InfoSphere Information Server

Advanced LDAP filtering techniques to minimize the Information Server user list



This presentation will discuss how to set up a user filter to minimize the number of users listed in the Information Server Web Console.

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Objectives	
 Why filter LDAP and Active Directory users 	
 View LDAP user attributes 	
Create and test filter	
Configure filter	
2 Advanced LDAP filtering techniques to minimize the Information Server user list	© 2012 IBM Corporation

This presentation will discuss reasons for filtering your LDAP users, how to view your LDAP user attributes to determine what filter should be used and how to create and test your filter. This presentation will also discuss how to set your filter up in WebSphere[®] so that only the users you want are displayed in the Information Server Web Console.

The concepts of this presentation are for both LDAP and Active Directory. For simplicity, the term LDAP refers to both. This presentation will also assume that you already have LDAP configured and working with your version of Information Server and WebSphere. This presentation will not discuss how to configure Information Server to use LDAP.



Search filters will help limit the number of users or groups that are returned to WebSphere or Information Server when requesting a list of users or groups. This is especially important in cases where WebSphere is authenticating against multiple domains or one very large domain.

In order to create a filter, you must know what attributes are set up for the LDAP users. The easiest way to tell is with an LDAP browser. The LDAP browser will allow you to see the attributes for a user or group and it will also allow you to test your filters before adding them into WebSphere. Each time you add or change a filter in WebSphere, you need to stop and restart WebSphere for the changes to take effect. This can be very time consuming. It is much easier to test your filter in your LDAP browser and then update WebSphere once you have the filter correct.



When you open the Information Server Web Console, by default, you will see all the LDAP users. When querying against multiple domains or a very large domain, the result of the search may yield thousands of users. These large searches can also take a long time to return and may result in an error if the result set it too large. It is much more manageable to see just a list of your Information Server users.

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The first step is to open an LDAP browser and look at the attributes of a user that you will want to include in your user list. When you set up a filter, you are basically telling the LDAP server what to search for. If you wanted to search for the user in the example on this slide, you can set the filter up to search for users where their department number equals 42. A very common attribute to use with Active Directory is memberOf. This attribute is set for each group the user is a member of.

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The syntax that WebSphere uses for filtering is the standard LDAP filter syntax. This example will use the user attributes businessCategory and departmentNumber. The filter will look for users where businessCategory is set to DataStageDev and departmentNumber is 42. The "&" tells the filter that both criteria must be met.

This particular filter is only returning four users which is too restrictive. The filter needs to be modified so that all of the Information Server users are returned.

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In order to make the filter less restrictive and return more of the Information Server users, the filter will keep the departmentNumber at 42 and the businessCategory of dataStageDev and will add the businessCategory of DataStageOper and DataStageAdmin. This search will need to do both an "And" and an "OR" to yield the correct results. The pipe symbol is used for an OR operation. The search results of this filter is better because it correctly shows all of the DataStage users but it is missing the Information Analyzer users that do not have a DataStage businessCategory.

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gickumber gickumber givenName homeDirectory loginShel objectClass objectClass objectClass objectClass objectClass sing uid%imber department%umber businessCategory	100 Amy Jonne,abialik Jain/bash top posisAccount inet/orgPerson Bialik bialik too15 42 InformationAnalyzer	Attribute Search DN: Filter: Attributes: Scope: Name Uid Uid Uid Uid Uid Uid	dc=ipsupport,dc= It d(departmentNum businessCategory, One level w Sub-tree level value sparsons brauch subsitive sussman abalak imayyar	bm,dc=com bbr,dc=com bbr=42) ((businessCategory=DataStageDev) (t: or Parent DN ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com	w v business(v kample: ud, mal businessCategory DataStageOper, I DataStageOper, I DataStageOper, J DataStageOper, D DataStageOper, D	Favorite Pa Save Au Save Au nformati, DataStag eer staStage	on Sheidon Parsons Bernadette Rauch Stuart Susman Amy Bialik Ray Nayvar Howard Helberg Leonard Galecki
g gidikumber g givenkame s givenkame s homeDirectory a lognShell o objectClass g objec	100 Amy JonneJabialik Join/Joash top posikAccount inetOrgPerson Bialik toots 42 InformationAnalyzer	Attribute Search DN Filter: Attributes: Scope: Name d Gudd Gudd Gudd Gudd Gudd Gudd Gudd	dc=ipssupport,dc= iddepartmentNum businessCategory, iddepartmentNum businessCategory, iddepartmentNum sub-tree level value psysons business bu	bm,dc=com bbr=42) ((businessCategory=DataStageDev) (to cri Parent DN ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com	www.searchearter.com/ www.searchearter.com/ businessCategory DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev DataStageDev Dat	Favorite Pa	ar ameters s Delete View History on Sheidon Parsons Bernadette Rauch Stuart Sussman Amy Bialk Raj Nayyar Howard Heiberg Leonard Galecki Priva Mann
gidtkumber gigetkumber giventkame homeDirectory loginShel objectClass objectClass objectClass si objectClass si objec	100 Amy Jonne,Jabah Ibn/bash Ibp posikAccount inetOcpPerson Bualk abialk 10015 42 InformationAnalyzer	Attribute Search DN Filter: Attributes: Scope: Name Gudd Gudd Gudd Gudd Gudd Gudd Gudd Gud	dc=ipssupport,dc= it@departmentNum businessCategory, One level Sub-tree level Sub-tree level sparsons brauch ssussman abalalik imsyvar hheberg galedd pman pcuoco	bm,dc=com bbr=42) ((busnessCategory=DataStageDev) (t on Plandle referrals Enable Paging Pl Parent DN ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com ou=people,dc=ipssupport,dc=bm,dc=com	two processing of the second sec	Favorite Pa	ar ameters s Delete View History on Sheldon Parsons Bernadette Rauch Stuart Sussman Amy Bialik Ray Nayyar Howard Helberg Leonard Galecki Priya Mann Penny Cuoco

In this example, user abialik is missing from the list because Amy is not a DataStage user but only an Information Analyzer user. In order to include this user as well, add one last addition to the filter of businessCategory=InformationAnalyzer. The list now contains all the users that you want to see in the user list in the Information Server Web Console. When configuring stand-alone LDAP, it is important to make sure this list includes your WebSphere admin user or the WebSphere admin user is not able to authenticate.

arch Fi	ilters –	Example ((4 of 4)			
DAP synt	tax allows	wild card - "*	r ³³			
epartmen	tNumber=4	2)(((businessCa	ategory=DataStage*)(business	Category=InformationAnal	lyzer)))
/ild card m	av not be u	sed with all attri	ibutes			
- Examp	le: member	Of	ibutoc			
- Livening	e. member					
Filter	(S(depar	rtmentNumber = 42) (I(b	ucinessCategory=DataStage*	VhucineccCate		1
T HOET.	(of ochai	unerrovanioer = 12/(((o	usinessearegoi y -barastage	Andressearc	gory - Information Analyzer ///	1
Attrib	utes:					
			a second a second second second		Example: uid, mail	ii.
Scope	: One lev	/el	Handle referra	lis		
	Sub-tre	e level	Enable Paging	Page size:	1000	
Name		Value		Parent DN		
uid		sparsons		ou=people,dc=	=ipssupport,dc=ibm,dc=com	
		brauch		ou=people,dc=	=ipssupport,dc=ibm,dc=com	
uid		ssussman		ou=people,dc=	=ipssupport,dc=ibm,dc=com	
id uid		abialik		ou=people.dc=	=ipssupport,dc=ibm,dc=com	
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		rnayyar hhelberg Igalecki pmann		ou=people,dc= ou=people,dc= ou=people,dc= ou=people,dc=	=ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com	
		rnayyar hhelberg Igalecki pmann pcupco		ou=people,dc= ou=people,dc= ou=people,dc= ou=people,dc= ou=people,dc=	=ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com =ipssupport,dc=ibm,dc=com	

LDAP syntax also allows for the use of an asterisk as a wild card in some instances. In this last example, the search filter from the previous slide was shortened by using the wild card syntax businessCategory=DataStage*. Not all attributes allow this, for example, this will not work with memberOf on Active Directory. At this point, you are ready to add the filter to WebSphere.

Setting up fil	ters in WebSphere – Sta	and-alone LDAP (1 of 4)	
 Open WebSph 	ere administrative console		
 Security => Gl 	obal Security		
Configure LDA	P settings 5.1 / 7.0	6.0	
Welcome			
Guided Activities Servers Applications	Clobal security Use this panel to configure administration and the default application security (administrative functions and is used as a default security policy for user applications.	Global security Specifies the global security configuration for a managed domain. The following steps an Configure the desired user registry listed under User registry and set its properties. 2.1 option on this panel. 3. Select the configured user registry type from the Active user registry type from the Active user registry.	a required to turn on security: 1. Select the Enable global security stry option on this panel.
E Services E Resources	Security Configuration Wizard Security Configuration Report	Configuration	
Global security Global security Security domains Administrative Authorization Groups SSL certificate and key management	Administrative security	Ceneral Droperties Endie global security Enforce Java 2 security	User registries
Security auditing Bus security	Application security	Enforce fine-grained JCA security	Authentication
E Environment E System administration	K Enable application security	Use domain-qualified user IDs Cache timeout 60 seconds	Authentication mechanisms
Users and Groups Monitoring and Tuning Translate baction	June 3 learnity Use Jane 2 security to restrict application access to local resources Warn if applications are granted outcom permissions Restrict access to resource authentication data	Zasue permission værning <u>Artive protocol</u> Cit and 548 w	E Autorenciation protocol 3AAS Configuration Authorization
E Service Integration	Disc account consisters	Uphtweight Third Party Authentication (LTPA)	Authorization providers Additional Properties
E Service Integration	Current realm definition Standalone LDAP registry	Active user registry Linktuminht Directory Access Ontored (LOAD) user registry	
B shorica integration B ucci	Current realm definition Eandalone (LDA registry Tatable realm definition Excludione (LDA registry) Configure) Set as current	Active use registry Uphweight Directory Access Protocol (LDAP) user registry Use the Rederal Information Processing Standard (RIPS)	 Sustem properties

The first example is setting up the filter in a stand-alone LDAP configuration. Begin by opening the WebSphere administrative console as your WebSphere admin user. For WebSphere 7.0 that ships with Information Server 8.5 and 8.7, make sure the Available realm definition is set to Standalone LDAP registry and click Configure. If you are using Information Server 8.0 or 8.1, which ships with WebSphere 6.0, click the LDAP link under User Registries.

	IBM
Setting up filters in WebSphere – Stand-alone LDAP (2 of 4)	
 Additional Properties => Advanced LDAP user registry settings 	
<u>Global security</u> > Standalone LDAP registry Uses the Lightweight Directory Access Protocol (LDAP) user registry settings when users and groups reside in an external LDAP directory. When security is enabled and any of these properties are changed, go to Security	
> Global security panel. Click Apply or UK to validate the changes.	
General Properties Artitional Properties	
+ Primary administrative user name Idvasadm Idva	
Server user identity	
Automatically generated server identity Server identity that is stored in the renository	
Server user ID or administrative user on a Version 6.0.x node Trusted authentication Trusted authentication	
Password	
Type of LDAP server	
IBM Tivoli Directory Server	
Host Advanced LDAP filtering techniques to minimize the Information Server user list	2012 IBM Corporation

Next, click Advanced LDAP user registry settings under Additional Properties. The WebSphere 6.0 screen will look slightly different than this screen capture displayed on this slide but will still contain the Advanced LDAP link in the same location on the right side of the screen.

	IBM
Setting up filters in WebSphere – Stand-alone LDAP (3 of	4)
- Lloov filter	
(&(uid=%v)(objectclass=inetOrgPerson))	
 Add new filter to current filter 	
New filter must be current filter AND new filter	
Global security > Standalone LDAP registry > Advanced Lightweight Directory Access Protocol (LDAP) user registry settings	
Specify advanced Lightweight Directory Access Protocol (LDAP) user registry settings when users and groups reside in an external LDAP directory. When security is enabled and any of these advanced settings are changed, go to the Security > Global security panel. Click Apply or XK to validate the changes.	
General Properties	
User filter (&uid=%v)(objectclass=inetOroPerson))	
Group Filter	
(&(cn=%v)(objectclass=posixGroup))	
User ID map	
Group ID map	
posik@roupicn	
Group member ID map	
Positionoup:member	
Kerberos user filter	
Cartificate map mode EXACT_DN	
Certificate filter	
12 Apply OK Reset Cancel	© 2012 IBM Corporation

Your screen will show the user and group filters that have been set up so far. The next step is to add the filter that was created using the LDAP browser to the user filter. Since the current filter does the user search, the new filter must be added to the current filter. It cannot replace the current filter.

		IBM
Setting up filters in Web	Sphere – Stand-alone LDAP (4 of 4)
 User filter => Original user filter (&(&(uid=%v)(objectclass=inetO DataStage*)(businessCategory= 	AND new user filter rgPerson))((&(departmentNumber=42)((busines InformationAnalyzer))))	sCategory=
 Save and restart WebSphere 		
¢	Global security > Standalone LDAP registry > Advanced Lightweight Directory Access Presider y actings Specify advanced Lightweight Directory Access Protocol (LDAP) user registry settings when i reside in an external LDAP directory. When security is enabled and any of these advanced go to the Security > Global security panel. Click Apply or OK to validate the changes. Ceneral Program. Click Apply or OK to validate the changes. User filter [[&(ad*iv)(objectclass=inetOrgPerson))((b(departmentHumber=42)((businessC))) Group Filter [[d(cn*iv)(objectclass=posixGroup))) User ID map [InetOrgPerson:uid Group D map [InetOrgPerson:uid	
	posixGroupten Group member ID map posixGroupt member	
	Kerberos user filter	
	Certificate map mode EXACT_ON Certificate filter	
13 Advanced LDAP filtering technique		© 2012 IBM Corporation

The user filter now contains the original filter and the new filter that was created earlier wrapped with an "AND" clause. Save the settings and restart WebSphere.



The next example shows how to set up the same user filter under Federated repositories. WebSphere version 6.1 introduced federated repositories. Federated repositories makes setting up the user filters much easier than under stand-alone LDAP. If you are using Information Server 8.5 or 8.7 and have set WebSphere up to use federated repositories, you need to be sure the Available realm definition is set to Federated repositories and then click configure.

11.		in Mah Cabara	Endersted Demositeries (2	- F 4
ting	g up Filters	in vvebSphere –	Federated Repositories (2	. of 4
ck R	epository Identi	fier		
ditio	nal Properties =	> LDAP entity types		
	·····		General Properties	
General	Properties		Kepository identifier NewcoAD	
+ Realm	name		The second s	
defaul	tWIMFileBasedRealm		LDAP server	Security
+ Prima	ry administrative user name		Oirectory type	Bind d
(normality)				Bind p
Server	r user identity		Primary host name Port NewcoAD.newco.com 389	
•	Automatically generated server id	Sentity	Failover server used when primary is not available:	Login
0 :	Server identity that is stored in th	ne repository	Delete	LDAP 4
	Idvasadm		Select Failover Host Name Port	
			None	Certific
				EXAC*
121	the state of the s			Certific
121 19	nore case for authorization		Support reference to other IPAD convers	-
Reposi	itories in the realm:		ignore	
Ad	d Base entry to Realm Use buil	It-in repository Remove		E 84
Select	Base Entry	Repository Identifier		· Ca
You	can administer the following reso	burces		
	DC=Newco.DC=com	NewcoAD		Ous
	o=defaultWIMFileBasedRealm	InternalFileRepository		L
-				
			Additional Properties	-
Additio	ional Properties	Related Items	Larger Parce	
August			A A A A A A A A A A A A A A A A A A A	
= 1	Property extension repository	Manage repositories	Secure attribute definition	

Next, under the list of the Repositories in the realm, click the Repository identifier of the repository you want to add the filter to. On the next screen, go to the bottom of the screen under Additional Properties and click LDAP entity types.

		IBM
Setting up Filters in WebS	ohere – Federated Repositories (3 of 4	4)
 Click PersonAccount 		
141 14P		
Entity Type 💲	Object Classes 🗘	
You can administer the following resource	S1	
Group	posixGroup	
OrgContainer	organization; organizationalUnit; domain; container	
PersonAccount	inetOrgPerson	
Total 3		
16	@ 2012	SM Corporation
16	© 2012 IB	JM Corporation

Since the filter that was created is a filter for the user list, click PersonAccount.

	IBM
Setting up Filters in WebSphere – Federated Repositories (4 of	of 4)
 Add new filter to Search Filter 	
No need to append to a user filter as with stand-alone LDAP	
- Cove and restart MakSakara	
Save and restart WebSphere	
Use this page to list entity types that are supported by the member repositories or to select an entity type to view or change its configuration properties. General Properties	
+ Entity type	
PersonAccount	
Object classes	
inetOrgPerson	
Search bases	
Search filter	
[&(departmentNumber=42)((businessCategory=DataStageDev)(businessCategory=	
Apply OK Reset Cancel	
17 ©:	2012 IBM Corporation

Next, add the filter that was created with the LDAP browser in the Search filter field. This value is the exact same value that was used in the LDAP browser. You do not have to append it to a user filter as you did with stand-alone LDAP.

Click apply, save and restart WebSphere.



Once WebSphere has been restarted, open the Information Server administrative console. Click Users and Groups and then Users. You will now see that the only users that appear are the ones displayed in the filter including the WebSphere admin user. This screen capture shows a list from federated repositories where the WebSphere admin user is an internal service account and not in LDAP.

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19

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