12	Console specific	AWS Elasticsearch	Elasticsearch Console	Customer Support	Issues on AWS ES console, Discrepancies on console
13	CPU Utilization Spike	AWS Elasticsearch	Data Plane	Platform	High CPU Utilization, Cluster performance degraded/dropped

14	Cross-Cluster search	AWS Elasticsearch	Data Plane	Cross Cluster	Cross-cluster search, Asynchronus Search, Setting up connections
15	Customer Application	AWS Elasticsearch	Data Plane		Related to client/on-prem application setup
16	Data loss on single node clusters/Node loss	AWS Elasticsearch	Data Plane	Search	single node domains that have a problem
17	Data Skew	AWS Elasticsearch	Data Plane	Cluster Management	Sharding, Skew in cluster sharding
18	Disk Full/Failure	AWS Elasticsearch	Data Plane	Cluster Management	Disk space full, disk failures
19	Droplet Failure	AWS Elasticsearch	Data Plane	Platform	OS issues, instance failures
20	ELB Access Log Request	AWS Elasticsearch	Data Plane	Logs/metric/insights?	ELB logs, timeouts, Seeing which queries are taking up resources, slow running queries
21	ES cluster sizing	AWS Elasticsearch	Business and Product	Limit Increase	Handled by customer support team
22	ES logs Request	AWS Elasticsearch	Data Plane	Logs	Customer requesting for ES logs
23	Exceeded Stack Timeout or failed to stabilize	AWS Elasticsearch	Control Plane	Customer Issue	Domain stuck in processing, configuration changes stuck in processing (CloudFormation)
24	Feature Request	AWS Elasticsearch	Business and Product	Feature Requests	Feature Requests
25	Fine Grained Access Control (FGAC)	AWS Elasticsearch	Data Plane	Security	Enabling FGAC, Role Mapping, FGAC related issues

26	General Guidance	AWS Elasticsearch	Business and Product	Documentation	Questions on documentation, Sizing domains, Edit domains, Features of ES, Supported plugins, supported operations
27	General guidance - API/SDK/CLI	AWS Elasticsearch	Data Plane	Platform	General Guidance related to API/SDK, Issues while running REST APIs, SDKs, curl commands
28	General Guidance - Architecture	AWS Elasticsearch	Business and Product	Documentation	AWS ES architecture, How does ES work, Sharding, RIs
29	General Guidance - Elasticsearch	AWS Elasticsearch	Business and Product	Documentation	Questions on documentation, Sizing domains, Edit domains, Features of ES, Supported plugins, supported operations
30	General Guidance - Kibana	AWS Elasticsearch	Front End	Kibana	Kibana are unhealthy, Set-up Kibana for VPC domains, General Guidance
31	General Guidance - OpenSearch Dashboards	OpenSearch	Dashboards	Dashboards Experience	OpenSearch Dashboards Experience, Bug Report, Feature Request, Customer Consulting
32	General Guidance - Logstash	AWS Elasticsearch	Data Plane	Ingestion	Ingesting data from Logstash, Streaming data into ES from Logstash

33	General guidance - new user basics	AWS Elasticsearch	Business and Product	Documentation	General Guidance
34	General Guidance - Scaling	AWS Elasticsearch	Contol Plane	Platform	Horizontal/Vertical scaling of the cluster
35	Grey Disk	AWS Elasticsearch	Data Plane	Cluster Management	Disk watermark issues
36	Guidance - No AWS documentation	AWS Elasticsearch	Business and Product	Documentation	Unavailable AWS documentation on features supported by AES
37	Harbinger - Feature Request	AWS Elasticsearch	Business and Product	Feature Requests	Feature Requests
38	Harbinger - Known Issue	AWS Elsaticsearch			LSE/Known Harbingers. Follow the guideline provided by harbinger
39	How to - Access Policy and IAM	AWS Elasticsearch	Data Plane	Security	Issues related to Access Policy and IAM, Cognito, Role Mapping in Kibana, Setting up FGAC, Private/Global Tenants
40	How to - Connect to VPC domain	AWS Elasticsearch	Data Plane	Platform	Creating and connecting to a VPC based domain
41	IAM Policy Assistance	AWS Elasticsearch	Data Plane	Security	IAM Policy Assistance
42	Incorrect Information	AWS Elasticsearch			
43	Index State Management (ISM)	AWS Elasticsearch	Data Plane	Index State Management	Index State Management, Setting up custom policies, ISM settings
44	Indexing Optimization	AWS Elasticsearch	Data Plane	Indexing	How to index, Tune for Indexing speed

45	Infrastructure Issue - Droplet Failure	AWS Elasticsearch	Data Plane	Platform	Droplet Failures
46	Infrastructure Issue - Network issue	AWS Elasticsearch	Data Plane	Platform	unable to connect to domain, network level issues
47	Infrastructure Issue - Stuck/Failed Automated Snapshots	AWS Elasticsearch	Data Plane	Storage	Stuck or Failed snapshots, AutomatedSnapshotFailure
48	Ingest data into ElasticSearch	AWS Elasticsearch	Data Plane	Indexing	Ingesting data into the cluster, index API, bulk API
49	Ingestion errors	AWS Elasticsearch	Data Plane	Indexing	Ingestion Pipeline errors, Errors while ingesting data into ES
50	Issues with ES API calls	AWS Elasticsearch	Data Plane	Platform	Failures while executing ES API calls, authorization issues
51	JVMMP Spike	AWS Elasticsearch	Data Plane	Search	High JVM Memory Pressure on cluster nodes, Heavy processing load on cluster
52	Kibana Errors	AWS Elasticsearch	Front End	Kibana	Kibana does not come up, Kibana Health is yellow, Kibana aliases errors, Kibana Index Patterns are missing, Kibana Authorization issues, Restart Kibana, FGAC issues
53	KNN	AWS Elasticsearch	Data Plane	k-NN	KNN (K nearest neighbor) search, KNN differences/tuning

54	Known Issue	AWS Elasticsearch			Known bug/issues. Follow harbinger guidelines
55	Known issue - aka bug	AWS Elasticsearch			Known issues/bug. Follow the guideline provided by harbinger
56	Large scale event				LSE issues/harbingers. Follow harbinger guideline
57	Manual Snapshot	AWS Elasticsearch	Data Plane	Storage	How to take manual snapshots, setup manual snapshot repository
58	Missing Information	AWS Elasticsearch			
59	Network issue	AWS Elasticsearch	Data Plane	Platform	subnet issues, security group issues
60	Node Count Increase	AWS Elasticsearch	Business and Product	Limit Increase	
61	Not Available	AWS Elasticsearch	Control Plane	Customer Issue	
62	Number of Domains Per Account	AWS Elasticsearch	Business and Product	Limit Increase	
63	Out Of Scope - Customer Application				Related to client application setup
64	Performance	AWS Elasticsearch	Data Plane	Indexing or Search	Performance degrading while Indexing - choose (Indexing); performance degrading with search operations - choose (Search)
65	Performance - Search Optimization	AWS Elasticsearch	Data Plane	Search	Performance issues related to Search optimization
66	Red/Yellow status of cluster	AWS Elasticsearch	Data Plane	Cluster Management	

67	Root Cause Inquiry - 503/504 errors	AWS Elasticsearch	Data Plane	Indexing or Search	Root Cause Analysis on 5xx errors
68	Root Cause Inquiry - CPU Utilization Spike	AWS Elasticsearch	Data Plane	Platform	Root Cause Analysis for high CPU
69	Root Cause Inquiry - Data loss on single node clusters/Node	AWS Elasticsearch	Data Plane	Cluster Management	Root cause analysis for data loss for single node clusters
70	Root Cause Inquiry - JVMMP Spike	AWS Elasticsearch	Data Plane	Cluster Management	Root Cause Analysis for High JVVMP
71	Root Cause Inquiry - Kibana Errors	AWS Elasticsearch	Front End	Kibana	Root cause analysis on why Kibana isn't working or throwing errors
72	Root Cause Inquiry - Latency Spike	AWS Elasticsearch	Data Plane	Indexing or Search	RCA for Indexing Latency - choose (Indexing); RCA for Search Latency - choose (Search)
73	Root Cause Inquiry - Red/Yellow status of cluster	AWS Elasticsearch	Data Plane	Cluster Management	Nodes Out of Services, Red cluster, Yellow cluster, Unhealthy data nodes, Cluster unresponsive
74	Search Optimization	AWS Elasticsearch	Data Plane	Search	Query optimization, Tuning for search speed
75	Service Software Updates	AWS Elasticsearch	Control Plane	Config service - Infrastructure	updating serviceSoftwar eOptions, stuck service software updates
76	Service Software Updates	AWS Elasticsearch	Control Plane	Config service - Infrastructure	updating serviceSoftwar eOptions, stuck service software updates

77	Setup Cognito	AWS Elasticsearch	Data Plane	Security	How to setup Cognito
78	Setup Logstash	AWS Elasticsearch	Data Plane	Ingestion	How to set up Logstash
79	Setup Ultrawarm	AWS Elasticsearch	Data Plane	Storage	How to setup Ultrawarm, Hot/Cold/Warm storage
80	SIM Linked With Requested Code	AWS Elasticsearch			
81	SQL Support	AWS Elasticsearch	Data Plane	SQL	SQL querying issues
82	Stuck/Failed Automated Snapshots	AWS Elasticsearch	Data Plane	Storage	Stuck, Failed, In-progress Snapshot issues, AutomatedSnapshotFailure
83	Ultrawarm troubleshooting	AWS Elasticsearch	Data Plane	Storage	Issues with Ultrawarm nodes, indices not moving to cold storage
84	Version Upgrade Issues	AWS Elasticsearch	Data Plane	ES Versions	Issues with upgrading ES Versions
85	Custom Package Limit Increase	AWS Elasticsearch	Data Plane	PacMan	Amending the maximum package limit or maximum package size limit
86	ENI Management	AWS Elasticsearch	Control Plane	VPC Domain	Issues regarding ENI
87	Billing metering	AWS Elasticsearch	Control plane	Metering	

CTI Recommender

The CTI recommender will help you to select the most appropriate CTI while escalating customer issues to the Support Ops/Service team based on the TMS issue. The goal of the CTI Recommender is to reduce the response time of the Support Ops/Service team by routing the tickets to the appropriate team.

BELOW THE CTI RECOMMENDATIONS FOR TMS ISSUES SHOWS THE MAPPING BETWEEN TMS ISSUE, ISSUE

DESCRIPTION, AND CORRECT TICKET ROUTER OPTION FIELD TO BE CHOSEN.

YOU CAN LOOK UP THE SOPS FOR ALL OPENSEARCH ISSUES HERE BEFORE ESCALATING
HTTPS://W.AMAZON.COM/BIN/VIEW/SEARCH/A9/SWIFT/OPS/PROCEDURES/?
VIEWER=CHILDREN#IT=CHILDRENINDEX&P=1&L=50

	TMS Code	Issue Description	Ticket Router 'Option' (sev2)	Ticket Router 'Option' (sev3)
1	dp:unhealthy-elb-nodes	The ELB nodes are unhealthy which is also called as OOS.	Unhealthy ELB Nodes	Node Drop Issues
2	dp:ultrawarm-unhealthy-elb-nodes	The UW nodes are unhealthy.	Ultrawarm Issues	Node Drop Issues
3	dp:warm-to-cold-migration-failed	The Warm to cold indices migration failed.	Ultrawarm Issues	Cluster Health Issues
4	dp:ultrawarm-index-migration-failed	The UW index migration failed.	Ultrawarm Issues	Cluster Health Issues
5	dp:all-es-kibana-unhealthy-nodes	Kibana nodes are unhealthy. If you do not find corresponding unhealthy-elb-nodes TMS, only then use this CTI else use the one corresponding to unhealthy-elb-nodes.	Kibana/Dashboards Unhealthy	Dashboard Issues
6	dp:es-eit-dual-mode-enabled		Security: Encryption/KMS/Certificates/SSL	Security Issues
7	dp:es-max-hot-shard:exceed	THIS IS NOT THE MAIN ISSUE present in the cluster. Cluster max shards can be increased by L1 engineers - if required: https://w.amazon.com/bin/view/AmazonWebServices/SalesSupport/DeveloperSupport/Internal/AmazonElasticsearch/SupportOperations/#H4.Performingsettingchanges	JVMMP - Sharding/Skewness/Incorrect Instance Type	Cluster Health Issues

8	dp:es-no-master-found	Master not elected.	Master Node Issues - Quorum Loss/Split Brain/Unreachable	Cluster Health Issues
9	dp:es-split-brain	Split brain on the Elasticsearch cluster. If customer has even number of master nodes, that is a bad config to start with.	Master Node Issues - Quorum Loss/Split Brain/Unreachable	Cluster Health Issues
10	dp:es-too-many-pending-tasks	This escalation directs you to go to the Master CTI for sev2, but often times this is the result of other operations ongoing in the cluster, whether indexing/searching/snapshot/ISM. This is also the cause of the cluster being slow or taking time to relocate shards (DDI stuck). Please make sure to investigate thoroughly and escalate to the correct place.	Master Node Issues - High CPU/JVM	Cluster Health Issues
11	dp:es-unreachable-master-asg-node	Master node unreachable.	Master Node Issues - Quorum Loss/Split Brain/Unreachable	Cluster Health Issues
12	dp:es-version-upgrade-time-limit-breached		OS Compatibility & System Upgrade Issues	Cluster Health Issues

13	dp:high-failure-rate	High failure rate on the cluster.	sev2 - High CPU - Indexing Requests sev2 - JVMMP- Indexing Requests	Indexing Issues
14	dp:kms-customer-key-error	The customer KMS key itself has issues. There is nothing much service team can do. We should ask customer to fix or update the KMS key associated with the domain.	Security: Encryption/KMS/Certificates/SSL	Security Issues
15	dp:kms-key-inaccessible	The customer KMS key itself has issues. There is nothing much service team can do. We should ask customer to fix or update the KMS key associated with the domain.	Security: Encryption/KMS/Certificates/SSL	Security Issues

| 16 | dp:es-cluster-write-blocked | There is write blocked on the domain becuase of low memory left on the cluster. We should ask customer if they can delete unwanted data and then perform retry-failed-activity. Cluster write block can be removed by L1 engineers and retry can be 2pr-ed as well: https://w.amazon.com/bin/view/AmazonWebServices/SalesSupport/DeveloperSupport/Internal/AmazonElasticsearch/SupportOperations/#H4.Performingsettingchanges For more blocking issues, escalate using the following options. | | |