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AWS, CLOUD, DEVOPS, SECURITY

[illegible]

The screenshot displays the AWS IAM console interface. On the left, a navigation sidebar lists various IAM features, with 'Policies' currently selected. The main panel shows the 'Policies' page with a search bar containing 'ecs'. Below the search bar, a table lists several policies. The 'AmazonECS_FullAccess' policy is highlighted with a blue row. Other policies include 'AmazonECSRolePolicy', 'AmazonECSTaskExecutionRolePolicy', 'AWSApplicationAutoscalingECSRolePolicy', 'AWSCodeDeployRoleForECS', 'AWSCodeDeployRoleForECSLimited', and 'ECSWorkshop'. The table columns are 'Policy name', 'Type', and 'Used as'.

Policy name	Type	Used as
AmazonECS_FullAccess	AWS managed	None
AmazonECSRolePolicy	AWS managed	Permissions
AmazonECSTaskExecutionRolePolicy	AWS managed	Permissions
AWSApplicationAutoscalingECSRolePolicy	AWS managed	None
AWSCodeDeployRoleForECS	AWS managed	None
AWSCodeDeployRoleForECSLimited	AWS managed	None
ECSWorkshop	Customer managed	Permissions



 Following 2,875

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ift.tt/3aAFXkn by Frederique Retsema

Summary

Policy ARN

arn:aws:iam::aws:policy/AmazonECS_FullAccess

Description

Provides administrative access to Amazon ECS resources and enables ECS features through access to other AWS service resources, including VPCs, Auto Scaling groups, and CloudFormation stacks.

Permissions

Policy usage

Policy versions

Access Advisor

Policy summary

{ } JSON

1 {

2 "Version": "2012-10-17",

3 "Statement": [

4 {

5 "Effect": "Allow",

6 "Action": [

7 "application-autoscaling:DeleteScalingPolicy",

8 "application-autoscaling:DeregisterScalableTarget",

9 "application-autoscaling:DescribeScalableTargets",

10 "application-autoscaling:DescribeScalingActivities",

11 "application-autoscaling:DescribeScalingPolicies",

12 "application-autoscaling:PutScalingPolicy",

13 "application-autoscaling:RegisterScalableTarget",

14 "appmesh:ListMeshes",

15 "appmesh:ListVirtualNodes",

16 "appmesh:DescribeVirtualNode",

17 "autoscaling:UpdateAutoScalingGroup",

18 "autoscaling:CreateAutoScalingGroup",

19 "autoscaling:CreateLaunchConfiguration",

20 "autoscaling:DeleteAutoScalingGroup",

21 "autoscaling:DeleteLaunchConfiguration",

22 "autoscaling:Describe*",

23 "cloudformation:CreateStack",

24 "cloudformation:DeleteStack",

25 "cloudformation:DescribeStack*",

26 "cloudformation:UpdateStack",

27 "cloudwatch:DescribeAlarms",

28 "cloudwatch:DeleteAlarms",

29 "cloudwatch:GetMetricStatistics",

Now, copy the whole JSON and put it in a text editor. When you look to this JSON, you see that there are no restrictions on region. The policy is divided in several parts: the first one doesn't have any restriction at all about the resource. This means, that you allow people to create security groups, but also delete existing VPC's (virtual networks). For me, this isn't a problem, because I will deny access to regions where I have other VPC's. In fact, in my workshop I will use a region where nothing is defined yet.

```
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
aws.json
3 "Statement": [
4 {
5 "Effect": "Allow",
6 "Action": [
7 "application-autoscaling:DeleteScalingPolicy",
8 "application-autoscaling:DeregisterScalableTarget",
9 [...],
10 "ec2:CreateRoute",
11 "ec2:CreateRouteTable",
12 "ec2:CreateSecurityGroup",
13 "ec2:CreateSubnet",
14 "ec2:CreateVpc",
15 "ec2:DeleteLaunchTemplate",
16 "ec2:DeleteSubnet",
17 "ec2:DeleteVpc",
18 "ec2:Describe*",
19 "ec2:DetachInternetGateway",
20 [...],
21 "servicediscovery:ListNamespaces",
22 "servicediscovery:ListServices",
23 "servicediscovery:UpdateService",
24 "servicediscovery:DeleteService"
25 ],
26 "Resource": [
27 "*"
28 ]
29 },
30 ],
31 }
```

(please mind, that the brackets and the dots [...] are put there by me, it's not part of the policy itself)

In other parts of this policies, there are restrictions, f.e. in the names of the resources:

```
{
  "Effect": "Allow",
  "Action": [
    "ssm:GetParametersByPath",
    "ssm:GetParameters",
    "ssm:GetParameter"
  ],
  "Resource": "arn:aws:ssm:*:*:parameter/aws/service/ecs*"
},
{
  "Effect": "Allow",
  "Action": [
    "ec2:DeleteInternetGateway",
    "ec2:DeleteRoute",
    "ec2:DeleteRouteTable",
    "ec2:DeleteSecurityGroup"
  ],
  "Resource": [
    "*"
  ],
  "Condition": {
    "StringLike": {
      "ec2:ResourceTag/aws:cloudformation:stack-name": "EC2ContainerService-*"
    }
  }
},
]
```

For our goal, we need to add the region restriction to all these parts. There is one catch, though: some AWS services are global, for example IAM and Route53. You cannot restrict the region here; you will have to split up the first block in services that are global and services that are region dependent. The full policy can be found in the appendix of this blog and in my github repository as well [1].

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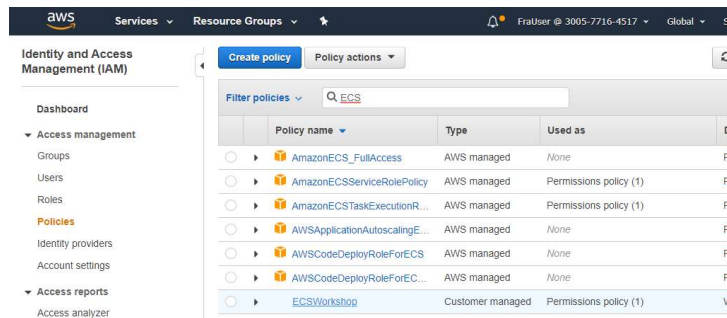
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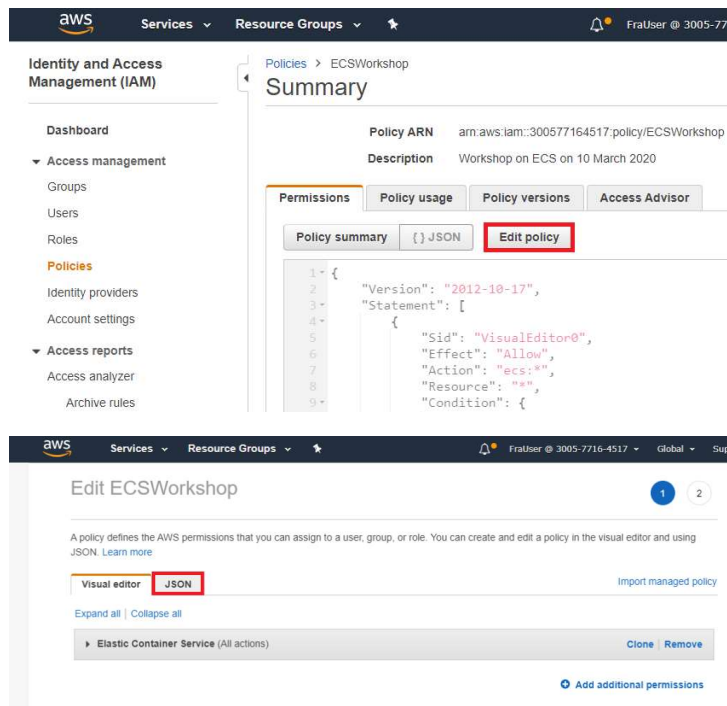
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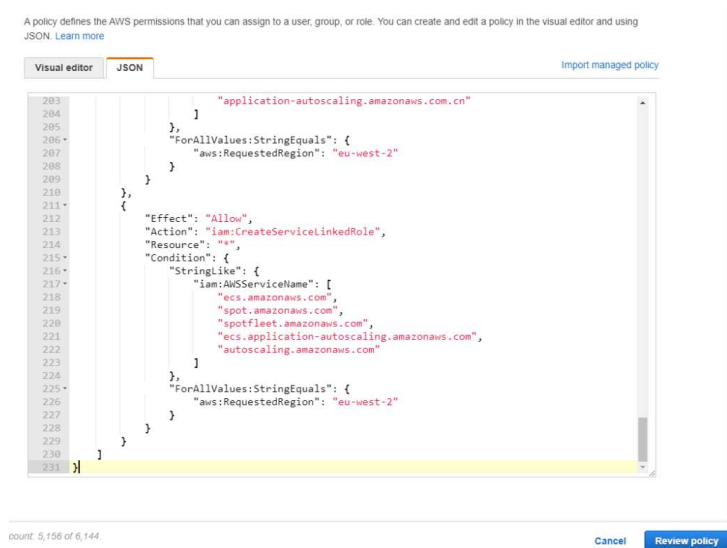
Now we have the changed policy, go to IAM > Policies and search for ECS. Then click on ECSWorkshop:



Click on the Edit policy button, and then on JSON:



Now, copy and paste the text that you have in your text editor to this window and click on the Review policy button:



Click on the Save changes button to save this policy:

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Review policy

Review this policy before you save your changes.

☒ Save as default

Summary			
Q Filter			
Service	Access level	Resource	Request condition
Allow (18 of 234 services) Show remaining 206			
App Mesh	Limited List, Read	All resources	aws:RequestedRegion = eu-west-2
Application Auto Scaling	Limited Read, Write	All resources	aws:RequestedRegion = eu-west-2
Cloud Map	Limited List, Read, Write	All resources	aws:RequestedRegion = eu-west-2
CloudFormation	Limited List, Read, Write	All resources	aws:RequestedRegion = eu-west-2
CloudWatch	Limited Read, Write	All resources	aws:RequestedRegion = eu-west-2
CloudWatch Logs	Limited List, Read, Write	All resources	aws:RequestedRegion = eu-west-2
CodeDeploy	Limited List, Read, Write	All resources	aws:RequestedRegion = eu-west-2
EC2	Limited List, Read, Write	All resources	Multiple
EC2 Auto Scaling	Full List, Read Limited Write, Tagging	All resources	aws:RequestedRegion = eu-west-2
Elastic Container Service	Full access	All resources	aws:RequestedRegion = eu-west-2
ELB	Full List Limited Write	All resources	aws:RequestedRegion = eu-west-2
ELB v2	Limited Read, Write	All resources	aws:RequestedRegion = eu-west-2
EventBridge	Limited List, Read, Write, Tagging	All resources	aws:RequestedRegion = eu-west-2
IAM	Limited List, Write	Multiple	Multiple

Other changes

When you have this policy, it's time to test. Go to all the services that are in the list and try to create resources. Is it possible to use resources that are well beyond the scope of the workshop? In my case, I tried to launch an i3en.metal virtual machine using EC2 – which was possible. I think the users of my workshop don't need such an expensive type of virtual machines, I therefore limited the types that can be used (see f.e. this site [2] for inspiration) to only the default that the EC2 wizard will show, m5a.large.

When I tried to add that part to my policy, the policy became too long (> 6144 characters). I therefore had to use two policies: one for the ECSWorkshop (see above), another one called "EC2LimitToM5ALarge": this will limit the creation of EC2 instances and autoscaling instances to m2a.large (which is the smallest type that can be choosed in the ECS wizard). You can connect multiple policies to one group, deny will take precedence above allow. Go to IAM > Groups, edit the ECSWorkshop group, and click on the button "Attach Policy":

The screenshot shows the AWS IAM console interface. On the left is a navigation menu with 'Identity and Access Management (IAM)' selected. The main area shows the 'Summary' tab for the 'ECSWorkshop' group. Below the summary, there are tabs for 'Users', 'Permissions', and 'Access Advisor'. The 'Permissions' tab is active, showing a list of 'Managed Policies'. The 'Attach Policy' button is highlighted with a red box. Below this, a table lists the attached policies, with 'ECSWorkshop' shown. At the bottom, there is a section for 'Inline Policies'.

Both polities are at the end of this blog and in my github repository.

Conclusion

Once you know where to look, creating a new policy, group and new users isn't that hard in AWS. It can be hard to find back your own policy in the list of both AWS policies and your own policies. Try to use a strict naming convention and document the policies you add to your environment.

Curious what I will tell during the workshop? I wrote another AMIS blog about that [3].

Footnotes

[1] <https://technology.amis.nl/2020/03/07/creating-policys-groups-and-users-in-aws/>

[2] <https://github.com/FrederiqueRetsema/AMIS-Blog-AWS>

[3] <https://blog.vizuri.com/limiting-allowed-aws-instance-type-with-iam-policy>

Appendix: ECSWorkshop policy

```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Effect": "Allow",
6       "Action": [
7         "iam:ListRoles",
8         "iam:ListAttachedRolePolicies",
9         "iam:ListInstanceProfiles",
```

```

10         "route53:GetHostedZone",
11         "route53:ListHostedZonesByName",
12         "route53:CreateHostedZone",
13         "route53:DeleteHostedZone",
14         "route53:GetHealthCheck"
15     ],
16     "Resource": [
17         "*"
18     ]
19 },
20 {
21     "Effect": "Allow",
22     "Action": [
23         "application-autoscaling:DeleteScalingPolicy",
24         "application-autoscaling:DeregisterScalableTarget",
25         "application-autoscaling:DescribeScalableTargets",
26         "application-autoscaling:DescribeScalingActivities",
27         "application-autoscaling:DescribeScalingPolicies",
28         "application-autoscaling:PutScalingPolicy",
29         "application-autoscaling:RegisterScalableTarget",
30         "appmesh:ListMeshes",
31         "appmesh:ListVirtualNodes",
32         "appmesh:DescribeVirtualNode",
33         "autoscaling:UpdateAutoScalingGroup",
34         "autoscaling:CreateAutoScalingGroup",
35         "autoscaling:CreateLaunchConfiguration",
36         "autoscaling:DeleteAutoScalingGroup",
37         "autoscaling:DeleteLaunchConfiguration",
38         "autoscaling:Describe*",
39         "cloudformation:CreateStack",
40         "cloudformation:DeleteStack",
41         "cloudformation:DescribeStack*",
42         "cloudformation:UpdateStack",
43         "cloudwatch:DescribeAlarms",
44         "cloudwatch:DeleteAlarms",
45         "cloudwatch:GetMetricStatistics",
46         "cloudwatch:PutMetricAlarm",
47         "codedeploy:CreateApplication",
48         "codedeploy:CreateDeployment",
49         "codedeploy:CreateDeploymentGroup",
50         "codedeploy:GetApplication",
51         "codedeploy:GetDeployment",
52         "codedeploy:GetDeploymentGroup",
53         "codedeploy:ListApplications",
54         "codedeploy:ListDeploymentGroups",
55         "codedeploy:ListDeployments",
56         "codedeploy:StopDeployment",
57         "codedeploy:GetDeploymentTarget",
58         "codedeploy:ListDeploymentTargets",
59         "codedeploy:GetDeploymentConfig",
60         "codedeploy:GetApplicationRevision",
61         "codedeploy:RegisterApplicationRevision",
62         "codedeploy:BatchGetApplicationRevisions",
63         "codedeploy:BatchGetDeploymentGroups",
64         "codedeploy:BatchGetDeployments",
65         "codedeploy:BatchGetApplications",
66         "codedeploy:ListApplicationRevisions",
67         "codedeploy:ListDeploymentConfigs",
68         "codedeploy:ContinueDeployment",
69         "sns:ListTopics",
70         "lambda:ListFunctions",
71         "ec2:AssociateRouteTable",
72         "ec2:AttachInternetGateway",
73         "ec2:AuthorizeSecurityGroupIngress",
74         "ec2:CancelSpotFleetRequests",
75         "ec2:CreateInternetGateway",
76         "ec2:CreateLaunchTemplate",
77         "ec2:CreateRoute",
78         "ec2:CreateRouteTable",
79         "ec2:CreateSecurityGroup",
80         "ec2:CreateSubnet",
81         "ec2:CreateVpc",
82         "ec2:DeleteLaunchTemplate",
83         "ec2:DeleteSubnet",
84         "ec2:DeleteVpc",
85         "ec2:Describe*",
86         "ec2:DetachInternetGateway",
87         "ec2:DisassociateRouteTable",
88         "ec2:ModifySubnetAttribute",
89         "ec2:ModifyVpcAttribute",
90         "ec2:RunInstances",
91         "ec2:RequestSpotFleet",
92         "elasticloadbalancing:CreateListener",
93         "elasticloadbalancing:CreateLoadBalancer",
94         "elasticloadbalancing:CreateRule",
95         "elasticloadbalancing:CreateTargetGroup",
96         "elasticloadbalancing:DeleteListener",
97         "elasticloadbalancing:DeleteLoadBalancer",
98         "elasticloadbalancing:DeleteRule",
99         "elasticloadbalancing:DeleteTargetGroup",
100        "elasticloadbalancing:DescribeListeners",
101        "elasticloadbalancing:DescribeLoadBalancers",
102        "elasticloadbalancing:DescribeRules",
103        "elasticloadbalancing:DescribeTargetGroups",
104        "ecs:*",
105        "events:DescribeRule",
106        "events:DeleteRule",
107        "events:ListRuleNamesByTarget",
108        "events:ListTargetsByRule",
109        "events:PutRule",
110        "events:PutTargets",
111        "events:RemoveTargets",
112        "logs:CreateLogGroup",
113        "logs:DescribeLogGroups",
114        "logs:FilterLogEvents",
115        "servicediscovery:CreatePrivateDnsNamespace",
116        "servicediscovery:CreateService",
117        "servicediscovery:GetNamespace",
118        "servicediscovery:GetOperation",
119        "servicediscovery:GetService",
120        "servicediscovery:ListNamespaces",
121        "servicediscovery:ListServices",
122        "servicediscovery:UpdateService",
123        "servicediscovery:DeleteService"
124    ],
125    "Resource": [
126        "*"
127    ],
128    "Condition": {
129        "StringEquals": {

```

```

130         "aws:RequestedRegion": "eu-central-1"
131     }
132 }
133 },
134 {
135     "Effect": "Allow",
136     "Action": [
137         "ssm:GetParametersByPath",
138         "ssm:GetParameters",
139         "ssm:GetParameter"
140     ],
141     "Resource": "arn:aws:ssm:*:*:parameter/aws/service/ecs*",
142     "Condition": {
143         "StringEquals": {
144             "aws:RequestedRegion": "eu-central-1"
145         }
146     }
147 },
148 {
149     "Effect": "Allow",
150     "Action": [
151         "ec2:DeleteInternetGateway",
152         "ec2:DeleteRoute",
153         "ec2:DeleteRouteTable",
154         "ec2:DeleteSecurityGroup"
155     ],
156     "Resource": [
157         "*"
158     ],
159     "Condition": {
160         "StringLike": {
161             "ec2:ResourceTag/aws:cloudformation:stack-name": "EC2ContainerService-*"
162         },
163         "StringEquals": {
164             "aws:RequestedRegion": "eu-central-1"
165         }
166     }
167 },
168 {
169     "Action": "iam:PassRole",
170     "Effect": "Allow",
171     "Resource": [
172         "*"
173     ],
174     "Condition": {
175         "StringLike": {
176             "iam:PassedToService": "ecs-tasks.amazonaws.com"
177         },
178         "StringEquals": {
179             "aws:RequestedRegion": "eu-central-1"
180         }
181     }
182 },
183 {
184     "Action": "iam:PassRole",
185     "Effect": "Allow",
186     "Resource": [
187         "arn:aws:iam::*:role/ecsInstanceRole*"
188     ],
189     "Condition": {
190         "StringLike": {
191             "iam:PassedToService": [
192                 "ec2.amazonaws.com",
193                 "ec2.amazonaws.com.cn"
194             ]
195         },
196         "StringEquals": {
197             "aws:RequestedRegion": "eu-central-1"
198         }
199     }
200 },
201 {
202     "Action": "iam:PassRole",
203     "Effect": "Allow",
204     "Resource": [
205         "arn:aws:iam::*:role/ecsAutoscaleRole*"
206     ],
207     "Condition": {
208         "StringLike": {
209             "iam:PassedToService": [
210                 "application-autoscaling.amazonaws.com",
211                 "application-autoscaling.amazonaws.com.cn"
212             ]
213         },
214         "StringEquals": {
215             "aws:RequestedRegion": "eu-central-1"
216         }
217     }
218 },
219 {
220     "Effect": "Allow",
221     "Action": "iam:CreateServiceLinkedRole",
222     "Resource": "*",
223     "Condition": {
224         "StringLike": {
225             "iam:AWSServiceName": [
226                 "ecs.amazonaws.com",
227                 "spot.amazonaws.com",
228                 "spotfleet.amazonaws.com",
229                 "ecs.application-autoscaling.amazonaws.com",
230                 "autoscaling.amazonaws.com"
231             ]
232         },
233         "StringEquals": {
234             "aws:RequestedRegion": "eu-central-1"
235         }
236     }
237 }
238 }
239 }

```

Appendix: EC2LimitToM5ALarge policy

```

1  {
2      "Version": "2012-10-17",
3      "Statement": [
4          {

```

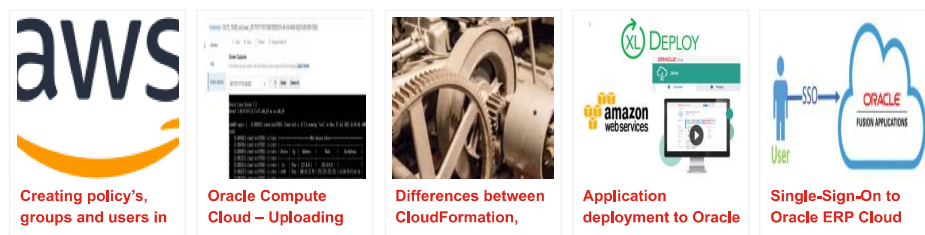


```

5         "Effect": "Allow",
6         "Action": [
7             "ec2:RunInstances"
8         ],
9         "Resource": [
10            "*"
11        ]
12    },
13    {
14        "Effect": "Deny",
15        "Action": [
16            "ec2:RunInstances"
17        ],
18        "Resource": [
19            "*"
20        ],
21        "Condition": {
22            "ForAnyValue:StringNotEquals": {
23                "ec2:InstanceType": [
24                    "m5a.large"
25                ]
26            }
27        }
28    },
29    {
30        "Effect": "Allow",
31        "Action": [
32            "autoscaling:CreateLaunchConfiguration",
33            "autoscaling:CreateAutoScalingGroup",
34            "autoscaling:UpdateAutoScalingGroup"
35        ],
36        "Resource": [
37            "*"
38        ]
39    },
40    {
41        "Effect": "Deny",
42        "Action": [
43            "autoscaling:CreateLaunchConfiguration",
44            "autoscaling:CreateAutoScalingGroup",
45            "autoscaling:UpdateAutoScalingGroup"
46        ],
47        "Resource": [
48            "*"
49        ],
50        "Condition": {
51            "ForAnyValue:StringNotEquals": {
52                "autoscaling:InstanceType": [
53                    "m5a.large"
54                ]
55            }
56        }
57    }
58 }
59 }

```

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